

# “ECONOME“

## A NEW CALCULATION TOOL FOR COMPARING THE COST-EFFICIENCY OF PROTECTIVE MEASURES

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### PROBLEM

Public money is used to finance the protection of human life, material assets and the environment against natural hazards. This limited resource should be used in a way that achieves the maximum possible effect by minimizing as many risks as possible. Hence, every decision-maker faces the question as to the areas in which resources should be used. Cost-benefit and cost-utility analyses are recognized instruments for determining the cost-efficiency of investments and measures. However, as was clearly demonstrated at a conference of the Fachleute Naturgefahren Schweiz/FAN (Experts on Natural Hazards) on 18 February 2005, it is very difficult to compare these analyses with each other. The results of such analyses are heavily dependent on the selected methods, parameters and input variables and once the system boundaries (different experts, processes, scaling methods etc.) are exceeded, their comparability deteriorates.

### OBJECTIVE

The Swiss Federal Office for the Environment (FOEN) wants to increase the comparability of cost-utility analyses in the area of natural hazards. Thus, it is working with practitioners to develop a tool that incorporates comparable cost-utility analyses for all natural hazard processes by the end of 2007.

### THE “EconoMe” CALCULATION TOOL

The “EconoMe” tool is based on the FOEN publication “Risikoanalyse bei gravitativen Naturgefahren – Methode; Bern 1999” (“Risk Analysis for Gravitational Natural Hazards – Method; Bern 1999”). EconoMe enables the planning engineers, investors and authorities responsible for avalanche, flood, slide, unconfined debris flow and rockfall processes to carry out comparative cost-effectiveness analyses. The comparability is achieved through the definition of conventions for the requisite parameters. For example, the marginal costs for the prevention of a fatality are set at CHF 5 million. Criteria and conditions are defined for the definition of the variables. The calculation of cost-efficiency takes different scenarios into account and is always carried out using the same mathematical formulae.

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EconoMe is available on an internet platform. Thus, it may be accessed using a password from any workplace and the necessary calculations carried out.

## **CONCLUSION**

This new calculation tool makes cost-efficiency and risk calculations comparable and thus aids investors, authorities and planning in their decision-making regarding the efficient use of resources.

The “EconoMe” calculation tool will be presented “live” with a relevant example at Interpraevent 2008. The conventions, scenarios and variables used for the calculation of the cost-efficiency of measures will also be presented.

**Keywords:** Cost-efficiency, risk analysis, cost-utility analysis, risk, protection measures