



Strategic Alliance for integrated Water management Actions



SAWA-sweden

Flood risk management planning around Lake Vänern

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Facts about Lake Vänern

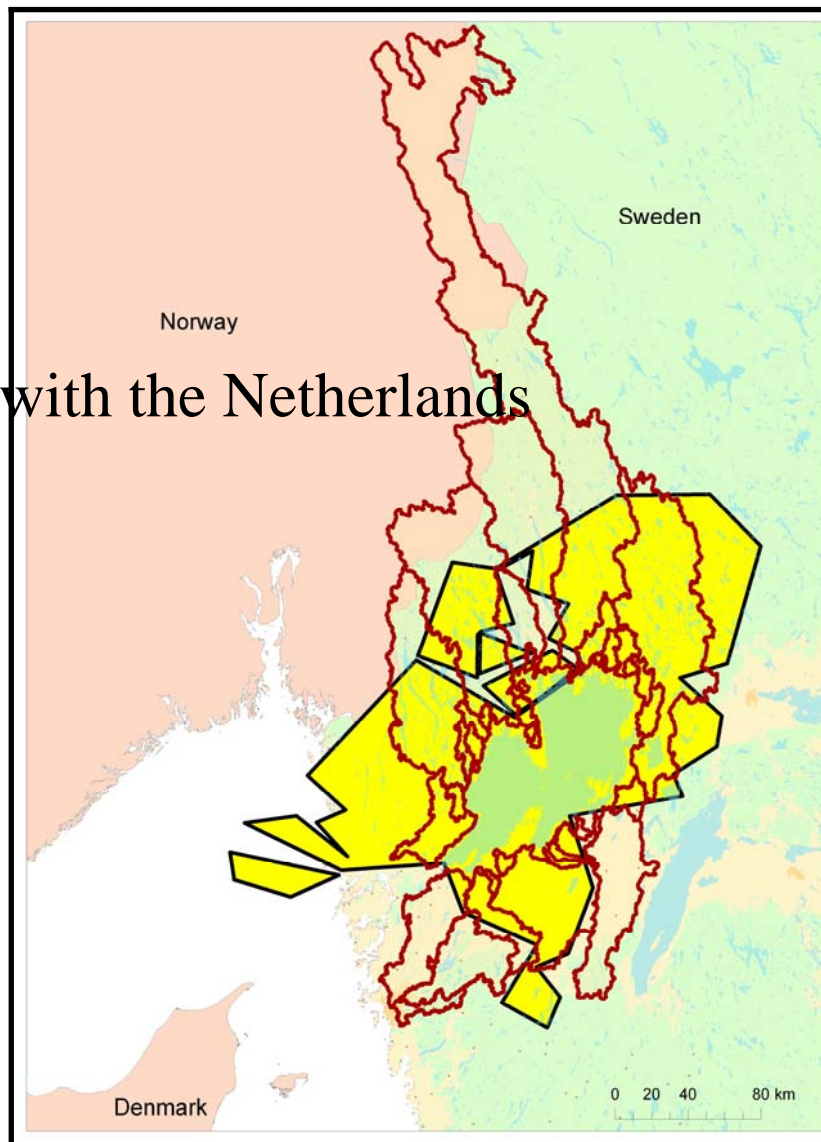
- Drainage basin (km²) 50230
- Lake area (km²) 5650
- Volume (km³) 153
- Average depth (m) 27
- Maximum depth (m) 106
- Maximum measured inflow (m³) 2500
- Maximum outflow (m³) 1000

Biggest inflow river Klarälven

Only outflow river Göta (risk of landslides)



Size in comparison with the Netherlands



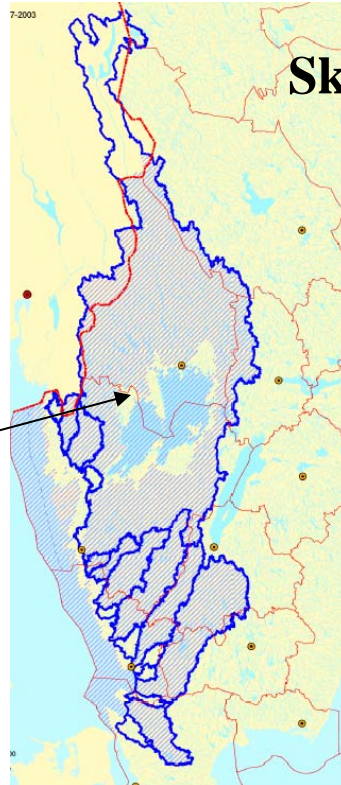
Background to flooding problems in this area



- Floodings in rivers to lake normally occurs in spring due to snowmelt
- Flooding year 2000/01
- CC might change the patterns of precipitation and increase maximum inflow to the lake
- Several villages around the lake will be affected
- Lot's of investigations have taken place in the last 5 years



Flood directive states that there should be a FRMP at district level. There should be a coordination between FRMP and the actionplan from WFD.....



Skagerak and Kattegat water district

- 9 counties
- Norway
- 70 municipalities fully within
- 113 municipalities fully or partly within
- ca 30 water protection associations
- 2,4 million inhabitants



...However Sweden is traditionally a decentralised country with a lot of power delegated to the local level, i.e. the municipalities

- Spatial planning
- Contingency planning

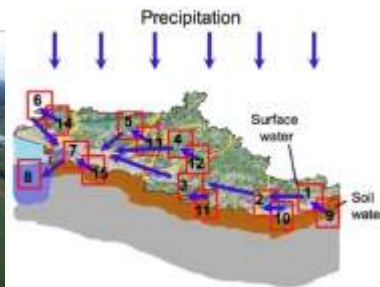
This means:

- Municipalities must be included in the work in order to get things moving
- Municipalities must work together to achieve results at regional level, when water boards cross administrative borders
- that the regional FRMP must be complemented with a lokal FRMP to achieve results!



Safety measures for Lake Vänern at district level (Not done within SAWA)

- Average water level in the lake has been lowered. Regulation is done by the hydro power company
- Increased frequency of long term (8 weeks) hydrological prognosis
- Investigations of how to secure vulnerable locations in the Göta river valley in order to be able to let out more water through the river, results are expected in autumn 2011
- Discussions about constructing a new outlet from the lake, tunnel or canal
- Conflicts with boat traffic
- Conflicts with environmental intererests => a special monitoring program for the lake has been developed (fish reproduction areas and ecology at sea shore areas)



SAWA Sweden – complementary lokal FRMP

- 2 FRMP, one in Karlstad and one in Lidköping
- The work has in both cities been carried out in broad groups with representatives of different areas of responsibilities.
- In Lidköping the work has focused on lokal measures
 - Necessary complementary investigations (hydraulics, vulnerability studies, cost benefit analysis etc)
 - Identifying needs for guidelines for spatial- and contingency planning and for environmental licensing
 - Communication planning with stake-holders and authorities
 - Local protective measures like semi-permanent damms at particularly vulnerable sites, heat power plant, sewage treatment plant, electrical distribution central
- In Karlstad an evaluation of results from the municipality flooding programme that was decided 1,5 years ago was done
- The municipalities also work together on regional level in order to
 - Get national focus on the problem around Vänern
 - Agree on common policy issues like guidelines for spatial planning



Conclusions

- In order to achieve good results flood risk management work it's important that the work is carried out in a group with mixed interests and knowledge
- New housing developments in attractive but vulnerable locations can in the long run force the municipality to take costly protective measures
- In the SAWA project cost-benefit analysis has been used to assess the cost effectiveness measures. A cost-benefit analysis should be seen as an important part of a decision-making, but should not be the sole basis for important strategic decisions such as safety measures vulnerable locations
- It's not unusual with conflicts between the objectives of the WFD and the requirements for protection-enhancing measures under the FD.

