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ADAPTATION TO CLIMATE CHANGE

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A climate adaptation citizen assembly is the first of its kind in the Lyon metropolitan area, France

A citizen assembly collecting several adaptation options and transforming them into on-ground action

Citizen engagement and collaboration between the metropolitan council and the municipal authorities within the metropolitan area have supported on-the-ground adaptation to extreme heat, protecting Lyon's citizens, especially vulnerable groups.

Key Learnings

- **Citizen Engagement**: The citizen assembly proved to be an unprecedented democratic experience on climate adaptation at the local level in the Metropolitan area of Lyon and enabled both familiarising citizens with climate change challenges and setting nine priorities to guide adaptation across the metropolitan area.
- **Political Commitment**: Local leaders promised to address the adaptation priorities the citizens identified in the new territorial climate plan. The citizen proposals put the population's resilience to extreme heat at the core of local adaptation actions.
- **Green Infrastructure for Heat Reduction**: Integrating green infrastructure and Nature-based Solutions, such as trees, shrubs and grass, cools down public spaces and increases the metropolitan area's liveability for its residents.

About the region

The Lyon metropolitan area is the capital of the Auvergne-Rhône-Alpes region, in France, and home to 1.4 million inhabitants spread across 58 municipalities. The area has a 2,000-year history and UNESCO World Heritage status, offering a unique blend of architecture – ranging from Gallo-Roman ruins to modern or revitalised urban projects like Lyon-Confluence and Gerland's Biodistrict – and cultures. Lyon Metropole is the local authority managing the territory with a wide range of responsibilities and a €3.9 billion annual budget for urban planning, social action, economic development, ecological transition and infrastructure management. One of the authority's priorities is to accelerate the area's ecological transition, for which Lyon Metropole is heavily investing in increasing the area's resilience to climate change and improving the quality of life for its residents. Inclusive policies and ambitions that guarantee access to essential public services for all support a socially just transition. Education, healthcare and support for vulnerable individuals, such as socially disadvantaged groups and the elderly, are among the main priorities. Cooperation with the 58 metropolitan municipalities allows for a more tailored response to resident needs while supporting innovative social initiatives.

Climate Hazards

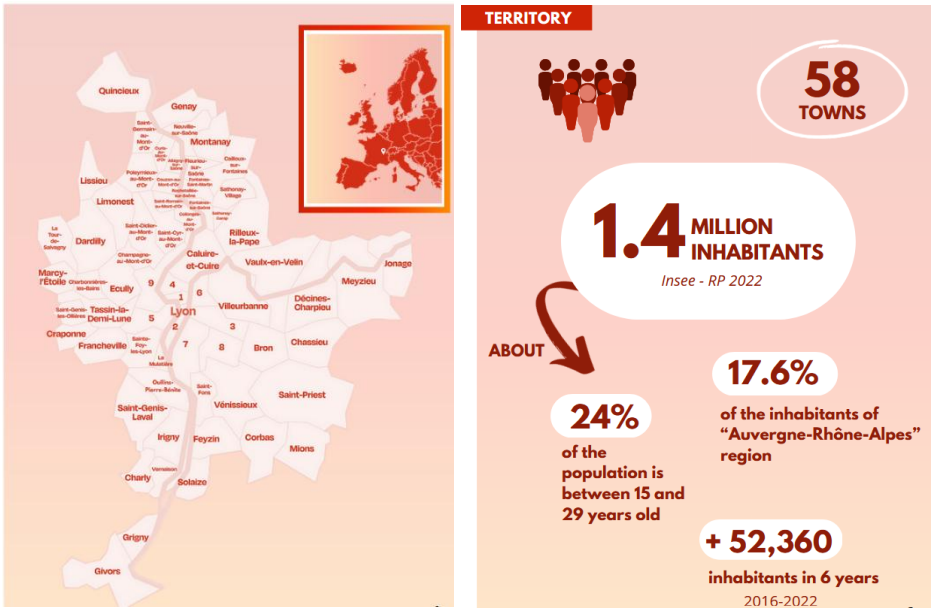
Extreme heat, Flooding

Sector

Urban, Health, Land Use Planning

Key system

Ecosystem and Nature Based Solutions, Health and Wellbeing, Water Management, Critical Infrastructure



Climate Threats

Warming temperatures are among the climate hazards that most impact the Lyon metropolitan area. Its geographical location – at the end of a valley, surrounded by hills – combined with its densely built-up area, leads to extreme temperatures in summer within the metropolitan borders. The French warming trajectory, which serves as a reference for anticipating future climate change and guiding adaptation measures, projects an average temperature increase of 2°C to 3°C by 2050 and up to 4°C to 5°C by 2100 for

Figure 1: Lyon's densely built-up area. Image Credit: © Métropole de Lyon, Julien Rambaud.

the Lyon Metropolitan area. These changes will result at the local level in much hotter, drier summers and milder, wetter winters. Very hot days and tropical nights with temperatures above 35°C during the day and remaining above 20°C during the night, as well as more frequent heatwaves, will alter Lyon's climate.

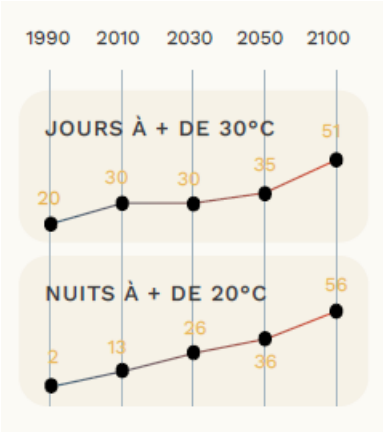


Figure 2: Average number of days over 30°C and average number of tropical nights in the Lyon Metropolitan area according to TRACC. Image Credit: Métropole of Lyon, according to DRIAS, 2023.

Local residents are already feeling the impacts of extreme heat, which makes outdoor spaces unbearable and disrupts public transport and business operations. Rising temperatures will worsen public health, increasing cases of cardiovascular disease, hospitalisations, and health inequalities – as unequal access to healthcare and living conditions put vulnerable groups at greater risk. People on low incomes, living in poorly insulated homes, or alone, are particularly exposed. Territorial differences also matter, as parts of the Lyon metropolitan area face high urban density, limited green spaces, and poor air quality.

Defining priorities to adapt the metropolitan area to climate threats

In response to the climate threats the Lyon metropolitan area is facing, local authorities mobilised residents to participate in a citizen assembly. A specialised public consultation agency used existing databases to directly contact residents and invite them to take part in the assembly. By reaching out to over 1,000 people, the process resulted in a 100-member assembly representative of the local population. The assembly collectively reflected on the challenges, debated tailored adaptation measures, and democratically defined priorities to enhance heat resilience. It engaged a broad range of local stakeholders, including citizens, public services, businesses, and local associations.

An assembly representing Lyon's diverse population

The 105 assembly members represented the metropolitan area's diversity and involved citizens of various ages, genders, levels of education, types of housing, family compositions, places of residence, professions, and political orientations. The Lyon metropolitan area's staff carefully established working groups, ensuring balanced participation. Providing allowances and childcare enabled the involvement of a broad range of stakeholders and ensured each voice was heard.

Figure 3: Citizen Assembly Participants. Image Credit: © Métropole de Lyon, Etienne Maury.

Mandate and assembly process

The President of the Lyon metropolitan area set out the assembly to answer the following question:

"What should the priorities be to guide the adaptation of our territory to heat?"

The citizen assembly facilitated the development of a shared vision on the challenges posed by heat and helped identify key heat adaptation actions. The assembly took place over five weekends – starting in September 2024 and ending in January 2025 – during which the participants drafted statements on different adaptation priorities and topics.

- Weekend 1: Understanding the causes and effects of climate change.
- Weekend 2: Understanding the region's specific vulnerabilities and adaptation challenges. Group work, heat impact assessment, and foresight.
- Weekend 3: Observe the impact of heat on the ground. On-site visits and field meetings engaging associations, businesses, and public services.
- Weekend 4: Define priorities for an adaptation strategy. Plenary session with thematic working groups.
- Weekend 5: Drafting and adoption of the Citizen Statement, which compiles nine adaptation priorities and identifies action levers, responding to the priorities in a 75-page document.

Results of the Metropolitan Assembly for Lyon's Adaptation

The Metropolitan Climate Adaptation Assembly defined 9 priorities for successfully implementing collective heat adaptation:

- Priority 1: Ensure everyone has access to cool spaces by defining a clear strategy and sharing responsibilities.
- Priority 2: Build awareness and habits to help people live with extreme heat.
- Priority 3: Strengthen social ties so communities can protect each other during heatwaves.
- Priority 4: Improve thermal comfort, meaning the perceived indoor temperature, in homes.
- Priority 5: Create accessible local places where people can cool down.
- Priority 6: Make vegetation and water central features of public spaces.
- Priority 7: Keep essential public services running during extreme heat.
- Priority 8: Adapt working conditions to protect people in high temperatures.
- Priority 9: Adjust social, sports, and cultural activities to suit hotter conditions.

Transforming nine priorities into a comprehensive Metropolitan action plan

In response to the nine priorities expressed by the citizens, the metropolitan authorities formulated key action lines and several adaptation measures to increase extreme heat resilience:

- **Experiment**: Test concrete actions as soon as possible and expand them if they prove effective.
- **Implement**: Design and put in place measures or public policies in the short to medium term.
- **Official Commitment**: Tackle more complex, longer-term challenges that require strong political will from the Metropolis.
- **Advocacy**: Promote the assembly's messages to other decision-making levels – such as municipalities, the national government, or the European Union – in areas beyond the Lyon metropolitan area's direct authority.

Together, these measures form a comprehensive plan for adapting the metropolitan area to severe heat. The plan is built around three main pillars – protecting Lyon's most vulnerable inhabitants, adapting outdoor spaces to heat, and preparing public services and activities for a changing climate – and supported by practical examples.

Protecting the most vulnerable inhabitants

To protect its most vulnerable residents, Lyon is putting the following measures in place:

- Opening up cool spaces during heatwaves, such as providing free museum access.
- Organising a large-scale simulation exercise to protect young children and the elderly based on an extreme heatwave scenario.
- Supporting the creation of citizen reserve groups and training these volunteers through civil protection associations.

- Working with local partners to better understand the effects of climate change and anticipate its impacts across all sectors.

Figure 4: Children enjoying a water feature in the centre of a «Politique de la ville» or priority district in Lyon's 9th arrondissement. Image Credit: © Métropole de Lyon, Thierry Fournier.

A living environment adapted to rising temperatures

The second pillar focuses on transforming outdoor spaces, such as streets and public places, to better withstand hotter, drier summers and heavy rains during autumn and winter, which can potentially cause flooding. Transforming the living environment also involves adapting housing to climate change, for example, by adding sun protection.

Figure 5: Trees provide shade and cool down shopping streets, supporting Lyon's economy. Image Credit: © Métropole de Lyon, Anais Mercey.

Landscaping public spaces and redesigning them to provide shade and better absorb excess water is also a major lever for transforming the metropolitan living environment and adapting it to climate change. Several actions adapt the metropolitan area's outdoor spaces, particularly to extreme heat:

- Improved renovation subsidies increase comfort during hot summer temperatures, such as enabling the installation of sun protection facilities.
- Greening the metropolitan area has become a priority, planting more than 140,000 trees between 2021 and 2025. Systematic plantings with diverse species increase the city's ecological value, improving biodiversity and the microclimate at different levels. Layers close to the ground, with medium and small bushes, cool the air along footpaths, and large trees provide shade from above and absorb excess water during heavy rain.
- An online application enables identifying priority locations for revegetation based on several criteria, such as planting practicability, low vegetation cover, citizen vulnerability, etc.

- Innovative shading systems and water applications replace trees where plantings are not possible.
- Collaborations between the metropolitan council and municipalities facilitated opening natural bathing areas, such as rivers – for instance, the Saône and Rhône rivers – to cool local citizens.
- The metropolitan area's IT team developed a map of cool places and a mobile application to guide residents along 'fresh routes' that prioritise shaded paths.

Figure 6: Sun protection facilities, where tree plantings are not possible. Image Credit: © Métropole de Lyon.

Adapting public services and activities

The third pillar focuses on essential public services, like schools, water distribution networks, public transport, and waste collection. It also aims to ensure the resilience of economic activities and support leisure pursuit, including cultural and sporting events, during extreme heat. Hot temperatures strain resources, infrastructure, and workers, disrupting the smooth operation of businesses and daily activities. They put pressure on roads and resource deliveries, place extra demand on systems like air conditioning and IT, slow industrial processes, and affect workers, especially those outdoors or in already hot environments such as factories, restaurants, and bakeries. The Lyon metropolitan area relies heavily on its strong industrial base, but adapting its various economic sectors is challenging. In response, many measures should reduce the effects of climate change on Lyon's economy:

- Regularly updating the business continuity plan and publishing a heatwave vigilance guide each year reduces the impact on employees while ensuring the continuity of business operations.
- Including specific terms in its public procurement contracts encourages companies to consider the risks associated with climate change. The contracts require employers to protect employees working in extreme heat by providing water and shade and allowing more frequent breaks.
- Helping local companies, especially in the industrial, construction, and health sectors, better prepare for climate-related risks will improve their resilience and keep operations running smoothly.

A citizens' statement paving the way to long-term adaptation

Adopted almost unanimously, the citizens' statement outlines nine priorities, but also reflects disagreements expressed during the citizens' assembly. Key issues touched upon the role of public authorities, the fair contribution of economic stakeholders, the individual responsibility of citizens, and whether the current way of living can continue unchanged. The final document reflects these differing views, leaving it to political leaders to decide which position to adopt. These differences highlight the need to continue dialogue with residents to develop the most inclusive solutions possible. To support this, the metropolitan area has established a working group of climate stakeholders, giving citizens and other actors an ongoing platform to make their voices heard throughout the implementation process of the climate plan.

> *"I was aware of the climate issues, but six months later, I am comforted in my idea of the urgency in which we find ourselves. Now, what interests me is: what are we actually going to do? I sense a real political will. In any case, the question is no longer a debate between those who believe in climate change and those who don't. It's happening, it's getting hotter and hotter. Now we have to act!",*
>
> *Jean-Pierre, member of the assembly*

Summary

Lyon's first climate adaptation citizen assembly brought together 105 residents to define priorities for tackling extreme heat, showing that strong citizen engagement, political commitment, and nature-based solutions are vital for resilience. The assembly produced nine priorities – from ensuring access to cool spaces and improving homes to adapting outdoor areas, public services, and working conditions. In response, the metropolitan area turned these priorities into concrete actions, such as opening cool spaces, planting thousands of trees, redesigning public spaces, and helping businesses prepare for climate risks. By combining practical experiments, short- and long-term measures, and advocacy, Lyon's citizen-led approach demonstrates how collaborative climate action can protect the most vulnerable, keep services running, and make the city more liveable in a warming climate.

Further information

- Plantabilité
- Nature for City Life Initiative

Contact

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