Physical, social and institutional vulnerability assessment in small Alpine communities. Results of the SAMCO-ANR project in the Upper Guil Valley (French Southern Alps)

Benoit Carlier, Constance Dujarric, Nikita Frison-Bruno, Anne Puissant, Candide Lissak, Malika Madelin, Vincent Viel, François Bétard, Monique Fort, Gilles Arnaud-Fassetta

To cite this version:
Benoit Carlier, Constance Dujarric, Nikita Frison-Bruno, Anne Puissant, Candide Lissak, et al.. Physical, social and institutional vulnerability assessment in small Alpine communities. Results of the SAMCO-ANR project in the Upper Guil Valley (French Southern Alps). EGU General Assembly 2016, Apr 2016, Vienne, Austria. hal-01373208

HAL Id: hal-01373208
https://hal.archives-ouvertes.fr/hal-01373208
Submitted on 28 Sep 2016

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.
1- Background

The study area of the Guil valley is prone to torrential and winter rainfall hazards such as floods, debris flows, and avalanches. The study area includes the municipalities of Ristolas, Abriès, Aiguilles, and Château Queyras, with a total of 127 buildings and 2,892 residents. The study focused on the village of Molines, where natural hazards were assessed in terms of flood risk, avalanche risk, and debris flow risk.

2- Methods

The study used a geographical information system (GIS) to assess potential damage caused by natural hazards. The study included a systemic approach to assess three specific components of vulnerability: physical, social, and institutional. A weighted indicator map was created to reflect different scenarios and exposure levels.

3- Results: Physical vulnerability assessment

The weighted indicator map for flooding (Fig. 5) put forward urbanized and cultural areas. The highest degree of potential physical injury for the 1957 flood extension and winter avalanche risk was observed in the municipalities of Ristolas, Abriès, Aiguilles, and Château Queyras (Fig. 10). Especially in the 4 villages of the main valley: Ristolas, Abriès, Aiguilles and Château Queyras (Fig. 10 and 11).

4- Results: Social and institutional vulnerability assessment

Questionnaires and interviews suggested that Queyras inhabitants are globally aware and well informed about their municipality risk. According to their responses, flooding and avalanches are the major risks to consider. Many of them (Fig. 14) have experienced a natural disaster. The study found a high degree of confidence in local authorities and emergency services. However, some residents expressed a need for better land use planning and update their emergency action plans.

5- Conclusion

This work remains part of a larger study on risk in mountainous regions that should lead to a web demonstrator intended for risk stakeholders. The study suggests that these first results on vulnerability can contribute to a better assessment of the global vulnerability of the upper Queyras region to hydrogeomorphic hazards. This work must help the development of better land use and could be used to help local authorities to improve and update their Emergency Action Plan or their Prevention Plan. The next step of this work will be to elaborate a method combining these maps to produce a global risk map for mountain risks.