

GreenRisk4Alps

Monetary evaluation of ecosystem-based solutions for the development of risk management strategies in the Alpine Space



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THE PROJECT

The mountain environment is subject to several threats that will shape its future development. From one side, **mass tourism** and increasing limitations to settlement space; from the other, the increasing risk due to the rising frequency and intensity of **natural hazards** triggered by Climate Change (CC).

The INTERREG Alpine space project **GreenRisk4Alps** (GR4A) aims at developing **ecosystem-based disaster risk reduction** (Eco-DRR) measures to support risk governance with respect to natural hazards and climate impacts. In the project the role of **stakeholders** will be crucial, channeling their inputs into cost-effective and **green** risk management strategies.

AIMS

Our contribution to the project consists in:

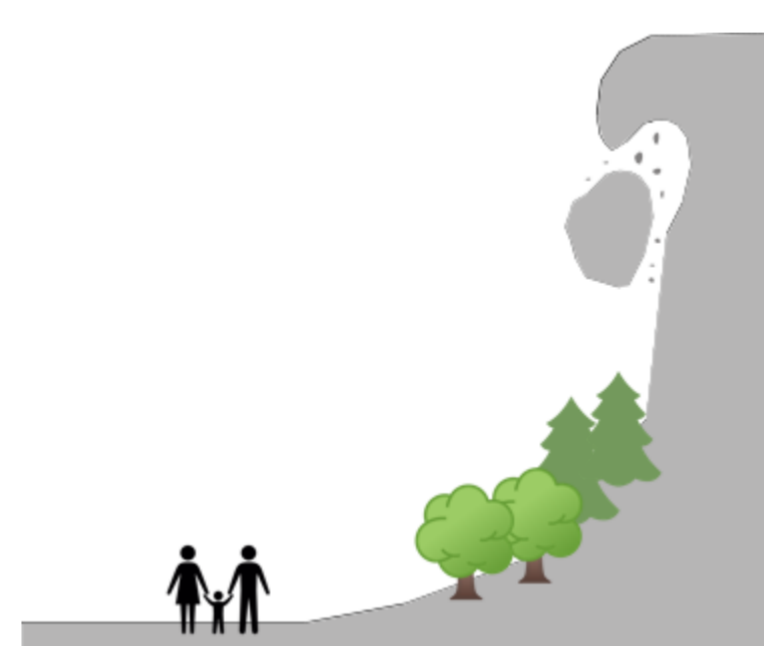
1. A new risk assessment procedure based on **Risk Impact Chains**;
2. An integrated economic model to assess costs and benefits of alternative **TEchnical, GReen and land-use Avoidance** measures (**TEGRAV analysis**), highlighting their long-term consequences in the light of CC;
3. Alternatives scenarios with the related **risk mitigation strategies** to be prioritized by stakeholder *via* targeted workshops.

THE ECONOMIC EVALUATION

The TEGRAV analysis evaluates and compares different protective measures. Different direct (**Discrete Choice** method) and indirect (**Replacement Cost** and **Avoided Damages** method) economic approach will be tested, in relation of the peculiarities of each PAR.

THE WORKFLOW

We combine **models** to predict intensity and frequency of gravitational hazards with **workshops** with stakeholders to identify the most relevant risks for each PAR



Scenarios are developed, taking in account the effects of climate and societal change on the study area, with their interactions with forest and hazard features

Economic consequences of implementing different protection measures (nature-based, land-use avoidance or technical structures) are investigated, comparing costs, benefits and effectiveness



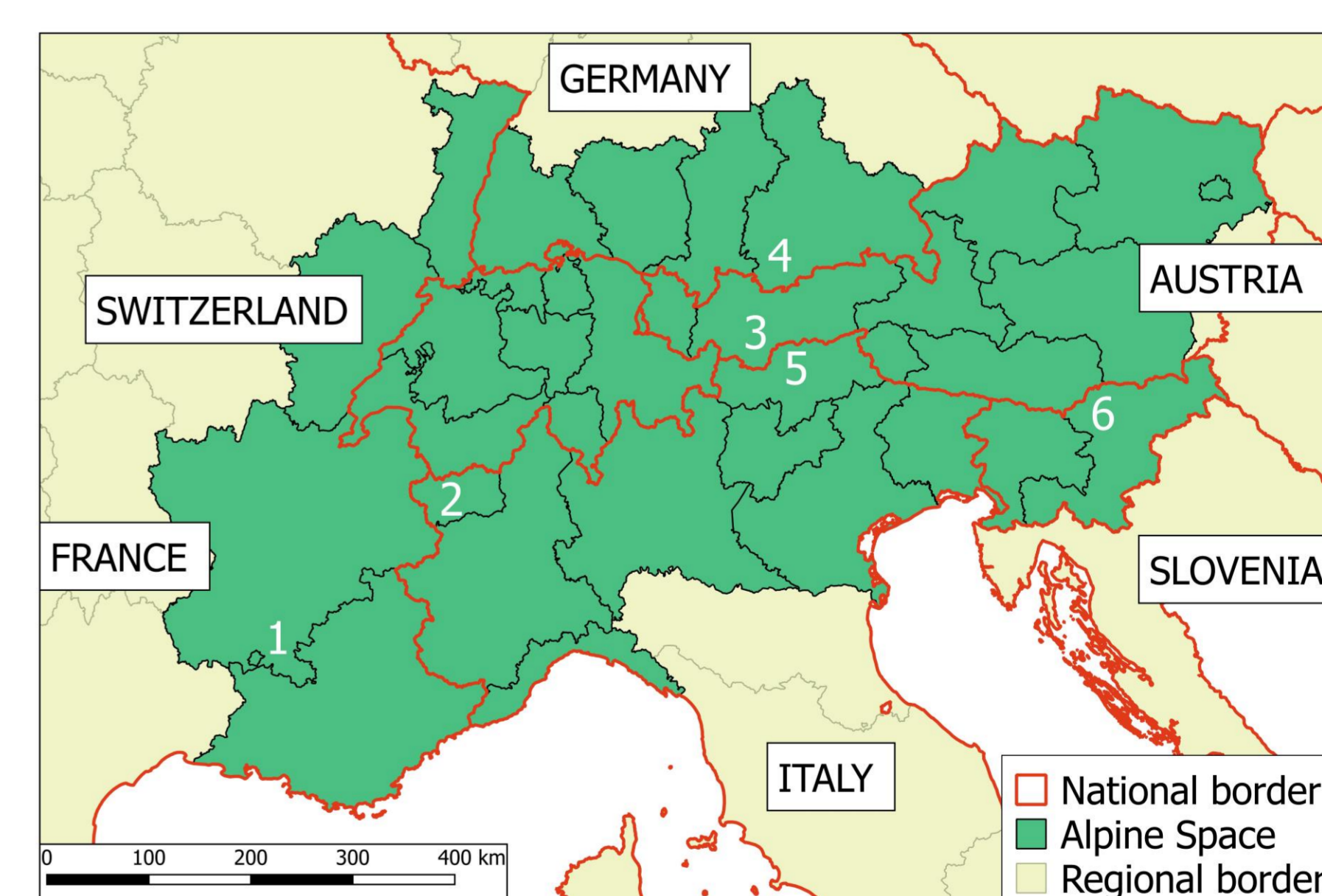
Alternative risk management strategies are developed in mixed qualitative and quantitative scenarios, prioritized by the local stakeholders in order to test their **policy acceptance**

THE STUDY AREA

Six areas, called Pilot Area Region (**PAR**) were selected for the project. They all differ in size, socio-economic features and main hazards. The **TEGRAV analysis** of Eco-DRR measures will therefore be applied with a **PAR-specific approach** in order to fulfill the stakeholder needs in the area



ALPINE SPACE MAP



The 6 PARs:

- 1 - Parc des Baronnies (**FRA**)
- 2 - Courmayeur (**ITA**)
- 3 - Wipptal (**AUT**)
- 4 - Oberammergau (**GER**)
- 5 - Sterzing/Vipiteno (**ITA**)
- 6 - Kranjska Gora (**SLO**)