

SUSTAINABLE PROTECTION FOREST ALONG STREAMS

THE PROJECT "NASEF" IN THE CANTON OF LUCERNE (SWITZERLAND)

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INITIAL SITUATION AND GOALS

Forest plays a key role in flood protection. On one hand, it can reduce water run-off and stabilize river banks. On the other hand though, over-mature or badly maintained forests are not able to fulfil their protective function or can even become a hazard themselves. End of August 2005, intense precipitation (generally > 200 mm within 72 hours) caused enormous damage to not only streams but also to forests. Within forests along streams new risks due to natural hazards developed. Moreover, the medium-term protective effect of the forests was also substantially impaired.

The forest maintenance along streams in the Canton of Lucerne is the duty of the abutters; the maintenance of waters is the duty of the municipalities; and the responsibility for the hydraulic engineering lies with the Canton itself. However, in practice, this division of responsibilities is often not realized, in particular not with the so called "Wuhrpflicht" (maintenance of forests and waters). The project (NASEF) wants to close this gap between the different fields of responsibility.

NASEF running from 2006 to 2011 has a 25 million CHF budget. It pursues the following goals: " Coping with damage AND prevention

- Identification of the risks due to natural hazards and classify them according to their evaluation and measures-priority
- Silvicultural measures according to recognized standards
- Strict adherence to the operational safety rules
- Participation and coordination of all concerned.



Fig. 1: Destroyed riparian forest

The project focuses on the one hand on the direct maintenance work. On the other hand it initiates a sustainable maintenance for protection forests by involving the concerned municipalities and forest owners. With the "best practice" approach the responsible

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municipalities and forest owners are motivated, supported and sensitized for a sustainable maintenance. The maintenance of a protection forest is definitely a permanent task!

PROJECT OPERATION

In a first project phase an overview of the possible objects could be elaborated. Approximately 350 registered objects were classified by the following priority criteria:

- Protective effect of the forest (in accordance with defined protection forest in the canton Luzern)
- Potential excretion of influence by silvicultural measures
- Existing hazard potential (e.g. size of streams), existing damage potential (settlements, infrastructures)

178 objects of first and second priority could be assessed and will be closer looked at during the project phase in terms of call for action. A consistent evaluation of all objects is extremely important; this however demands a great deal of all involved players. The evaluation methodology is based on the guidance of a former silvicultural project "sustainability and performance review in the protective forests" (NaiS of the Swiss Federal government). This recognized instrument points necessary measures out that are necessary to guarantee the minimum demanded stability a protection forest has to meet on a long-term basis. "Minimum demand" in this context means minimum quality of the state of the forest (in contrary to an ideal state of the forest) with respect to its protective function against natural hazards. The saving- capacity finally depends on a purposeful planning and an efficient use of funds.

The planning of silvicultural measures is accomplished in two steps. In a first step five foresters who are experienced hazard experts clarify the action needed for all objects according to the standardized criteria. In order to meet these high and crucial standards, the evaluation standard was adjusted in several practical workshops in forests.

If measures are necessary and if the municipality agrees as "builder", the hazard expert hands the simple measures-concept over to the responsible forest ranger, which then makes the detailed plans and supervises the implementation.

NASEF is a maintenance-project for protective forests. Two types of measures are stipulated:

- Coping with damage in the forests, such as unstable trees/groups of trees (caused by natural hazards), wooded landslides along streams, clusters of driftwood, etc.). The usual measures include in particular the removal of the risky objects and the cutting of high stems on landslides
- Silvicultural measures in forests that are relevant for the streams in some way but that cannot fulfil the expected protective effect (e.g. against erosion) on a short- or mid-term basis. Here, the measures depend on the individual situation. The general strategy aims towards the above mentioned minimum demanded stability of a protection forest on a long-term basis.

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An important task of this project is to involve every important local player. By continuing and transparent information the concerned stakeholders become project partners. Interested forest owners receive the opportunity to provide own contributions. The broad acceptance is fundamentally important for the success of the project.

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