

## FACTSHEET RISK REDUCTION MEASURES

### Stopping inflow structure from being clogged - Kirchsteigbachtal

Where was it implemented?

City of Meissen, Saxony, Germany

Fields of action

Watercourses

Related to measure from the catalogue of measures

- Constructions for sediment and debris retention (sediment capture ponds, wooden rakes, trash racks)

Area characterisation

Area type: rural

Landscape type: hilly, forest



Vertical wooden racks acting as a debris barrier  
Source: M. Sura, Hoch- und Tiefbau GmbH

Problem

On 27 May 2014, the district Meissen-Triebischtal was affected by a heavy rain event of 40-60 l/m<sup>2</sup> 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. With entry into the settlement area, the stream is piped, the intake became clogged and could not catch the water masses, which then flowed off as a flash flood.

Description and aim

In the course of the stream, → **constructions for sediment and debris retention** (e.g. vertical wooden racks) have been installed in the streambed. They act as a barrier against heavy debris like branches.

At the lower part of the brook "Kirchsteigbach", a gravel trap basin with overflow has been constructed. Its best performance was determined by terrain modelling. The bedload barrier installed in the stream course is intended to prevent the inflow structure from being clogged with debris (picture above).

Effect of measure

The wooden racks act as a barrier to stop carried trees and branches. Otherwise their size, shape and floating energy could not only clog, but also damage and destroy the inflow structure at the lower parts of the brook. The gravel trap basin acts as a detention basin, catches smaller debris and reduces the peak discharge. Both measures also stop floating refuse.

Description of implementation

Effect horizon:  
long-term

Costs:

The costs belong to a bundle of measures in the area "Stadtwald" with a total sum of 540.000 € and are part of the flood damage repair package 2013.

Initiator / responsible:  
City of Meissen

Involved stakeholders:  
building department

Lessons-learned	
<p><b>Main success factor:</b> The expense for required construction material was very limited. The idea is very simple, but has a huge impact on risk reduction.</p>	<p><b>Main challenge:</b> Originally, the basin was built in a nature conversation area. In 2018, its boundaries were reassigned and the boulder trap is now located outside of the protected area. This makes maintenance and management of the construction much easier.</p> <p>With respect to maintenance and clearing of this construction, accessibility with required equipment and crafts should be considered from the very beginning.</p>
<p><b>Synergies / beneficial aspects:</b> The measure works well as recreation area and looks very naturally.</p>	<p><b>Conflicts / constraints:</b> As a compensation measure, unsealing of a nearby asphalt surface was carried out.</p>
Key message to others starting with a similar task	Contact
<p>Information and hints from local residents and public information events should be taken seriously. Knowledge gained from previous damage events can help to identify strongly affected damage locations (e.g. locations of huge debris accumulation) to plan suitable measures systematically.</p> <p>A traffic-oriented access is important in the decision-making process for debris barriers. Accessibility for crafts must be given.</p>	<p>City of Meissen, Municipal Building Office, Markt 1, 01662 Meissen</p> <p>E-Mail: <a href="mailto:stadtbauamt@stadt-meissen.de">stadtbauamt@stadt-meissen.de</a></p>
<p><b>Further information</b> (in German)</p>	<p>Steffen Wackwitz (2015): Das Starkniederschlagsereignis in Meissen im Sommer 2014, in: WasserWirtschaft 9/2015, URL: <a href="https://www.springerprofessional.de/das-starkniederschlagsereignis-in-Meissen-im-sommer-2014/6110106">https://www.springerprofessional.de/das-starkniederschlagsereignis-in-Meissen-im-sommer-2014/6110106</a>, 13.11.2019.</p> <p>Stadt Meissen (2015): Pressemitteilung - Naturnahe Instandsetzung des Kirchsteigbaches gelungen - Mehr Schutz vor Hochwasser und Starkregen, URL: <a href="https://www.stadt-Meissen.de/8847.html">https://www.stadt-Meissen.de/8847.html</a>, 13.11.2019.</p>