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Assessment of complex and unexpected flood events for small and medium size catchments in Eifel and Saar-Nahe highlands

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The flood risk on small and middle sized tributaries is not less compared to the one on big rivers. Sometimes the flood risk is even higher and the damage worse because flooding occurs unexpected and sudden. These flood events can take place after heavy convective precipitation or after persistent rain fall on saturated or compacted soil. Due to the fact that in nowadays the settlements are often very close to the rivers the damage occurring from floods is higher than in former days. But not only the houses built directly at the river border are affected, the houses in the retral areas can be affected, too.

The INTERREG IIIB project WaReLa (Water retention by land-use) aims to mitigate flood damage for small and medium size catchments trough the implementation of sustainable and water retaining land-use measures. In this context we performed an assessment for five flood events of smaller spatial extent occurring during the last 15 years at the Ruwer and at subcatchments of Kyll and Lauter.

In the case of the Welschbilliger Bach (a tributary to the Kyll) heavy rainfall events with up to 180 mm within 5 hours caused flash-floods with very high gravel and sediment load. Roads, places, cellars and other buildings were heavily affected. Not only close to the small village of Welschbillig - but also further downstream were the Welschbilliger Bach confluences into the Kyll the village of Kordel was heavily

affected, too. In this village the inhabitants weren't aware of the danger because it didn't rain much in this area.

When a culvert or bridge is blocked or not big enough for the water and sediment load floods can occur in the upstream of the river, as well as close to the confluence with backwater floods (on the Ruwer) when the main river (the Mosel) carries high water level.

To avoid these floods and of course to avoid additional run-off on forest paths and other compacted land, it is important to keep as much rainfall as possible on the area where it falls. For this reason WaReLa implemented measures in forestry, agricultural and settlement areas to retain as much water as possible. Additionally the opening of culverts, the renaturation of rivers and the implementation of small retention basins can help to reduce the run-off and flooding of urban areas.