Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of the Environment,
Transport, Energy and Communications DETEC

Federal Office for the Environment FOEN
Division Hazard Prevention Division

Understanding Natech risk management in practice: lessons learned

Use of natural hazard maps to raise awareness on Natech risks in Switzerland

Seminar on effective management of technological risks of accidents triggered by natural hazards
Geneva and online

29 November 2022

Legal framework

The Major Accidents Ordinance (MAO):

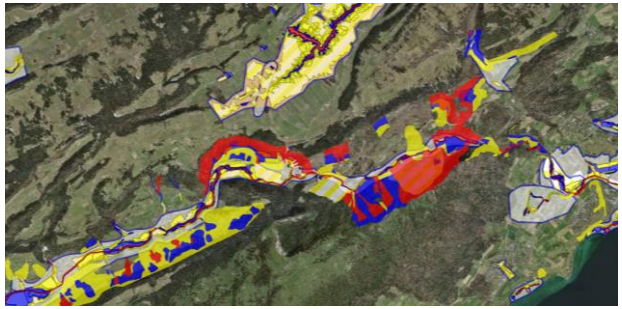
→Considers natural hazards as a possible cause of major accidents. Natural hazards include floods, rock falls, landslides, lightnings, storms, avalanches and earthquakes.

→Requires from the owners of establishments to take natural hazards into consideration when selecting and taking protective measures.

Federal Laws on Watercourse Management / on Forests:

→Require from the cantons to publish hazard maps for floods, avalanches, landslides and rock falls and to take them into consideration in all their activities involving land use planning.

Natural hazard and MAO maps

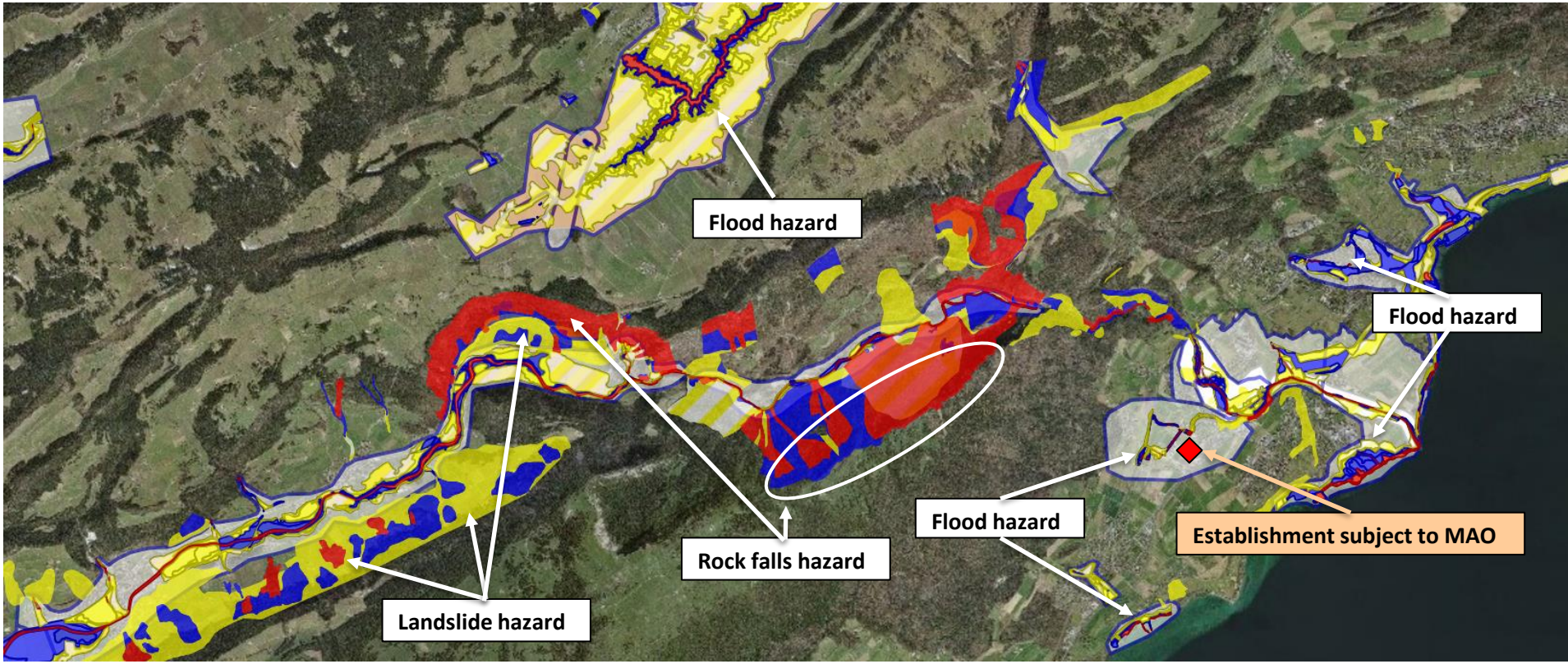


- Natural hazard maps
  - Elaborated using a wide variety of data.
  - Provide a detailed overview of potential hazards according to five hazard levels.
  - Provide information on the expected intensity (magnitude) and the probability of the event occurring.

- Maps with establishments falling under the scope of MAO (hereafter MAO maps)
  - Fixed establishments, routes and railway sections used for the transport of dangerous goods, oil & gas pipelines,..

When combined, these maps show what areas with establishments subject to the MAO in Switzerland are threatened by natural hazards.

Example of hazard map combined with MAO map.



lessons learned - Conclusion

The combination of natural hazard maps and MAO maps is a powerful tool to manage natech risks. It substantially helped to increase awareness on natech risks of the stakeholders involved, including municipalities and establishment owners in Switzerland.

It is an essential task to produce natural hazard maps or at least zones indicating natural hazards and to make them accessible to owners of hazardous establishments as well as to the inspectors of these installations and to regional / local authorities…and to the public

Spare slides

Use of hazard maps to raise awareness on natech risks – *The origins*

- In the early 2000's, the first natural hazard maps, based on topographical models, were developed.

- After combining these maps with MAO maps, the responsible authorities in each canton were provided with the list of installations in their territory potentially affected by natural hazards. This was done in the framework of a master work project in collaboration with the Federal Office for the Environment.

- This raised the awareness of cantonal MAO inspectors on NATECH risks, who relayed the information to establishments owners and other stakeholders in the cantons.

Use of hazard maps to raise awareness on natech risks - *Nowadays*

- To date, the natech risks are taken into consideration in the vast majority of establishments subject to MAO and establishments owners as well as authorities are aware of it.
- For certain types of establishments (e.g. gas pipelines) natural hazards are taken into consideration while establishing Risk Assessments (natural hazards are factorized in the calculations).
- MAO Inspectors from the cantons are well aware of the natech risks and they take them into consideration while inspecting establishments.
- Hazard maps are much more detailed today than in the past. They now cover more than 95% of the national territory and are included in the geographic information systems of all cantons.