

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

Rudolf Hornich

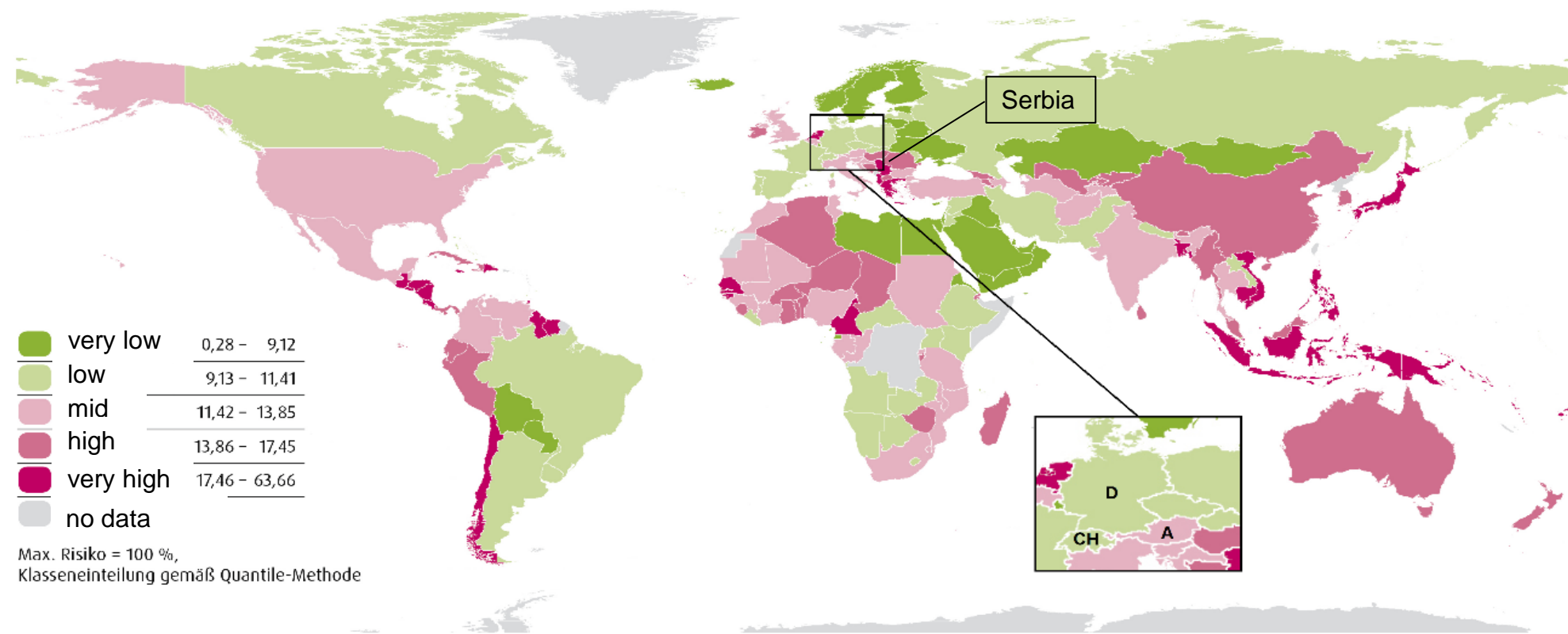
Office of the Styrian Government

Department 14

Water management, Resources and Sustainability

Graz/Austria

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

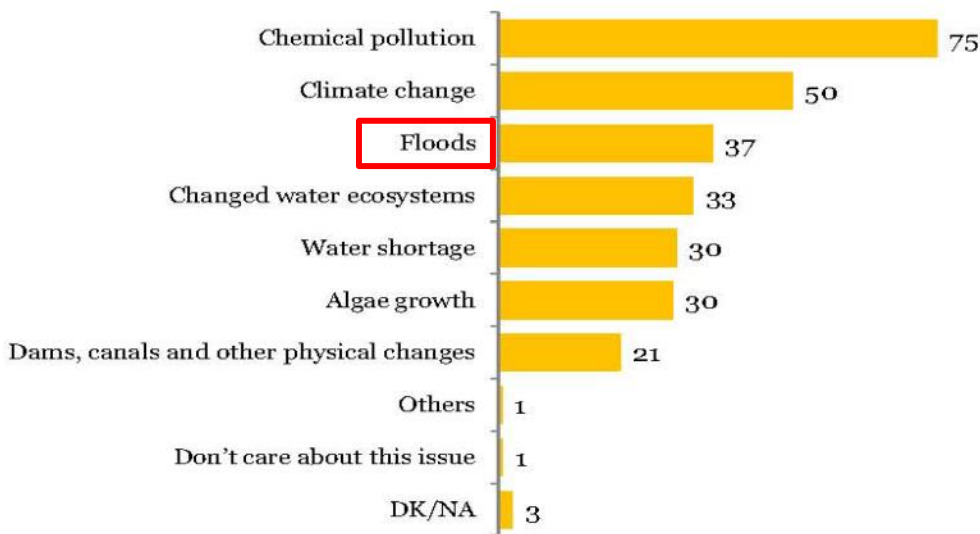


Quelle Abb.: WeltRisikoBericht 2013, www.weltrisikobericht.de (Stand 06.05.2014) / DI Reischl , TUG

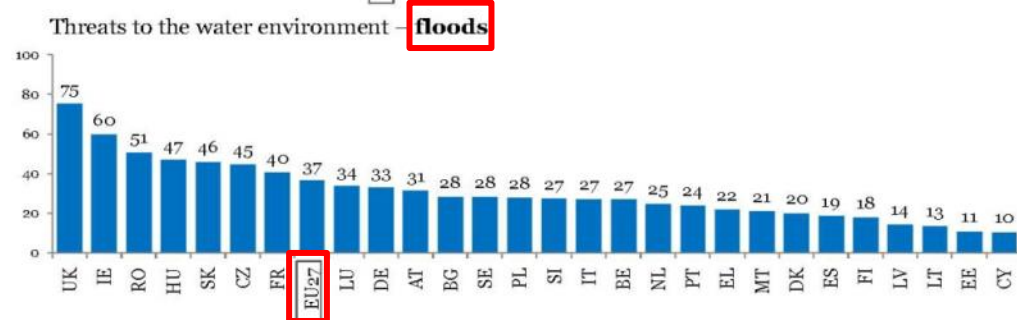
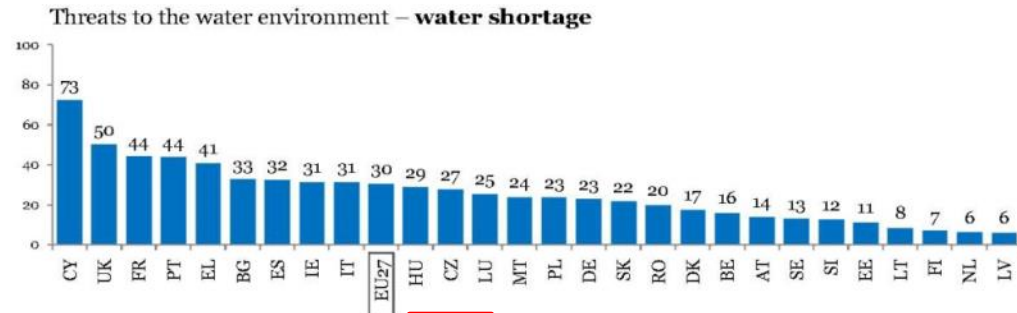
Survey EU 27:

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



Q6. I am going to read out a list of threats. Can you please tell me which you believe are the main threats to the water environment in your country ?
Base: all respondents, % EU27

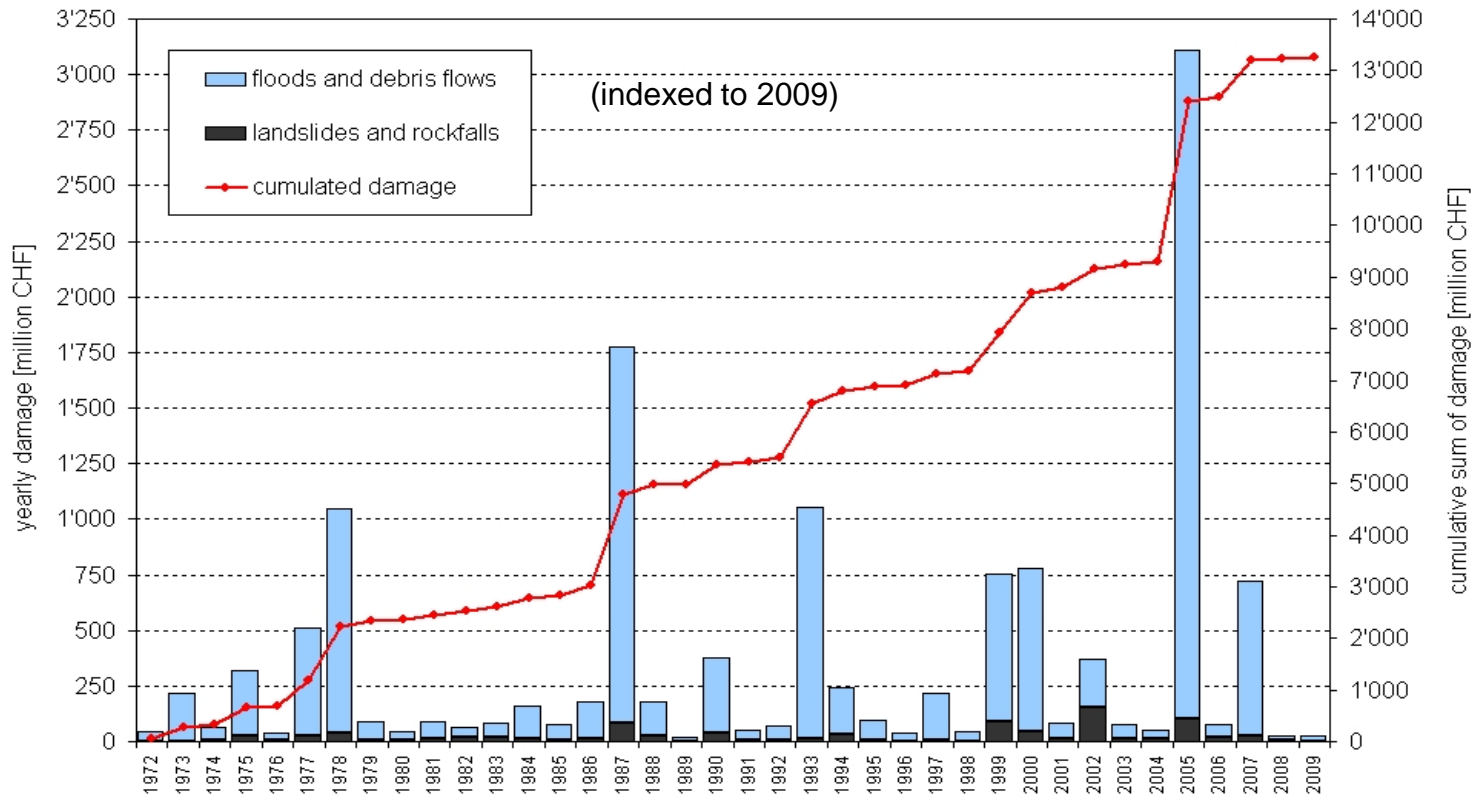


Q6. I am going to read out a list of threats. Can you please tell me which you believe are the main threats to the water environment in your country ?
Base: all respondents, % by country

Flooding appeared among the most mentioned threats in the northerly Member States: e.g. the UK (75%) and Ireland (60%)

Third most frequently mentioned threat to the water environment was flooding

Economic damages 1972 – 2009 in CH Floods, debris flows, landslides and rockfalls



Source: http://www.wsl.ch/forschung/forschungsprojekte/schadendatenbank/index_DE

In the alpine area flood catastrophes have been the most frequent natural disasters in recent years.

Floods in Europe, Elbe, Dresden (D), 2002



Dresden, 17.08.2002

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



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

Directive 2007/60/EC of the European Parliament and of the Council on the **assessment and management of flood risks adopted in October 2007 and entered into force on 26th of November 2007**

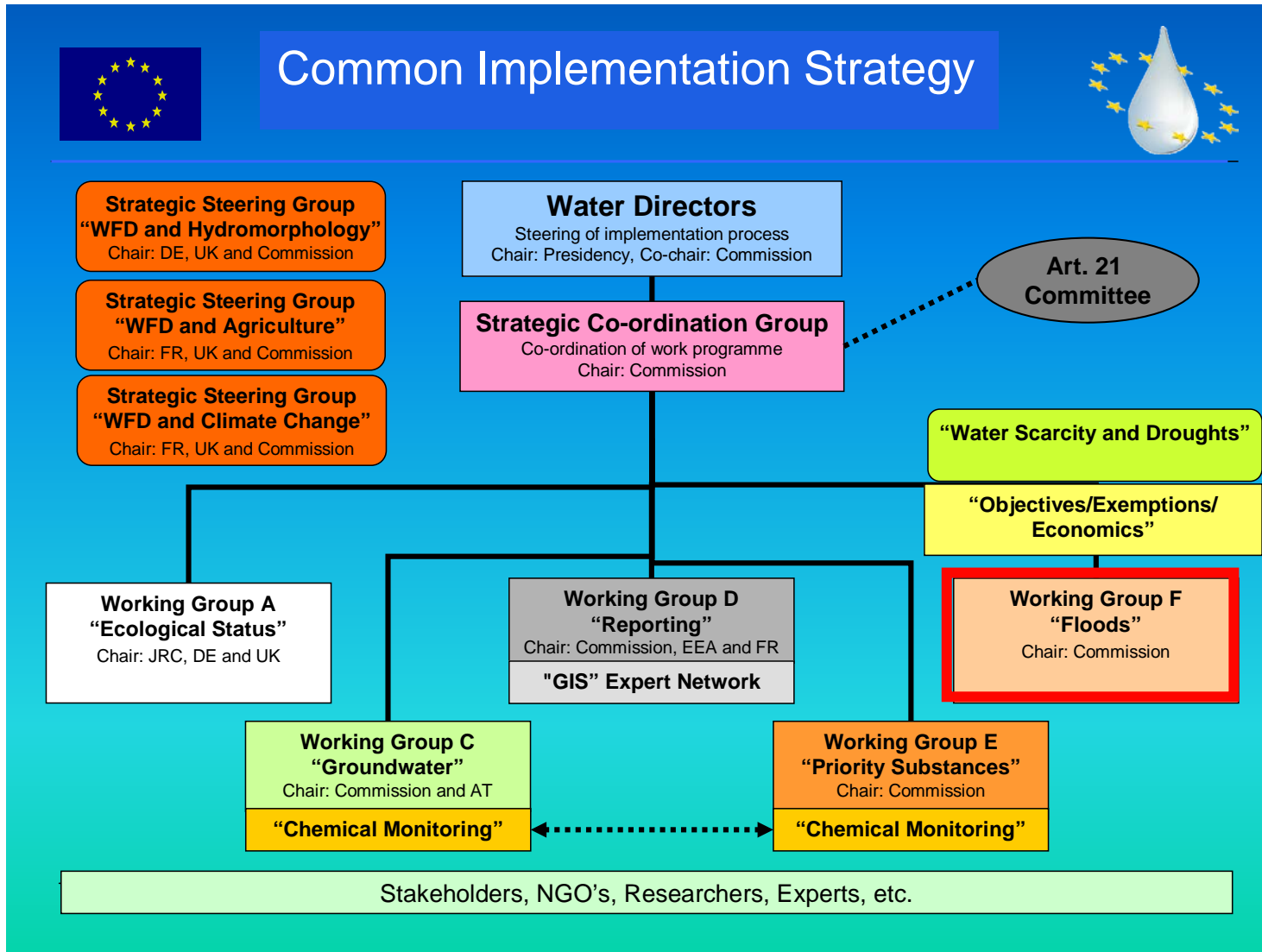
- ❖ to establish a framework for the assessment and management of flood risks
- ❖ aiming at the reduction of adverse consequences associated with floods...
- ❖ ...for human health, the environment, cultural heritage and economic activity
- ❖ ...for different types of floods (fluvial, pluvial, groundwater,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



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



Source Figure:
<http://www.dhigroup.com/~media/FE4BE85C2B174E3C9CA61E201F05BA8B.ashx>



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 (Bundesländer)

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

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:

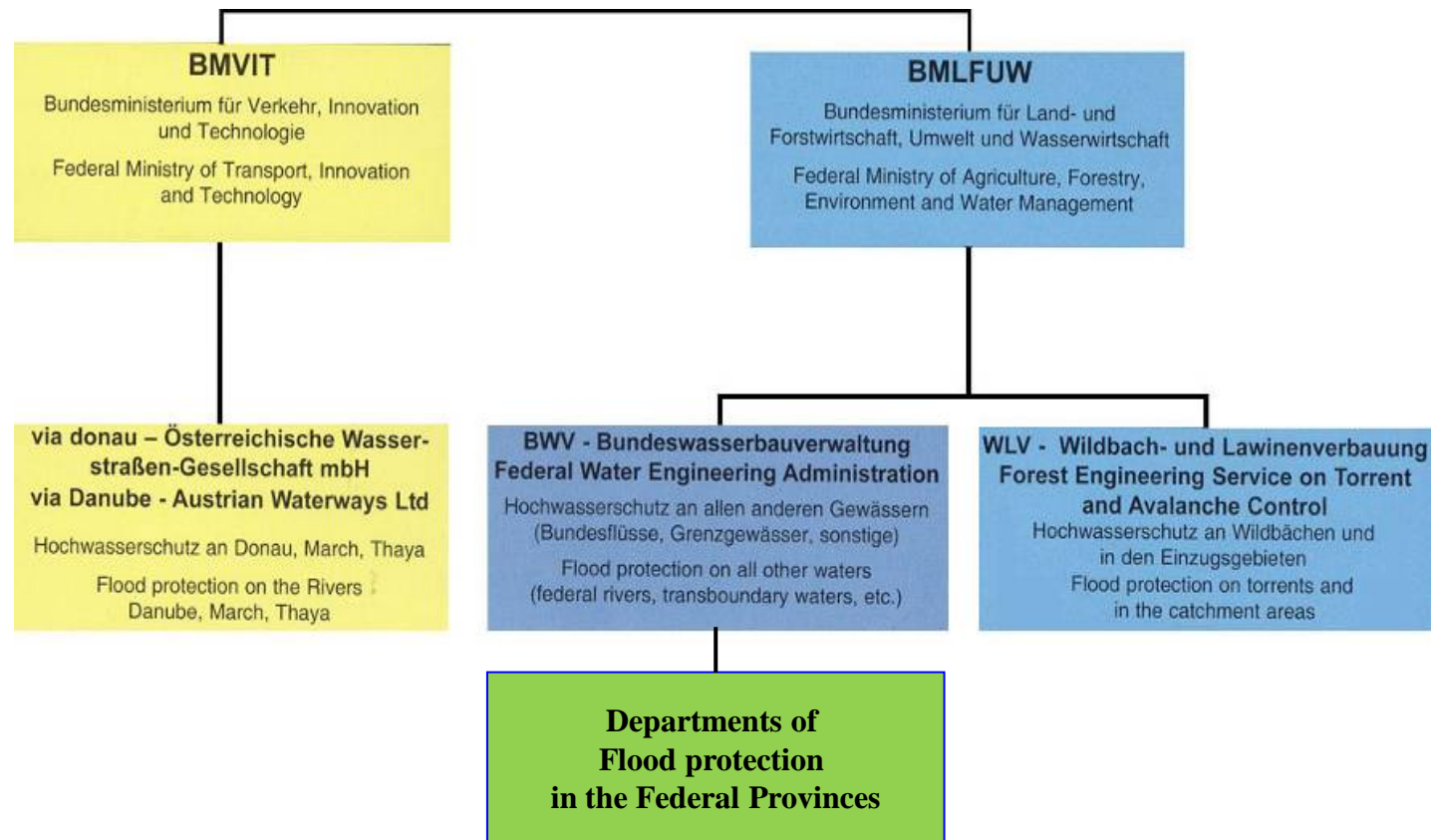
- Technical Experts of the involved Ministries
- Technical Experts of the Provincial Gov.
- Technical Experts of Environmental Agency

Members:

- Legal Experts of the involved Ministries
- Legal Experts of the Provincial Governments → Technical Experts

Variety of competences between Federal government - federal provinces:

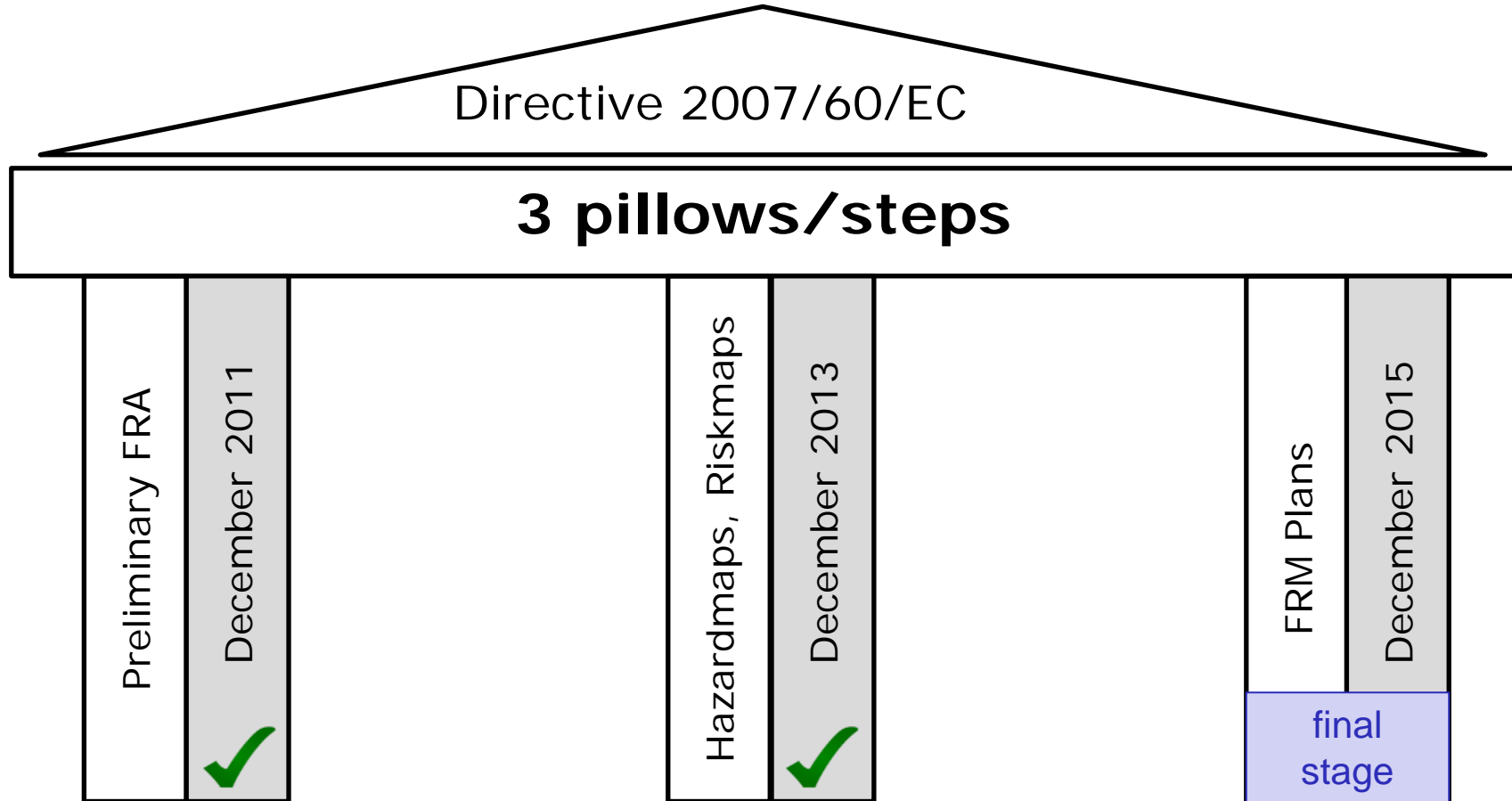
- Water management, water law, waterway navigation, torrent control as **federal government competences**
- spatial planning, civil protection and nature conservation as **provincial competences (Bundesländer)**





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)



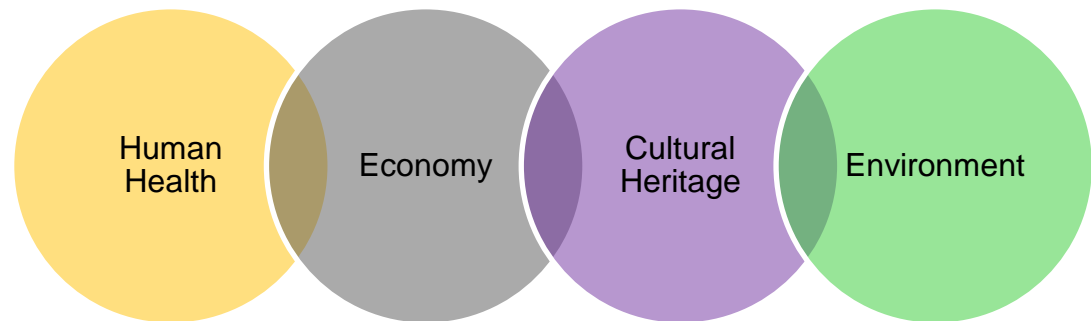
Review every 6 years

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



Article 4 and 5, Directive 2007/60/EC

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Areas with Potential Significant Flood Risk

Zeichenerklärung

— Gebiete mit potenziellem signifikantem Hochwasserrisiko

Gewässernetz

— Fließgewässer

■ See

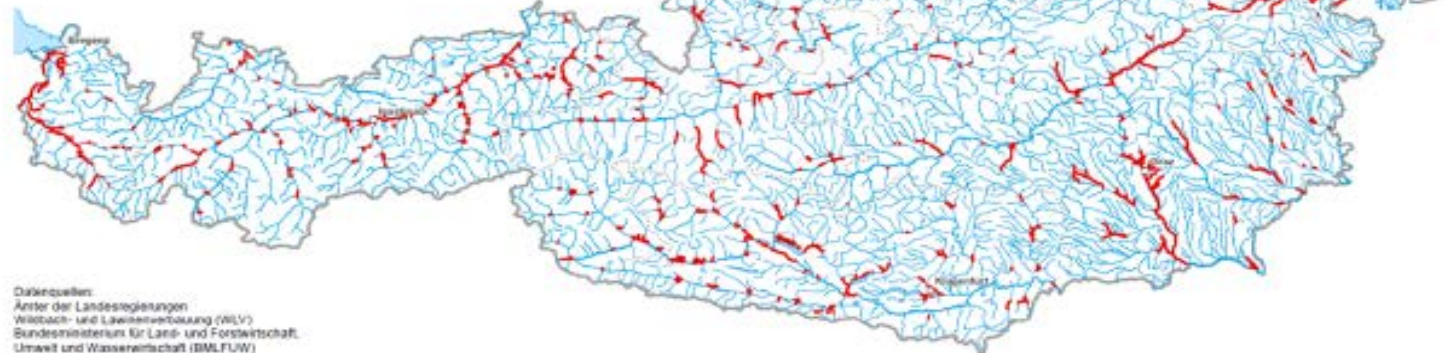
Verwaltungsgrenzen

— Staatsgrenze

— Bundeslandgrenze

Städte

□ Landeshauptstadt

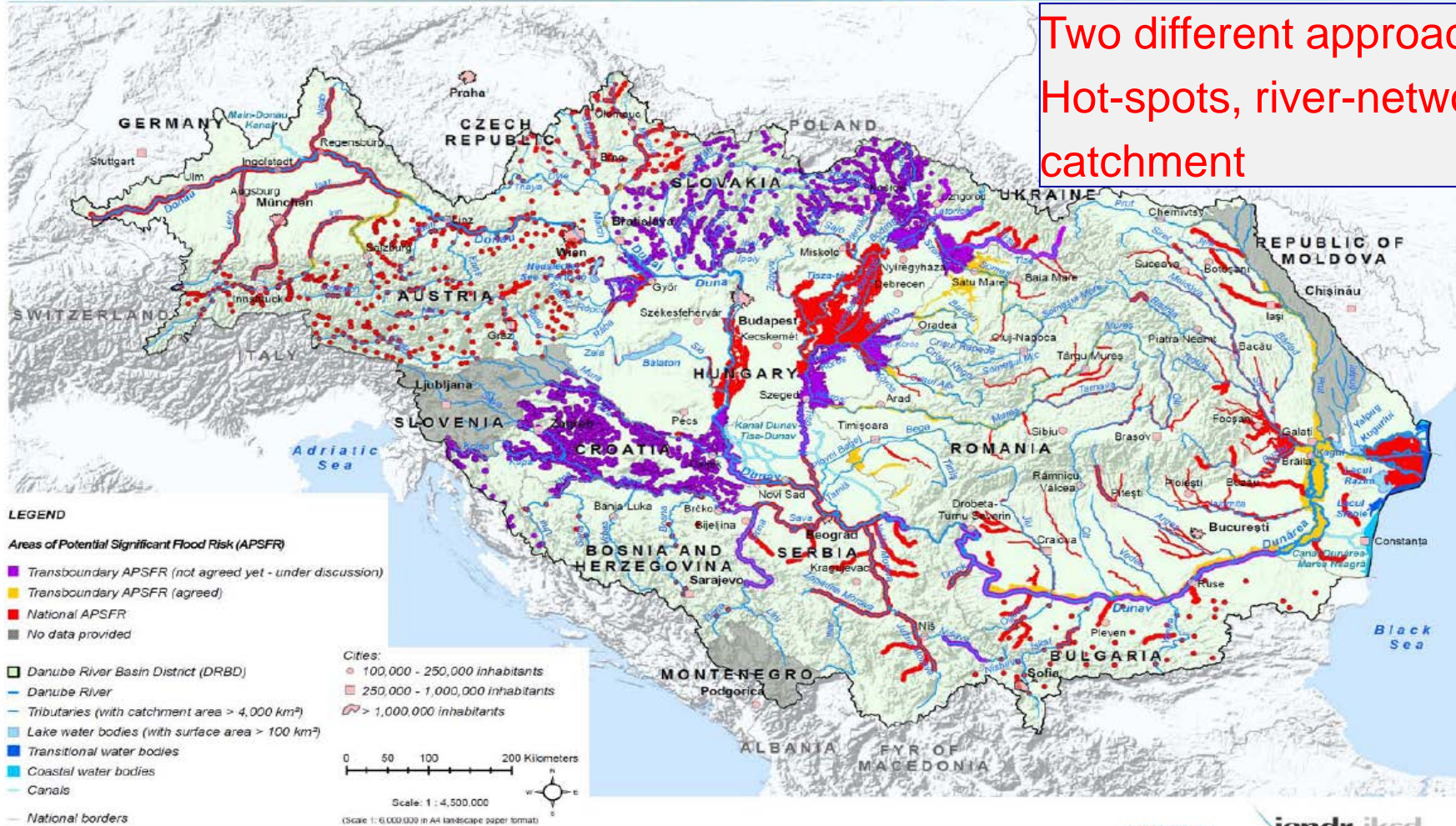


Length: 2,654 km
linearer approach
Special emphasis:
human life

Affected people: HQ100 area: 343.394
HQ300 area: 651.963

Danube River Basin District: Preliminary Flood Risk Assessment (PFRA)

Two different approaches: Hot-spots, river-network, catchment



This ICPRD product is based on national information provided by Contracting Parties to the ICPRD (AT, BA, BG, CZ, DE, HR, HU, RO, RS, SK, UA). More details on the methodologies used for identification of APSFR at the national level and the definition of significance criteria are provided in the report "Preliminary Flood Risk Assessment in the Danube River Basin", chapter 5.1. National borders data provided by the Contracting Parties to the ICPRD (AT, BA, BG, CZ, DE, HR, HU, MD, RO, RS, SI, SK, UA) and CH was used. ESRI data was used for national borders of AL, ME, MK; Shuttle Radar Topography Mission (SRTM) from USGS Seamless Data Distribution System was used as topographic layer; data from the European Commission (Joint Research Center) was used for the outer border of the DRBD of AL, IT, ME and PL.
Vienna, December 2011

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)

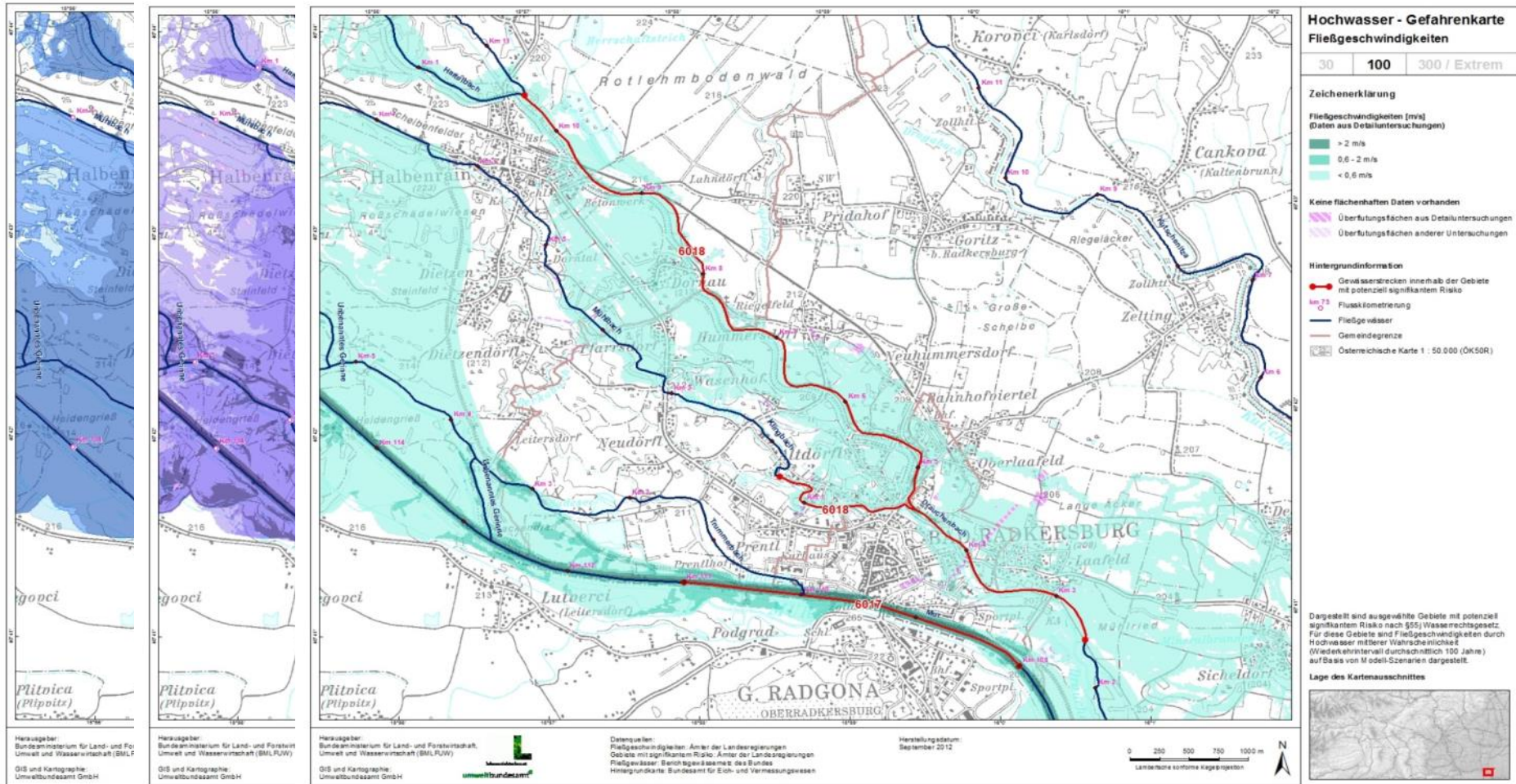
High probability (expected period of recurrence: 30 years)

for...

Flood extent	→	1 maps for all scenarios
Water depth	→	3 maps (1 for each scenario)
Flow velocity	→	3 maps (1 for each scenario)



Flood Hazard Maps



„Flood risk“ means the combination of the
– probability of a flood event (flood hazard)

and

– of the potential adverse consequences for

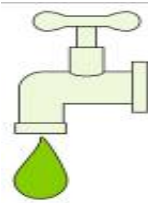
Hazard maps

Risk maps

human life



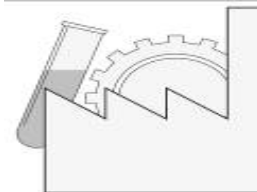
environment



Cultural heritage



Economic activity



(flood risk)

Risk maps:

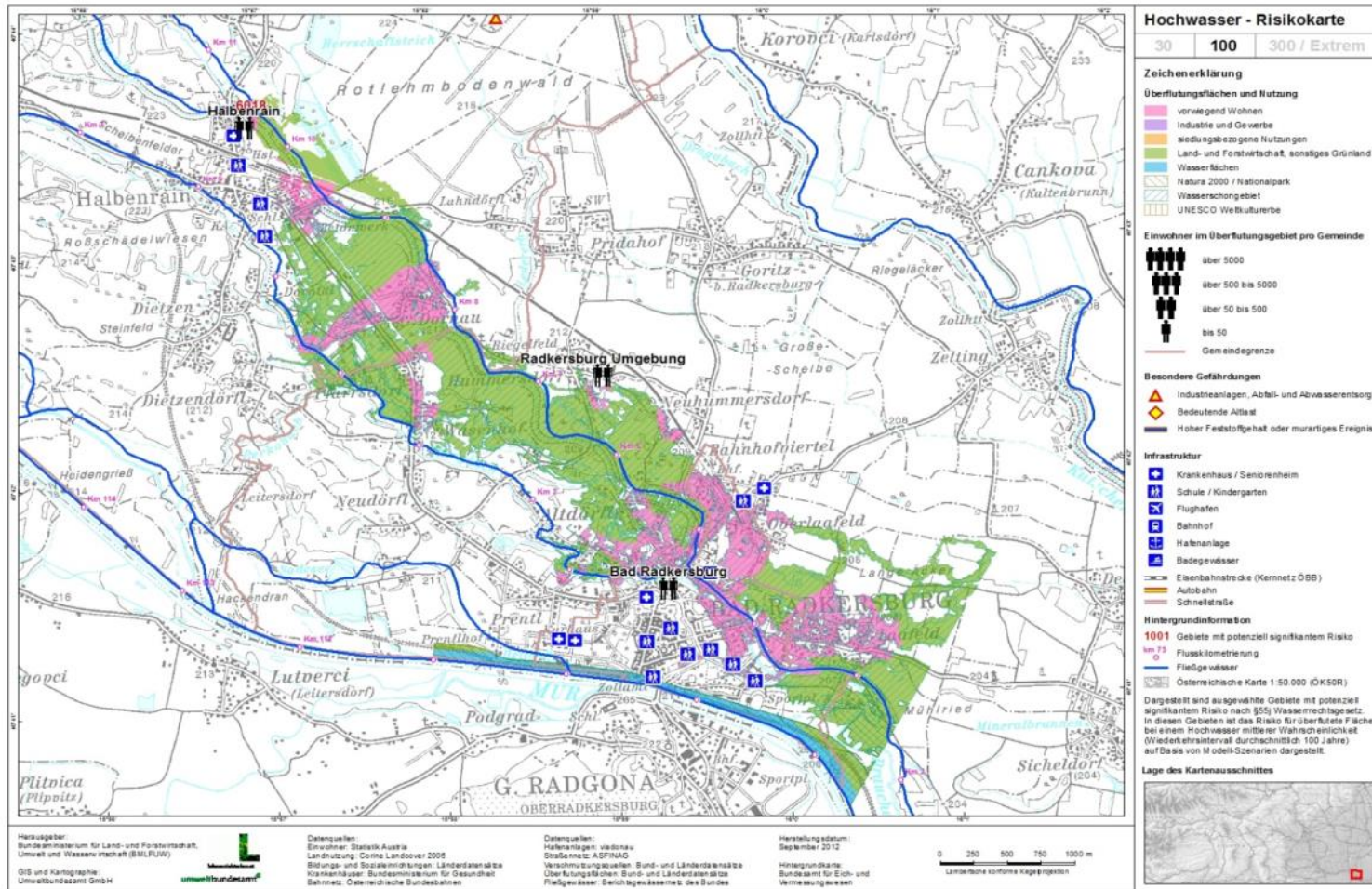
Obligatory (art. 6):

- 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

Flood Risk Maps

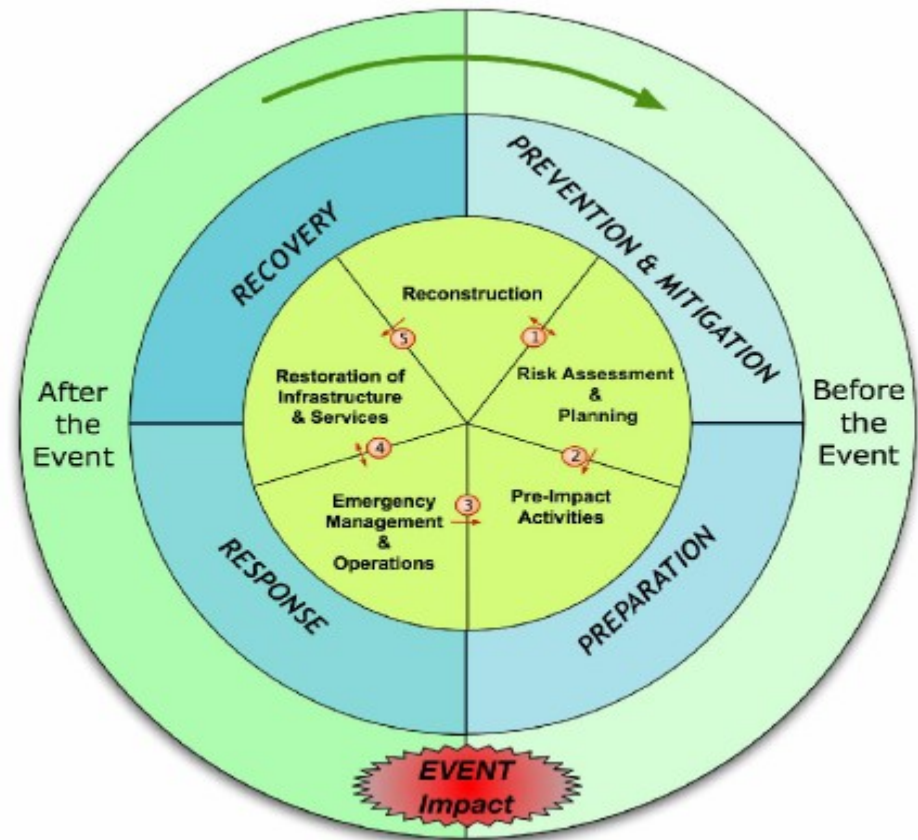


Step 3: Flood risk management plans including objectives and appropriate measures by 2015

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

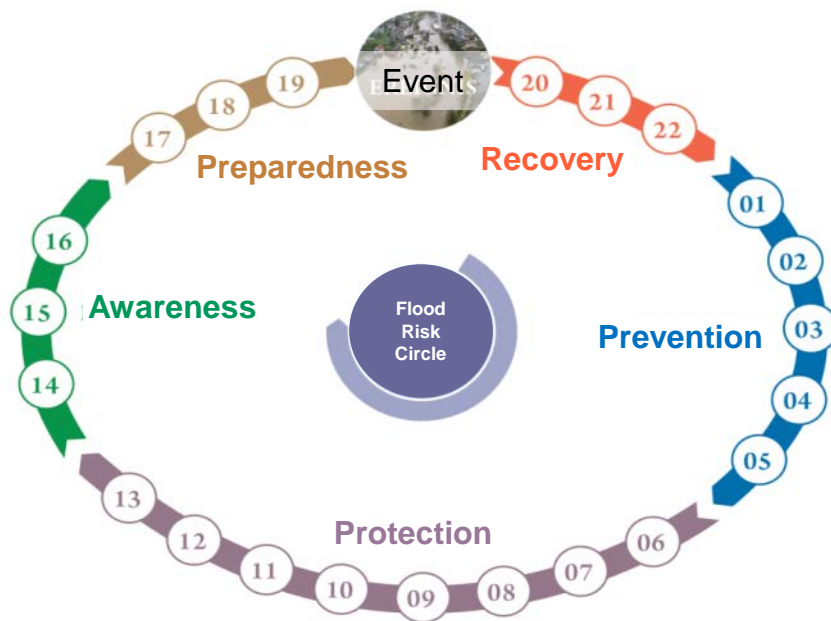
Raising awareness for risks and hazards

5 Fields of action Risk circle

Catalogue of 22 measures



>> Catalogue of 22 measures



Source: BMLFUW (2015): 1. Nationaler HWRMP, Sicher leben mit der Natur

>> 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

M03: EINZUGSGEBIETSBEZOGENE KONZEPTE UND PLANUNGEN ZUR VERBESSERUNG DES WASSER- U. FESTSTOFFHAUSHALTES ERSTELLEN

Kurzbeschreibung:

Es werden Managementkonzepte für übergeordnete Planungsgebiete beziehungsweise Einzugsgebiete zur Verbesserung des Wasser- und Feststoffhaushaltes erstellt und im Rahmen der Gefahrenzonen- und Maßnahmenplanung berücksichtigt.

Beispiele in alphabetischer Reihung

Einzugsgebietsbezogene Ausweisung und Freihaltung von Abfluss- und Retentionsräumen

Gewässerentwicklungskonzept

Regionalstudie

Schutzwasserwirtschaftliches Grundsatzkonzept

Rechtlicher Rahmen:

§ 55g WRG wasserwirtschaftliche Regionalprogramme, wenn entsprechende fachliche Planungsgrundlagen im Sinne § 42a WRG vorliegen. Eine Abstimmung mit dem NGP ist notwendig.

Forstgesetz 1975: II. Abschnitt, forstliche Raumplanung, §§ 6ff. Forstliche Raumpläne, Waldentwicklungsplan, Beispiele für die forstl. Raumplanung sind die Vermeidung von Kahlschlag, die Förderung des Schutzwaldes oder die Hochlagenaufforstung.

Instrumente: hoheitlich, Verordnung des Landeshauptmannes (Teil-Waldentwicklungsplan)

WBFG: § 1 Abs. 1 Z 2 lit a und b, § 2 Z 2 und § 25 Abs. 1 und 2: Gewährung von Bundesmitteln für wasserwirtschaftliche Planungen und Untersuchungen, wie Grundsatzkonzepte und Regionalstudien

§ 2 Z 2 WBFG: Definition der wasserwirtschaftlichen Grundsatzkonzepte

Gewässerentwicklungskonzept, Regionalstudie und schutzwasserwirtschaftliches Grundsatzkonzept (Punkte 14, 15 und 16 der RIWA-T) als überregionale Planungen.

Instrumente: ökonomisch, Förderung(svertrag)

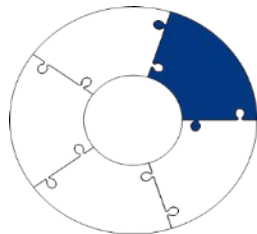
Betroffene Fachbereiche und Stellen in alphabetischer Reihung

Bundeswasserbauverwaltung

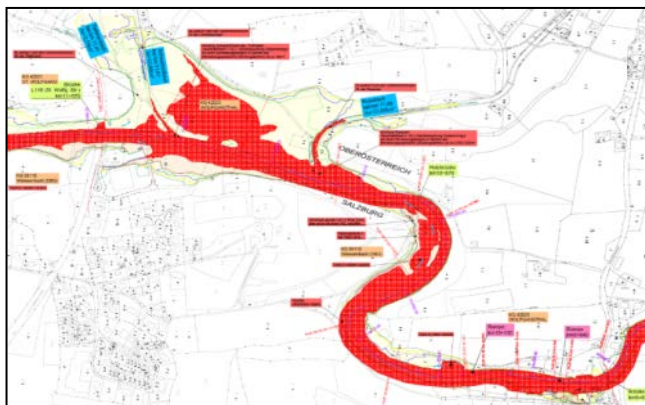
Wasserrecht

Wasserwirtschaft

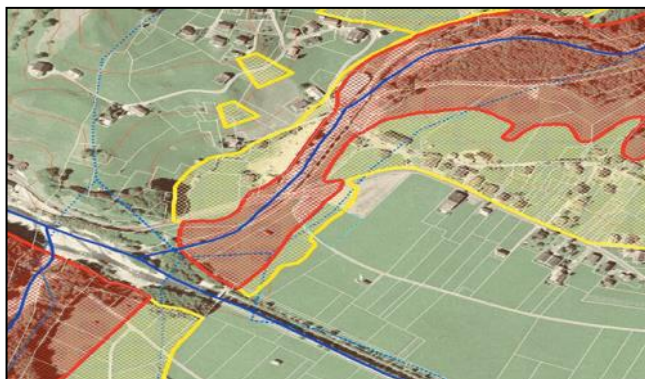
Wildbach- und Lawinenverbauung



Prevention

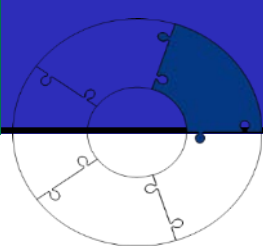


Hazard zoning plans river Ischl



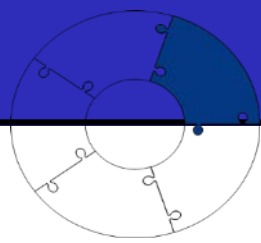
Source: BMLFUW

Number	Name
M01	Elaborate and regularly revise hazard zoning plans
M02	Considering hazard zoning plans
M03	Elaborate basin-specific concepts and plannings to improve the water and soil material budget
M04	Elaborate and taking into account of local and regional planning activities for land use and spatial planning
M05	Elaboration of frameworks for the realization and maintenance of protection measures



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



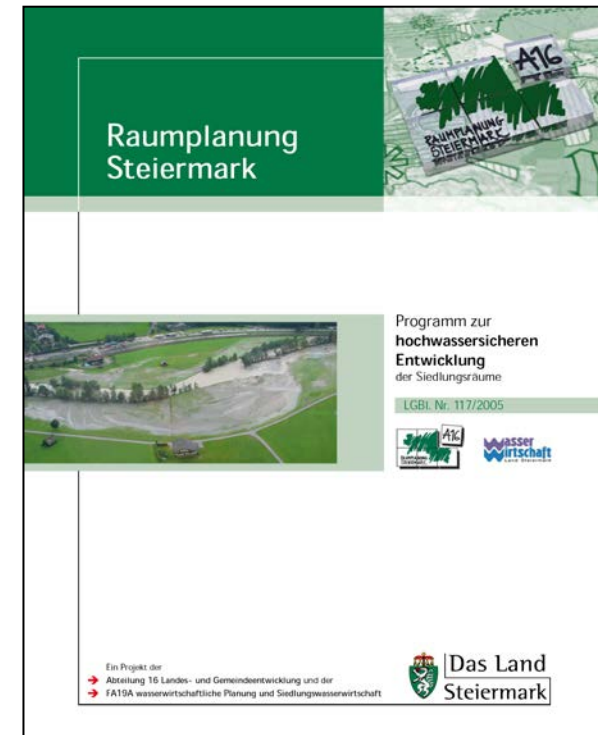
Example for consideration of FHM in land use plans:

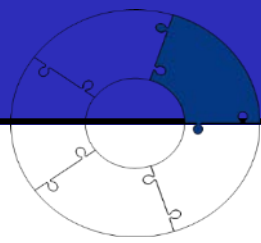
In Styria, the regional parliament adopted a “Regulation on Flood-Protected Development of Settlement Areas” in the wake of the flood events in 2005.

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

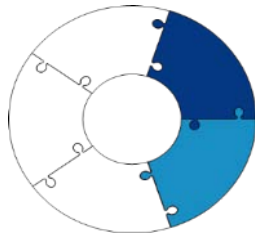




Flood risk management in local planning

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



Protection



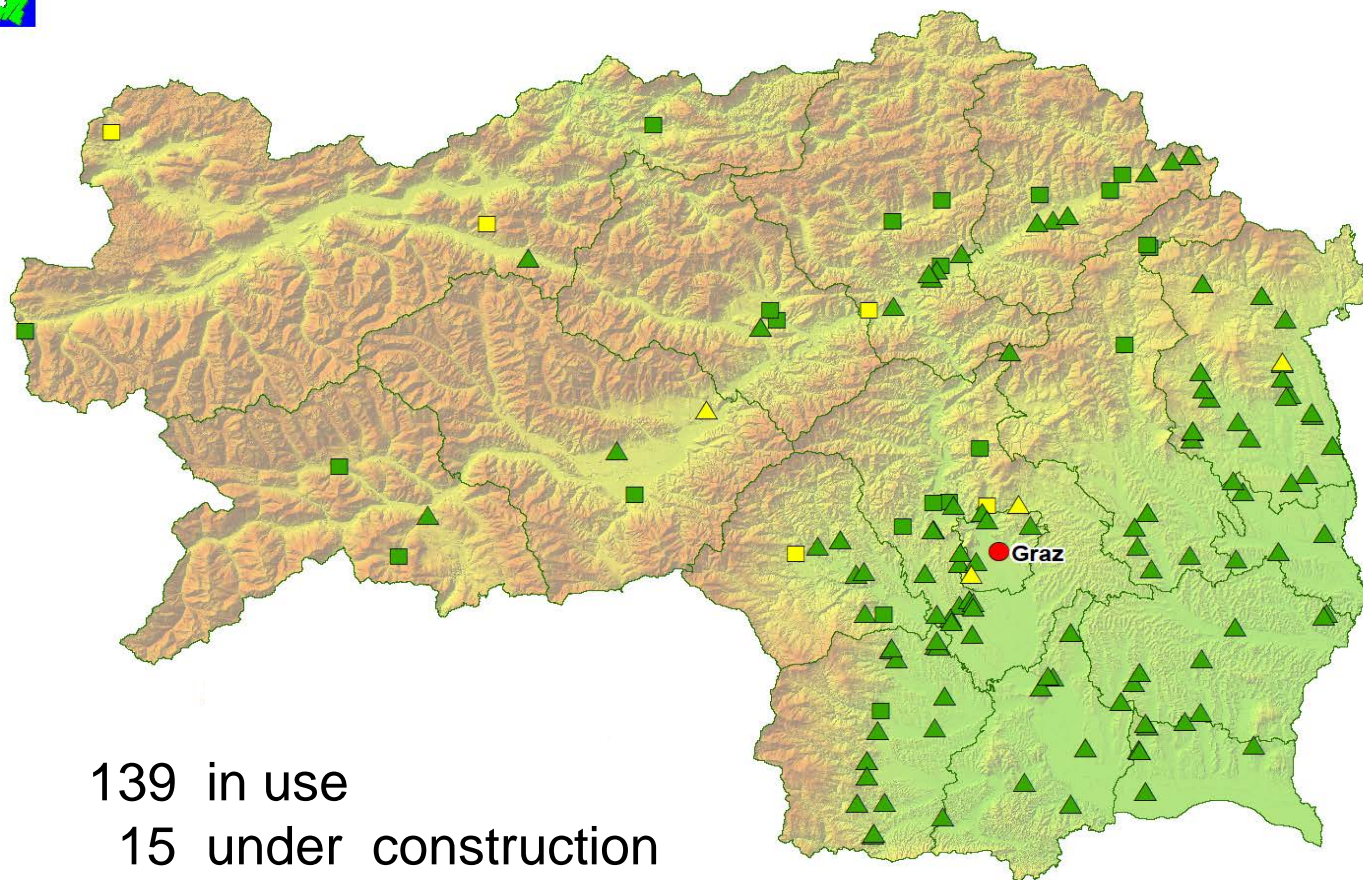
Ecological flood protection, Bad Ischl
Source: WWF, Feichtinger



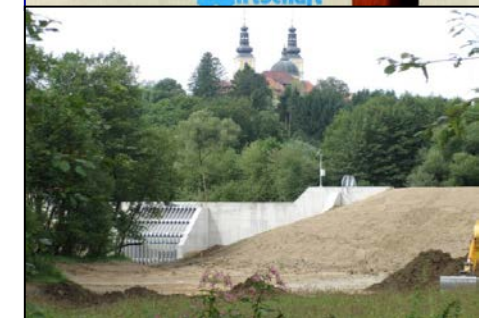
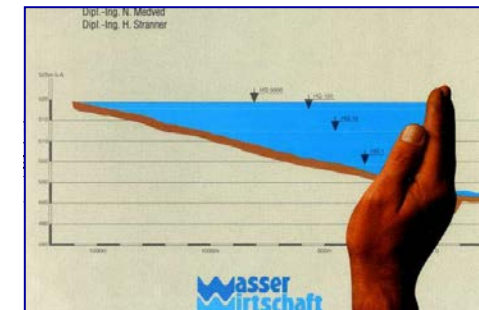
Mobile flood protection

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

Flood control basin in Styria – regional distribution



139 in use
15 under construction
43 planning phase



lebensministerium

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

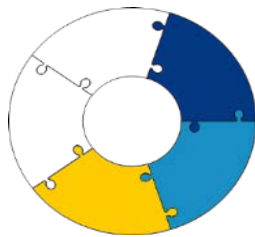
M 09: Realizing and adapting object protection measures

Individual arrangements and self protection

Reduction of the damage potential

Minimisation of the risk





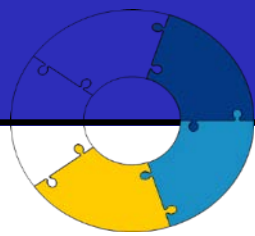
Awareness



Picture: tatwort

Number	Name
M14	Preparing information about flood hazard and flood risk for the public and providing it in a proper way
M15	To trigger active involvement regarding issues of flood hazard and flood risk
M16	To organize education activities for flood hazard and flood risk

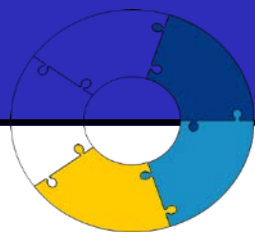




Information: brochures, leaflets, websites
workshops, cooperation with
citizen groups



<http://www.bmlfuw.at>



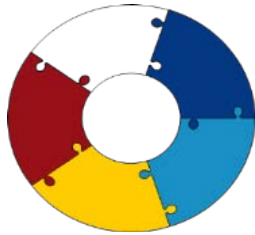
Common flood exercises



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



Practising
different
flood scenarios



Preparedness

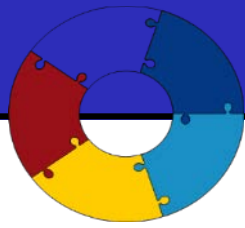


Picture: riocom



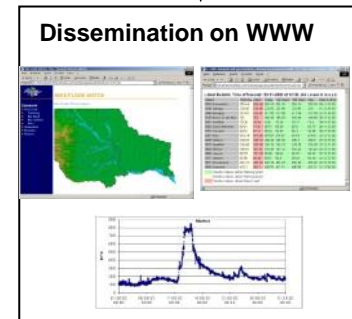
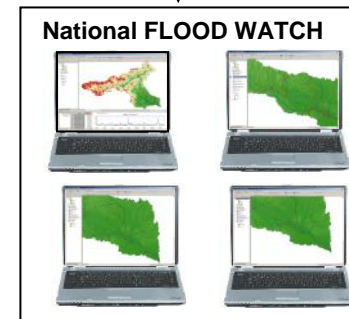
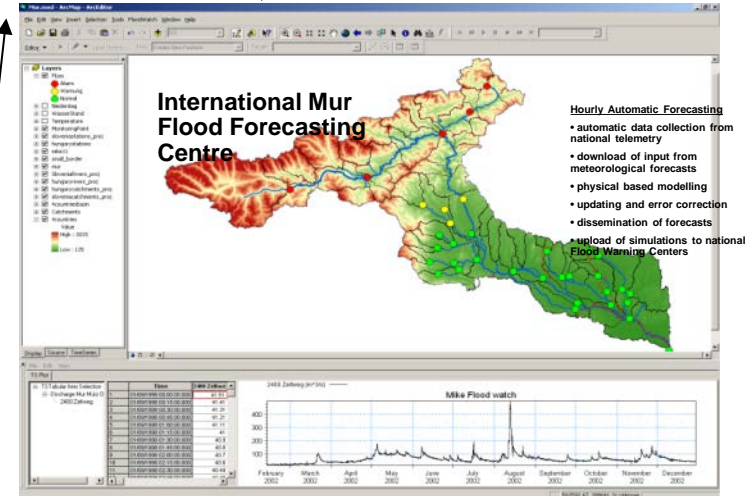
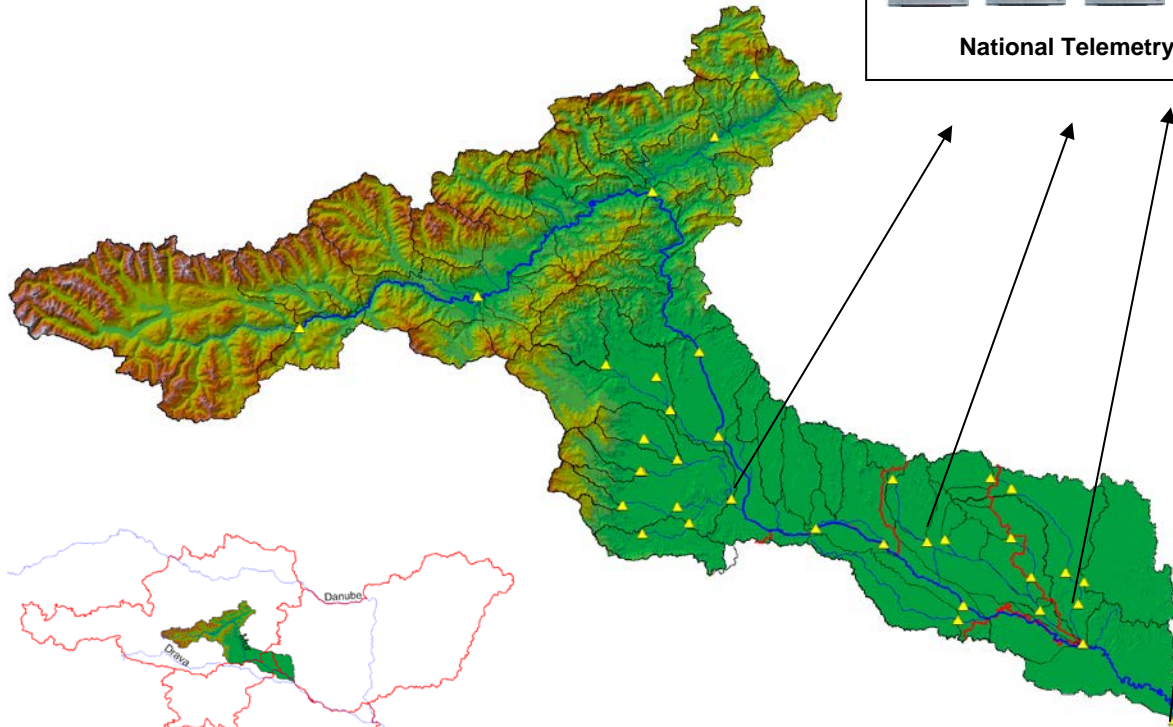
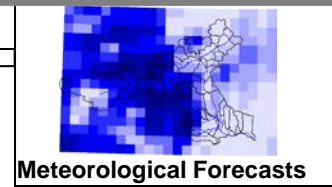
Picture: riocom

Number	Name
M17	To set up and apply monitoring systems, forecast models and alert systems
M18	To elaborate civil protection plans to overcome critical flood situations
M19	To guarantee necessary pre-conditions for implementing civil protection plans



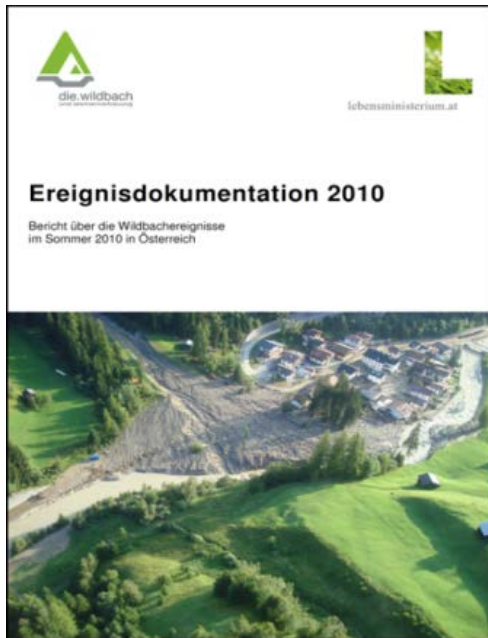
Common (A/SLO/H) forecast system

INTERNATIONAL FLOOD FORECASTING CENTRE





Recovery (in case of flooding)



Number	Name
M20	To realize immediate measures and restoration at water bodies and flood protection construction directly after a flood event
M21	To assess, remove and adjust flood damages at structures and infrastructures
M22	To document the flood event and damage, as well as analysis the event

Prioritization of measures



Flood retention basin Gabriachbach, Graz
Source: www.wasser.graz.at

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



*Elaboration of FRMP for
each APSFR (Workshops)*

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



*Control and
coordination FRMP*

by representatives of the Regional
Government and project coordinator



Modification FRMP



Working tools

Checklists
telephone calls, interviews, workshops



*Coordination drafts FRMP
with interested parties*

Regional workshops



Report to the Federal Ministry

22nd September 2014

Results Austria

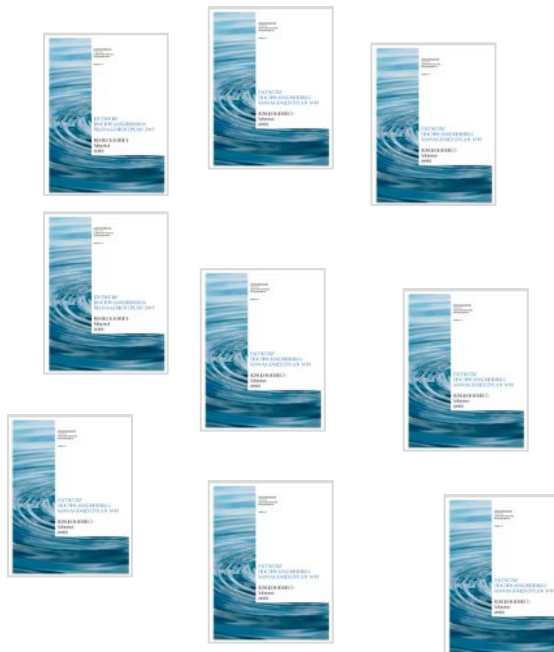
391 FRMP Austria

> one for each APSFR



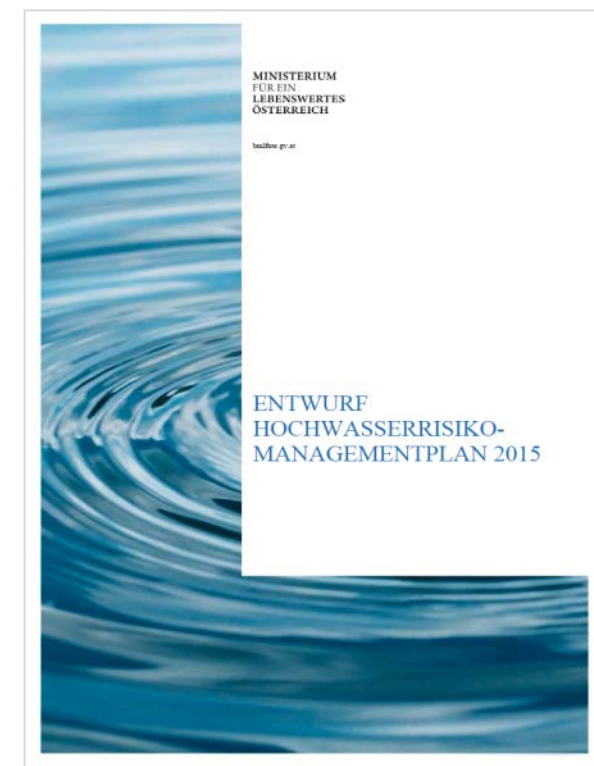
9 FRMP

> one for each state

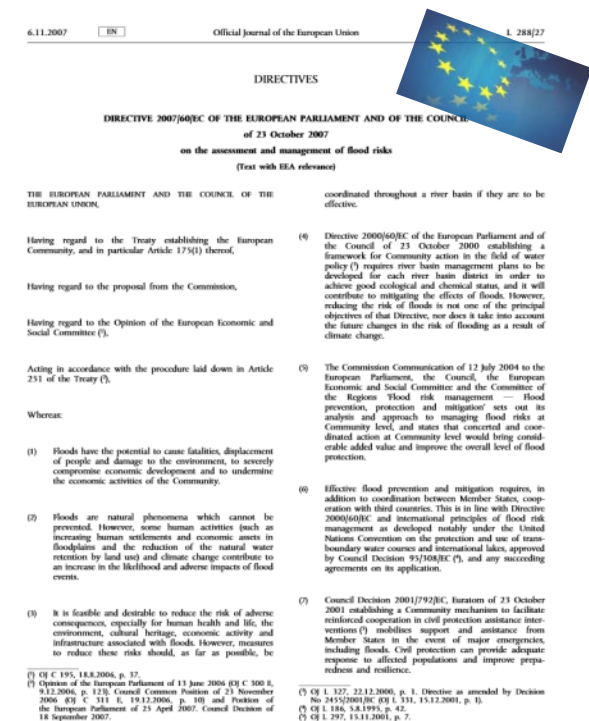


1 FRMP

> one for Austria



Description of the implementation of the plan



Description prioritization
Monitoring of the plan

Summary of public information
Measures / action taken

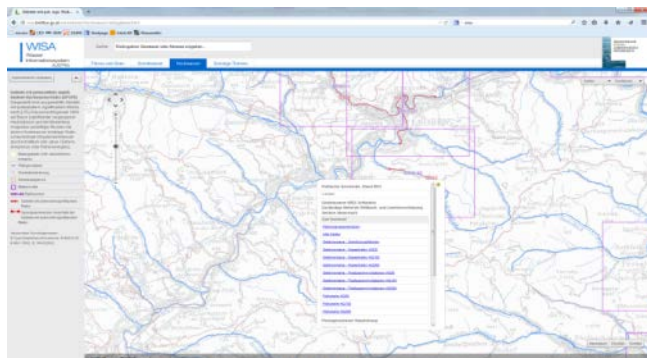
List of competent authorities
Description of coordination within international river basins

Prioritization - Styria



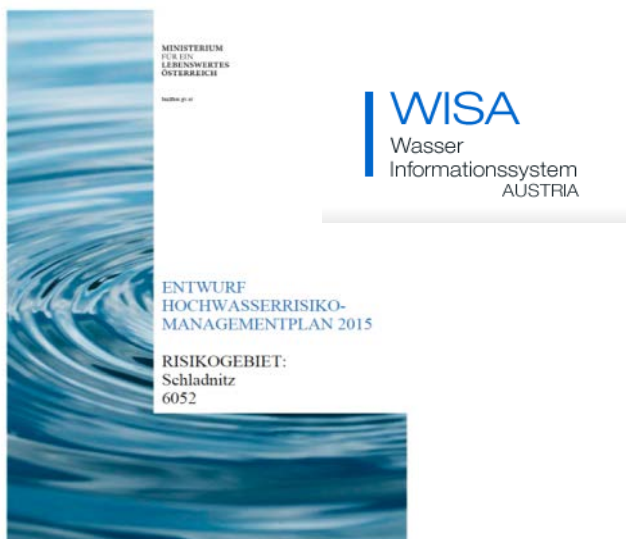
■	Priority 1
■	Priority 2
■	Priority 3
	to undertake in case of flooding

- M08:** Planning and building of protection and regulation (water) construction
- M11:** Undertaking and improving water supervision
- M16:** To organize education activities for flood hazard and flood risk
- M18:** To elaborate civil protection plans to overcome critical flood situations



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

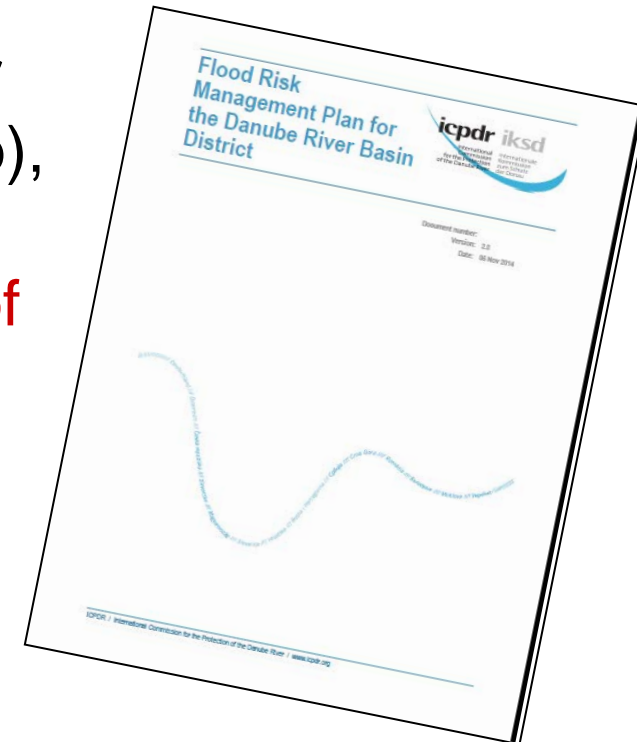


Language: GERMAN

<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 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



**Donau,
June 2013**

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.

- 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“



- 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