

Integrated flood risk management in Sweden – How to achieve it

Läkarsällskapet, November 12, 2013

Short background

2013 was a year with devastating floods in central Europe, which raises questions about the Swedish flood policy and practice. At the same time there are other water related risks such as eutrophication. The seminar looks at the gaps and need for addressing both flood risk and water quality and environmental management in synergy. Integrated flood risk management, is a process promoting an integrated – rather than fragmented – approach to flood risk management in a river basin.

Presentations from the seminar can be found at:

<http://www.swedishwaterhouse.se/en/seminars/previous/seminar.html?id=407&year=2013&type=archive>

Summarised conclusions from the seminar:

- The implementation of Flood risk management is underway in Sweden but there are many gaps and potential future challenges, in terms of legislation, financing of preventive measures, planning and collaboration.
- Legislative reform is in dire need, but will be a requirement for the implementation of the EU Flood directive.
- The lack of financing for flood risk could be addressed by refocus on need to be on socio-economic win wins instead of preventing large flood catastrophes.
- There are planning tools which could be better taken up by municipalities; however the challenge remains of many gaps in responsibilities and lack of guidance from e.g. PBL. (Planning and Building Act)
- It is not about managing water, it is about managing people, where Sweden lacks the planning frameworks at river basin scales, and the right tools for collaboration addressing the interests of different stakeholders.

Short summaries of the speakers' messages

"Integrated Flood management"

by Mr Johan Kling

Marine and Water administration, Dep. For Marine and Water management

Sweden has few extreme floods, but instead many small floods with impact on economic activities. Integrating environmental aspects in planning our rivers provides more func-

tions for society. River flows need to be planned at River Basin level. Our approach to control floods has most often moved the problem further downstream, from one place to the other. There is a trade off in that floodplains are a very suitable place for agriculture, but these areas also flood from time to time and there is a leakage of nutrients to the water. Houses also are at risk from flooding in low lying locations. Now we know we should avoid building on floodplains. But we also cannot remove cities such as Gothenburg. Instead we need to be prepared for floods. Legislation has many gaps. Sweden has an outdated legislation on water and drainage from the time when we did not know how rivers functioned, and understood the role of the environment. It is also difficult to change the legislation. Our risk management is today also orientated towards the local structural measures. We need to increase efforts in the areas of diffuse measures in the catchment, land regulation, preparedness measures and insurance.

“Swedish crisis management and Floods Directive”

by Ms Barbro Näslund Landenmark

Swedish Civil Contingency Agency (MSB), Risk and Vulnerability Reduction Department

The mandate for MSB is the entire spectrum of threats and risks, from everyday accidents to major disasters, which also includes flooding. It also has a mandate to coordinate across sector and jurisdictional boundaries and levels of responsibility. MSB has, as a first step of implementing the Flood Directive in Sweden identified 18 areas with potential significant flood risk. The future steps of the implementation include the County Administration boards to make flood risk maps and management plans. In these stages there will be more opportunity to link to the Water Framework Directive, and Barbro welcomes cooperation with Johan Kling and others. MSB's other work along these lines includes resilient cities, integrating risk into Environmental Impact Assessments, and learning from other countries experiencing extreme floods and storm related flooding (e.g. Australia, Sandy).

“Living with floods – challenges of mitigation and adaptation”

by Mr Niclas Hjerdt

Marketing of Hydrology and WFD Services, SMHI

Floods are a natural phenomenon, and have always occurred. The ecosystems require a large variation of flows to function fully, from extreme to smaller floods, over the season. Hydropower has a tendency to reduce peaks and buffer water during spring melt, however, hydropower does not always buffer large floods as they are often nearly full. Average daily rainfall every year is on a slow rise. Extreme precipitation is likely to increase 20 -25% by 2100. A problem is when floods meet urban areas. We may very well experience in Sweden an urban flood like the one in Copenhagen 2 July 2011 when 150 mm fell in 2 hours, and where a large area of impermeable surfaces, created a lot of flood damage. We are not prepared in dealing with such water volumes in Sweden. Making room for the water in both rural and urban spaces is a solution. In 2009 the Svartån flood illustrated the role of upstream rural flooding which prevented flooding in

Västerås. Low lying fields could potentially be converted to wetlands with high biodiversity, urban streets adapted to runoff diversion systems.

“Legal perspectives on flood protection management”

Professor Lennart de Maré

Chairman of Committee for water issues, The Royal Swedish Academy of Agriculture and Forestry (KSLA)

Wetlands are seen as a solution to everything - may be good higher up in the drainage basin, but lower down we need effective drainage. Land drainage structures, ditches and dykes, are traditionally owned by joint property societies. Members are those landowners having advantage of the structure, often several landowners, all of them forced into the collaboration of the joint property society. When society develops water flows and flooding increases putting pressure on the ditches, e.g. a road is built channeling water into the ditch -who is responsible for this? The system owner, the municipality, the traffic authorities, the county and state authorities - all have some responsibility and incentive to change the system, but many barriers exist including costs, legal principles, environmental concerns and politics. Lennart concludes that the “situation is ridiculous”. To comply with the EU Flood Directive the legal system will have to be revised.

“Room for the River”

by Mr Ingwer de Boer

Director Room for the River, Ministerie van Infrastructuur en Milieu, The Netherlands

The Netherlands water management approach is very much the result of that more than 50% of Dutch citizens live below sea level. This is a result of subsiding (lowering) of land due to drainage of peat lands and areas under sea level. Many large historical floods, especially the flood in 1953 with 1800 dead and national trauma triggered the development of advance flood defense systems, (including 251 km of dykes and dams, 44 km dunes, 103 engineering structures, 4 storm-surge barriers) and also urban flood adaptation measures. The total costs are shared between the state (34%), provinces (3%) water boards (43%) and municipalities (20%). Each household pays about 800 Euros per year for water management. The serious flood risks in 1993 and 1995 triggered the Room for the River programme realizing focus on dikes was not enough but rivers had to be given more room. This also gives new opportunities for recreation, culture, and nature. For example in Nijmegen an additional river arm is drawn through town, and scenarios part of the planning with different water levels.

“Perspectives from the municipalities on the water, waste water and stormwater and link to landscape drainage”

By Mr Hans Bäckman, Swedish Water Association

The amount and speed of stormwater runoff is increased with urban development due to increase of impervious surfaces. This is collected by underground pipe networks de-

signed to convey water away from the urbanized areas as quickly as possible. This affects the owners of surrounding ditches, often without their involvement. Better communication between the joint societies in the surrounding landscape and the municipality is needed. When cities are growing, the capacity of the urban systems is sometimes temporarily flooded, (affecting e.g. basements and overflows of untreated sewage water). Who is responsible? PBL is not specific enough, we need more specific guidance. Although we have the tools, we lack the action to prepare for such "monster rains" as in Copenhagen. For example, municipalities can use the national topography database for free to identifying flow patterns in the city. In the detailed plan water flows needs to be planned for. During the last decades also quality aspect and consideration to the environment and aesthetics are part of stormwater practices (read more in Stahre 2006). Some places e.g. Hårryda, Malmö or Helsingborg, have adopted more adaptive practices avoiding stormwater pipes altogether.

"A consultants view...Urban experiences, green infrastructure and socioeconomic analysis of flooding, experiences from UK"

Ms Anna Dahlman Petri
Director WSP Group

We must make room for water in the physical environment, but there are little practices or culture within city planning to support it. One way is to make it compulsory to do Surface Water Management Plans in order to mitigate risk and damages. But we also need to overcome obstacles in the regulation. The Swedish water service law has constrains in terms of cost-effective storm water solutions in a changed environment. To change, we need brave decision makers with a long-term perspective over the mandate period. We must address the lack of clear responsible parties with more collaboration over the administrative borders. How do we get separate interests to cooperate? The municipal plan monopoly is important but the water does not stop at its borders. Financing is needed for preventive and mitigating measures and we can afford to do more, otherwise we pay later on.

"Collaborative flood management"

Mr Rune Hallgren, The Federation of Swedish Farmers (LRF)

In ditch management there is a need for balancing between ecological and production objectives. How to achieve that? We need to think outside of the box. "Learning together to manage together" is the essence of collaborative water management where programs and plans are prepared, considered and accepted by stakeholders and authorities for a variety of issues for win-win situations and cost-effective implementations. But dialogues need to be more specific than today in e.g. water councils. Generally, farmers are positive to collaborative activities, but production benefits for the farmers as well as win-wins are important. A bottom-up approach is advantageous. In Sweden we do not generally have real bottom up processes involving farmers, in that case those two farmers in Niclas example would have joined in. Now they opposed themselves to dissolving the joint society in order to create a wetland. In addition a few

reforms in terms of land drainage legislation are needed, including speeding up and simplify the legal process for permissions.

“Associated Programme on Flood Management”

Mr Giacomo Teruggi, World Meteorological Organization (WMO)

A joint programme of World Meteorological Organization (WMO) and Global Water Partnership (GWP), this programme has the objective to promote the concept of Integrated Flood Management (IFM) as a new approach in dealing and living with floods. The programme provides assistance to countries supporting them in the integrated management of floods within the overall framework of Integrated Water Resources Management. To do so, it provides capacity building facilities, engaging training workshops and compiling guidance and advisory tools, implements field demonstration projects, and acts as a hub for exchange of expertise and best practices through its network of Support Base Partners (SIWI being one of the first). Besides the general concepts and aspects of IFM, among the different guidance materials developed, some may be of direct interest to the issues identified in the seminar, namely:

- the Rapid Legal Assessment Tool (RLAT), providing a methodology to test the existing legal frameworks for compatibility with the concept of Integrated Flood Management, and therefore initiate and guide an appropriate reform process.
- A wide range of materials to facilitate self-study for vocational training, advocacy workshops and public awareness building measures
- A tool on the Role of the Media in Flood Management, addressing the ways to best cooperate with mass media in order to build awareness, preparedness and resilience in the population of flood-prone areas; and
- A tool on Effectiveness of Flood Management measures, providing a set of indicators in support of decision making to better evaluate the cost-benefit ratio with a multi-criteria analysis of the selected flood management strategies (both tools to be published by June 2014)

The programme is available for providing assistance upon request from relevant parties and can be contacted through the Helpdesk on Integrated Flood Management at the address www.floodmanagement.info

Summary of discussion including questions from the audience:

Discussion Part 1: What are the gaps and possible synergies between the Water Framework Directive and Flood Directive?

The European framework for flood risk governance was initiated in 2007 and is being implemented in Sweden (the EU Flood Directive) coordinated by the Swedish Civil Contingency Agency (MSB). This puts the emphasis on extreme flows. A comprehensive water governance framework (The EU Water Framework) was initiated already in 2000, coordinated by The Swedish Agency for Marine and Water Management (HaV). This

framework is aligned towards water quality and environmental policies, and act over river basin scales. However, it does not encompass flood risk although smaller floods come more frequently and have an important role for ecosystems, agriculture, forestry and urban areas. Floods also act at a river basin scale. In many European countries the implementation of these two Directives are located in the same institution.

Grasping and addressing the whole scope of the problem is needed. The maps made by MSB are there to create awareness and hopefully to trigger action by others. Should the role of the national level be stronger to provide a coordinating initiative? The legislation covering the agreements for flows need to be reviewed. Now they require action one by one, and they are many: 50,000 for drainage and 1000 for hydropower. In Sweden the agreements run forever, but other countries are different, where a change in legislation at national level can enforce immediately across all agreements, but where we need decades to implement this change. There are trade-offs for the stakeholder in the river basins – not everyone will be happy with the changes needed - and there needs to be taken some decisions. The question is how to balance the role of the land ownership, regarded as a pillar in society with overall environmental and safety goals. The County Administration will have to play a strong role.

Discussion Part 2: What have we learnt and what are the actions forward?

Financing: In Sweden it is difficult to find the adequate financing for preventive flood risk measures. MSB has even reduced its fund for local assistance. How will we be able to implement at the local level with no financing? In The Netherlands, financing and political will to find solution, became available from a sense of urgency. Difficult to bring that out before a disaster has happened. Do we lack a sense of urgency in Sweden? Yes, but this is because Sweden does not have catastrophic floods. But perhaps there are no lives lost, but there are anyway economic and ecological consequences from smaller, not so catastrophic floods. It is much more cost effective to invest before than after, for example in zoning and prevention of settling on flood prone land. Investigations are needed to find out where the losses are and measures to be taken.

We need better social science and skills for negotiating to do decision making. For example the role of water councils could be revisited to be made more concrete involving professional facilitators. However there are good examples on the Vattenmyndigheten website from Skåne. The general situation is that we lack the tools to combine the views of all stakeholders under one framework. It is not about managing water, it is about managing people.