SEVENTH WORK PROGRAMME
THE PEOPLE PROGRAMME
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CHANGING HYDRO-METEOROLOGICAL RISKS – AS ANALYZED BY A NEW GENERATION OF EUROPEAN SCIENTISTS

Case study area Fella river catchment, Friuli Venezia Giulia, Italy fieldwork report, Part 1

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Report prepared by Žiga Malek.

Laxenburg, October 2012

Basic information about the fieldwork

Date	6.10. – 10.10. 2012
Venues	
Cave del Predil/ *Raibl/ Rabelj*	Mountain Monte Re/ *Konigsberg/ Kraljeva spica*
Ugovizza/ *Uggowitz/ Ukve*	Village, higher altitude pastures upstream the Ugovizza valley
Valbruna/ *Valbrune/ Wolfsbach/ Ovcja vas*	Village, Val Saisera Valley
Malborghetto/ *Malborghet/ Malborgeth/ Naborjet*	Municipality Malborghetto Valbruna Office for spatial planning and environment of the municipality Local historian
Pontebba/ *Ponteibe/ Pontafel/ Tablja*	Town of Pontebba, Mountain pass Passo Pramollo/ *Nassfeldpass/ Mokrine*, Villages with pastures and meadows upstream the Pontebba river
Participants	Žiga Malek (ESR04, IIASA Laxenburg, Austria)
Objectives	Discussion with local and regional decision makers and experts on issues connected with all aspects of land use change in mountain environments: - changes to demography (population, age structure), - employment, industry, - environmental and infrastructural issues and projects, - main human activities in the area (forestry, tourism, recreation, trade), - information and data about past trends

Introduction

Mountain community of Gemonese, Canal del Ferro e Val Canale

The case study area is a part of a major European mountain region: The Alps. It has complex physical-geographic characteristics defined by steep slopes and a dense river network, posing serious limitations for human activities. Extreme precipitation events leading to hydro-meteorological hazards such as flash floods and landslides are frequent and have caused casualties as well as damage to infrastructure worth in tens of millions of Euros. Although it is a rural area in depopulation, the recent trends suggest that future development (expansion of touristic and recreational areas) could result in further increase of hydro-meteorological risks. Increase of exposed elements at risk due to urbanization could aggravate the consequences of expected climate changes. It is interesting for research due to its complex socio-economic background demonstrated in the alpine settlement and land use pattern.

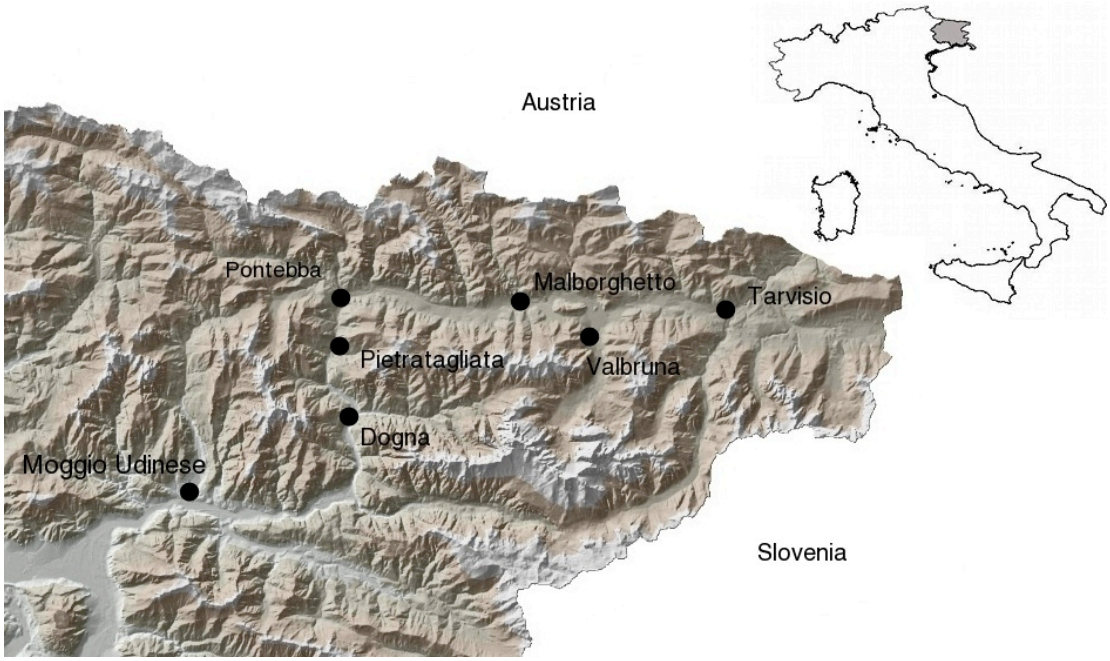


Figure 1: Fella river case study area (Regione FVG 2012)

The Fella river study area is characterized by a natural flow regime of local rivers and extreme flash flood and landslide events with catastrophic consequences; hundreds of millions Euros of damage and even human casualties. This has raised questions about hazard mitigation involving technical and infrastructural solutions on one side, and sustainable river management on the other (Scolobig et al. 2008). The discourse around sustainable hydro-meteorological hazard management strategies is a challenge for the ecosystem services concept, therefore making it an appropriate case study area.

Discussions about technical measures in order to mitigate hydro-meteorological hazards could be seen in a way to question ecosystems' abilities to regulate hazards, especially with the outlook on expected climate changes. On the other side, this area

together with the entire Tagliamento river system, which the Fella river is part of, is providing trade-offs on the European scale: habitat provision and cultural amenities such as scenic landscape. Due to difficult physio-geographic characteristics and sparse population density the area may seem remote, however important traffic connections along the river valley (National Road No. 13, Highway A-23 and the Udine-Tarvisio railroad) act as a vital link to the neighboring Carinthia in Austria and to Slovenia. Besides having an interesting natural background, it is interesting to note that there are three different ethnic groups living in the area; Italian, German and Slovenian, thus making it an area with a diverse social background. Important activities at our case study area are forest harvesting, transport, agriculture (mainly extensive on pastures) and tourism (both summer and winter); in the wider area also water and gravel extraction.

The Friuli-Venezia-Giulia region lies in north-eastern Italy, bordering with Austria and Slovenia. It extends from the Carnian and Julian Alps in the north, through the prealpine hills and the Friulian plain, to the Adriatic Sea, making it a diverse region with various kinds of topographic and climatic patterns. Our case study area is situated between the Carnian and Julian Alps in the discharge area of the river Fella, which is a major left-hand tributary of the Tagliamento river. The area is characterized by steep slopes and high precipitation levels; in the higher altitude areas the annual precipitation can reach up to 3000 mm and frequent extreme daily rainfall exceeding 500 mm have been recorded in the area in 20-30 years time span (Ceschia et al. 1991). The Fella river catchment has a mean altitude of 1140 m a.s.l and an average mean precipitation of 1920 mm (Sangati 2009). As rainfall is concentrated mainly in intense and erosive showers, it determines the torrential regime of the rivers in the area. The area is also seismically active and characterised by a dense distribution of landslides (Borga et al. 2007).

The Fella river is a part of the Tagliamento river system, which is the dominant river system in the Friuli-Venezia-Giulia region (Cattaneo et al. 2006). Several authors consider it as the last morphologically intact river in the Alps, although it is not completely without human influence (Ward et al. 1999; Arscott et al. 2002; Lintzmeyer 2005). The Tagliamento river system has a number of qualities making in important in terms of (river) ecology. Firstly, it connects two important biomes, the Alps and the Mediterranean (Ward et al. 1999). Secondly, it is characterised by unconstrained floodplain segments, enabling a dynamic mosaic of aquatic and terrestrial habitats and a high level of renewal due to flooding (Gurnell et al. 2000; Arscott et al. 2002). Furthermore it has a large number of vegetated islands (Ward et al. 1999; Gurnell et al. 2001). Tockner et al. (2003) believe that it is significant to recognise the functions of these endangered attributes in order to effectively engage in river conservation and management plans, making the Tagliamento river system an indispensable resource as a reference ecosystem for the Alps and large temperate rivers.

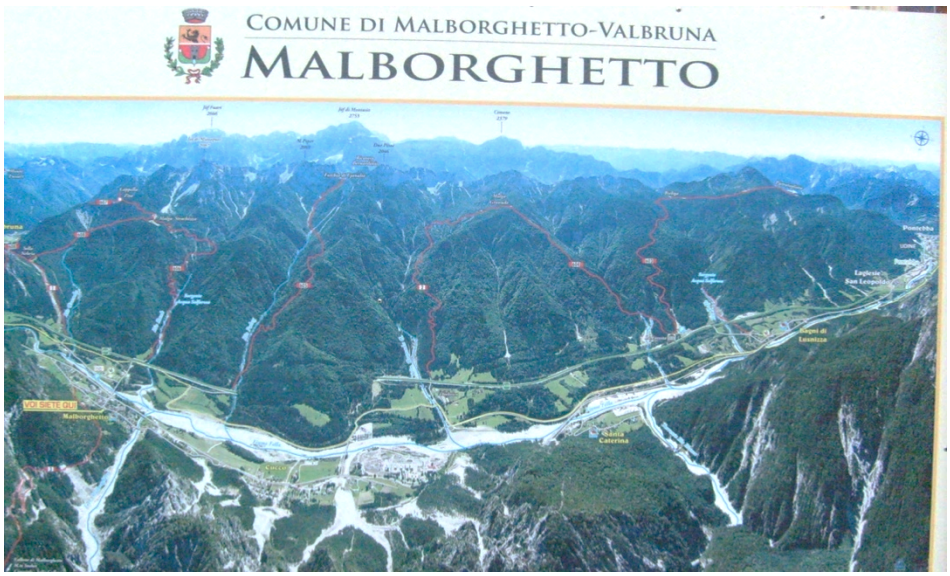
Daily description

Date	**06-10-2012**
Venue	**Mountain Monte Re/ Konigsberg/ Kraljeva spica (1912 m), above Cave del Predil/ Raibl/ Rabelj**
Objective of the trip	Climbing the mountain in order to better understand the alpine land use/cover pattern in the valley and slopes, Visiting the town of Cave del Predil (former lead mine, a lot of people in the region employed in the mine)
Participants	Žiga Malek

Date	**09-10-2012**
Venue(s)	**Itinerary: Valbruna (Val Saisera), Ugovizza, Pontebba (Passo Pramollo), 126 km**
Objective of the trip	Understanding the alpine land use/cover pattern and the current development of the settlements, higher altitude meadows, side valleys, remote places. Taking photographs. Identifying the accessibility and livelihood of people and places in side valleys (as well as road quality)
Participants	Žiga Malek

Date	**10-10-2012**
Stakeholder (for more information see the annexes)	**Municipality of Malborghetto-Valbruna** Dr. Alessandro Oman, Mayor (speaks Slovenian, Italian, German)
Objective of the meeting	Interview of the stakeholder about land use and socio-economic changes
Participants	Žiga Malek

Date	**10-10-2012**
Stakeholder (for more information see the annexes)	Mr. Raimondo Domenig (representative of the German minority and local historian, speaks German and Italian)
Objective of the meeting	Interview about land use and socio-economic changes
Participants	Žiga Malek



Conclusion

The fieldwork in Val Canale was important in getting the information about the physical and socio-economic setting. It was very successful in terms of involving the potential stakeholders into the project and inquiring about further activities of the researcher and the project itself. Stakeholders have also expressed a wish to be informed of any outcomes and activities connected with the project (on this case study area).

Data

Most of necessary data was collected prior to the fieldwork, together with other partners of the CHANGES network (CNR Padova), or acquired through the webgis and statistical portals of the Friuli Venezia Giulia, as well as the ISTAT (Italian statistics authority) data portals. The statistical office of Friuli Venezia Giulia region in Trieste also contributed the data on the municipal level.

Stakeholders' involvement

Most of the stakeholders are prepared to collaborate on the project also in the future, and were willing to help in getting new contacts and organizing meetings. As the area is ethnically diverse (with 4 different languages spoken in the region), fieldwork and performing interviews was more challenging on one side, and easier on the other, due to the mother tongue of the CHANGES researcher (Slovenian), and the ability to speak fluently German and a bit Italian. At the regional level and educational and research authorities (University), English is spoken.

Stakeholders' needs

They consider the project interesting and important, and are looking forward to the results (wanted to be updated on the progress and results).

Acknowledgements

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