QUICK GUIDE

DEALING WITH HEATWAVES EU-WIDE KNOWLEDGE FOR LOCAL AND REGIONAL AUTHORITIES

This content was prepared by the projects REGILIENCE, IMPETUS, TransformAr, ARSINOE, Pathways2Resilience and REACHOUT with the support of the EU Mission on Adaptation and Covenant of Mayors for Climate and Energy (CoM).

DEALING WITH HEATWAVES

EU-WIDE KNOWLEDGE FOR LOCAL AND REGIONAL AUTHORITIES

WHAT IS A HEATWAVE?

A heatwave is an event, which is characterised by high temperatures over a prolonged period. Heatwaves can last for two days, a few weeks or months with temperatures rising much higher than on average for the specific region and season. In some regions, a heatwave may be accompanied by high humidity levels, intensifying the heat effects on the human body.

In Europe, heatwaves are becoming more frequent, longer and intense (during the day and/or night).

Hotter days, higher temperatures at night (tropical nights) and an increasing number of humid heatwaves are affecting human health and well-being across Europe.

KEY FACTS & RECENT EVENTS

Nine of the ten hottest years on record have occurred in the past 20 years.

Europe is warming twice as fast as the global average; the number of hot days (temperatures above 30°C) may increase fourfold by the end of the century, leading to more frequent and intense heatwaves.

Among the general population, women are more affected by heatwaves than men due to biological, demographic and socio-economic reasons.

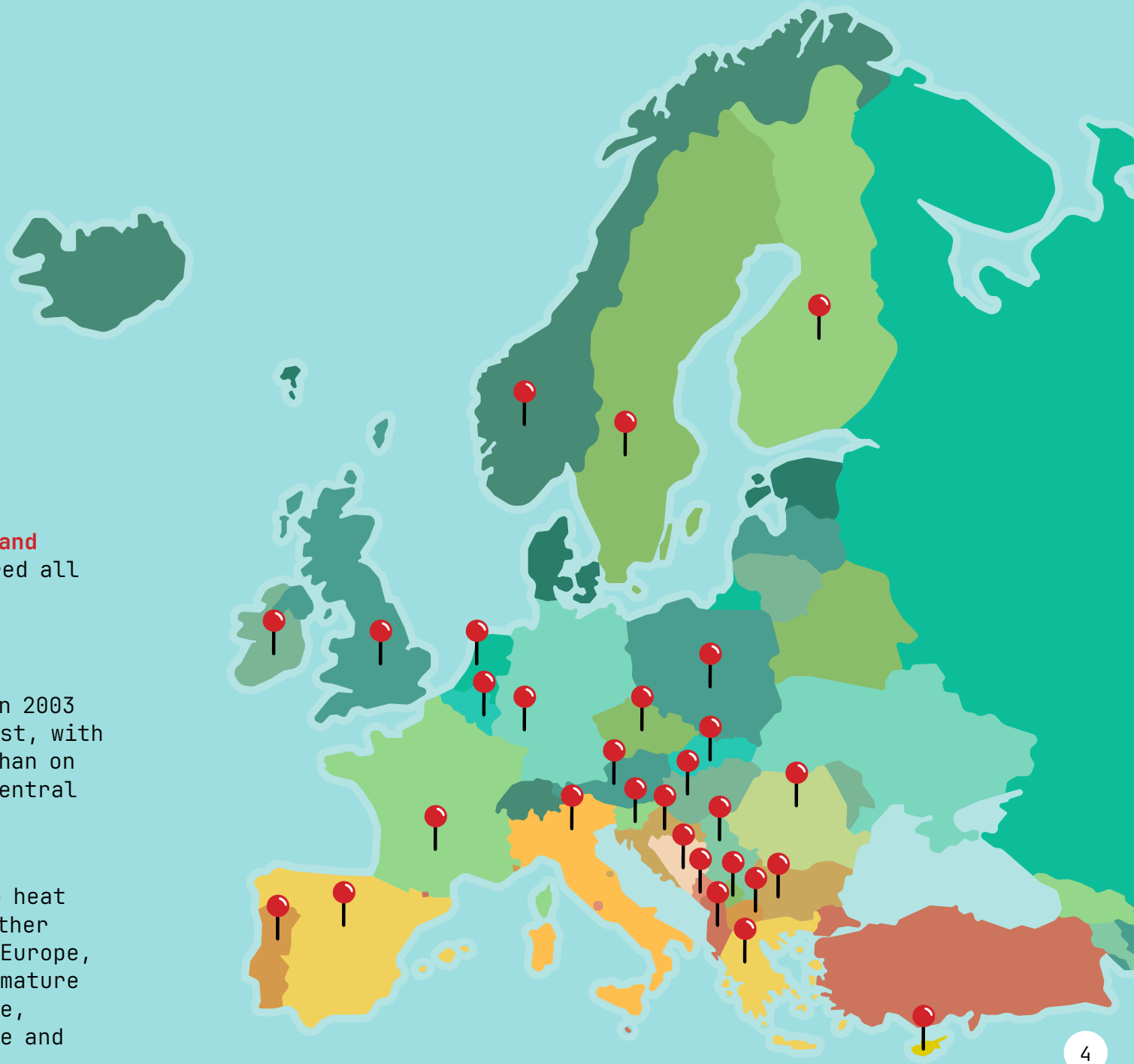
Madrid, Spain. ©Arthur Hinton, Unsplash

Recent major heatwaves:

- **2003, 2007, 2018, 2019, 2022, and 2023**: Extreme heatwaves occurred all over Europe over the years.

- **Summer 2003**: A severe heatwave across large parts of Europe in 2003 extended from June to mid-August, with temperatures 3 to 5°C higher than on average in most southern and central European regions.

- **1970-2023**: Since 1970, extreme heat has been the main cause of weather and climate-related deaths in Europe, including more than 70,000 premature deaths during the 2003 heatwave, 61,000 during the 2022 heatwave and 48,000 in 2023.



Key impacts on your community

Heatwaves can have long-lasting direct and indirect impacts on:

Health:
Heat stress can lead to dehydration and intensify underlying illnesses including mental wellbeing and the transmission of some infectious diseases. Heatwaves also bear significant health risks like heat exhaustion and heatstroke especially for older people, young children and outdoor workers.

Economy and agriculture:

Heatwaves can have far-reaching impacts, such as agricultural and livestock losses, damage to telecommunications, roads, and railways, or power shortages due to exceptionally high demands for cooling as well as negative impacts on outdoor labour.

Environment:
Marine heatwaves can impact fisheries and aquaculture due to sever water stress and water pollution caused by algae blooms. When combined with prolonged droughts, extreme heat can reduce soil moisture, decrease river flows, and drain groundwater reserves.

School and work productivity losses:

Heat contributes to the urban heat island effect, the inner city temperature can typically reach up to 4 °C higher during the day and 3 °C higher at night compared to surrounding rural areas.

HOW TO TAKE ACTION

Understand your heatwave risks: data, maps and tools

ThinkHazard! allows you to quickly assess the risk of extreme heat within your area, by simply typing the name of your location.

The Climate-ADAPT Adaptation Dashboard provides regional maps and charts, such as past and projected mean temperatures, the evolution of heat-related mortality, heat exposure of vulnerable groups and urban tree cover. See here tropical night projections your region.

Assess and visualise in detail past, present and future heatwave risks with EU-funded assessment tools, such as the Thermal Assessment Tool. The tool has been used by different regions and cities, such as Lombardy (Italy), La Rioja (Spain) and Oslo or Viken county (Norway) and their respective provinces and municipalities. The Heat Awareness System has been applied in the Netherlands. This video showcases some of the newest methods.

Water refilling in a public water fountain. Geneva, Switzerland. ©Albijona Fejzullahu, Unsplash

THINKHAZARD!

ADAPTATION DASHBOARD

EEA REPORT

THERMAL ASSESSMENT TOOL

HEAT AWARENESS SYSTEM

VIDEO: NEW RISK ASSESSMENT TOOLS

Implement concrete actions

Find more than 20 recommended **actions** for reducing the impact of heatwaves in this database, each of them describing costs and benefits, legal aspects for implementation and referring to implemented case studies. Some of the actions which can be implemented at the urban or municipal level are:

- Early Warning Systems (EWS) to improve governance and prevent possible diseases and health risks to the population.
- Using water to cope with heat waves in cities to minimise the effects of heat, by repairing historic drinking fountains and installing new ones. They allow people to drink water when they are thirsty, to cool down and they promote the community to work together.
- Natural areas like green spaces and corridors in urban areas provide shade and protection from heat.
- Design properly cooled buildings to ensure that citizens are protected from the impacts of rising temperatures.

Assess your planned actions with this self-assessment tool to avoid negative effects which increase vulnerability, diminish well-being or undermine sustainable development. It's available in 10 languages!

Barcelona's drinking water available in public spaces. © Fikri Rasyid, Unsplash

ADAPTATION DATABASE

EWS FOR VECTOR-BORNE DISEASES

WATER TO COPE WITH HEATWAVES

GREEN & BLUE INFRASTRUCTURE

COOLING BUILDINGS

SELF-ASSESSMENT TOOL

Find funding opportunities

Identify adequate EU and national funding options via MIP4Adapt to support your heatwave adaptation strategies.

Engage stakeholders and citizens in decision-making and action.

Explore how Milan, Athens, Cork and Logroño have developed climate stories to raise public awareness about extreme heat and highlight various adaptation strategies to cope with it.

Check the MIP4Adapt Do-It-Yourself Manual on Engaging Stakeholders and Citizens in Climate Adaptation to learn how to involve communities in preparing for and mitigating the effects of heatwaves and other climate risks, such as for participatory budgets in Lisbon.

You can also make use of specific tools like the TransformAr Playbook to plan participatory workshops.

Try the Climate Adaptation Game to educate your community on heat risks.

Picture: Farming in Sarteano, Sienna, Italy. © Picture Seeker, Unsplash

MIP4ADAPT
CITY HUBS CLIMATE STORIES
ENGAGING STAKEHOLDERS
TRANSFORMAR PLAYBOOK
CLIMATE ADAPTATION GAME

PRACTICAL EXAMPLES FOR LOCAL AND REGIONAL AUTHORITIES

Engage with EU Covenant of Mayors #CitiesREFRESH – a campaign that aims to inspire cities across Europe to take action against extreme heat. You will also find relevant case studies, events and useful resources.

Explore the EU Climate Adapt – Resource catalogue with over 65 case studies on heatwave initiatives across Europe, e.g., learn how

Stuttgart, in Germany, combats the heat island effect and poor air quality with ventilation corridors and green-blue infrastructure;

Portugal's Contingency Heatwaves Plan was developed to implement preventive actions to be taken when required.

Find and read several adaptation stories showcasing local action from across Europe, with examples like Kassel in Germany, Stiefingtal in Austria or Ìzmir in Turkey.

Picture above: Tramway tracks are used as open corridors allowing for the inflow of cooler air from surrounding areas to the inner city. ©City of Stuttgart, Office for Environmental Protection

Picture below: Green roofs help reducing heat radiation from buildings and improve insulation from heat and cold. ©City of Stuttgart, Office for Environmental Protection

COVENANT OF MAYORS – EUROPE
CITIES REFRESH
RESOURCE CATALOGUE
INFRASTRUCTURE IN STUTTGART
PORTUGUESE HEATWAVES PLAN
ADAPTATION STORIES
HEAT TELEPHONE PARASOL
STAYING COOL DURING HOT WEATHER
NATURE-BASED SOLUTIONS IN ÌZMIR, TURKEY

NEED HELP?

Contact us:
info@regilience.eu

E-MAIL US

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Page 9: Picture on the left: Cities Hit REfresh banner. ©Covenant of Mayors
Pictures on the right: Green roofs and tramlines in Stuttgart, Germany. ©City of Stuttgart

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