



Dresden, a heat resilient city

Dresden, Germany

IN A NUTSHELL

HeatResilientCity in Dresden uses a living lab to bring the city, experts, and residents together to develop a better understanding of climate adaptation issues related to extreme temperatures, and to codesign solutions to these issues.

Challenges

In some areas of the district of Gorbitz in Dresden temperature can range from three to more than five degrees above that of the uncovered surrounding rural area. There is a high concentration of economically disadvantaged residents, and, despite ongoing renovation of the building stock, many poorly insulated buildings leave residents vulnerable to extreme temperatures.

The increasing heat brought on by global warming reduces both the comfort and the efficiency of people living and working in the district. It makes the area less appealing for visitors and reduces use of outdoor environments. Prolonged heat can also cause extreme discomfort in buildings not built to withstand it.

This project therefore set out to tackle several unknowns: how bad exactly is the problem? What are the effects of extreme heat on people living and working in the district? What adaptation measures can experts recommend, and how to local people feel about those solutions?

Solution

Through HeatResilientCity, a 'living lab' has been set up for residents and other stakeholders in Dresden. Participants express their perspectives on the problem and work together to analyse potential solutions.

Those involved include representatives of the building industry, urban development experts, scientists and researchers. Together with residents, this transdisciplinary and interdisciplinary group generates innovative solutions to the common challenge of heat resilience. The city of Dresden coordinates these actors, manages the living laboratory and supports the development and implementation of adaptation measures.

Some of the outcomes of this holistic approach to sustainable urban development was that it helped to break down silos among different actors, increased acceptance of climate change adaptation measures, and reduces implementation barriers.



Environmental Department, Saxon state capital Dresden

DRESDEN

<p>Population (2018): 554,649</p>	<p>Area 328.2 km²</p>
<p>Signatory to the Covenant of Mayors since: 2016</p>	<p>CO₂ emission reduction target: 41% by 2030 from 2005 levels</p>

Experts conducted research, such as gathering temperature data for the area and running simulations. They also collected the opinions of local residents by using tools like surveys to determine the effects of extreme heat, and people's preferences among a selection of solutions. By putting the expertise of scientists and the expertise of residents together, Dresden developed an inclusive process that meets the felt needs of citizens while implementing effective solutions to improve wellbeing.

The project develops step by step, so that this process determines the city's final plans, rather than being added on to plans that have already been decided.

Public sentiment

Computer simulations and expert analysis were used to develop potential measures. These ideas were then brought to 178 residents of the Gorbitz area in Dresden, whose reactions and opinions were solicited. Over 60% of respondents found the summer heat in and around their home to be 'very stressful.' Among the negative effects, they named headaches and sleeplessness. 75% believed that increasing levels of outdoor shade would be a good solution. The majority thought planting trees on the streets near houses and converting to green rooves would be beneficial.

The consultation with citizens resulted in the decision to build shaded public benches and bus stops, and to begin planting more trees and bushes in the area. The labs also found that heat coming through windows and poor nocturnal air circulation are responsible for the high temperature within homes. The installation of external window shutters and other heat-blocking measures, as well as extending existing ventilation systems, have thus been recommended. These measures are now being tested in cooperation with residents in three pilot buildings.

Behaviour plays a part too. The efficacy of simple changes like opening windows at night and creating a crosswind are being transmitted to residents through training.

The city is also taking simple steps to reduce ambient temperatures, like letting the grass grow longer in some public areas by reducing the frequency at which it is cut, and unsealing some covered areas like a disused local football pitch.



178 residents surveyed

3 buildings with adaptation measures

Nearly **1 hectare** of green space converted from regular to intermittent maintenance of green



FINANCING THE PROJECT

+ **Financing source(s):**
German Federal Ministry of Education and Research (BMBF)

+ **Total amount:**
€2.5 million

USEFUL LINKS

► <http://heatresilientcity.de>



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