

# **GOOD GOVERNANCE IN MASTERING NATURAL HAZARDS**

## **ILLUSTRATED BY THE EXAMPLE OF WEGGIS**

René Graf<sup>1</sup>

### **HYPOTHESIS**

The management of natural hazards today can be based on sound knowledge and effective instruments such as hazard maps, risk analysis, monitoring systems, land use regulations and many more. Nevertheless, successful management of natural risks depends on how these potentials are used by the authorities. Good governance here stands for courage, consequence and transparency. Thanks to preventive measures and good governance, Weggis in Central Switzerland overcame several hazardous events without casualties and with an intact reputation as a tourist resort. Built on the lessons learnt from the 2005 disaster, Weggis has enhanced its prevention and preparedness in an integrated way, which can serve as a role model for other communities at risk.

### **HOW THIS HYPOTHESIS WILL BE REVIEWED**

The situation of Weggis at the foot of the famous Mount Rigi and on the shore of Lake Lucerne stands for a long history of loss events caused by natural hazards. The specific geological conditions (alteration of marl and sandstone) often generate landslides, rock fall and debris flow. In 1795, a major landslide destroyed part of the village, more than 250 people lost their homes. For a long time during the past, the threat of natural hazards was faced by isolated measures such as protective structures for single objects and the restructuring of rivulets. In 1999, the municipal council of Weggis applied for subsidies for the stabilization of a rock that threatened a house. The authorities of the Canton of Lucerne replied by asking for an overview over the natural hazards and the respective risks in the municipality of Weggis. The intention was to invest the limited means into the projects that would lead to a maximum risk reduction instead of just reacting to a single observation. Therefore, the municipality of Weggis assigned a specialized agency with the elaboration of a synoptic hazard and risk map. Weggis has been the first municipality in the Canton of Lucerne to do so. During the elaboration of these maps, that respective rock precipitated and destroyed the house. No one blamed the local authorities, because the elaboration of the hazard and risk maps was considered an act of good governance.

In August 2005, many parts of Switzerland were hit by floods and landslides. In Weggis, a part of the village was flooded and many landslides occurred. Several homes had to be evacuated and only a few hours later, three of them were destroyed by a huge landslide. In a tourist resort, an evacuation can cause lateral damage by affecting the resort's reputation. The life saving command for this evacuation therefore also was an act of courage and good governance. During this disaster many of the huge rocks far above the village were destabilized, and the historic landslide of 1795 started to show some new cracks. A number of emergency measures were taken immediately:

---

<sup>1</sup> Head of Nature Disaster Risk Reduction of the Canton Lucerne; Centralstrasse 33, Postfach, CH-6210 Sursee (phone: +41-(0)41-9251000; fax: +41-(0)41-9251009; e-mail: lawa@lu.ch) and Independent consultant (www.riskcoach.ch)

- ◆ A stop of work was decreed for all properties at high risk as shown on the hazard map. The reconstruction of the destroyed houses was forbidden.
- ◆ A first range of protection dams were built and water discharge was improved.
- ◆ A survey system was installed, which ensured the monitoring of the great number of rocks and landslides considered to be unstable.
- ◆ An emergency planning was established to organize the actions of the emergency units in case of an alert (e.g. as an output of the survey system).
- ◆ The hazard maps were revised and the practice of land use was adapted to the temporary state of safety.
- ◆ The population was informed regularly and intensely by different means with personal contacts to all the directly affected.
- ◆ The entire event was documented in detail.

These emergency measures cost 3.6 millions Euro. All the different measures were harmonized. The population was informed regularly and intensely by different means. This act of transparency turned out to be a key factor for a successful collaboration of authorities, interested house owners, tax payers, affected land owners and executors.

Long term measures have been planned and put together to a master plan. According to this schedule, the following measures will be realized during the next 10-15 years:

- ◆ Operation of the survey system. Costs: 25'000 Euro per annum.
- ◆ Drainage of several rivulets and ditches. Costs: 8.5 millions Euro.
- ◆ Different measures against rock fall and landslides. Costs: 10 millions Euro.
- ◆ After the implementation of the protective measures the hazard maps will be revised.
- ◆ The land use regulation is going to be adapted step by step, corresponding to the final state of the hazard maps and according to the progress of the protection system. This means a consequent consideration of natural hazards in building permissions as well as the avoidance of a long lasting blockage of the construction activities in the endangered areas – another act of prudence and good governance.
- ◆ A ban on construction will be decreed for some of today's designed settlement area. This means a drastic act for the affected land owners and an unpleasant task for the authorities. All the same, avoiding the zones at risk still means the most effective measure to risk reduction.
- ◆ As an accompanying measure a project to foster the protective effect of the forest above the settlement areas was established already years ago and will be continued in the future.

## OUTLOOK

Weggis provides an impression of how the local administration of a severely threatened village can manage the complex number of challenges which arise due to natural hazards. Thanks to good governance the progress in Weggis can so far be considered to be successful.

**Keywords:** Integrated approach, good governance, prevention, preparedness, disastrous events, lessons learnt, hazard maps, land use regulation