

Natural Water Retention in soils and slopes of the Rhine River Basin

Restoring the natural storage capacity

Climate Change will lead to increased occurrence of heavy rainfall and prolonged periods of drought in the river basin of the Rhine and will increase the risks of floods and droughts. So far, measures for maintaining the safety levels in a changing climate have been focused on the river itself and the adjacent flood plains. An alternative way of reducing flood risks is by increasing the natural storage capacity within the upstream section of the water system. This can be done by reintroducing more natural and extensive forms of land use (i.e. restoring the sponge capacity of the soil, especially by undoing drainage measures taken in the past) in strategic parts of the river basin. Relatively small interventions in small areas can make a big difference in slowing down the discharge of an entire river basin if both land use and drainage are taken into account.

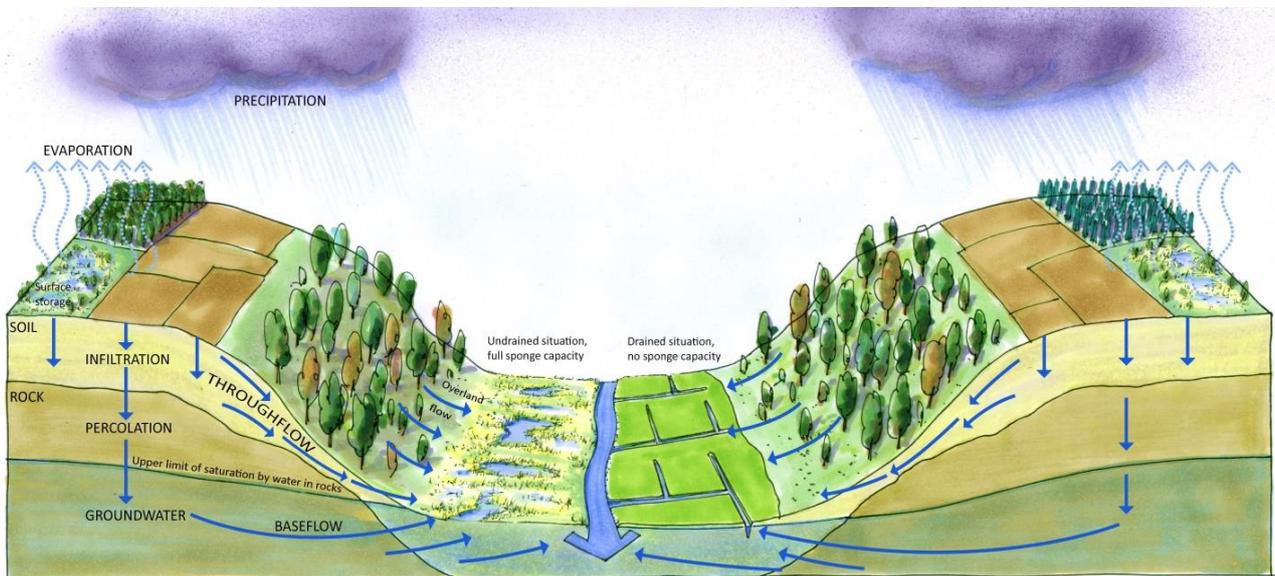


Figure 1: The role of drainage at the foot of the slope. On the right hand side the valley is drained by means of channels, on the left hand side the undrained situation.

Restoring wetland 'sponges' in the middle-mountains will bring more benefits for society than the current approach which mainly focuses on water safety and water quality within strict boundaries and based on classical engineered approaches such as dikes and embankments. This approach to wetland restoration for multiple purposes has the added value of providing benefits to different stakeholders in different regions (and even in different countries) along the course of the river. These include safety downstream, recreation, restoration of biodiversity including fish spawning areas, a buffer against droughts, carbon sequestration, etc. Such a river-basin, transboundary approach is likely to attract the interest of national and supra-national authorities and potential investors, such as the European institutions.

The most suitable location for the field research is the upstream part of the Rhine basin: the middle mountains in Germany, France, Luxemburg, or Switzerland. A potential area could be the upstream part and the tributaries of the Mosel but there are suitable areas in other Rhine tributaries as well.

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