



Economic aspects of hydro geological risk mitigation measures management in Italy: the ReNDiS project experience

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ReNDiS project is a useful tool for monitoring, analysis and management of information data on mitigation measures and restoration works of soil protection at national scale. The main scope of the project, and related monitoring activities, is to improve the knowledge about the use of national funds and efforts against floods and landslides risk and, as a consequence, to better address the preventive policies in future. Since 1999 after the disastrous mudflow event occurred in Sarno in 1998, which caused the loss of 160 human lives, an extraordinary effort was conducted by the Italian Government in order to promote preventive measures against the hydro geological risk over the entire Italian territory. The Italian Ministry for the Environment promoted several and annual soil protection programmes. The ReNDiS project (Repertory of mitigation measures for National Soil Protection) is carried out by ISPRA - Institute for Environmental protection and Research, with the aim of improving the knowledge about the results of preventive policies against floods and landslides in order to better address national funds as requested by the Minister itself. The repertory is composed by a main archive and two secondary interface, the first for direct data management (ReNDiS-ist) and the latter (ReNDiS-web) for the on-line access and public consultation. At present, ReNDiS database contains about 3000 records concerning those programmes, focused on restoration works but including also information on landslide typologies and processes. The monitoring project is developed taking into account all the information about each step of every mitigation measure from the initial funding phase until the end of the work. During present work, we have statistically analyzed the ReNDiS database in order to highlight the conformity between the characteristic and type of the hazard (identified in a specific area) and the corresponding mitigation measures adopted for risk reduction. Through specific queries, we have grouped engineering works in several categories that have been related to the characteristics and type of hazards Vs cost-benefit analysis and timing of each work. Implementing a statistical analysis of the ReNDiS database, it has been possible to attempt a first spatial and temporal comparison between zoning of risk and distribution of preventive measures with relative cost at national level. In synthesis, this study has shown that although the total amount of resources devoted to preventive measures are not enough to remove the risk over the entire territory, the response of Italian institutions is in general well calibrated on the characteristic and type of hazard, but still very complex. Further efforts are necessary in order to improve the knowledge on landslides and flood prone areas, also in the perspective of adaptation to climate changes and to better address the public investments where the hydro geological risk is more critical. The importance of this monitoring activities is mainly due to limited financial resources of the Italian public sector in soil protection. Data collection, monitoring activities and statistical analysis like the ones carried out in ReNDiS experience is one of the best way in order to optimise the allocation of financial resources for the mitigation of natural hazard and risk.