

Strategic Alliance for integrated Water management Actions

Final Conference

# Measures - Green Roofs Project Nor3 at NVE



Norwegian Water Resources and Energy Directorate

Main Idea

Roofs with vegetation cover can hinder precipitation becoming pluvial urban floods.



## Approach

This poster shows how even shallow soil - 3 cm - green roof functioned under wet conditions. The runoff intensity under a rare, heavy precipitation episode in July 2009 (Fig. 2) was decreased by at least 26 % when the roof was initially dry.

Figure 1. The left hand side sedum roof and the reference was compared

### Results

- » The first nine mm was adsorbed into the green roof (Fig. 2).
- » The green roof peak was delayed a few minutes.
- » The runoff was distributed over longer time than the black roof.



The future climate change projections for Norway indicate a warmer climate and more incidents with heavy rain. This could mean a situation like in Figure 2; a dry roof receiving loads of water within a short period of time. Green roofs are a possible measure to reduce the inundation after heavy rain over urban areas.

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Figure 2. Precipitation (29 mm in 30 min.) and runoff from a roof with no vegetation (reference) and sedum vegetation, after one week of drought.



Figure 3. Wet green roofs also influence the runoff intensities. In late July the runoff peaked after 14 mm rainwater (in 2 hours) was decreased by 51 and 36 %

### **Contribution to SAWA**

When making Flood Risk Management Plans (FRMP) the need of tested measures in the toolbox is essential. Green roof is a measure with great potential.

More about rain gardens: www.iwawaterwiki.com



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