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Landslide risk management : a multidisciplinary approach to define a Decision Support System for rainfall induced landslides.

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It is generally observed that direct impact of natural hazards, irreversible losses of human and physical capital and economic activities, is stronger on already poor economies.
Moreover, the indirect adverse impact on the wealth growth of their ex-ante strategy to mitigate risk may even outweigh ex-post direct impact of a catastrophic event. The reason is that already poor economies have scarce resources to cope with natural hazard, weaker risk management capacity and higher degree of risk aversion. Therefore, in trying to coping ex-ante with risk, they choose a lower risk-return portfolio of assets (Elbers et al., 2007).
If this is true, we can conclude that both effects of catastrophic events exacerbate inequalities and stuck economies in 'poverty traps' due to huge economic losses.
Avoiding those 'traps' must be a common worldwide object just as improving environmental security. Areas and populations involved are not limited to those directly hit by the catastrophic event but even those indirectly involved by forced raising of funds, expropriation of property rights and immigration (forced socialization of risk consequences).
Unfortunately, then, even in more developed countries, the level of resources devoted to the prevention against natural hazards were, often, extremely scarce and badly allocated. Worries about free-riding in raising funds from governments and taxpayers; rent–seeking and shifting of the responsibility of experts or politicians are the main causes of this misallocation. Things get worse due to bad, incomplete and biased information.
In this paper we try to understand the economic and financial impact of natural disasters such as landslide. This is one of the major worldwide natural hazard.
One of the problem we deal with is that landslide risk assessment methodologies were mainly qualitative and subjective. Qualitative methods, for example, are essentially based on the assumption that landslides will occur in the same geological, geomorphological, hydrogeological and climatic conditions as in the past.
We propose a multidisciplinary approach to landslide risk management. This will be a useful DSS (Decision Support System) able to remove much of the uncertainty in dealing with rainfall landslides Risk Assessment Methodologies.
This approach consists of a 'simulation chain' to link forecast rainfall (input) to the effects in terms of infiltration, slope stability up to definition of vulnerability and risk assessment.
This 'simulation chain' is developed at CMCC (Euro–Mediterranean Centre for the Climate Change) (Meteorological Models) and at Geothecnical Laboratory of the Second University of Naples (Geothecnical Models), both partners in SafeLand (7th Framework Programme, Cooperation Theme 6 Environment including climate change Sub-activity 6.1.3 Natural Hazards), and at the Department of Economics of the University of Naples "Federico II" (Economics and Finance).
Multidisciplinary groups of experts will gain enough resources to devote to the prevention against natural hazards if they are self-selected to be:
- able to manage multi-skills involved,
- able to manage the main inputs of the provision of environmental security, that is, sophisticated techniques and huge amount of continuous data from 'early-warning monitoring-webs',
- they don't escape from their professional responsibility,
- able to be independent from politics and objectively trustable.

If people trust in them and understand the objectivity of science and its limits, whatever is the national or local government, the only problem to raise funds from taxpayers and borrowers will be that imposed by the EU-27 ability to exploit Lisbon Treaty and the new Stability Pact.

The impact analysis carried out in line with EU Commission guidelines using available data shows that soil degradation could cost up to EUR 38 billion per year. It is a really trans-boundary problem!
Therefore, coordinated action at European level is needed given:
- the international dimension of the problem,
- that the state of soil influences other environmental and food safety aspects governed at EU level,
- the risks of distortions of the internal market linked to the different disposable resources and degree of absolute risk aversion at national level.