

HOW TO PREPARE FOR FLOODS, HEATWAVES AND OTHER CLIMATE CHANGE IMPACTS

Get inspired by Covenant of Mayors cities'
and regions' adaptation actions!



Covenant of Mayors
for Climate & Energy
EUROPE

WHAT IS ADAPTATION TO CLIMATE CHANGE?

Local authorities are on the front lines when it comes to preparing for and reacting to the already visible and future consequences of a changing climate. They are experiencing an increased number of extreme weather events or gradual changes, such as heat or cold waves, floods, storms, coastal erosion, water scarcity, forest fires, etc., which can result in considerable spending and influence health, infrastructure, local economies, and the quality of life of citizens. This is why cities and towns across Europe are already taking action to adapt to climate change, for example by renaturing or re-opening river beds, by greening city facades to cool down temperatures during summer, or by climate-proofing their infrastructure.

ADAPTATION TO CLIMATE CHANGE

“Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities”.

Source: Climate-ADAPT glossary:
<https://climate-adapt.eea.europa.eu/help/glossary>

RESILIENCE

“The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change.”

COLOGNE, GERMANY

Taking adaptation action after heavy flood events



1 million
inhabitants



Signatory
since 2008

After two heavy flood events in 1993 and 1995 which together caused approx. €107 million of damage, this city located on the Rhine river decided to redefine its flood protection measures to protect the 117,000 inhabitants living in flood-prone areas, as well as critical infrastructure and striving businesses. The implementation costs of €500 million represent only a fraction of the potential damage that another, more severe flood would cause, which would amount to up to about €3.5 billion.



© Bundesarchiv, B 422 Bild-0086/Sers, Günter/CC-BY-SA 3.0

Thanks to the experience gained and stakeholder networks set up to increase flood protection, Cologne is now also developing an overall resilience strategy for the city.

More information:
<https://bit.ly/2OWXLLK>





WHY TAKE ADAPTATION ACTION AT LOCAL LEVEL?

These and many other adaptation actions not only increase resilience in the face of potentially disastrous climate change impacts, but also yield important benefits in terms of quality of life, improved public health, increased investment, job creation or social inclusion, to just name a few. By investing in climate preparedness, cities become more attractive, healthier, and safer.

ADAPTING TO CLIMATE CHANGE: SELECTED BENEFITS FOR CITIES AND CITIZENS

- Disaster preparedness can reduce damage costs and future disaster response spending: The European Commission estimates that one Euro invested in risk prevention saves up to €6 in disaster-response efforts.
- Retrofitting buildings can lower energy costs for residents and increase property values.
- Adaptation projects can create jobs and boost local businesses.

ADAPTATION IN THE COVENANT OF MAYORS

The Covenant of Mayors for Climate & Energy supports an integrated approach to local climate action. This is why supporting cities and towns to take adaptation actions is one of the three key pillars of the initiative. 2030 Covenant signatories have committed to the common goals of accelerating the decarbonisation of their territories, strengthening their capacity to adapt to unavoidable climate change impacts, and ensuring their citizens access secure, sustainable and affordable energy.

WHEN AND HOW TO TACKLE ADAPTATION?

Since the adverse impacts of climate change are already being felt and the adaptation challenge is projected to get bigger in the coming years, action cannot be delayed. Given the cross-cutting nature of the issue, adaptation requires a holistic and interdisciplinary approach, the involvement of all levels of decision-making as well as collaboration with the surrounding municipalities and regions. Adaptation is not necessarily about doing more, but about doing things differently. As part of their adaptation actions, local authorities may define climate-resilience standards for existing and future buildings, promote green and blue spaces in local spatial plans or reinforce their flood or heat wave risk management plans.

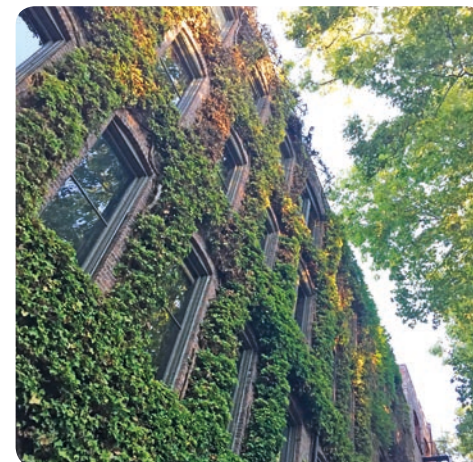
THE IMPORTANCE OF AN INTEGRATED APPROACH TO CLIMATE CHANGE MITIGATION AND ADAPTATION

Taking measures to reduce GHG emissions (mitigation) and adapting to the unavoidable climate change risks are complementary sets of actions addressing two aspects of climate change. One cannot be fully successful without the other and there are numerous co-benefits between adaptation and mitigation measures. Some mitigation measures might risk hampering the achievement of adaptation goals and vice-versa. Hence, both aspects need to be considered at the same time to find solutions which are more efficient and overall beneficial.



CO-BENEFITS OF LOCAL ACTIONS FOR CLIMATE CHANGE MITIGATION AND ADAPTATION

- Well-insulated buildings: energy savings (mitigation) and adaptation to a temperature increase
- Cooling via district heating: excess of heat (mitigation) is used for cooling purposes (adaptation)
- Urban trees and green space: flooding reduction, shade, cooling urban environment (adaptation) and carbon sequestration (mitigation).



CONCRETE STEPS FOR SUCCESSFUL CLIMATE CHANGE ADAPTATION

These steps follow the Urban Adaptation Support Tool which was jointly developed by the Covenant of Mayors - Europe Office and the European Environment Agency to support Covenant signatories on their adaptation journey. Check out the tool for more information, helpful resources and examples from Covenant cities!

<https://bit.ly/2OW2LAn>



© Dries Gysels



1

PREPARING THE GROUND FOR ADAPTATION

Securing the necessary political, technical and financial support and gathering the right stakeholders is crucial when getting started on adaptation. A political commitment to climate adaptation agreed by the local council, like signing the Covenant of Mayors, is a first important step towards political buy-in.



The adaptation scoreboard provided in the Covenant reporting corner can help you get an overview of where your city stands and what next steps to follow.

BRATISLAVA, SLOVAKIA

Bringing the relevant stakeholders together through a working group



465,300
inhabitants



Signatory
since 2012

To kick-start the preparation of its adaptation strategy back in 2014, Bratislava created an adaptation working group led by the department of the Chief Architect and staffed with representatives from the departments of Strategic Project Management and Financial Resources, the Environment, Social Affairs, Transport, and Infrastructure. The group also encompassed representatives from the academic and scientific communities, the Bratislava Water Company, as well as non-govern-



© Jozef Kotulic, Wikimedia Commons

mental organisations. Since the strategy was finalised, the group members continue meeting in informal forums to update each other or determine specific support needs with activities related to the action plan for adaptation to climate change, a key document for guiding the adaptation process in the city.

In order to get a comprehensive picture of current and future climate change risks and other stress factors in a specific area, those first need to be identified based on climate projections but also assessed taking into account other factors such as socio-economic vulnerabilities. Covenant of Mayors signatories may ask their regional and provincial governments to provide the necessary data for this step.



2030 Covenant signatories commit to developing a risk and vulnerability assessment. The online template provided by the Covenant provides an overview of possible risks and vulnerabilities that need to be considered.

SOME POSSIBLE CLIMATE HAZARDS

- Extreme heat
- Extreme cold
- Extreme precipitation
- Floods
- Sea level rise
- Droughts
- Storms
- Landslides
- Forest fires

LIÈGE PROVINCE, BELGIUM

Supporting vulnerability assessments for cities and towns



1 million inhabitants



Territorial Coordinator since 2015

provides support to 47 signatory cities



© A.Savin, Wikimedia Commons

This province located in the south of Belgium carried out a study on risks and vulnerabilities regarding climate change on its territory, e.g. how climate change is - and will be - affecting health, biodiversity, water availability, flooding and food supply. This assessment was not only carried out at the province level, but also broken down to the municipal level, accompanied by a catalogue of in-

dividual possible measures out of which the signatory cities can pick the most appropriate ones for their situation. In addition, the province has also developed a Sustainable Energy and Climate Action Plan (SECAP), supports its signatories in the development of their individual SECAPs, and supplies various support measures such as seminars and tools for the cities.

Once an overview of the most pressing climate challenges is drawn up, this allows as a next step to identify the appropriate actions to undertake. These range from 'soft' measures like better information sharing, e.g. on heavy rainfall occurrences, to 'hard' measures like infrastructure development. Once the possible actions have been identified, the most suitable ones need to be prioritised and selected based on different criteria like effectiveness to reducing vulnerability or enhancing resilience, and their wider impact on sustainability.



The Covenant of Mayors online reporting template provides a framework and indicators helping identify the risks and vulnerabilities and thus help signatories prioritize the sectors where action is needed.

OBER-GRAFENDORF, AUSTRIA

Nature-based solutions for rainwater management



5,100 inhabitants



Signatory since 2016



© Marktgemeinde Ober-Grafendorf

The small Austrian town of Ober-Grafendorf adopted an innovative solution to deal with the dual challenge of a multiplication of heavy rainfall events on the one hand and of extended drought periods on the other. Instead of investing in a larger sewage system, the town decided to experiment a smart, ecosystem-based rainwater management system that is incorporated into the street design. It consists of special substrates planted with plants that

are able to absorb, store and filter large amounts of water in a short time. This option proved cheaper for public finances and yields multiple co-benefits, for example during heat waves: the plants' transpiration can reduce the local temperature by up to 5°C.

More information:
<https://bit.ly/2MHeHZn>



WHICH SECTORS TO TAKE ADAPTATION ACTION ON?



Buildings



Land use planning



Water



Agriculture and forestry



Tourism



Health



Environment and biodiversity

With the primary adaptation issues identified, a strategic framework for adaptation can be devised: either an adaptation strategy is developed or adaptation is mainstreamed into existing policy frameworks.



Covenant signatories commit to developing and submitting an adaptation strategy - either as an integrated Sustainable Energy and Climate Action Plan (SECAP), as a separate adaptation strategy, and/or mainstreamed across other strategy and policy documents. The Covenant of Mayors - Europe Office, European institutions, Covenant Coordinators and Supporters and other national and local stakeholders can support signatories in drafting and implementing their action plan.

SANT CUGAT DEL VALLÈS, SPAIN

Mainstreaming adaptation across already existing plans



79,200
inhabitants



Signatory
since 2008



© Alvaro Jaramillo, Wikimedia Commons

In Sant Cugat del Vallès, adaptation actions have been integrated into existing plans, like the Master plan for green areas and the emergency plan. The process of mainstreaming adaptation included several meetings with the managers of various de-

partments in order to thoroughly assess risks, impacts and vulnerabilities. Then the responsible stakeholders validated the proposed actions, and introduced new ones in conformity with existing plans.

ASSOCIATION OF FINNISH LOCAL AND REGIONAL AUTHORITIES, FINLAND

Supporting cities to prepare for extreme weather-related circumstances



Supporter since
2011

Provides support
to 12 Covenant
signatory cities

In order to be prepared for extreme circumstances, many of them weather-related like storms, floods, or heavy snowfalls, the Association of Finnish Local and Regional Authorities took action. With the goal to allow Finnish cities and provinces to keep carrying out their essential tasks related e.g. to health, education, rescue and technical services in all exceptional situations, the association produced a number of tools to support the development of preparedness strategies and to ensure citizens' well-being and safety.

Monitoring and evaluating adaptation actions is crucial to ensure that the resources (human, financial, or otherwise) invested are efficiently and effectively used. Monitoring can also help determine if adaptation measures have incurred any unanticipated side effects and make adjustments if necessary.



Covenant signatories commit to monitoring their actions every two years after submitting their action plan(s).

MARCHE REGION, ITALY

A tool to help cities monitor their adaptation progress



1.54 million
inhabitants



Territorial Coordinator
since 2012

Provides support to 50 signatory cities



© Wikimedia Commons

In order to support signatory cities in monitoring their adaptation actions, the Marche Region provides an open source tool to check the progress of adaptation and mitigation options and reorient them if needed. In the framework of the SecAdapt project,

co-funded by the EU LIFE programme, the region also supports municipalities from the Istria region in Croatia to monitor their adaptation actions.

More information:
www.lifeseadapt.eu



PROGRESS CAN BE MONITORED E.G. AGAINST THE FOLLOWING INDICATORS:



Buildings: percentage of buildings retrofitted for adaptive resilience



Land use planning: percentage of newly transformed green and blue infrastructure



Land use planning: percentage of unsealed surfaces



Water: percentage of reused rainwater



THE COVENANT OF MAYORS COMMUNITY IS HERE TO SUPPORT YOU!

The Covenant of Mayors - Europe Office, European and national institutions and many others offer online and offline support, and also allow signatories to learn from each other. Whether you are just getting started or already implementing or monitoring your adaptation plan, you will find helpful resources, tools or seminars for every step. Check out the **“Adaptation resources”** page on the Covenant of Mayors - Europe Office website to find the adequate support for you.

More information: <https://bit.ly/2o3p6Aq>



This leaflet is available in 22 EU languages in the Covenant of Mayors’ online library.

The EU Covenant of Mayors - Europe Office is responsible for the overall coordination of the initiative in Europe. It is composed of networks of local and regional authorities: Energy Cities, Climate Alliance, CEMR, EUROCITIES, FEDARENE and ICLEI Europe.

 www.eumayors.eu

 [@eumayors](https://twitter.com/eumayors)

Published by the Covenant of Mayors - Europe Office in October 2018

Designed by unger+, www.ungerplus.de



© European Union, 2018

This publication does not involve the European Commission in liability of any kind.



Covenant of Mayors
for Climate & Energy
EUROPE

A member
of the



GLOBAL COVENANT
of MAYORS for
CLIMATE & ENERGY