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Green roofs to fight heat

Cost evaluation of adaptation measures for cities and municipalities

Climate research has shown that heat waves, floods and heavy rains will occur with increasing frequency in Germany and can incur enormous economic damage. The costs and benefits of countermeasures have been difficult to measure in a systematic way up to now. A new study by the Federal Environment Agency (UBA) has corrected this. It is a first-time cost-benefit analysis of concrete climate change adaptation measures. The greening of roofs to combat summer heat in cities proves to be a measure that is particularly promising and beneficial. Other efficient measures include the renaturalisation of floodplain forests to protect against flooding and the use of heat-resistant surfacing to counter road damage. "Although our climate policy has been successful, some of the consequences of climate change cannot be avoided. We must now therefore adapt to its consequences", said UBA President Jochen Flasbarth. "As the cost-benefit analysis by the Federal Environment Agency shows, there are a number of measures which the Federal Government, *Länder* and local governments can already initiate today at relatively low cost."

The Federal Government, *Länder* and local governments increasingly find themselves facing the issue of how to adapt to the unavoidable consequences of climate change. The new UBA study analyses the costs and benefits of adaptation measures that are appropriate as a reaction to climate change. Measures in urban and spatial planning, health protection and civil protection are especially effective. The greening of roofs, for example, reduces the city temperatures on hot summer days. A system of heat warnings at the local level and corresponding cooling measures - especially in hospitals and nursing facilities - are possible at relatively low-cost and incur great benefit. In contrast, the cost-benefit ratio of comprehensive infrastructure measures is poorer. These measures might include new flood protection dams or the expansion of the sewerage system.

Länder and local governments should keep in mind that a scheduled renewal of roads, buildings or other infrastructure must already factor in climate change. It may be worthwhile to invest in especially weather-proof asphalt, for example, a scenario for which the study also does a cost-benefit analysis. "We must be better prepared for extreme weather events in particular, perhaps by maintaining flood plain areas as a means of flood protection", said UBA President Flasbarth. "The study serves as a guide to identifying effective and cost-efficient adaptation measures. In

these times of tighter budgets in particular, we simply cannot afford to make investments that later prove to be ineffective."

The UBA study published today introduces criteria for a standardised evaluation of the costs and benefits of adaptation measures. The study presents 28 case studies in the areas of agriculture, urban planning and infrastructure investment.

Further information and links

Click here to read the study *Kosten-Nutzen von Anpassungsmaßnahmen an den Klimawandel* [*Costs and benefits of climate change adaptation measures*]:

<http://www.uba.de/uba-info-medien-e/4298.html>

Click here to read the background paper *Die Folgen des Klimawandels in Deutschland - Was können wir tun und was kostet es?* [*Consequences of climate in Germany - What can we do, what are the costs?*]: <http://www.umweltbundesamt.de/uba-info-medien-e/4355.html>

Website: Competence Centre on Climate Change and Adaptation at the Federal Environment Agency (KomPass): <http://www.anpassung.net>

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