

Impact of Large Landslides in the Mountain Environment: Identification and Mitigation of Risk



Contract n° EVG1-CT-2000-00035

Scientific Report on Activities

Annex 7: WP8 detailed scientific Report

March 1st 2002– August 31st 2002

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WORKPACKAGE N. 8

Establishment of mitigation strategies in the short and long term and evaluation of residual risk within several legal frameworks

WP leader: LCPC

Participants: RP, UPC, TUW, EPFL

Planned start month: 21

Actual¹ start month: 6

End month: 30

Objectives and input to workpackage

The objectives of this workpackage are:

- To review of the main responses or mitigation strategies to the different scenarios for some sites and to assess their efficiency, reliability (short term / long term) and cost.
- To examine the actual possibility to implement the various strategies, taking account of the economical, social and legal framework of each country.
- To compare the legal frameworks related to landslide mitigation in each country.

Input to this workpackage are:

- Review of main actions decided in different sites in the world that were endangered by a large landslide.
- Risk assessment as evaluated in WP7.
- Legal framework existing in each country.

Deliverables:

D20 (month 24): Report on legal framework related to landslide mitigation in each country involved in the project;

D21 (month 29): For some of the selected sites, report on the most adequate strategies, together with their main advantages and disadvantages;

D22 (month 30): Management guidelines for the relationships among decision-makers, scientists and the people exposed to risk.

¹ The LCPC, leader of the WP8, started the activity in advance. This was decided by the consortium taking into account two elements:

- the period of presence at LCPC of the temporary staff working on WP8,
- it allows to provide to all the partners a more comfortable time schedule for the collection of data and the analysis of their politics in the risk management and for the synthesis to be done by the LCPC.

1 DESCRIPTION OF WORK

The activities done within this workpackage up to the third report on activities are:

Activity 1: Creation of tables for collection of data relating risk management procedures currently used in the countries involved

Activity 2: Filling up of the tables

To simplify the data collection necessary to the WP8 development, we used two types of tables, created during the first six months of WP8 activities:

Table 1: Chronology of the management of the landslide risk in the selected site xxx.

Table 2: Risk management system in the legal framework of the country yyy.

These tables were studied to facilitate the comparison among the various risk management politics of each country.

Table 1 is related to each selected site and describes the time history both of the natural phenomena and of the human reaction.

The structure of the table points out for each event (with the associated estimation of risk) what are the actions that have to be taken and who is responsible for their definition and implementation (figure 1)

The historical succession can be grouped in several phases according to the level of the procedure applied with respect to the risk knowledge/management process (figure 3).

Table 2 is devoted to the knowledge and management of the landslide risk in the country (figure 2). The following points are taken into account:

- the role and the responsibility of the different actors;
- the main "tools" which can be used to carry out the appropriation of the risks by the different actors for a durable management of the risk basin;
- the establishment in charge of the financial aspect.

2 PRESENT STAGE OF WORK (MONTH 18)

2.1 ACTIVITY 1

Activity 1 has been carried out, starting from month 6, by the partner LCPC, WP8 leader. All the partners gave their contribution to the definition of the tables in the discussions arose during the project meetings in Torino and Lyon. This activity is now concluded.

2.2 ACTIVITY 2

Activity 2 is the main work carried out in the reporting period. In particular, the following has been done:

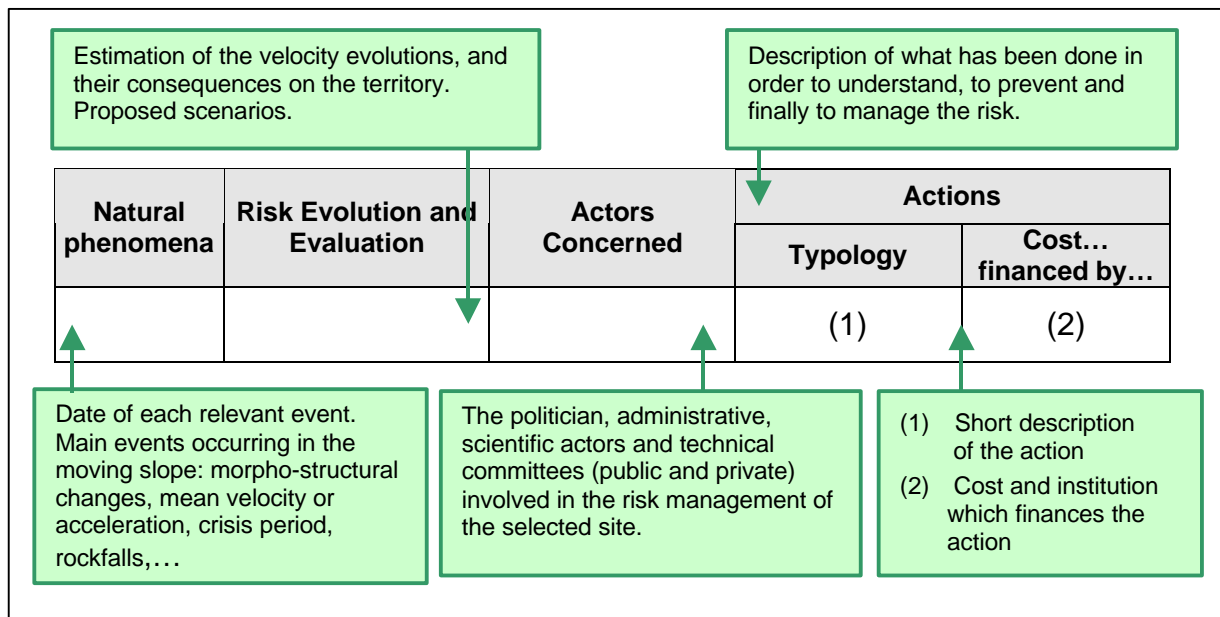


Figure 1 **Table 1** Chronology of the management of the landslide risk of «name which to identify the pilot site»: description.

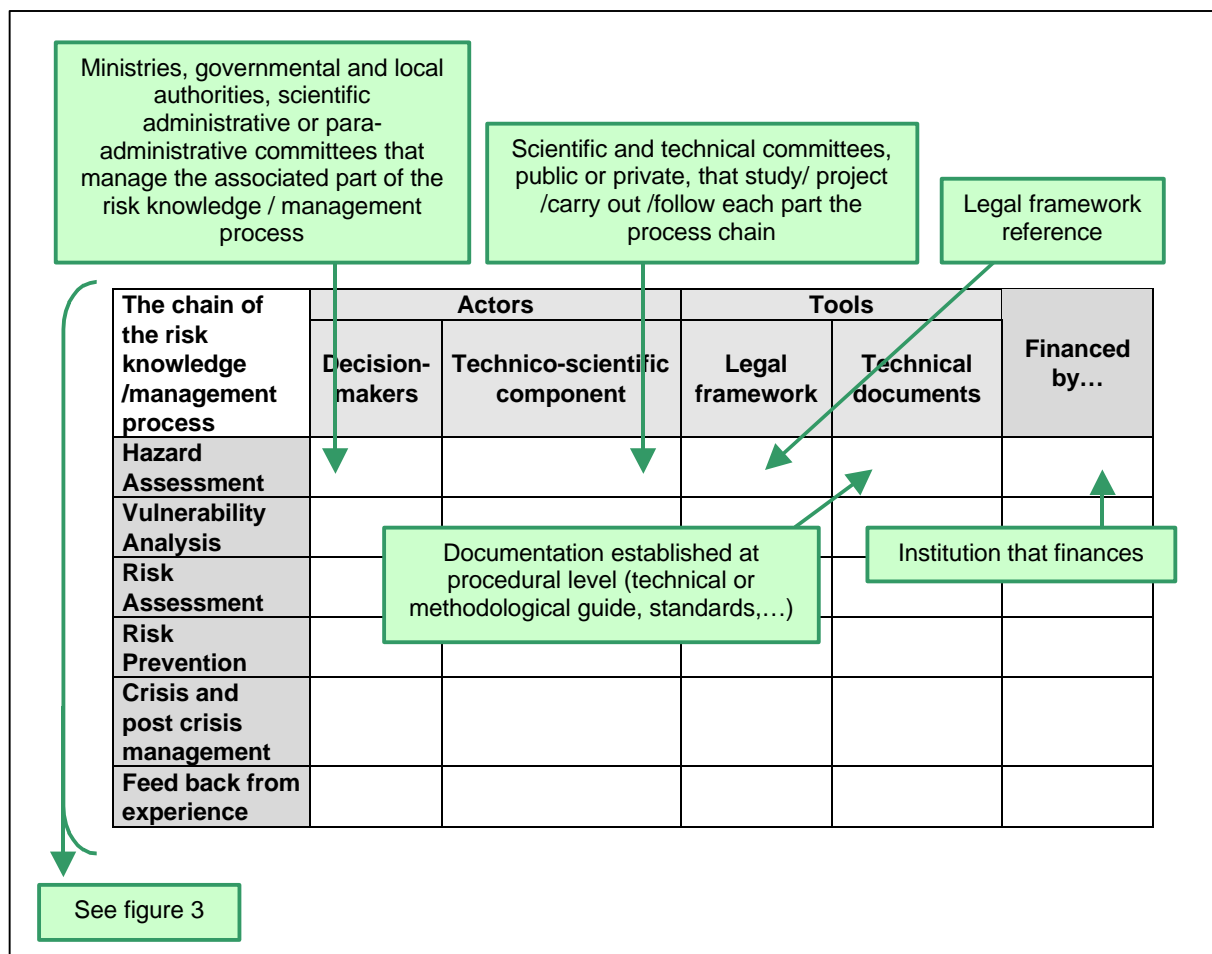


Figure 2. **Table 2:** “Risk management system” in (country name)

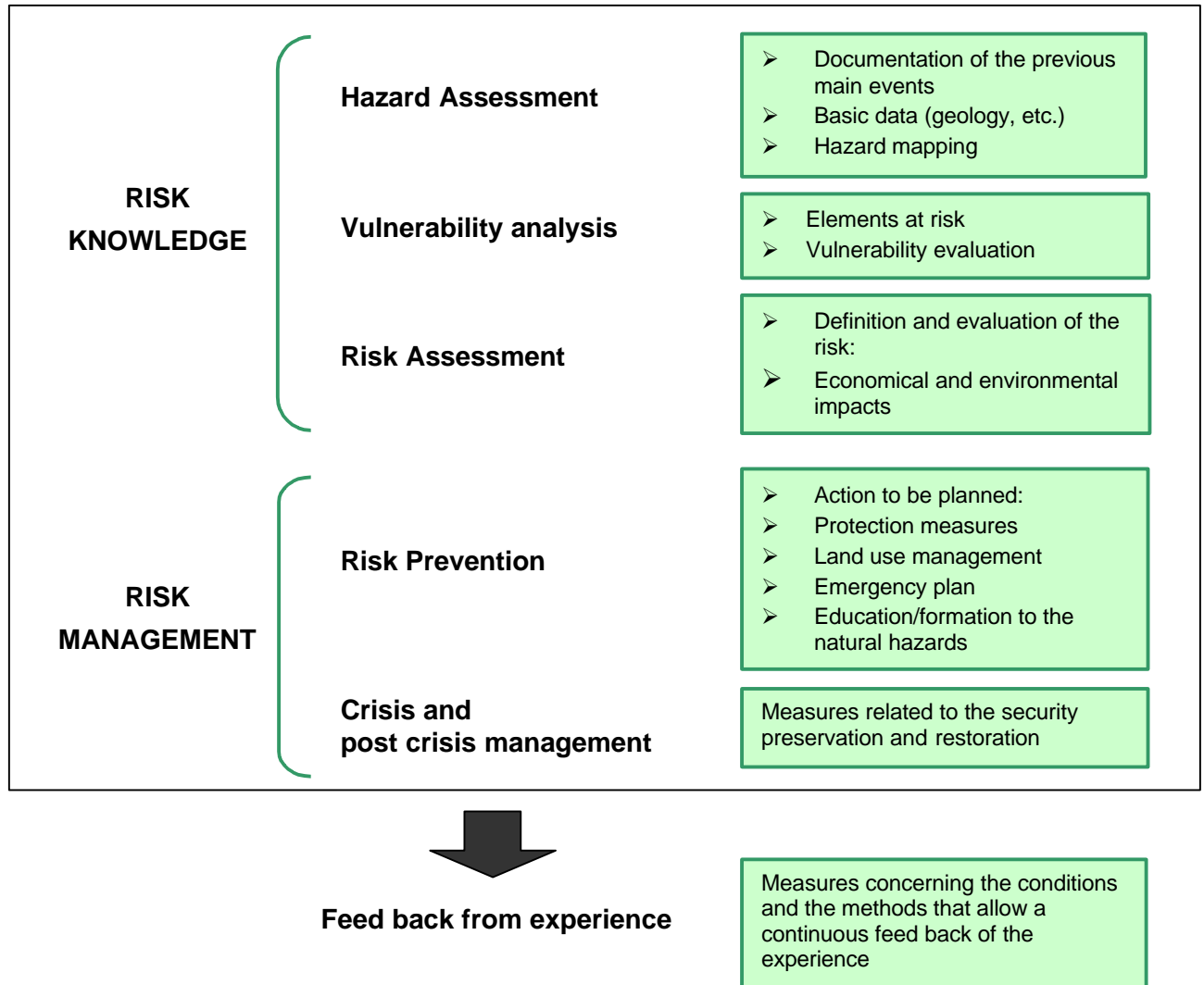


Figure 3: Risk Knowledge and Management Process

2.2.1 Tables of selected sites (table 1):

A preliminary version has been established for the following sites: Séchilienne (F), Cassas (I), Rosone (I), Ceppo Morelli (I), Oselitzenbach (I), Conters-Gotschnahang (CH). It will be submitted to the different partners in the next months in order to get the final version.

Some of these sites have been recently discovered, so their history is short and simple, but others have experienced a long history, in their natural evolution as in the human response.

2.2.2 Report for the landslide sites:

A preliminary version has been established for: Séchilienne (F).

2.2.3 Tables of the national management systems (table 2):

A preliminary version has been established for the following countries: France, Italy, Switzerland. The difficulty was to present an integrated and homogeneous view of the management system in each country, given the variety of the administrative organisations: french “département”, swiss “canton”, italian “regione”, that don't have the same weight or power.

2.2.4 Report about the management systems:

A preliminary version has been established for the following countries: France, Italy, and Switzerland. It has now to be checked by the different partners.

We can notice that a legal framework for risk management has been developed recently in the main countries (say, during the ten last years).

3 CONCLUSIONS AND FURTHER DEVELOPMENT

The partners started the activity within this workpackage in advance (month 6 instead of month 21). This allowed to provide a more comfortable time schedule for the collection of data and the analysis of risk management policies in all the countries involved. At the moment this work is in progress. The partners are now working on filling tables 1 and 2 with regard to their countries. The final contributions are expected in the next period.

Starting from month 24, when the first phase of the project will reach its conclusion with a risk assessment analysis for each site, the knowledge of the most probable scenarios and the evaluation of the risk related to each of them, will allow to elaborated different strategies consisting of land use regulation, remedial works, monitoring and alarm systems, etc.

The choice of one strategy is a compromise between cost and advantage, to be decided in an uncertain environment and in a given legal framework. We will try to build decision trees in order to make choice of the best-fitted strategies.