FACTSHEET RISK REDUCTION MEASURES

Detention basin – Korbitzer Schanzen, Kirchsteigbachtal

Where was it implemented?

City of Meissen, Saxony, Germany

Fields of action

Farmland

Related to measure from the catalogue of measures

- Dry detention reservoirs and depressions of any capacity
- Catchment based concepts and plans; inter-communal cooperation

Area characterisation

Area type: rural

Landscape type: hilly, farmland

View at the detention basin with throttled bottom outlet. Source: Sabine Scharfe, LfULG

Problem

On 27 May 2014, the district Meissen-Triebischtal was affected by a heavy rain event of 40-60 l/m² precipitation per hour in the catchment area of the Triebisch river and its tributaries. Resulting floodings and mud flows on and from farmlands passed the forested valleys, reached the settlement area of Triebischtal and caused damages of 6 mio. Euro.

Description and aim

At the end of a discharge path on an agricultural area, above the spring of the brook "Kirchsteigbach", a → **detention basin** with a retention volume of about 4500 m³ was built. The City of Meissen built and funded the measure on a partially private land parcel (legally protected and with building permission) from their own financial resources. The maximum detention volume is approx. 5600 m³. The dam has a length of 81 m and is 6 m high. The throttle discharge amounts to 450 to 600 l/s. The basin retains water of an area of 28.7 ha. The lease agreement has thus been changed and a short-term arrangement for accessing the building site was found.

Construction characteristics:

- The earth dam consists of deposited mud from the damage event in 2014 and was reused for construction.
- dry basin
- spill paved, allows access to land parcels behind
- throttled bottom outlet
- permanent grassland in the area of the detention basin
- billboard at the earth dam with seats for birds of prey

Effect of measure

Besides its function as a detention area, it reduces flow rate and water velocity of the running surface water. Subsequently it slows down the inflow into the brook and reduces sediment transport. Interference of runoffs peaks with tributaries of the "Kirchsteigbach" are avoided.

Description of implementation	
Implementation: 08/2014-08/2015 (planning) 09/2015-10/2016 (construction)	**Effect horizon:** long-term **Costs:** 206.000 €
Initiator / responsible: City of Meissen	**Involved stakeholders:** building department, lower water authority, lower nature conservation authority, leaseholder, property owner

Lessons-learned	
Main success factor: The existence of a landscape plan that recommended retention measures in this area and its affirmation by a → **catchment based study** immediately after the event laid the foundation for a fast planning and realisation of the measure. General acceptance for this measure was high, since it was regarded as one of the most effective to reduce risk in this area.	**Main challenge:** Legal requirements had to be fulfilled and administrative challenges prolonged the planning and implementation process. Risk-taking in terms of financing paid off. What has been planned and constructed with own resources, has been publicly funded finally in 2018.
Synergies / beneficial aspects: Ecologic valuable utilization of debris in the basin's construction involved the recycling of 4.500 m^3 sediment which was washed out during the heavy rain event. The measure receives very high acceptance by the local residents who were asking for more flood protection. The detention basin has been regarded as well-fitting into the landscape. Deconstruction of 27 nearby garages can be regarded as another preventive measure. In the past, they have been an obstacle for water maintenance, held the risk of flooding and affected the landscape view.	**Conflicts / constraints:** A change of the lease agreement as well as an agreement with the property owner were necessary. Requirements by the water and nature protection authority (structural calculations, compensation measures etc.) for receiving the building permission needed to be fulfilled. The lower nature conservation authority demanded the deconstruction of 27 nearby garages as a compensation measure, so that those rental contracts were terminated.

Key message to others starting with a similar task	Contact
Longer procedural periods due to unanticipated requirements are challenging but need to be expected and considered in the time schedule to ensure a smooth planning and implementation process. Acceptance and willingness to compromise of all involved stakeholders reduces with increasing time after a damage event. Important premises and fundamental decisions as well as stakeholder involvement need to be taken immediately.	City of Meissen, Municipal Building Office, Markt 1, 01662 Meissen E-Mail: stadtbauamt@stadt-meissen.de

Further information (in German)	
	Steffen Wackwitz (2015): Das Starkniederschlagsereignis in Meissen im Sommer 2014, in: WasserWirtschaft 9/2015, URL: https://www.springerprofessional.de/das-starkniederschlagsereignis-in-Meissen-im-sommer-2014/6110106, 13.11.2019.