



Green the roofs of the city

Bonn, Germany

IN A NUTSHELL

The city of Bonn is supporting the development of green roofs with fiscal incentives. Green roofs have lower water outflows than sealed surfaces and have climate adaptation effects.

Background on climate adaptation measures

In Germany there are policies to encourage green roof construction at all levels of jurisdiction, from the federal to the municipal level.

In 2014 green roofs in Germany covered 86 million m². In the 1990s, several German cities started to levy commercial buildings related to the amount of sealed ground space they occupy. The city of Bonn chose another fiscal incentive to foster the development of green roofs and avoid a surge in sealed ground.

This is part of a broader mitigation and adaptation strategy. Both issues were taken up back in 1995. Joining the Covenant of Mayors in 2009, the city also committed to reduce its CO₂ emissions by 20% by 2020.

How does it work?

Green roofs generate new green space and add to the quality of living, particularly in very densely built-up areas. At the urban planning level, the city of Bonn provides tax incentives for the construction of green roofs. Since January 1996, this has been regulated through a 'precipitation fee'. Owners of green roofs or roofs made from water-permeable materials can request a reduction in their precipitation fee. This is applicable for individual houses, apartment buildings and multi-family houses. The precipitation fee reduction is then calculated based on the roof's outflow factor, which the building owner must provide evidence of. The different types of plants and roofs affect its 'outflow factor', the amount of liquid water leaving a green roof system during or following a storm event or irrigation. For a roof with outflow factor 0.3 (for a layer thickness of the green roof of 15 cm and a roof inclination of 15°) the precipitation fee will decrease from 1.29€/m² to 1.03€/m² per year.

Around 80 households/owners benefit from the reduced precipitation fee.



Combination of green roofs and photovoltaic panels on the roof of the Environment Ministry

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BONN



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Population:
317,000

Area
141.1 km²

Signatory to the Covenant of Mayors since:
2009

CO₂ emission reduction target:
20% by 2020

Additionally, in 2010 the city council of Bonn decided that all construction development plans must foresee greening of roofs exceeding 200 m² and a roof inclination of 15°.

As a consequence, the city's climate adaptation and mitigation plan, adopted in 2013, also includes compulsory urban climatologic research for bigger construction plans.

Examples of green roofs on public buildings in Bonn

In 2014 the roof of the environment ministry's main building on Robert Schuman square was refurbished and 5,700 m² of roof was greened. 4,600 m² are planted with low growing colourful sedum plants. Another 1,100 m² have been dedicated to a herb garden. Yellow chamomile, wild thyme and yellow daisies were planted to attract a large range of insects, which can find nutrition there as well as a living space. This roof greening therefore not only benefits water saving and climate adaptation, but also biodiversity.

Another example is the greening of the sewage plant Salierweg, which has also been combined with a photovoltaic system. It was financed by the sewage fees over 50 years.

Results

Bonn now counts a total of 148 private and public green rooftops, covering an area of approx. 44,000 m². The areas were determined by evaluating aerial photographs and are therefore subject to corresponding uncertainties.



KEY FIGURES

148 private and public green rooftops in Bonn

44,000 m² of green rooftops in Bonn

5,700 m² green roof installed on the environment Ministry

35 € / m² is the estimated cost of an extensive green roof



FINANCING THE PROJECT

- **Financing source(s):**
A large part of the green roof areas come from a funding programme of the Federal State of North Rhine-Westphalia 'ecological and sustainable water management initiative NRW' from the years 2000 to 2004

USEFUL LINKS

- ▶ Bonn City Council: <http://bit.ly/2QJmyo5> and <http://bit.ly/2OFO2cn>



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