

Watershed and Hazard Management in the Alm Valley

SWG Study Tour, june 13th 2013
stephan.vollsinger@die-wildbach.at

Authority We are now in ...

Actions in the Alm-Valley

State	Austria	Regional study "Almtal" Hazard Zone Map "Grünau", Plan and Realize Mitigation measures
Province	Upper Austria	River Management Concept "Alm", Flood Risk Map, Riverbank protection
District	Gmunden	Water law approvals
Municipality	Grünau im Almtal	Construction approvals

Republic of Austria: Torrent and Avalanche Control

- Hazard Zone Map "Grünau", "Scharnstein", "Vorchdorf "
- Regional Study Almtal

Province of Upper Austria

- River Management Concept "Alm"
- Flood Risk Map
- River Development Concept "Alm"

River Management Concept "Alm"

- Airborne Laser Scan + terrestrial survey → Basin Model
- Precipitation - Runoff - Model → Design Discharge
- Sediment Input from tributaries
- Bedload transport
- Bridges and weirs
- Hydraulics
- Ecologic status quo

Flood Risk Map

- 10-year- flood
- 30-year- flood
- 100-year-flood

River Development Concept "Alm"

- Guiding principle for river management
- Recommended measures incl. costs and hydraulic effects

River Development Concept "Alm"

Types of recommended measures

- Widening of the discharge profile
- Flood protection
- Increasing the residual flow of weirs and power plants
- Passage for micro- and macro-organisms
- Ecologic enhancement (old structures, ...)
- Recreational measures

River Development Concept "Alm"

Maßnahmen

35.1. Passierbarkeit der Grünaubachmündung rechtsufrig bei Fkm 36,49 herstellen

Möglichkeiten:

- ⇒ Umbau der bestehenden Fischwanderhilfe im Mündungsbereich
- ⇒ Ersetzen durch aufgelöste flache Sohlrampe ($I < 1:20$)

35.2. Wassererlebnisbereich an der Mündung des Grünaubaches rechtsufrig bei Fkm 36,49 gestalten

- ⇒ Zugänglichkeit zum Wasser ermöglichen
- ⇒ flache Böschungen zum Wasser
- ⇒ Wassererlebnisbereich mit erholungsfunktionellen Einrichtungen schaffen
- ⇒ Möglichkeiten zum Spielen für Kinder
- ⇒ Informationstafeln zu Alm und zum Grünaubach
- ⇒ Sitzmöglichkeiten, Aussichtsturm oder -plattform



Torrent and Avalanche Control

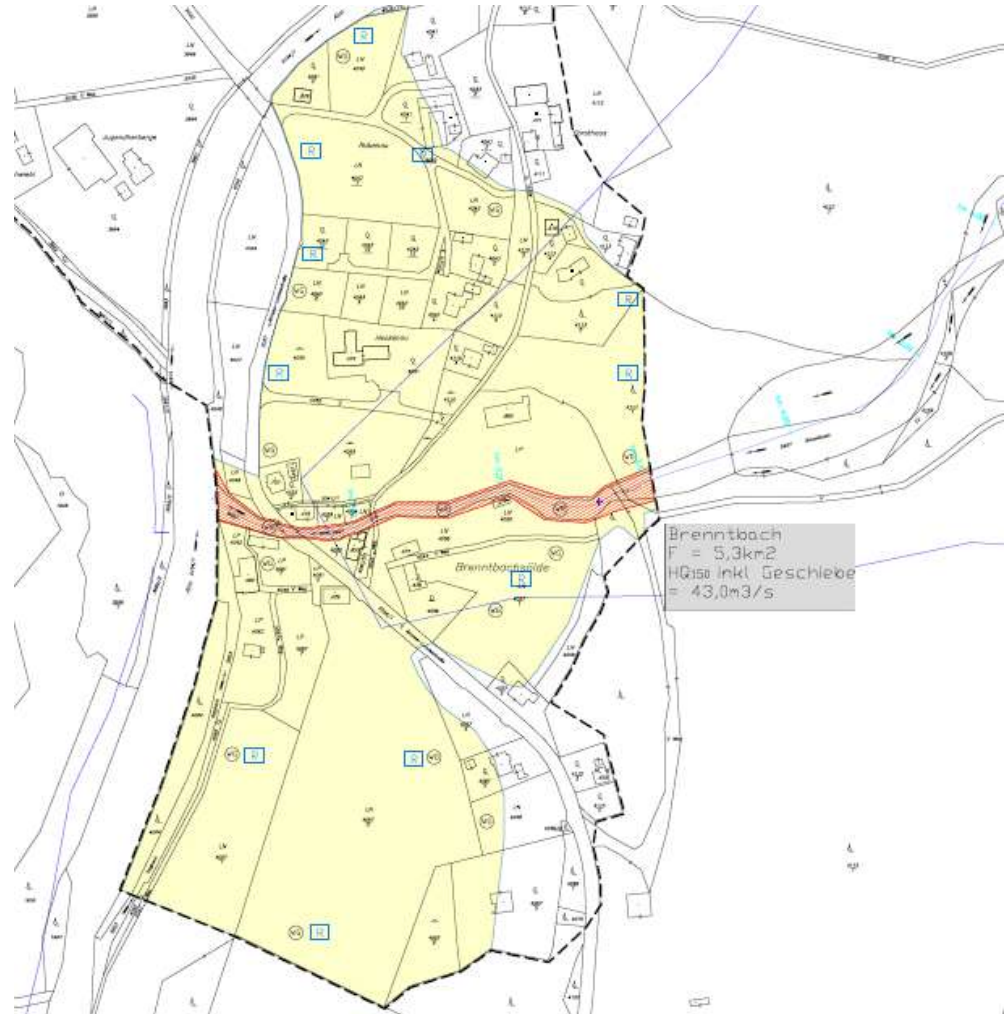
Hazard Zone Map "Grünau", "Scharnstein", ...

- Watershed description (morphology, geology, forestry, ...)
- Runoff-Model or formulae
- 150-years - **design event** (discharge, bedload, erosion, rockfall, avalanches, ...)
- Hazard Zones

Hazard Zone Map "Grünau"

Brenntbach

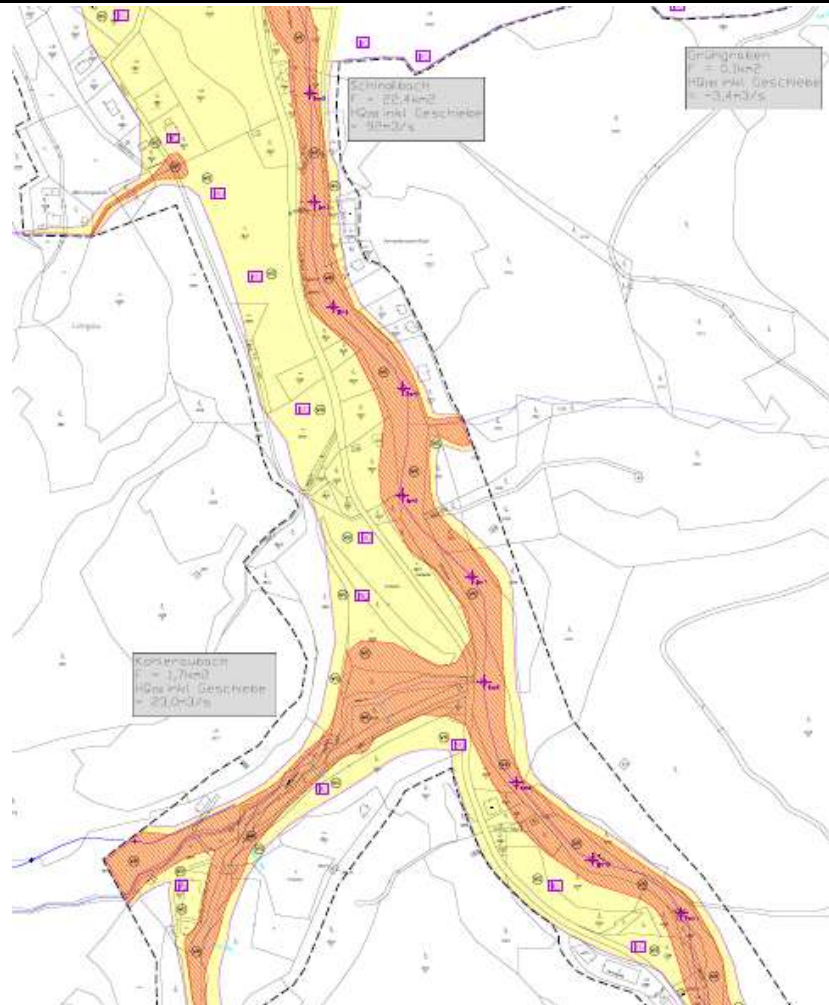
- Plan
- Verbal description



Hazard Zone Map "Grünau"

Grünaubach tributaries

- Plan
- Verbal description



Torrent and Avalanche Control

Regional study "Almtal"

- Hazard zones (from hazard zone maps)
- Spatial conflicts (settlements, trade and industry, infrastructure in hazard zones)
- Recommended measures
- Cost-benefit-analysis

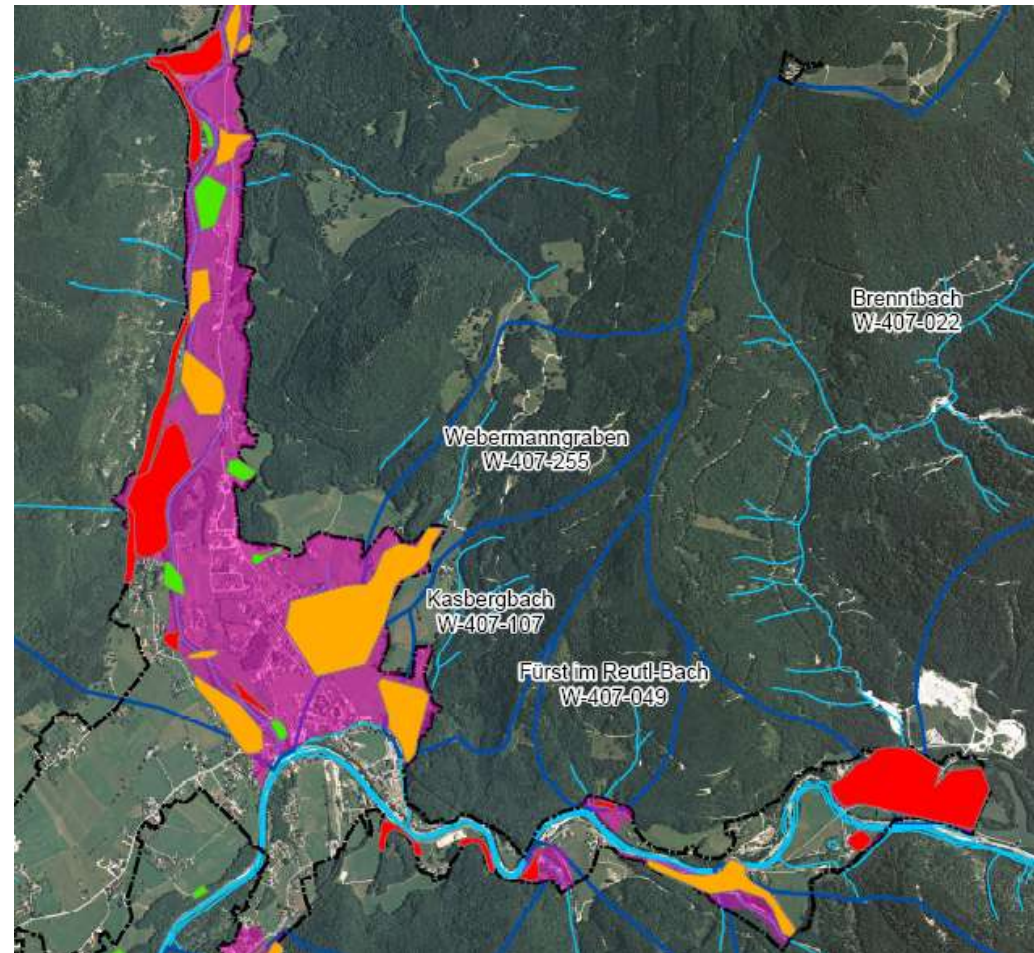
Spatial conflicts

Legende

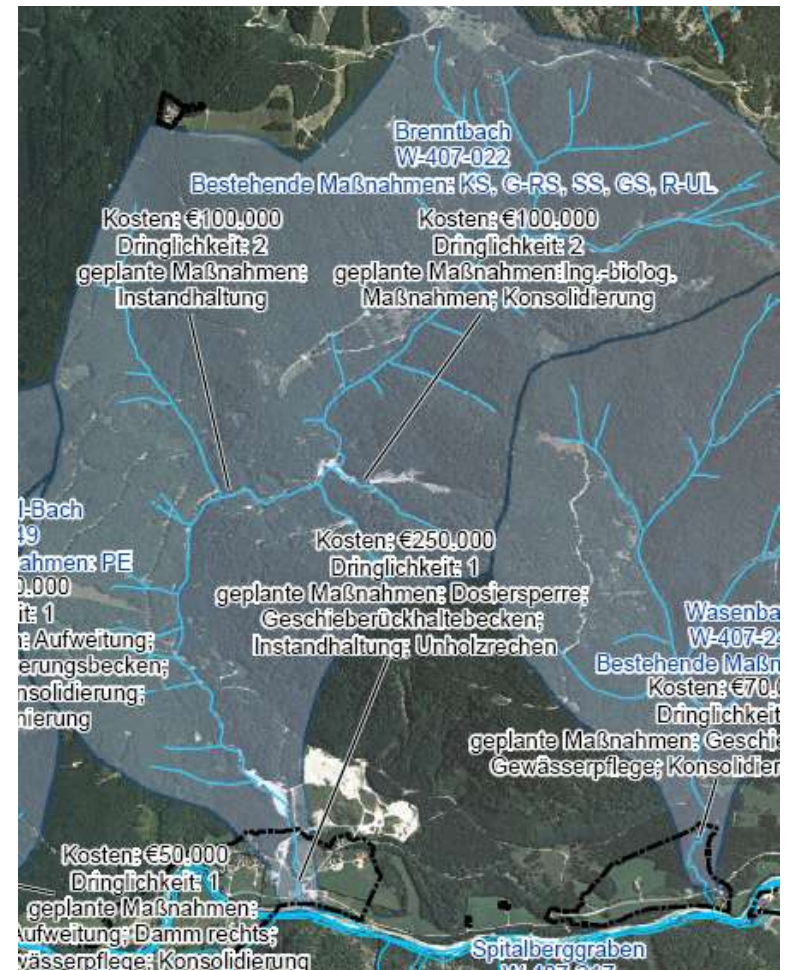
Gefahrenbereiche

Kategorie

-  1, Gefahr für Leib und Leben, Intensität hoch
-  2, Gefahr für Leib und Leben
-  3, Intensität und Schadpotential hoch
-  4, Intensität oder Schadpotential hoch
-  Konfliktbereiche
-  Raumrelevanz
-  Gemeindegrenzen
-  Einzugsgebiete
-  Bachachsen

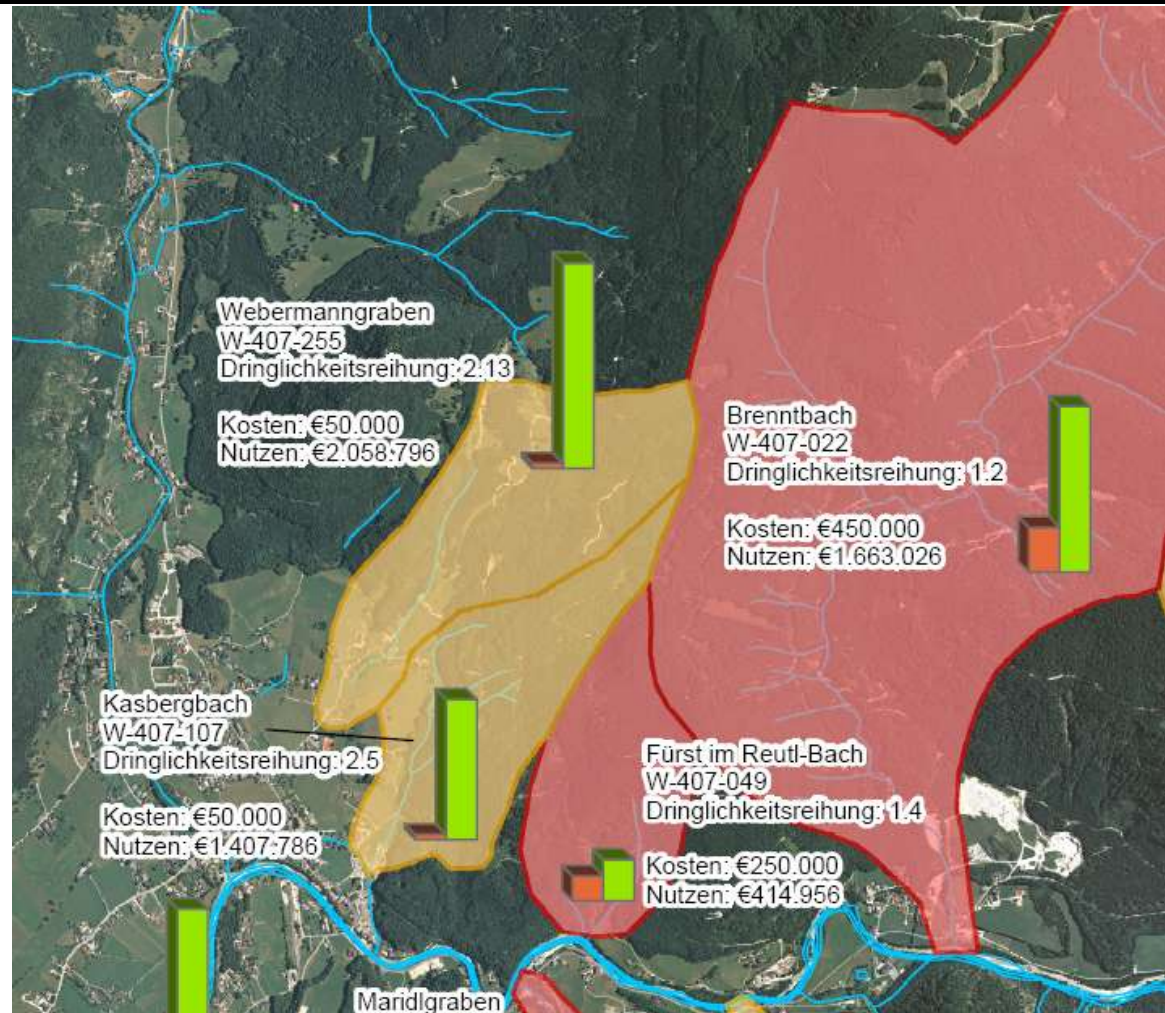
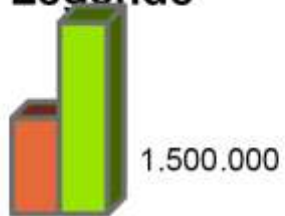


Recommended measures



Cost benefit analysis

Legende



Thank you for your attention!