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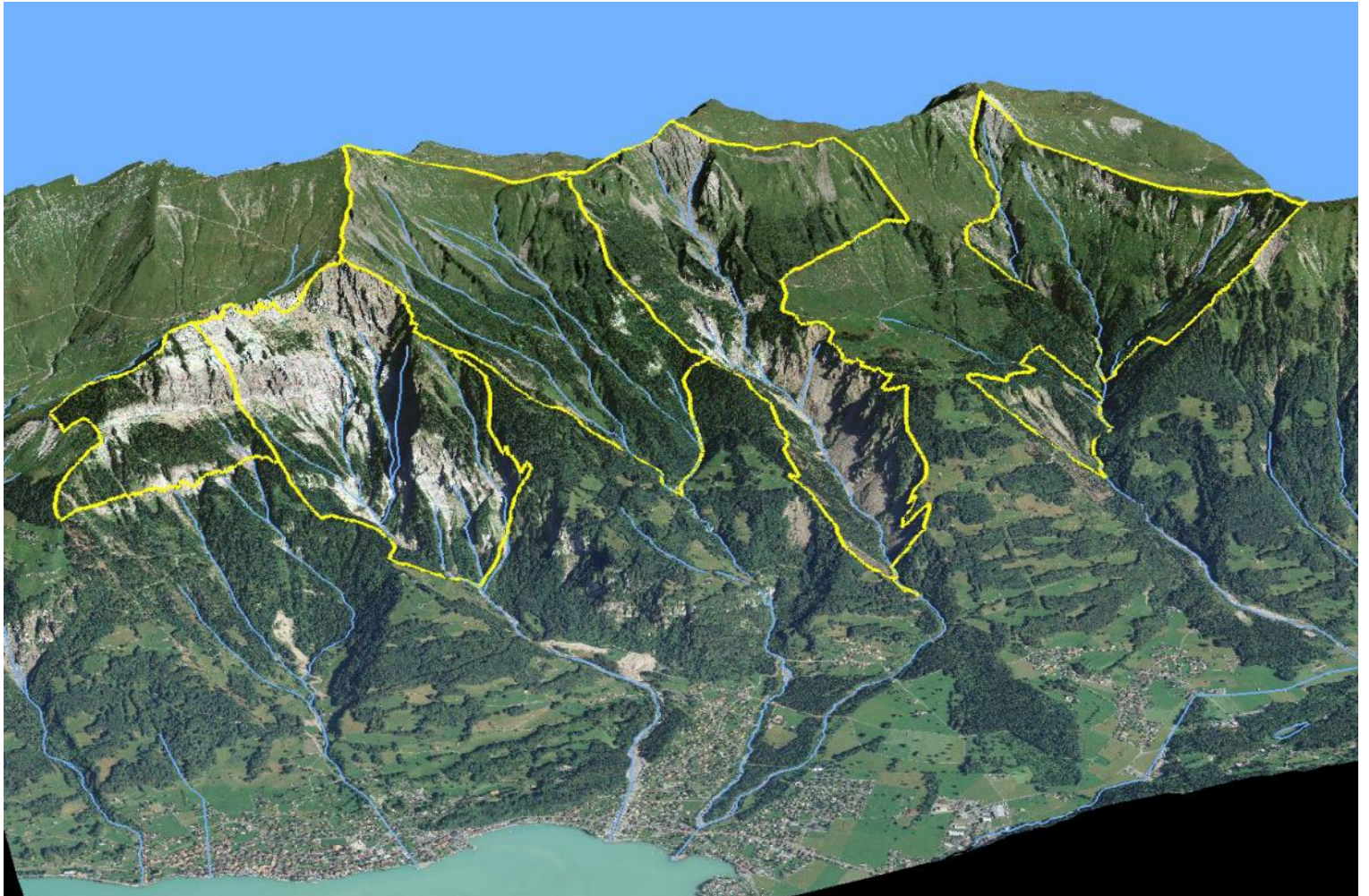
World Forest Week Side Event

Watershed, food security and climate change adaptation

Christian KÜchli, Federal Office for the Environment FOEN
26 September 2012



Assumption: Watershed as proxi for a sloped landscape, upstream, downstream situations





Assumption: Problems in watersheds result in problems for food security



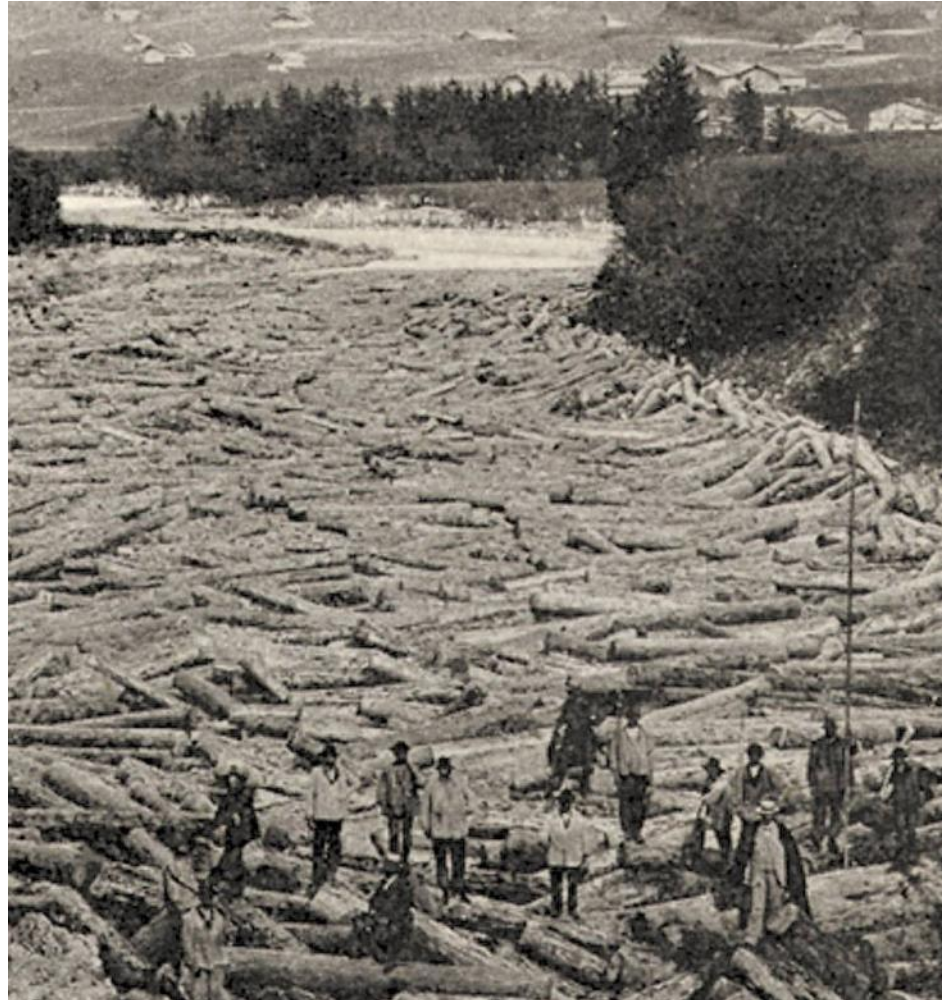


Key messages

- Forests are heavily influenced by outside factors (wood markets, energy, agriculture, mining etc.) – therefore forests and their condition are indicators of the overall socio-economic context
- Watersheds/landscapes and forests therein are reflections of the underlying institutional landscape
- The more robust the institutional landscape, the better forests are protected from outside factors, the better their contribution to the management of the watershed and to food security, and the better their adaptive capacity to climate change

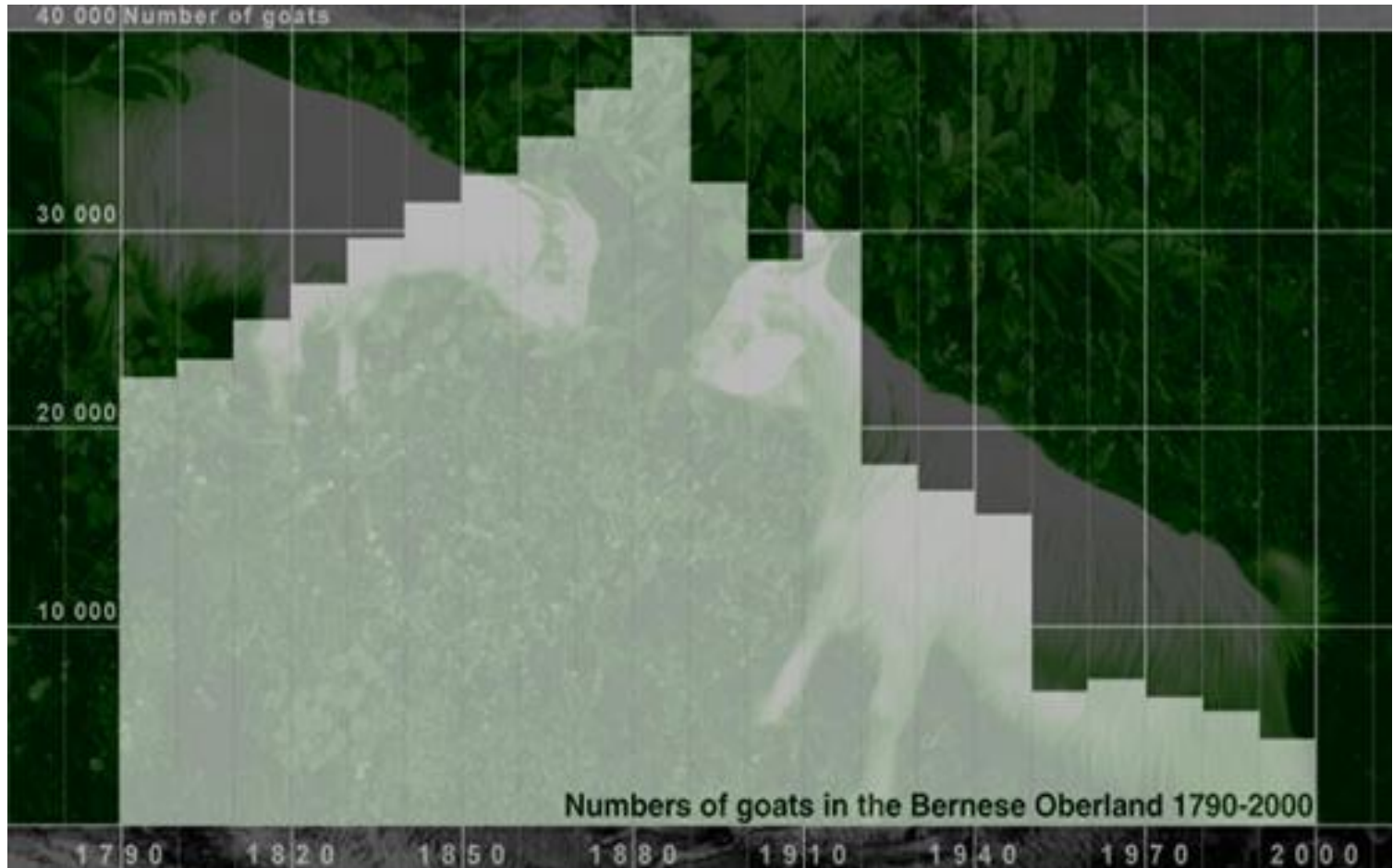


1850ies: growing wood demand from downstream cities, colonial countries → illicit felling





Disputed property rights, weak forest governance, poverty, goats
➔ failing forest regeneration





Heavily disturbed watersheds in the 1860ies, e.g. Brienz close to Interlaken





Brienz...





... with floods that reached down to the cities in the lowlands





Also in the 1860ies: changing socio-economic context





First train reached city of Bern in 1864



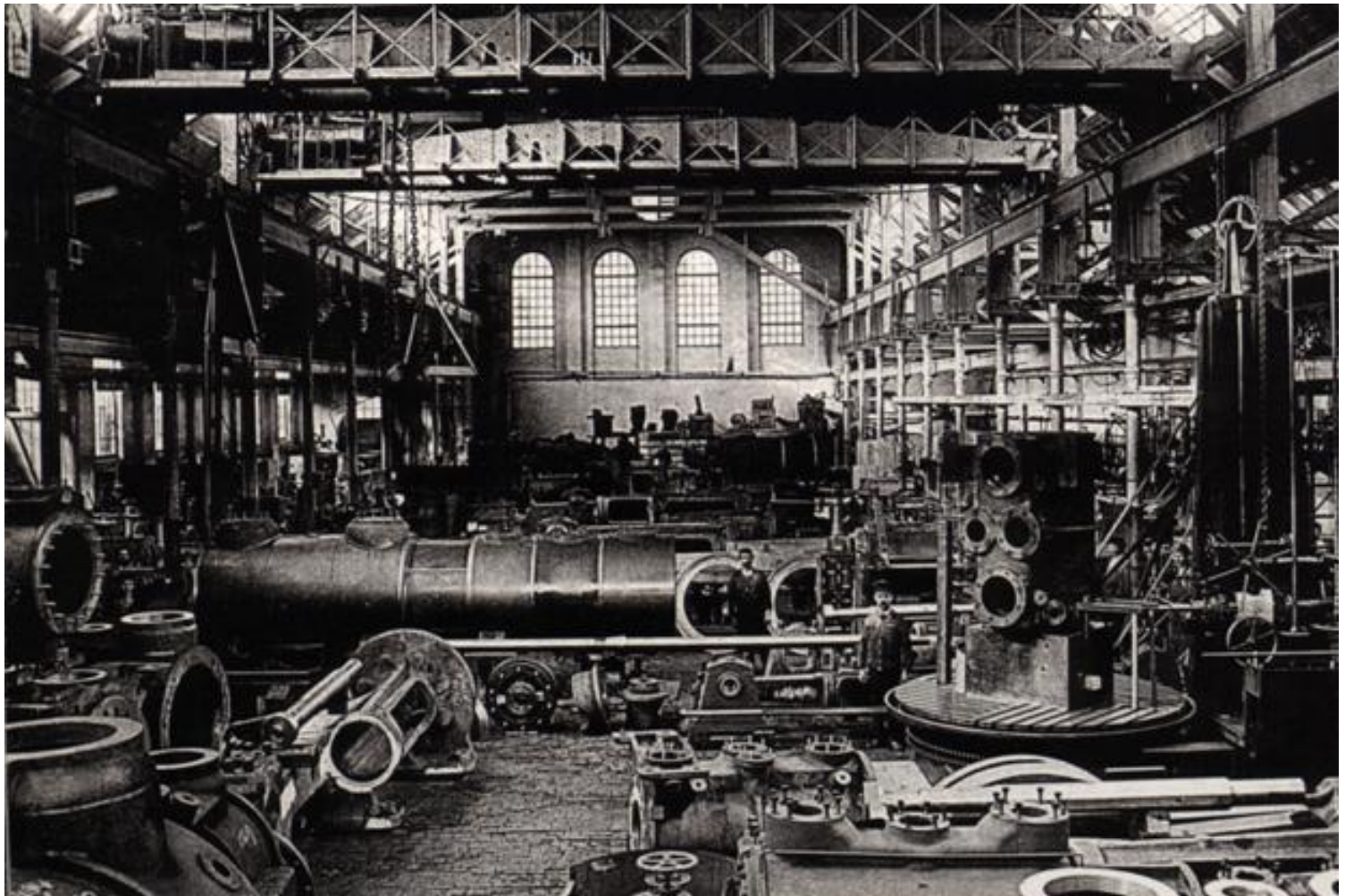


Coal...





Industrialization...



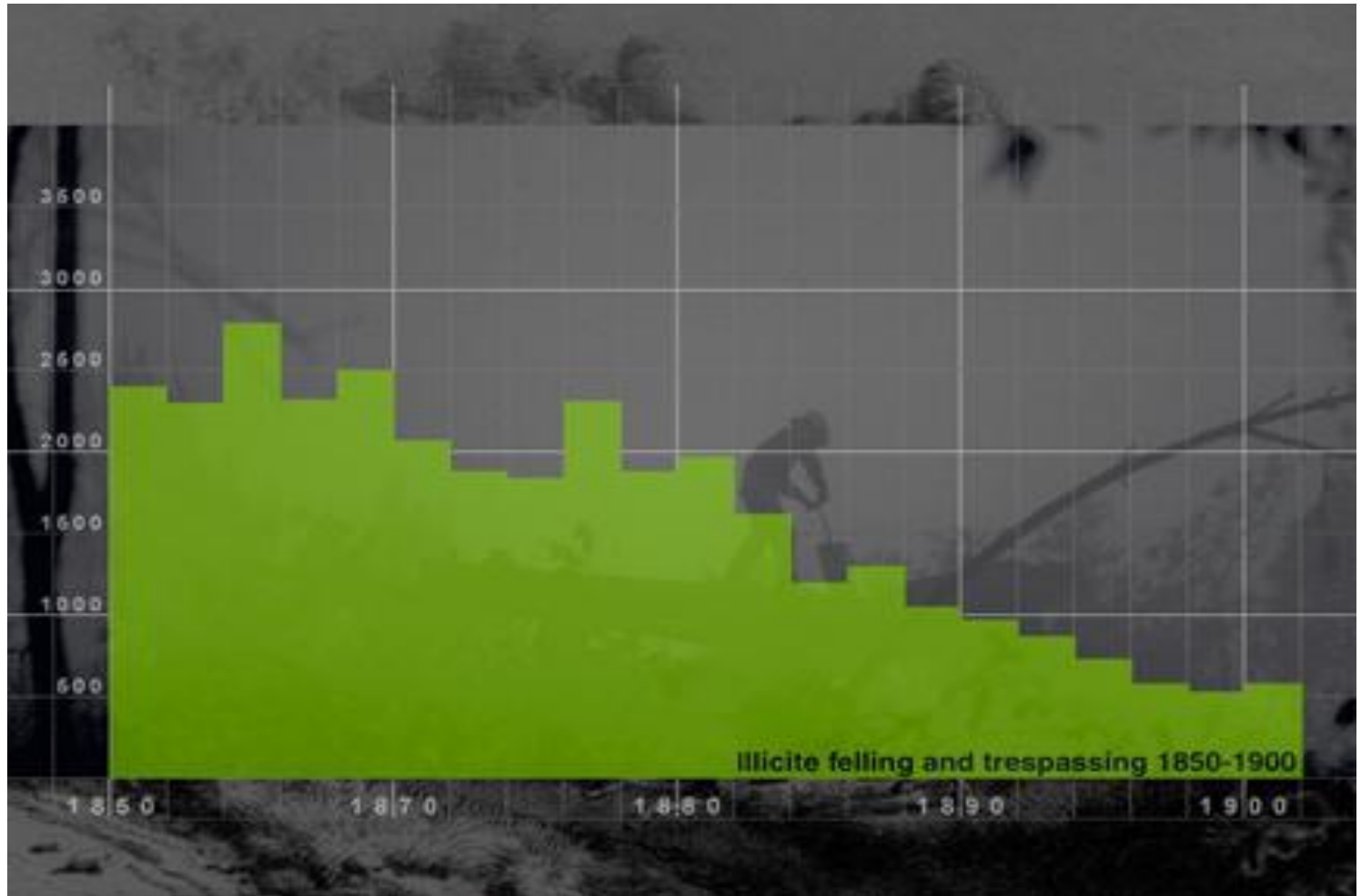


... and fertilizer





Illicit felling in the Canton of Bern





Locally Controlled Forests (LCF) → SFM, timber, ecosystem services





Forests are heavily influenced by outside factors (wood markets, energy, agriculture, mining etc.) – therefore forests and their condition are indicators of the overall socio-economic context





Watersheds/landscapes and forests therein are reflections of the underlying institutional landscape





Underlying institutional landscape 1:
unclear situation after rearrangement of property rights clarified
after 1860ies (easier in an industrialized sozio-economic context)



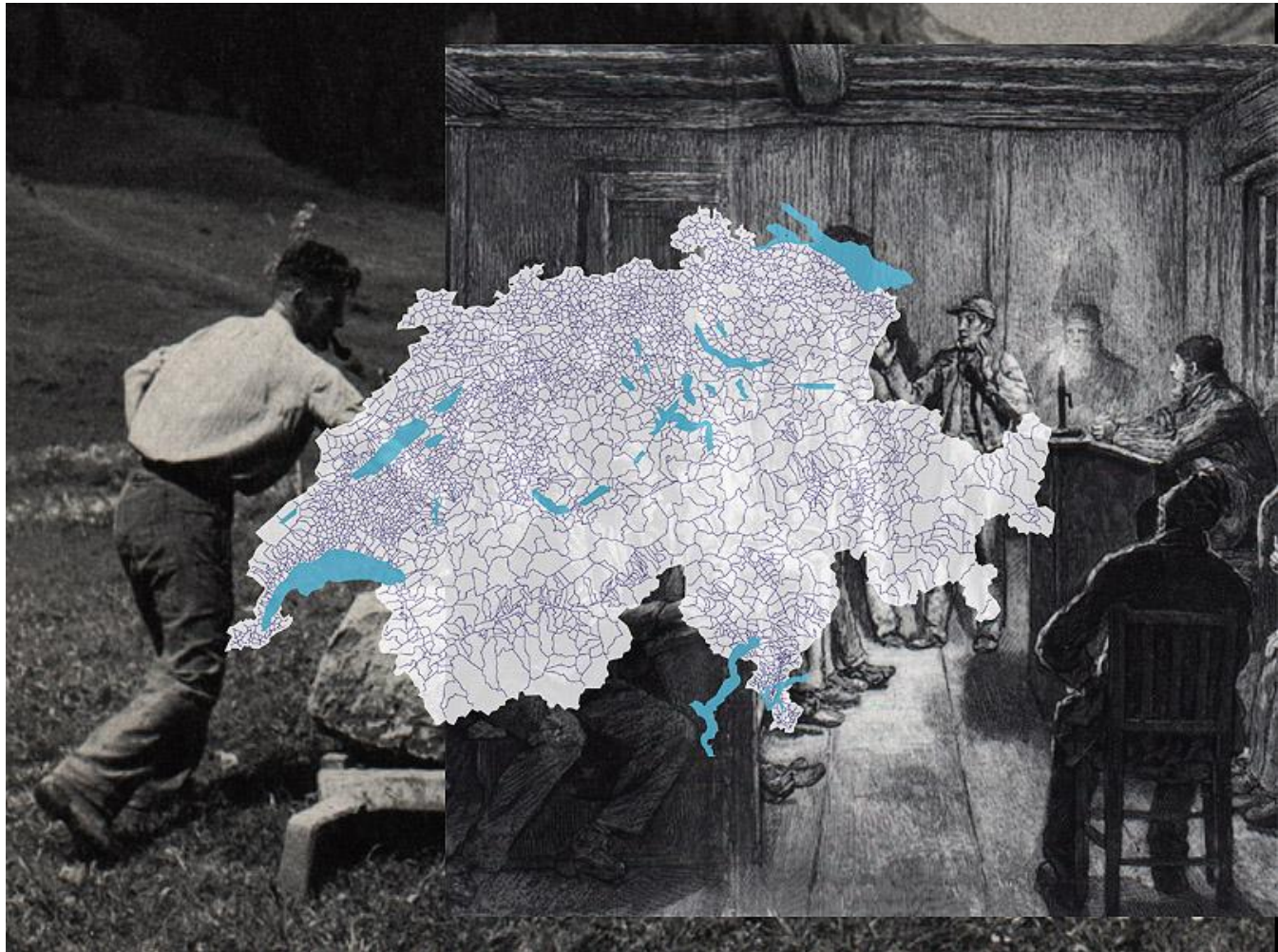


In some cases clarification process lasted up to 50 years...





Underlying institutional landscape 2: federal structure 3000 communes...





Underlying institutional landscape 2: federal structure 26 Cantons





Underlying institutional landscape 2: National level





At national level: as a consequence of the 1860 floods first overarching regulations in a federal framework law 1876

- **forest area** could **no longer be reduced** in size
- owners of public forests were required to state proposed timber harvesting in a **forest management plan**
- areas where timber harvesting took place had to be **replanted within three years**
- Swiss **Confederation** contributing to the **salaries** of the **Cantonal** forest services



Forest management plans



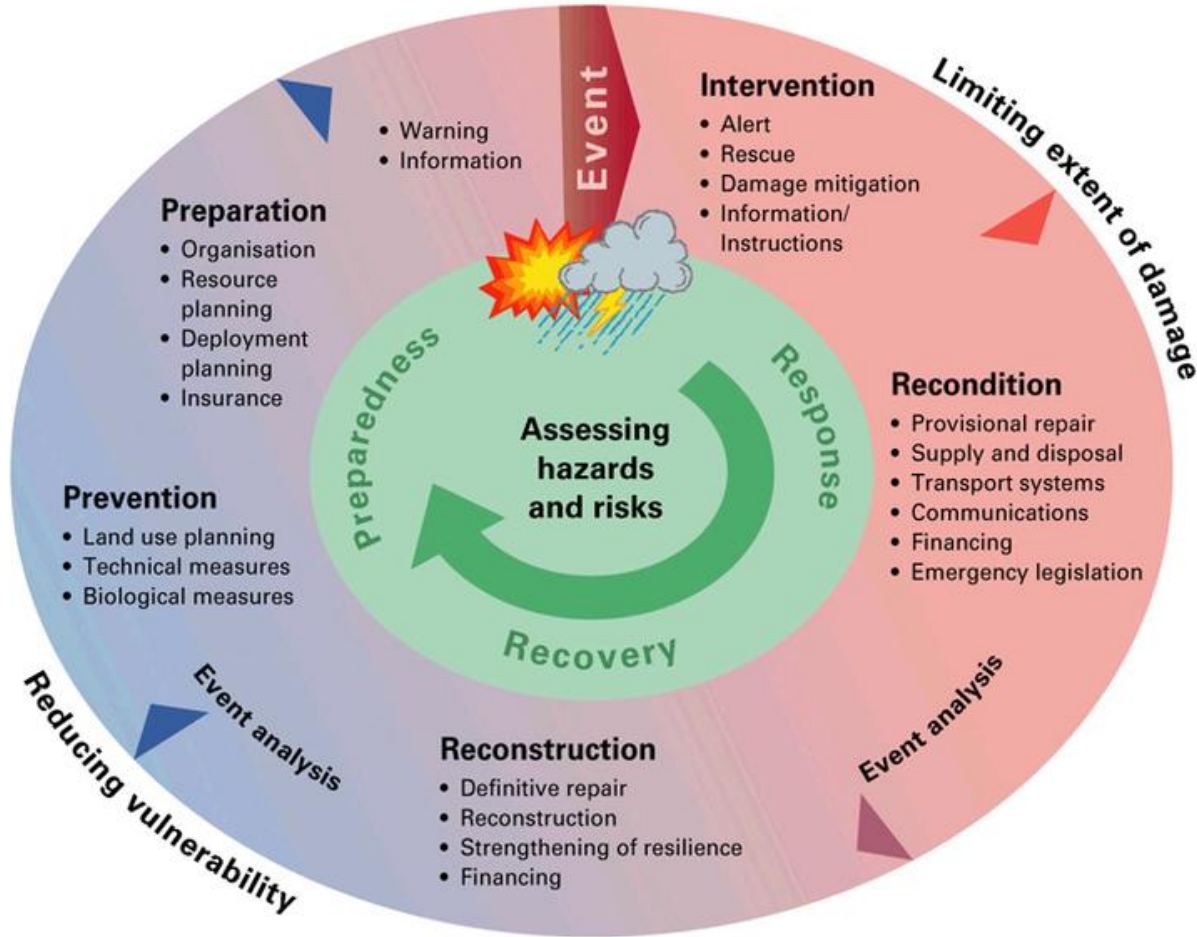


Flood protection measures: check dams etc.



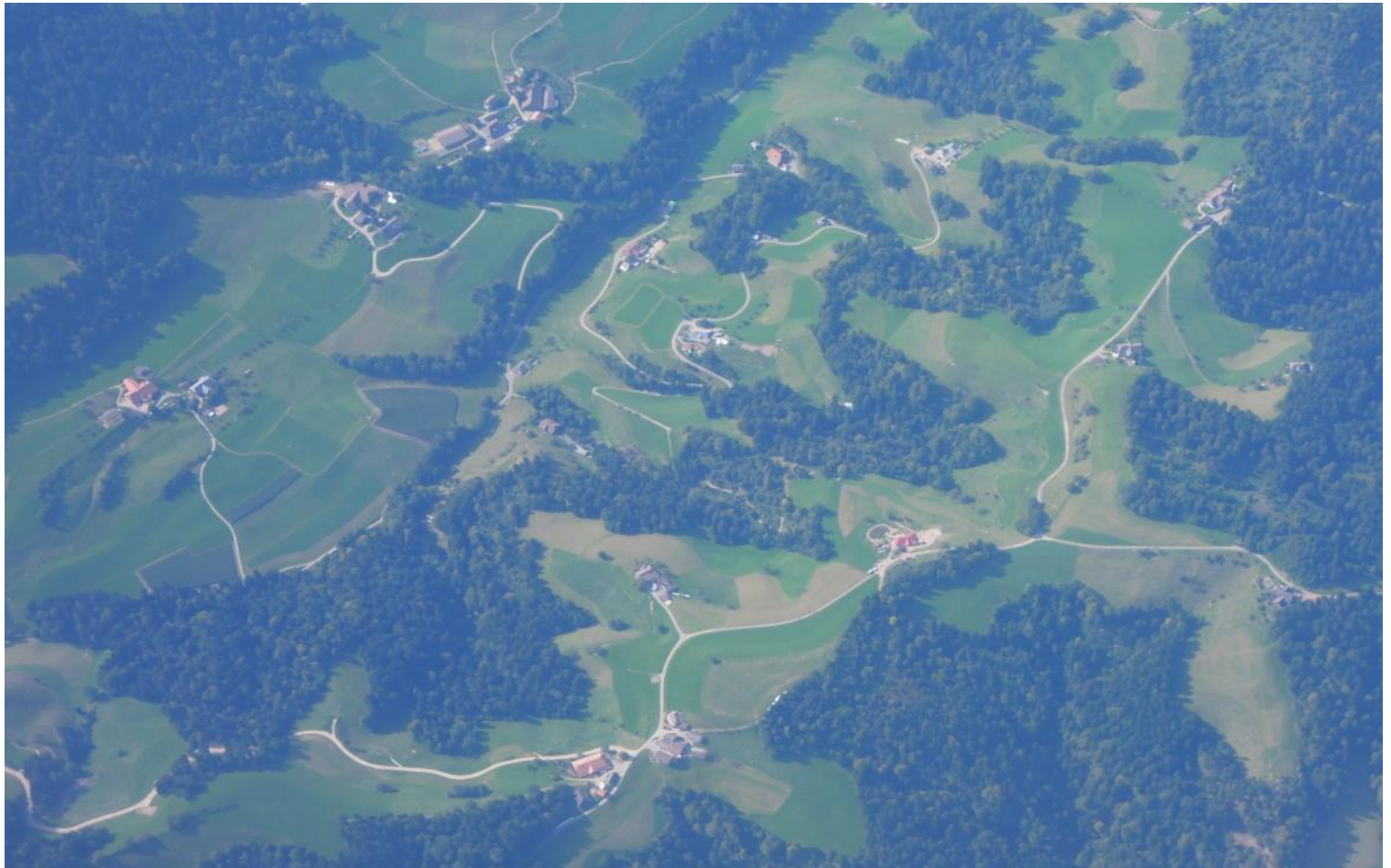


Integrated risk management, hazard maps, risk dialogue





The more robust the institutional landscape, the better forests are protected from outside factors, the better their contribution to the management of the watershed and to food security, and the better their adaptive capacity to climate change





Over 100 years everything was quiet --- and then came the floods again --- Brienz 2005





Same place, same trouble









Same place, contemporary trouble





Improved governance and institutional landscape: more powerful local councils...





... civil protection, fire fighters ...



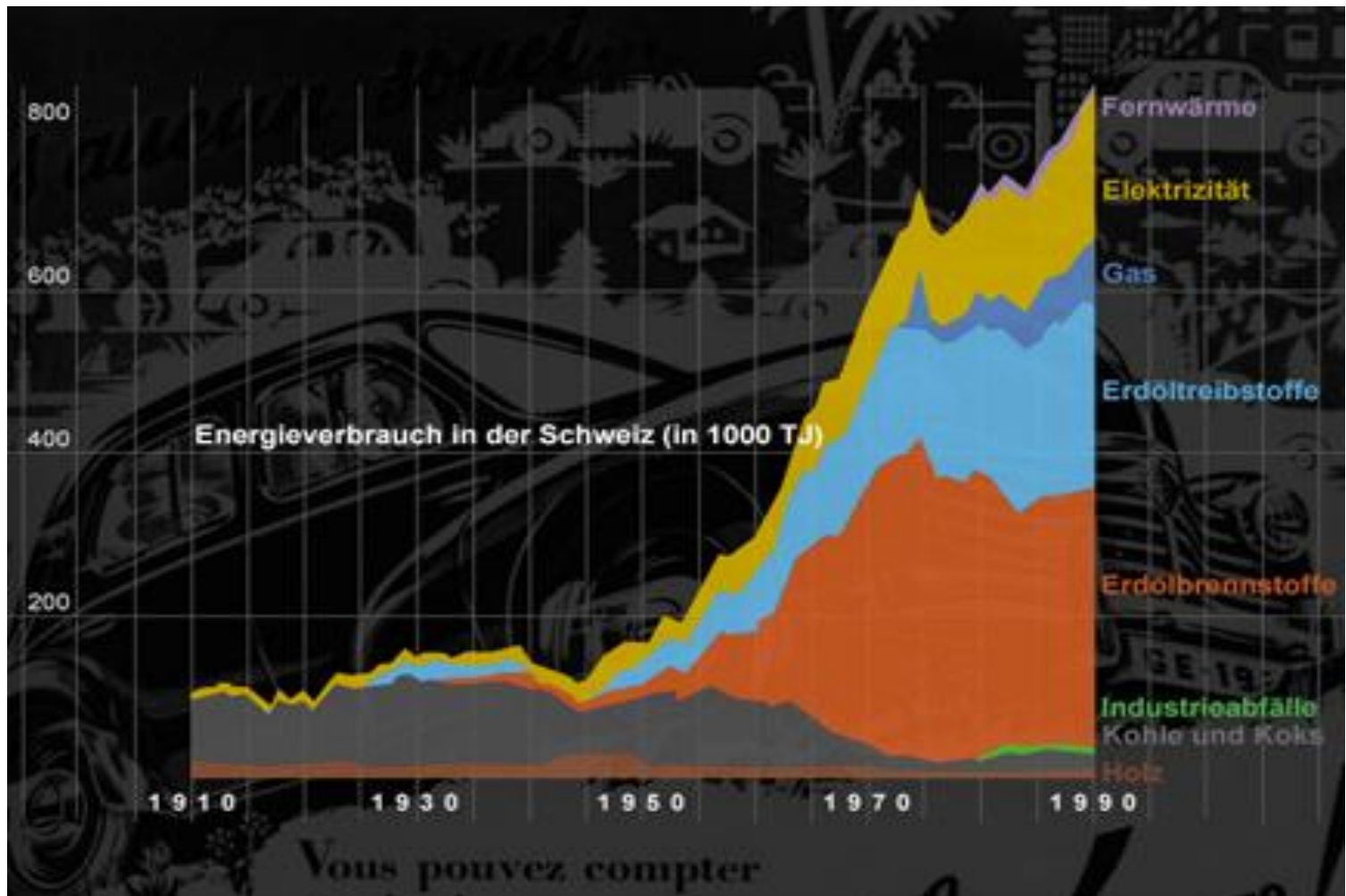


...gear





Forests/watersheds/landscapes are heavily influenced by outside factors... this time negatively





Key points revisited

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Thank you!