

Landslide risk impact management and web services for improving resilience: the LIFE+IMAGINE project approach

ABSTRACT

added-value services to involved access to harmonized and providing

The increasing damage caused by natural implement an infrastructure based on susceptibility and hazard maps (River Basin Plan – PAI); 3) assessment of exposure and disasters points out the need for interoperable customized web services for environmental support analysis, that integrates specifications and vulnerability on selected typologies of environmental safety and human protection, results from INSPIRE, SEIS and GMES. The elements at risk; 4) implementation of a by reducing vulnerability of exposed elements infrastructure has been applied to landslide landslide risk scenario for different sets of as well as improving the resilience of the risk scenarios in selected pilot areas, aiming exposed elements (e.g. population, road communities. For this reason, at: i) application of standard procedures to network, residential area, cultural heritage). implement a landslide risk analysis; ii) The pilot areas are two catchments of the customized data is only one of several steps definition of a procedure for assessment of Cinque Terre National Park (Liguria, Italy) towards delivering adequate support to risk potential environmental impacts, based on a characterized landslide high bv assessment, reduction and management. The set of indicators to estimate different exposed susceptibility and low resilience, highly LIFE+IMAGINE project deals with the elements and their specific vulnerability. More vulnerable to landslides induced by heavy development of a methodology for analysis of in detail, the landslide risk scenario is based rainfall. potential impacts in landslide hazard areas in on: 1) a landslide inventory from available the framework of the EC. The project aims to historical databases and maps; 2) landslide

USE CASES OBJECTIVES

Landslides and transportation network

- □ to perform a road network analysis of areas subject to landslides;
- □ to improve the level of citizens' awareness concerning the potential occurrence of landslides affecting the transportation network (main roads, railways);
- □ to detect optional paths that could be used in case of meteorological extreme events for citizens safety and logistics support.

Landslides, terraces and Cultural Heritage (CH)

- to perform a spatial analysis of Terraced Areas and CH affected by landslides,
- □ to improve the level of citizens' awareness concerning the potential occurrence of landslides affecting the anthropogenic terraces and CH;
- □ to implement a landslide risk scenario useful for planning activities aimed at safety and maintenance of CH.

EXPECTED RESULTS

Landslides Scenario

Development of landslide risk analysis models, based on datasets compliant with the INSPIRE Directive;

Definition of a procedure to evaluate environmental impacts, with a set of indicators, to estimate the % of population, urban areas, infrastructures and Cultural Heritage involved by landslide events;

□ Better assess the impacts of landslides, through integrated coastal zone management of the LIFE+IMAGINE;

- Improve stakeholder and citizen awareness;
- □ Improve the planning processes in the long-term, by suggesting interventions aimed at mitigating the impacts.















LANDSLIDE RISK SCENARIO













CONCLUSIONS

triggered by the October 2011 event.

terraces and caused the direct disruption of the population. stone walls as well as transportation of a large amount of loose sediments along the slopes have practical and positive effects for: and channels as induced consequence.

The landslide risk impact analysis will be The final target of the landslide risk assessment calibrated taking into account the socio- scenario is to improve the knowledge and economic damage caused by landslides awareness on hazard, exposure, vulnerability and landslide risk in the Cinque Terre National Most of landslides affected anthropogenic Park to the benefit of local authorities and

In addition, the results of the application can

- □ supporting land planning process in order to improve resilience of local communities;
- implementing preliminary cost-benefit analysis aimed at the definition of guidelines for sustainable landslide risk mitigation strategies;
- □ suggesting a general road map for the implementation of a local adaptation plan.