Environmental effect of floods and flood protection measures

28-29 May 2015, EEA, Copenhagen

An agenda of the meeting, including links to all background documents and presentations can be found in the workshop folder on the EIONET Forum ([1]). The agenda and a participant list are given in the annexes 1 and 2.

Summary of presentations, action points and conclusions

Session I: Introduction and setting the scene:

Chair: Beate Werner (EEA)

Welcome and introduction of the workshop was given by Beate Werner (EEA).

Objective: The aim of this workshop was to create a better and more structured insight in the environmental effects of flooding (both negative and positive impacts) and the environmental impacts of flood protection measures. The outcome of the workshop will be used in the drafting of an EEA Report on "Floods and Vulnerability" to be published by the end of 2015. The focus of the report will be on the environmental effects of flooding and influencing policies. Over the last decades, the awareness of natural water retention measures and nature based flood measures have increased. Natural floodplain ecosystems can cope with flooding. Changing (ground)water levels and temporary flooding are even a prerequisite for sustaining the floodplain's typical flora and fauna and related ecosystem services.

It is clear that not only the European Floods Directive (FD) is influencing the perception of environmental impacts of flooding and the management of floodplains. Relating key environmental policies are the Water Framework Directive (WFD) and the Birds and Habitat Directives (BHD). Also wider policy instruments, like the Common Agricultural Policy or Green Infrastructure Communication have an impact on floods and floodplains. Besides the environmental policies themselves, it is also worthwhile to look at their implementation. As expressed in the Water Blueprint there is a need for better implementation and better coordination (and in some areas integration) of the different policies to achieve the individual goals expressed in all of them.

Why the reporting, what has been done before: Wouter Vanneuville (EEA) was giving the introduction to the planned EEA report on floods, floodplains, vulnerability and flood risk. The first implementation cycle of the Floods Directive will end with the reporting of the flood risk management plans in March 2016. An important topic for EEA is the past floods impacts on environment, economic activity, human health, and cultural heritage, as reported under the preliminary flood risk assessments (PFRAs). The planned EEA report on floods builds further on previous EEA reports on Water and climate change ([2]) and is linked to the FD reporting, mainly by using the information from the

[1] http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/

[2] E.g. http://www.eea.europa.eu/publications/water-resources-and-vulnerability

PFRA and the results of the 2015 European database on past flood (impacts). In addition the report wants to look at the synergies in the implementation of the floods directive with the Water Framework Directive and Nature directives. In doing so, it builds further on the Technical reports "Links between the Floods Directive and Water Framework Directive – Resource document" and "Links between the Water Framework Directive and Nature Directives – Frequently asked questions" ([3]) and being aware that activities are ongoing in the Member States.

See presentation by Wouter Vanneuville (EEA): http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-1-introduction/session-1-eea-report-floods-2015

Discussion: It was discussed how much focus will be on environmental aspects only and how the report will deal with social and economic aspects. Without considering the socio-economic aspects the picture will not be complete and the approach should be more complex than currently in the outline of the report. While the report will have a primary focus on the environmental aspects, it will have to find a suitable way to bring socio-economic aspects in. EEA and ETC/ICM will do so in further drafting. Another remark was that focussing only on 'green' flood-protection would not be realistic.

Session II: Environmental impacts of floods: past evidence monitoring and structuring the information

Chair: Wouter Vanneuville (EEA)

Case study Sava: To start this session Jovan Despotović (Univ. of Belgrade) gave a presentation on a recent significant flood event in the Sava River Basin in May 2014 with severe environmental impacts. The 2014 flood event was the highest ever registered, while several other large floods happened over the last years. In Serbia, flood protection in cities is administratively divided from flood protection in rural areas. Roughly, 2.5 million people were affected by the 2014 flood. Open coal mining pits have served unintentionally as retention areas for dampening the flood peak, but causing additional pollution loads with environmental effects on the surrounding. Because of the transboundary nature of this flood event (especially Bosnia, Serbia and Croatia have been affected) the damages and environmental pollution were very high due to a lack in transboundary collaboration for flood prevention and institutional capacities as limiting factors. Problems that occur in flood risk management today are mostly due to insufficient management, governance and institutional problems (including budgetary issues). External support and the role of the EU were discussed to mitigate future impacts of flooding in terms of flood prevention but also better governance.

See presentation by Jovan Despotović (Univ. of Belgrade): http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-2-environmental-impacts-floods/session-2-introduction-floods-sava-river-basin

Environmental impacts of floods - ***Past evidence monitoring and structuring the information:*** Lidija Globevnik (TC Vode - ETC/ICM) gave an overview presentation on the environmental impacts of floods. The data analyses so far done by the ETC /ICM are based on the reporting of the Member States to the European Commission about the Preliminary Flood Risk Assessment (PFRA). They show differences in between Member States, but in general **less** information on environmental impacts

[3] See https://circabc.europa.eu/sd/a/124bcea7-2b7f-47a5-95c7-56e122652899/inks%20between%20the%20Floods%20Directive%20and%20Water%20Framework%20Directive%20-%20Resource%20Document and http://ec.europa.eu/environment/nature/natura2000/management/docs/FAQ-WFD%20final.pdf online

(mainly on impacts on water body status, protected areas, pollution sources, other) is available compared to the economic impacts. When EEA/ETC questioned the member countries beginning of 2015 to add information on a voluntary base to the past floods data base ([4]), it became clear that information about the environmental impact is often not available (in a structured way). During the consultation problems occurred which were caused by the fact that very often the categories are not well defined. Three examples were presented: Sweden where severe floods impacted waste water treatment facilities and impacted the surrounding environment, Elbe and Danube Flood in 2013 impacted bathing water quality and Slovenia where significant potential point pollution sources (IPPC, Seveso) are situated in flood risk areas and can potentially impact the environment.

See presentation by Lidija Globevnik (TC Vode /ETC/ICM) : http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-2-environmental-impacts-floods/session-2-knowledge-needed-report

***Statements and Discussion*:** Based on examples of the Rhine basin, which is faced to similar problems, information of industrial point sources as potential pollutants exist in flood risk area. On a recently published public online map viewer at ICPR, information on this kind of point source are now integrated. This enables to make the link between floods (3 scenarios), potential polluting industries and nature/drinking water protected areas which are also shown on the maps. The ICPR has undertaken a risk analysis linking these above mentioned aspects with a special methodology and GIS instrument. However, no or only little information exists about the protection or preparedness of these sewage plants or potential polluting industries against floods; neither if they have adopted flood prevention measures. Additional information on these point sources in case of flooding would be needed as bases for indirect synergies to the EEA reporting. Also in the Czech Republic the use of information on the location of pollution points for flood risk management is already a prerequisite for forward-looking flood prevention, but environmental concerns are often not taken into consideration.

Are the environmental categories as foreseen in the FD covering the whole issue? To measure or monitor the effects of environmental impacts especially on habitats seems to be challenging: habitats are adapted to large floods, but it seems that floods are more severe than 200 years before. Especially the timing of the monitoring (directly after the flood, the year after or years later) is challenging. Much information on monitoring before and after floods is available but not structured. Another relevant question is how countries assess flood events in terms of environment? Usually they focus on the impact on the population, or on infrastructure like waterworks. There is information on environmental impacts available in the national or river basin district reports on the preliminary flood risk assessment, but not really well structured (often free text fields in national languages). There is seldom a shared view by all stakeholders, so interpretation of the data is important. The general proposed categories in the reporting sheets for the FD are workable. Additional environmental aspects could be practically assessed also through the Habitats Directive. Information reported to the BHD database could be used to describe decline or improvement of habitats in terms of quality. The ICPR for instance is looking at a way to analyse the water related habitats, their connectivity and their evolution over time by using series of satellite images. Reporting WFD includes already indica-

[4] See for more information http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/country-review-european-floods-impact-database-2015

tors for environment impacts of floods. Concerning the categories of environmental impact it is relevant to make a distinction between surface water and groundwater, as well as between chemical and hydromorphological status.

Extreme floods can reshape rivers into a state with potentials for making dynamic again the natural river and floodplain morphology and functioning. Despite this knowledge local water managers tend to rebuild or even reinforce former “grey solution” of water engineering. This led to the statement: Can't we protect natural river dynamics, rather than keeping and even restoring a fixed situation. To avoid this kind of rebuilding regulation and new management visions for rivers and their floodplains are needed.

Significant floods can influence previous environmentally harmful developments; like destroyed oil tanks in private housing. Very often security is created by raising the dikes, but the personal responsibility of landowners and citizens in flood risk areas is as important. Information should have high priority to adopt prevention measures.

Session III: Environmental status of floodplains and trends

Chair: Wouter Vanneuville (EEA)

Case study Flood action programme and role of floodplains in a large river basin: The International Commission for the Protection of the Rhine (ICPR) with its international flood action programme is taking into account the role of floodplains in a larger river basin. Environmental status of floodplains and trends for the river Rhine was presented by Adrian Schmid-Breton (ICPR). Along the Rhine roughly around 5.5 million people are living in flood risk areas (exposed to floods >2 m depth). From the 8 000 km^2 of floodplains under natural conditions, only 15 % are considered as remaining floodplain (85 % loss) due to dike constructions, impoundments, river strengthening and bed erosion. The ICPR vision for the Rhine basin has been expressed as “the ideal river showing a balance between uses and protection”. The ICPR has mainly a co-ordinating and informing function. In an ongoing process, the ICPR is working on the topics of improvement of the water quality and the aquatic environment, flood risk management, as well as climate change adaptation while taking into account further uses such as hydropower and navigation. Since 1987 and further since 2000, general targets of sustainable development along the Rhine have been set. The focus is the improvement of the Rhine ecosystem, the reduction of flood risk through flood prevention and protection and the improvement of a good (chemical) water quality. When it comes to ecology, the main aspects of the Programme Rhine 2020 (found also in the RBMP) are ecological improvement, habitat development, reactivation of floodplains, reconnection of oxbow lakes and backwaters of the Rhine, increase structural diversity on the banks of the Rhine and its branches, restoration of river continuity (fish migration) as well as understanding the impacts of alien plant and animal species in the Rhine. The ICPR sets a list of special targets for reactivating floodplains or reconnect former river arms but also to create flood retention areas/measures (mainly dike relocations and retention basins as well as the Dutch measures of the Program Room for the River). ICPR studies have shown the effects of these measures on the reduction of the flood water level and the shift of flood probability.

An important task is already the improvement of information exchange and access, especially on risk knowledge and awareness. A new atlas ([5]) shows for different flood levels the drinking water protected areas, the water related birds and habitat protected areas together with industrial installations (IPPC, SEVESO). Currently, an analysis assess environmental risks by a specific method which combines flood scenarios, their possible impacts on industrial installations (accidental pollution) and its potential environmental consequences on nature/drinking water protection areas.

Besides, the Warning and Alarm Plan of the Rhine (WAP), which warns all users downstream from an accidental pollution and is functioning as well during flood events represents a good transboundary tool for preparedness and management of accidental pollutions.

See presentation by Adrian Schmid-Breton (ICPR –Koblenz): http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-3-environmental-status-floodplains-and-trends/session-3-introduction-rhine-case-study

Environmental status of floodplains and trends: Mathias Scholz (UFZ / ETC/ ICM) gave an introduction: In Europe already up to 90 % of former riparian floodplains along large rivers are lost or functionally extinct during the last centuries. The main reasons for the loss of biodiversity in floodplains and related ecosystem services are the continued decline in floodplain area and quality:

- competing land uses, e.g. for agriculture or urbanization,
- less variability in discharge and constant water levels, e.g. for hydropower or navigation, and
- "barriers" in between river and floodplain, e.g. for flood defences and river training.

Across Europe there is a lack of data about spatial extension and status of floodplains and information (also on species and habitats) is widely scattered. However, reasonable and precise data are needed for policy and revitalisation activities and the consideration of land use conflicts. ESS is a challenging concept to improve synergies between natural functions and socio-economic services in floodplains, but also to show trade-offs. The German floodplain programme was presented as an example for 79 large rivers to the wider public on loss of floodplains and status of the remaining floodplains (in terms of quality). The status assessment supports the role of floodplain conservation and restoration at national but also on local scale. For Europe, much information on floodplain status and vulnerability has been monitored and reported as part of the obligations for the WFD, FD or the BHD, but summarizing status assessments at country or international river basin district and/or at European scale are still scarce. Were they exist these assessments are important information pieces to defend the cases for floodplain conservation and restoration.

See presentation by Mathias Scholz (UFZ/ETC/ICM): http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-3-environmental-status-floodplains-and-trends/session-3-knowledge-needed-report

Statements and discussion: Pavla Stepankova (CZ) added in her statement that the negative trend of floodplain loss is especially located in the headwaters in Czech Republic. There are instruments foreseen in law on how to prevent floodplains from urbanization, but they are not used often the way they should. The pressure for development of municipalities in flood risk areas is present in many places, sometimes coming from local authorities as well. In general, the memory is bad: even after one year after the 2013 floods. Restoration may be possible in smaller rivers locally, but room for rivers along larger rivers seems to be very difficult in the case of Czech Republic.

[5] Available on http://www.iksr.org/en/documentsarchive/rhine-atlas/index.html

Janos Fehér (HU) presented in his statement slides of a historical map of inundation from 1938, and a new map showing flood risk areas and new flood mitigation reservoirs in Hungary. The Hungarian solution to face extreme flood hazard are the construction of controlled retention reservoirs in the Tisza catchment, where the water is mainly used for agricultural purposes.

See presentation by Janos Fehér (Hungary): http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-3-environmental-status-floodplains-and-trends/session-3-statement-supporting-slides-janos-feher

Discussion: It was stated that when we say that we lost 90 % of floodplains we should also say what we have gained. The engineers and environmentalists are not on the same level from the management point of view: compromises should be made. The discussion focused on the quality and the information needed for measures. Indicators to assess the quality of remaining but also former floodplains in the hinterland are needed. More attention should also be taken to smaller catchments. In general, the following question should be addressed: Which area is better for restoration than the other? It is no point to restore a flood plain where you have place but rather restore it where it will improve the environmental quality. Agriculture is the biggest challenge in the coming years (landowner, production), because they are much more independent than water and nature conservation managers are. Another aspect mentioned was that riverbed erosion takes place in many European rivers and impacts the flood retention area and the groundwater in the floodplain and related biodiversity. This has negative effects on the resilience of floodplain habitats and species against floods.

Session IV: Management and integration: Implementation of flood, water and nature protection legislation into management and restoration - practical realities in Europe – green versus grey infrastructure and "greening the grey"

Chair: Ursula Schmedtje (ETC/ICM)

Case Study on measures - introduction: Georg Rast (WWF-Germany) presented examples for floodplain restoration on the Elbe River in Germany and beyond. Two WWF examples of ongoing dike relocation projects were presented (Gatzer Bergdeich Vockerode 212 ha and the Lödderitzer Forst 600 ha). The challenges in this kind of restoration projects are especially the complexity to meet nature conservation targets, flood protection, and land user and land owners requirements. In these examples, the original main goal was to improve the quality with regard to floodplain biodiversity, but also to improve resilience of the floodplain ecosystem. Especially with these type of measures an improvement of several ecosystem services and a large array of benefits can be seen, e.g.: flood retention, water purification, positive effects on micro climate, carbon sequestration (forests and meadows, benefits for recreation (tourism, local-regional…) or reduced maintenance for water management.

A big challenge for the future will be the scale-up of the areas for flood retention to 10 000s of hectares. This should create significant effects on the design of grey flood defence structures (heightening of dykes, retention basins). Strengthening green solutions is only feasible with new land use approaches together with landowners and farmers (e.g. no cash crop but biomass utilization for energy or material utilization for insulation) and together with compensation to farmers for improved ecosystem services. Therefore, one of the biggest challenges in restoring and giving more rooms to the rivers will be the cooperation between environment and agricultural sectors.

See presentation by Georg Rast (WWF-Germany): http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-4-management-and-integration/session-4-introduction-case-studies-wwf

Management and integration - Questions from the background document Knowledge for the 2015 flood report: Reconfiguring a river and its adjacent floodplain can generate numerous benefits for both nature and society, ranging from richer biodiversity, landscapes that are more appealing and additional recreational opportunities to improved flood prevention and protection. Henk Wolters (Deltares / ETC/ICM) presented the analysis. The Floods Directive is in the centre of the 2015 Floods report and synergies with the WFD and BHD are primarily looked at. The report also looks and user functions (agriculture, hydropower …) and the related thematic policies. Crosscutting issues are climate change, socio-economic development, spatial planning and governance. The hypothesis is that flood risk management can benefit more from synergies with adjacent policy fields and crosscutting issues. Observations from drafting the report are that flood risk management is primarily active in the riverbed and in the floodplain. The challenges are that both in the floodplain and the catchment as a whole many interests must be balanced and different scales of action and jurisdiction must be linked. Important measures are river restoration, NWRM and green infrastructure. These measures serve as flood risk management while reconciling it with the other users and user functions. Indicative findings for the report are:

- Extreme flood events tend to spur on decision makers to demonstrate decisiveness: use that window of opportunity.
- Different directives are still operating too much in isolation: policy arrangements based on separate lines of financing and reporting; barriers between departments and between levels of governance; lack of knowledge on economic effects of integrated solutions.
- True integration of interests, functions, land use, is more likely to be found at local than at larger scales.
- Uptake of innovations (such as green infrastructure) by local scale managers is hampered by the uncertainties inherent to innovations and by current budgeting/reporting practice.

See presentation by Henk Wolters (Deltares / ETC/ICM): http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-4-management-and-integration/session-4-knowledge-needed-report

Statements by Janos Fehér and Jovan Despotović including discussion: The reconciling of flood risks and environment is important. “Alone you walk faster but together you walk further”. For improvement of the capacity in the Western Balkans (WB) to enforce actions proposed by the FD and WFD, EU support would be welcomed, especially in transboundary areas (like the Sava river basin has shown). Stakeholders should be encouraged to work towards compromises. As an example, navigation will start next year on the Sava River (upstream of Belgrade), while the Sava River management plan is relatively poor to meet synergistic effects. European institutions could be the base for cooperation of WB countries when it comes to river management.

Lesson learned for flood risk measures form Slovenia was also mentioned as an example: After the recent floods, Slovenian water management took decisions under time and societal pressure, by implementing traditional technical solutions. Bosnia and Herzegovina is implementing old plans with technical solutions focussing on grey infrastructure. In addition, problems with individual and scattered mitigation measures at household level are observed.

In general, local management needs to fit in a European framework (honest and transparent approach). Local solutions should also reach EU wide goals and objectives. Janos Fehér presented the local set of measure from the Tisza programme. They are locally but flood protection effects are transboundary.

See presentation by Janos Fehér (Hungary): http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-4-management-and-integration/session-4-statement-supporting-slides-janos-feher

General discussion: Taking into account that remaining floodplains are biodiversity hotspots, non-balanced flood risk and water management with only technical solutions can spoil these still existing values and related ESS. Very often local solutions for sustainable floodplain management exist, where ESSs are important in the appraisal of benefits. The ESS-approach show synergies with other functions and services or insight in the reduction of management costs. Quantifying and assessing of ESS are important for the communication and decision making process. Sometimes monetarization, especially when only based on willingness to pay approaches, is insufficient to convince stakeholders at local level.

It was stated that the role of the EU is important. To exchange (reported) data and show the synergies is important. Without informing the water managers about the insights and synergies, they tend to continue with technical solutions. Therefore, once goals and targets for flood prevention are identified and set, an important aspect is the involvement of all relevant stakeholders. Experiences in Hungary with the implementation of the Tisza programme have shown that by integrating stakeholders at an early stage working and negotiations lead to better and more acceptable results.

A big challenge for flood risk management is the combination of local measures in a single overarching scheme. The successful combination of an overall plan and local measures is exactly the model of the ICPR. Through the ICPR, many objectives are initiated, even if the measures are financed and implemented on a national level. In the frame of river basin management plans (RBMPs) and the flood risk management plans (FRMPs) ([6]), ICPR sets the river basin wide goals, but the realisation of measures usually takes place at regional or local level. Therefore, stakeholder involvement and wise governance is a prerequisite. Furthermore, more attention should go to the definition of targets in a wider overall scheme, as well as to improved quality of the objectives as they really help for the communication and to gain support. Very often targets are expressed in area (like in ha), more attention should be drawn towards other quantitative targets (like flow and level).

Natural flood retention measures and green solutions in floodplain restoration for flood risk management often go together with grey infrastructure. In many cases, large engineering works are needed to reactivate floodplains, like the conduction of new dike lines or flood channels. Successes with measure types like “room for the rivers” requires the realization of natural flood risk measures. These are often depending on the cooperation between water management and agriculture. For example, the reimbursements of farmers should be guaranteed for periods in the order of 15 years,

[6] Draft of the 2[d] RBMP from the IRBD Rhine : http://www.iksr.org/en/water-framework-directive/second-river-basin-management-plan-draft/index.html
Draft of the 1[st] FRMP from the IRBD Rhine : http://www.iksr.org/en/floods-directive/flood-risk-management-plan/index.html

rather than the current 6-year cycle (as e.g. the WFD and FD have) which is seen as insufficient. Participation and stakeholder involvement seems to be an important component for success.

Psychological impacts from previous floods could be important locally in the decision making for new projects, e.g. the impacts of the 2002 Elbe floods are still noticeable amongst the affected and can hinder sustainable solutions.

The scale of programmes and their planning is relevant: the hierarchical level at which targets and measures are addressed at seems a prerequisite for integration. This is connected to the question of significant flood risk reduction at higher than local scale.

Session V: Environmental effect of floods and flood protection measures: What do we know, and which knowledge is lacking?

Chair: Beate Werner (EEA)

The final questions and conclusions of the workshop were drafted by Wouter Vanneuville (EEA):

State and trends: loss

- Same numbers about loss of floodplains come back in different publications, but what do they mean exactly?
    - Be very careful with wording, what is the baseline, what is the definition, where is the bias (e.g. size of catchments)

Data

- (Environmental) Impact data at EU level have a clear output in several indicators.
    - What's the real added value for the national/local level in reporting this information?
- Not only programmes of measures for different EU policies have to look at synergies, also data platforms have to be interoperable for more integrated assessments

EU overview?

- Clear distinction between different areas within catchments (mountains versus lowlands, rural versus urban etc.)
    - as these have different objectives, different goals and also different measures are applied
- Local solutions are ok if contributing to the overall objectives
    - Eligible for (EU) funding without artificial international justification

Time scale

- 6 years cycle of reporting is ok as a pragmatic choice to evaluate the environmental effects
- Time scale for environmental measures is much longer

Working together

- In Rural Development Plans is little attention for WFD (and the RBMPs)
    - Agriculture insufficiently covered in water management plans as well

    -
    - The report will also focus on other developments in floodplains needing space, like urbanisation
- Must be more than just papers (EU), the power is in the implementation (national to local)

Restoration projects

- How to deal with "unwanted" land uses?
    - As they contribute to other agendas as food security, renewable energy, … and cannot simply being kicked out
- Quality over quantity in restoration
    - Maybe less but more effective projects
    - Is this contradictory to start working asap(?)

Climate Change Adaptation

- Involvement (beyond information provisioning) of actors outside government quickly goes down from planning to implementation to monitoring and evaluation (see EEA report 4/2014)
- Similar for restoration: bottom-up and top-down need to meet for increased efficiency/effectiveness

Environmental Impacts

- Have to do with: (Land) use (quality), water level (river and floodplain), connectivity and water quality
    - Workshop didn't discuss much about water level, e-flows, river training etc. although these will be covered to the extent necessary in the 2015 floods report.
- Moving from a stock to flow to approach as done in economics
    - ESS can play a role in this shift, although the time frame (see above) needs to be included and monetarisation not always possible (but quantification as first fall-back step before descriptive information only).

Flood risk

- Economic and social impact not decreased significantly for big events by ecological measures (at the size they mostly are nowadays)
    - Where is the risk? In many smaller events or in a few big ones?
    - Is discussion far beyond scope of workshop but important when describing the efficiency/effectiveness of green measures

The more restoration…

- The more grey infrastructure
- Focus on functions, not on km/ha/…, of infrastructure
- Success of restoration has to be seen together with keeping what we still have!

See presentation by Wouter Vanneuville (EEA): http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-5-environmental-effect-floods-and-flood-protection-measures/session-5-draft-conclusions-and-introduction-final-discussions

Recommendation & conclusions for the Floods report drafting team (EEA and ETC/ICM) based on the final discussion

The EEA floods report should conclude in the last chapter on principles, which are related to different topics and fields dealing with floods and environment.

For the governance principles, the coordination of timing of financing regulations and RBMP/FRMP is required. Unfortunately, many institutional reorganisations in many eastern European countries jeopardize the process. Case studies with good examples and summaries of lessons learned would help to address this challenge.

The design of quality principles for nature-based solutions integrating ESS is desired, together with descriptions of already existing methods (and examples) to measure and assess ESS. The ESS concept should not be limited to monetarising.

Criteria to define successful assessments are to be developed: they should be an analysis of lessons learned with good and bad examples. It remain open issues on how to do this, who has to be involved, what data are used. When environmental assessment criteria are lacking, this is often a political challenge and very much depending on the local situation.

To combine the environmental goals of different policies at local level, clear definitions of what is green and what is grey infrastructure are needed. Questions on quality and functionality aspects are important and, especially at transboundary levels, principles are important.

Strengthening public participation is a key principle: integration of public and stakeholders is important for capacity building and decision-making. However, it needs a lot of resources (and often a huge process); so it is up to the member states to implement their own model for involving stakeholders (and general public). Good examples can be found in the implementation of the WFD (e.g. EEA Report No 3/2014). Examples on a table screen in NL are very powerful for stakeholder involvements to discuss alternative scenarios.

Reported data for European environment directives are important because they are supporting also on regional level. EEA databases show important products.

In the context of floods and environment, a six years cycle of reporting is acceptable as a pragmatic choice to evaluate the environmental effects. However, monitoring should take into account the fact that effects could also occur many years after significant flood events. Appropriate indicators (and timelines for monitoring) are needed.

Closing remarks of the workshop for the report are summarized as follow:

For the report, it has to be kept in mind that different perspectives come from those focussing on regular floods vs. extreme events. A set of principles will be developed to structure the conclusions, referring to case studies. Sediment and river bed management need a place, although not discussed during the workshop.

Governance came back as an important issue in many discussions during the workshop. While working with case studies, the report will not define “good or bad” but focus on lessons learned. During and after the workshop, several examples were provided. Cross-sectoral examples have to be complemented by very specific issues e.g. on pollution problems.

We need to include the environmental quality of floodplains in the assessments, instead of only quantitative indicators. There’s a need for indicators, not only in the context of the FD but also for cross-sectoral assessments. These can best be developed together with the WFD, BHD or agriculture community.

A six years cycle of reporting is ok as a pragmatic choice to evaluate the environmental effects. However, the time scale for environment measures is much longer.

The planned EEA floods report will be a follow-up of this meeting and will contain recommendations for implementation of FD (and synergies with WFD and HD). The European role should focus on principles for implementation of quality and measures, governance and data needed. Important challenge with regards to floods and environment is the process-thinking, and to get people around the table.

Annex 1: Final meeting agenda

European Environment Agency

European Topic Centre
Inland, coastal, marine waters

Expert Workshop: Environmental effect of floods and flood protection measures, 28-29 May 2015

European Environment Agency, Copenhagen, Kongens Nytorv 6, Room 8.2.30

Draft Agenda (version 1.3)

Meeting documents:

Documents and presentations will be uploaded to the Forum meeting folder at:

http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015

Day 1: 28 May 2015 (13:00-18:00) Room 8.2.30		
Time	*Subject*	*Presenter*
12:00 – 13:00	Arrival and Registration, Lunch in the cantine (optional)	
Session I: Introduction and setting the scene		
13:00 – 13:30	Welcome and Introduction Presentation: http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-1-introduction/session-1-eea-report-floods-2015	Beate Werner (EEA) Wouter Vanneuville (EEA)
Session II: Environmental impacts of floods: past evidence monitoring and structuring the information Chair: Wouter Vanneuville (EEA)		
13:30 – 13:45	Case study from a recent flood event with environmental impacts Floods in the Sava River Basin in May 2014 / Western Balkan Presentation: http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-2-environmental-impacts-floods/session-2-introduction-floods-sava-river-basin	Jovan Despotović (Univ. of Belgrade)

13:45 – 14:00	Environmental impacts of floods: past evidence monitoring and structuring the information Knowledge needed for the 2015 floods report & Questions from the back-ground document Presentation: http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-2-environmental-impacts-floods/session-2-knowledge-needed-report	Lidija Globevnik (TC Vode / ETC/ICM)
14:00 – 14:15	3 Statements (3 minutes) To open the discussions	Adrian Schmid-Breton and Pavla Stepkanova
14:15 – 15:15	Discussion	all
15:15 – 15:45	**Coffee break**	
Session III: Environmental status of floodplains and trends Chair: Wouter Vanneuville (EEA)		
15:45 – 16:00	Case study: Flood action programme and role of floodplains in a large river basin Presentation: http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-3-environmental-status-floodplains-and-trends/session-3-introduction-rhine-case-study	Adrian Schmid-Breton (ICPR – Koblenz)
16:00 – 16:15	Environmental status of floodplains and trends Questions from the background document Knowledge needed for the 2015 flood report Presentation: http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-3-environmental-status-floodplains-and-trends/session-3-knowledge-needed-report	Mathias Scholz UFZ / ETC/ICM

16:15 – 16:30	3 Statements (3 min) To open the discussion Presentation statement Janos Fehér: http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-3-environmental-status-floodplains-and-trends/session-3-statement-supporting-slides-janos-feher	Janos Fehér, Georg Rast and Pavla Stepkanova
16:30 – 17:40	Discussion: sharing experiences	all
17:40 – 18:00	Closure of Day one	Wouter Vanneuville (EEA)
19:30	**Dinner in town (optional)**	
Day 2: 29 May 2015 (9:00-13:00) Room 8.2.30		
Time	*Subject*	*Presenter*
Session IV: Management and integration: Implementation of flood, water and nature protection legislation into management and restoration - practical realities in Europe – green versus grey infrastructure and "greening the grey" Chair: Ursula Schmedtje (ETC/ICM)		
09:00 – 09:15	Case Study on measures - introduction Presentation: http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-4-management-and-integration/session-4-introduction-case-studies-wwf	Georg Rast WWF-Germany
09:15 – 09:30	Management and integration Questions from the background document Knowledge for the 2015 flood report Presentation: http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-4-management-and-integration/session-4-knowledge-needed-report	Henk Wolters (Deltares / ETC/ICM)
09:30 – 09:45	Statements (3 mins) To open the discussion Supporting slides Janos Feher - Presentation: http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-	Janos Fehér and Jovan Despotović

	2015/presentations/session-4-management-and-integration/session-4-statement-supporting-slides-janos-feher	
09:45 – 10:45	Discussion: sharing experiences	
10:45 – 11:15	**COFFEE BREAK**	
Session V: Environmental effect of floods and flood protection measures: What do we know, and which knowledge is lacking? Chair: Beate Werner (EEA)		
11:15 – 11:35	Draft conclusions and introduction to the final discussions / integrating knowledge Presentation: http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/environmental-effect-floods-expert-meeting-2015/environmental-effect-floods-expert-meeting-2015/presentations/session-5-environmental-effect-floods-and-flood-protection-measures	Wouter Vanneuville (EEA)
11:35 – 12:30	Discussion: sharing experiences Which elements on environmental impacts of flooding aren't discussed in the thematic sessions?	all
12:30 – 12:45	Summary & conclusions	Floods report drafting team (EEA and ETC/ICM)
12:45 – 13:00	Closing address follow-up of meeting outcomes in minutes and 2015 floods report	Beate Werner and Wouter Vanneuville (EEA)
13:00 – 14:00	**LUNCH (optional)**	

Annex 2: Meeting Participants

Surname	Name	Country/Affiliation
Despotović	Jovan	Serbia /University of Belgrade
Fehér	János	Hungary
Globevnik	Lidija	ETC/ICM-TC Vode
Kristensen	Peter	EEA
Rast	Georg	Germany, WWF
Schmedje	Ursula	ETC/ICM-UBA-DE
Schmid-Breton	Adrian	ICPR
Scholz	Mathias	ETC/ICM-UFZ
Snoj	Luka	ETC/ICM-TC Vode
Stepankova	Pavla	Czech Republic
Vanneuville	Wouter	EEA
Werner	Beate	EEA
Wolters	Henk	ETC/ICM-Deltares
Zal	Nihat	EEA