ACCREU

Assessing Climate Change Risk in EUrope

Online workshop

Heat and health: Resilient European regions

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(Ecologic Institute)

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(BC3)

15 September 2025

Today's workshop

1. Heat and health

What are the issues? Who is doing what?

10:45 Comfort break

2. Taking action

What is helping? What is holding us back?

3. Vulnerabilities and inequalities

Who is especially at risk? What action is needed?

12:00 Wrap-up and close

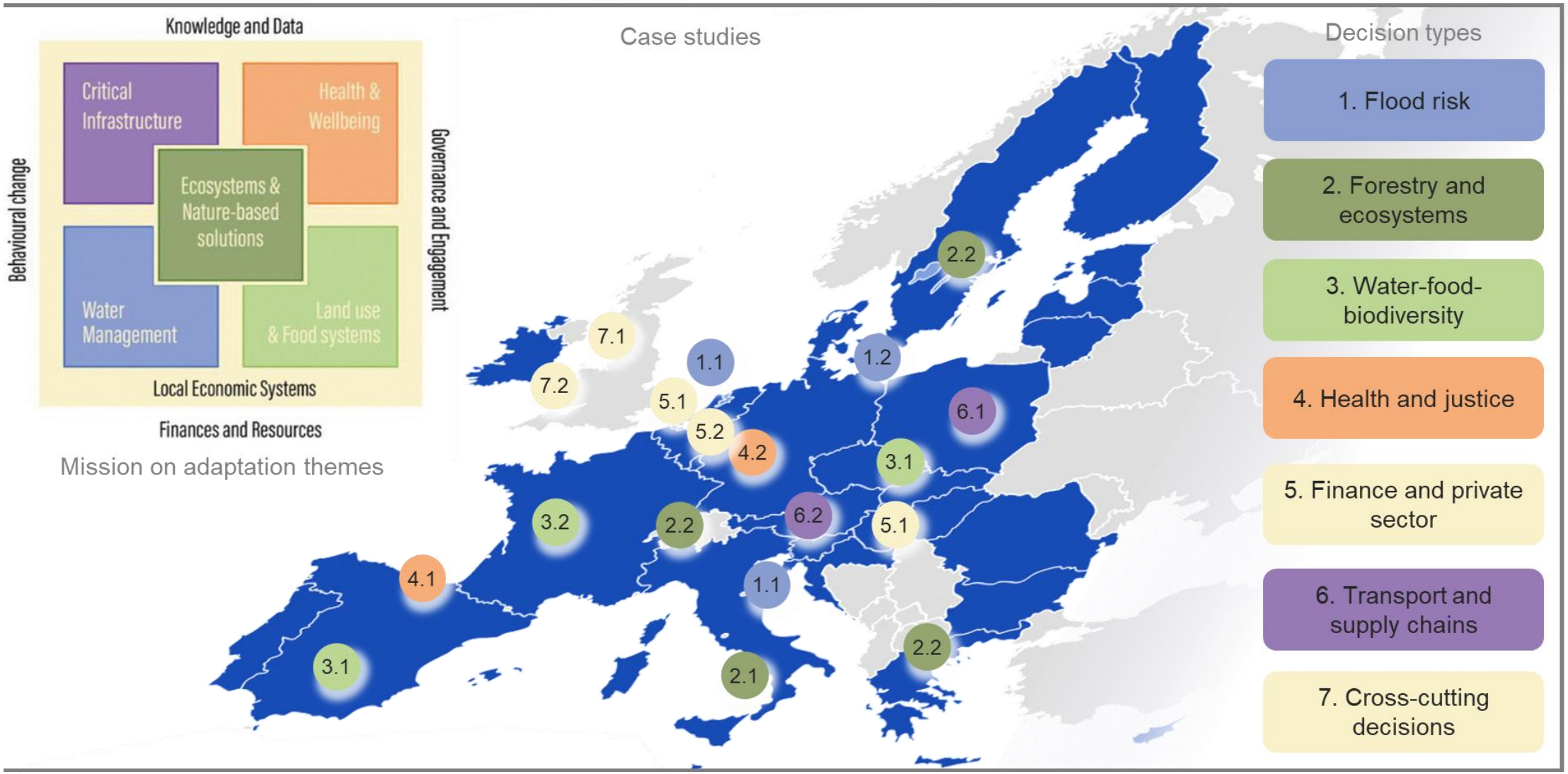
ACCREU (Assessing climate change risks in Europe)

Research and Innovation project (EU Horizon Europe)

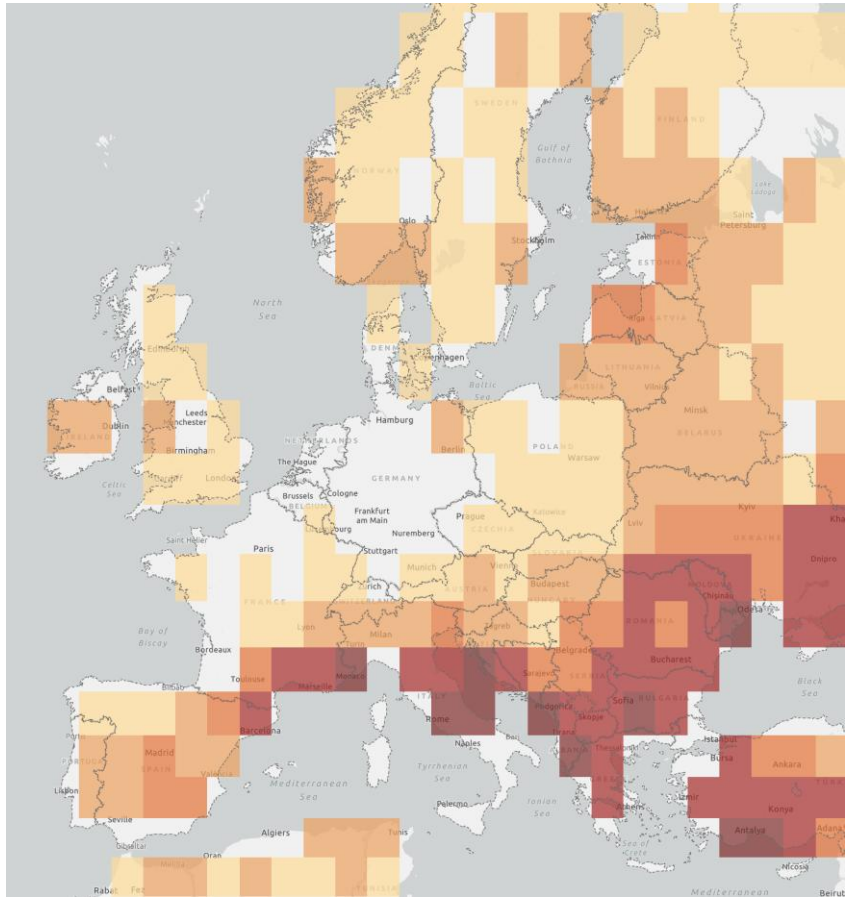
June 2023 – November 2026

Aim: Improve knowledge base on climate impacts and economic evaluation of adaptation measures and policies

Case studies and clusters



You and your region



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code: 8818 4702

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Jonas Gerke

Health-related climate impacts and adaptation

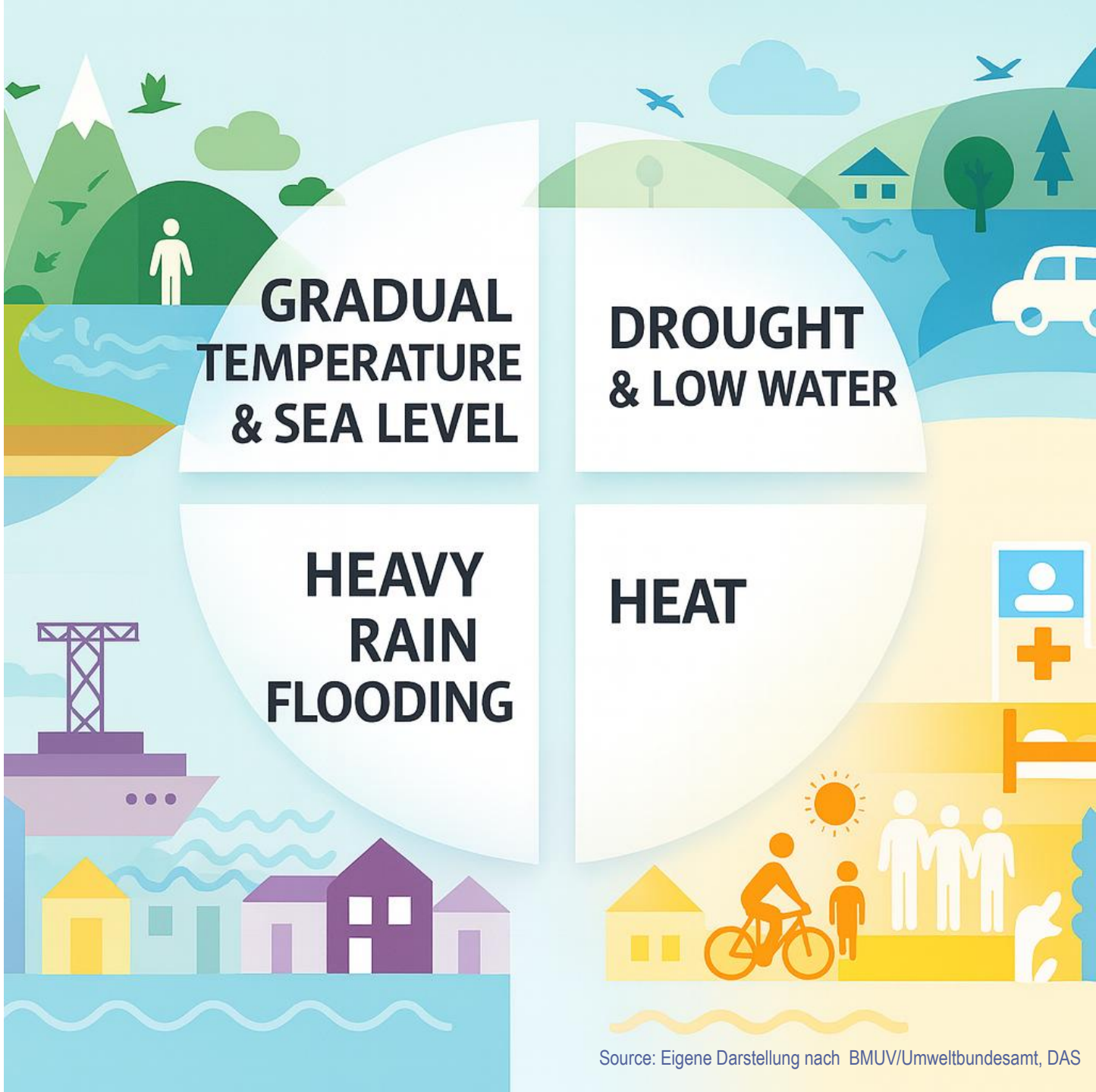
15.09.2025

Assessing Climate Change Risk in Europe (ACCREU)

Impacts of climate change

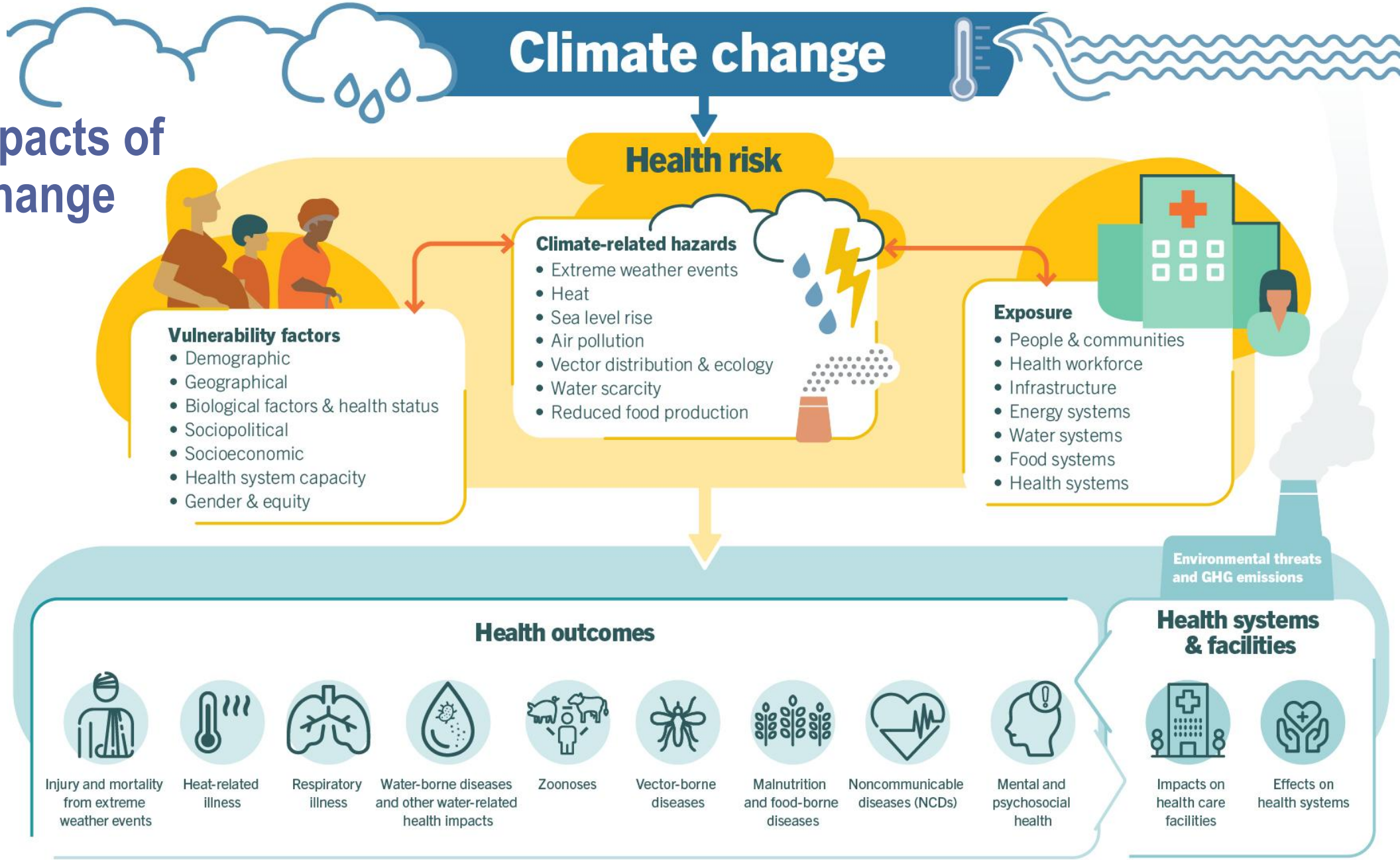
Climate change is directly contributing to humanitarian emergencies from temperature and sea level rise to droughts, wildfires, floods, tropical storms and hurricanes and heatwaves.

These impacts are increasing in scale, frequency and intensity.



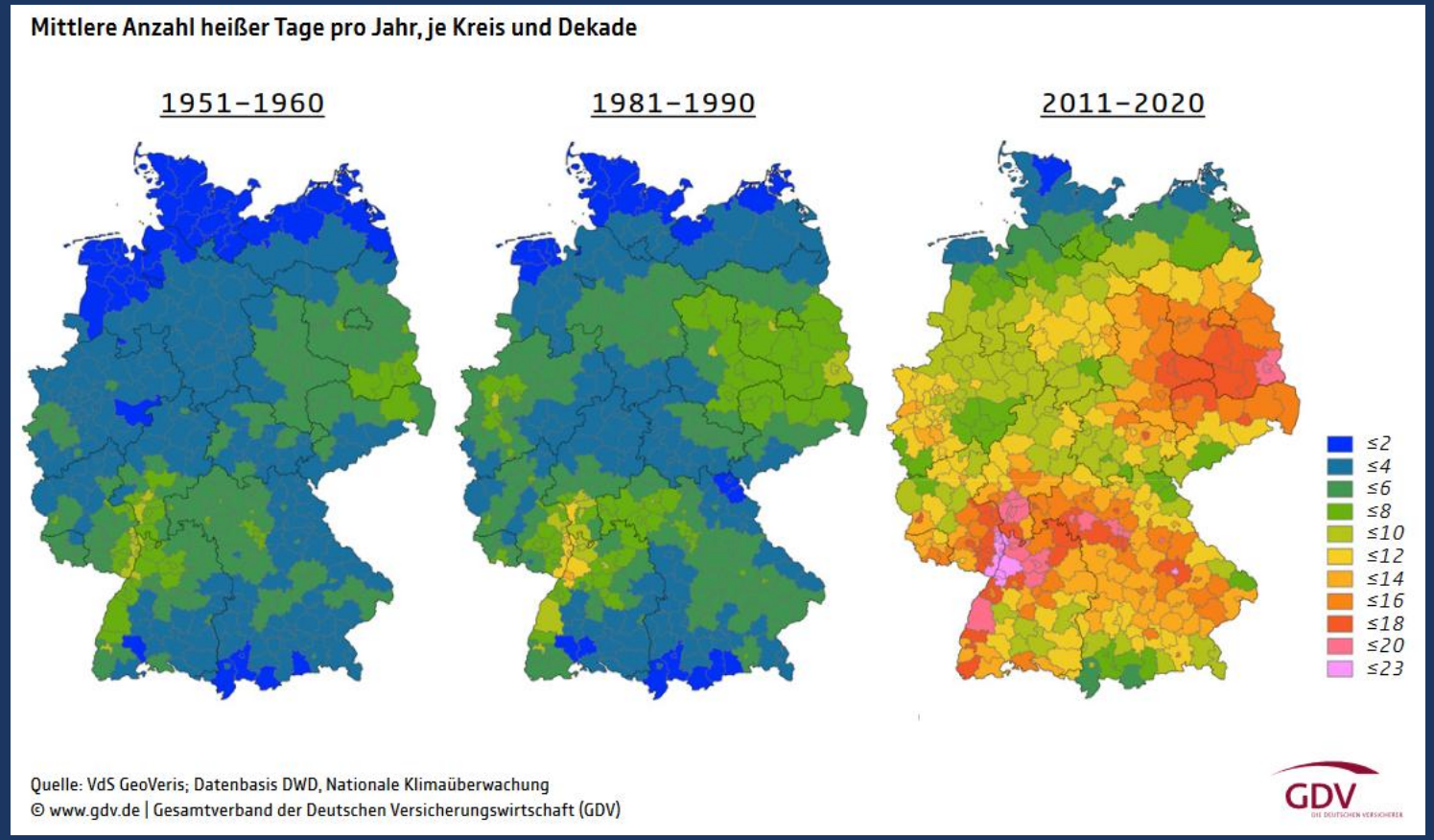
Source: Eigene Darstellung nach BMUV/Umweltbundesamt, DAS

Health impacts of climate change



Source: WHO 2021

Heatwaves are becoming longer and more intense



Hot days (≥ 30°C):

1951-1960: ⌀ 3,6 days

2011-2020: ⌀ 11,1 days

Frequency/intensity/duration of heat waves: ↑

Source: Gesamtverband der Deutschen Versicherungswirtschaft; Kahlenborn et al., 2021

Heat affects nearly every organ system in the body

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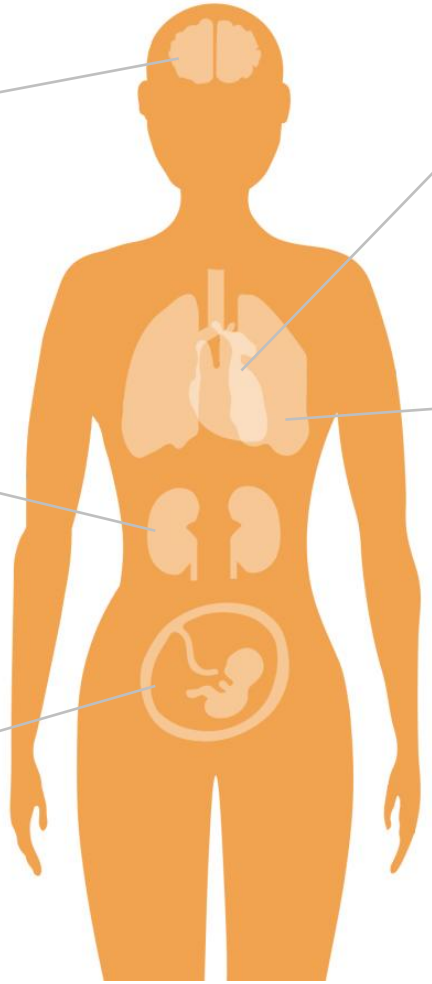
BRAIN
Increased risk of strokes
Deteriorated mental health
Increased aggressiveness and violence

KIDNEYS
Increased risk of kidney dysfunction such as kidney failure or weakness

PREGNANCY
Increased risk of preterm births
Increased risk of adverse birth outcomes such as low birth weight or stillbirth



HEART
Increased strain on the cardiovascular system
Worsening of cardiovascular diseases
Increased risk of heart attacks

LUNGS
Increased burden for people with respiratory diseases such as asthma and COPD
Additional strain due to higher ozone concentration

HEAT-RELATED ILLNESSES
Heat rash
Heat cramps
Sunstroke
Heat exhaustion
Heat stroke

Source: KLUG e.V.

Spectrum of heat-health outcomes

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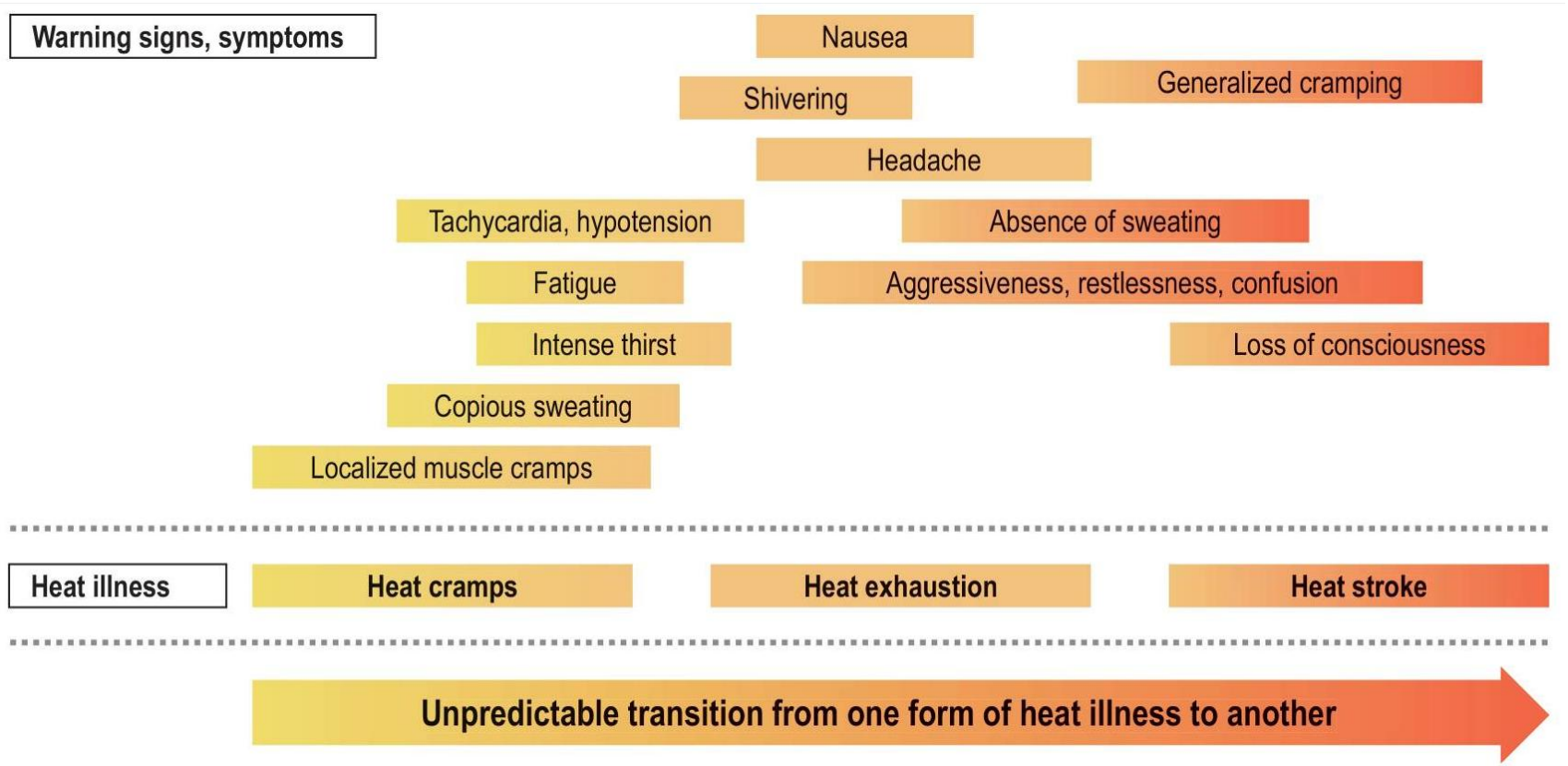

Source: Leyk D, Hoitz J, Becker C, Glitz KJ, Nestler K, Piekarski C: Health risks and interventions in exertional heat stress. Dtsch Arztebl Int 2019; 116: 537–44. DOI: 10.3238/arztebl.2019.0537

Heat is deadly…

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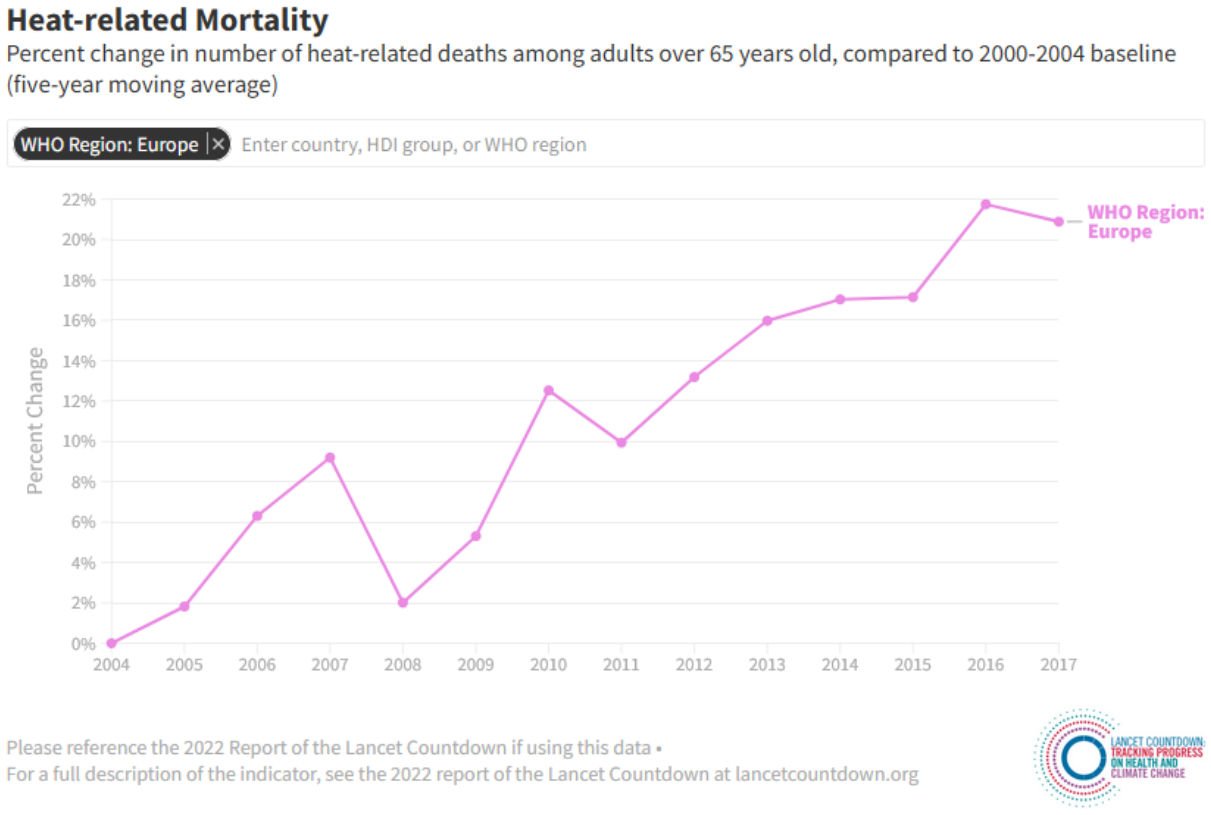

2022 Heat wave:

>20,000 excess deaths

France: 10,420

England and Wales: 3,271

Spain: 4,655

Germany: 4,500

Source (left): Romanello et al., 2022
Source (right): The Guardian

...But death is „only“ the tip of the iceberg

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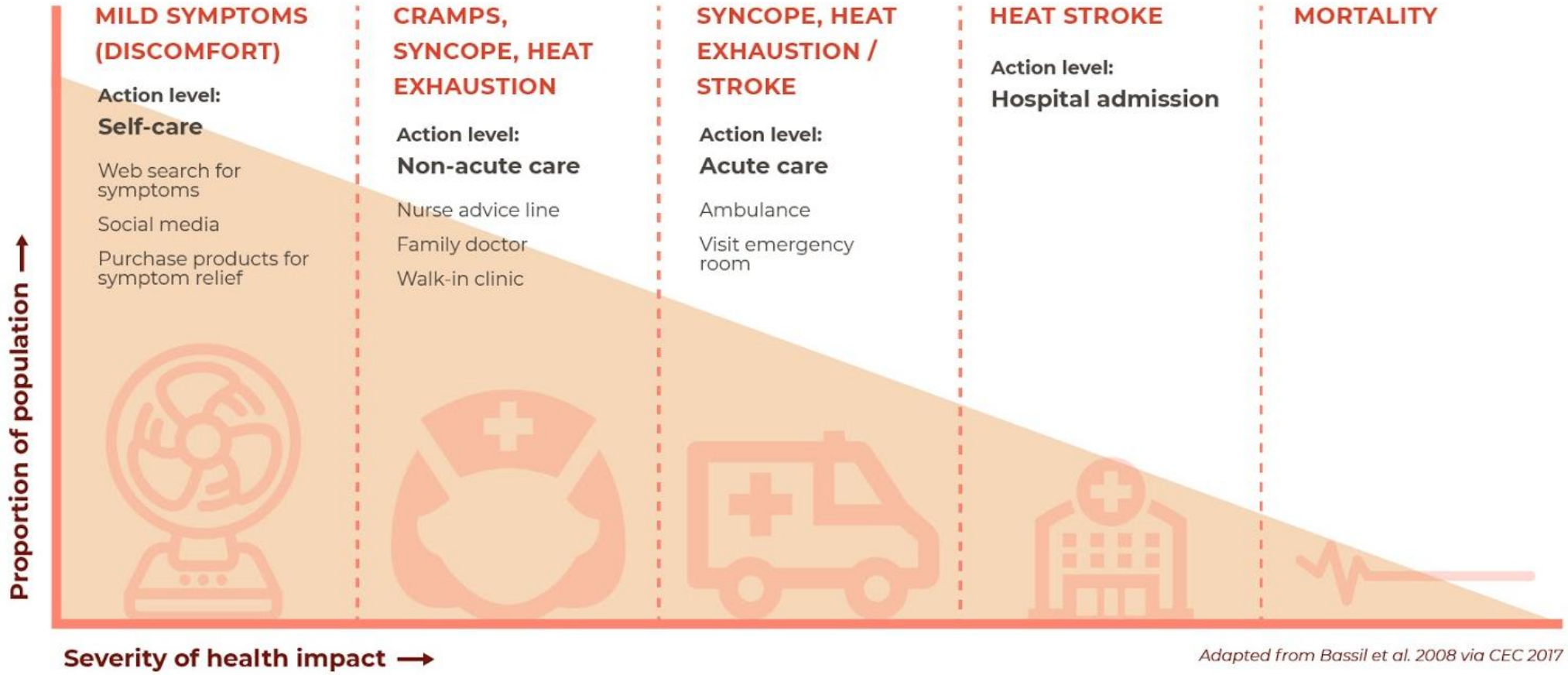

Source: Global Heat Health Information Network
https://ghhin.org/in-the-body/

Indirect effects arise for the health system

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Potential disruption of infrastructure

- Power
- Water
- Transport
- Productivity

Impacts on the healthcare system

- More emergency missions with slower response times
- Increased doctor visits and hospital admissions
- Staff shortages
- Risks due to improper storage of medications

Increased accident risk

- Drowning
- Occupational accidents
- Food and waterborne diseases
- Marine algal blooms

Main Heat Vulnerability Factors

Multiple vulnerabilities compound the health risks of extreme heat

PHYSIOLOGICAL FACTORS

Older and less-abled people

People with certain medical conditions or taking certain medications or drugs

Pregnant people

Infants and children

EXPOSURE FACTORS

Outdoor and manual workers

People living in sub-par housing conditions or who lack access to cooling

People who are poor, displaced or experiencing homelessness

Athletes and attendees of outdoor events

Source: WHO 2024

The urban heat island effect

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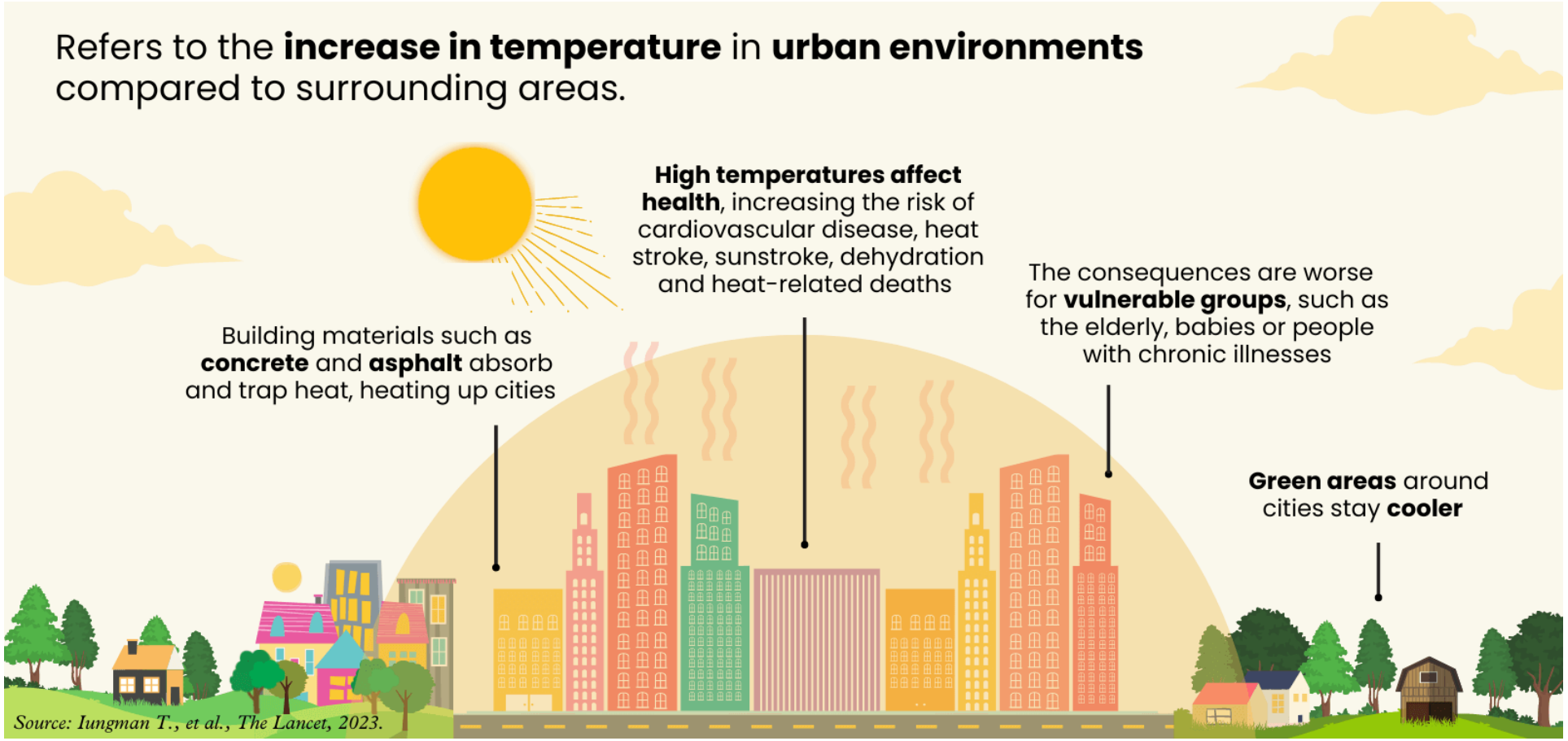

What can we do?

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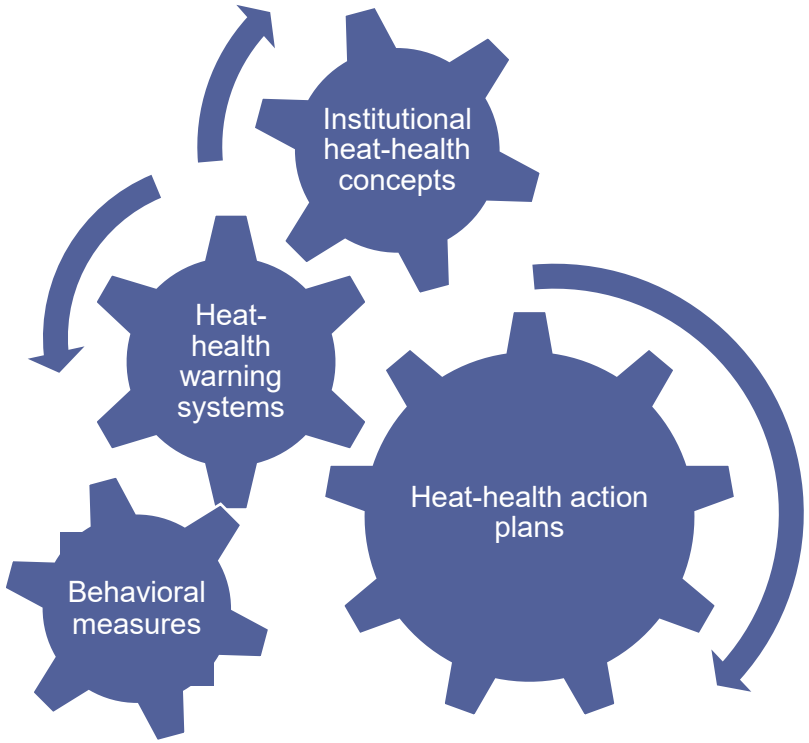

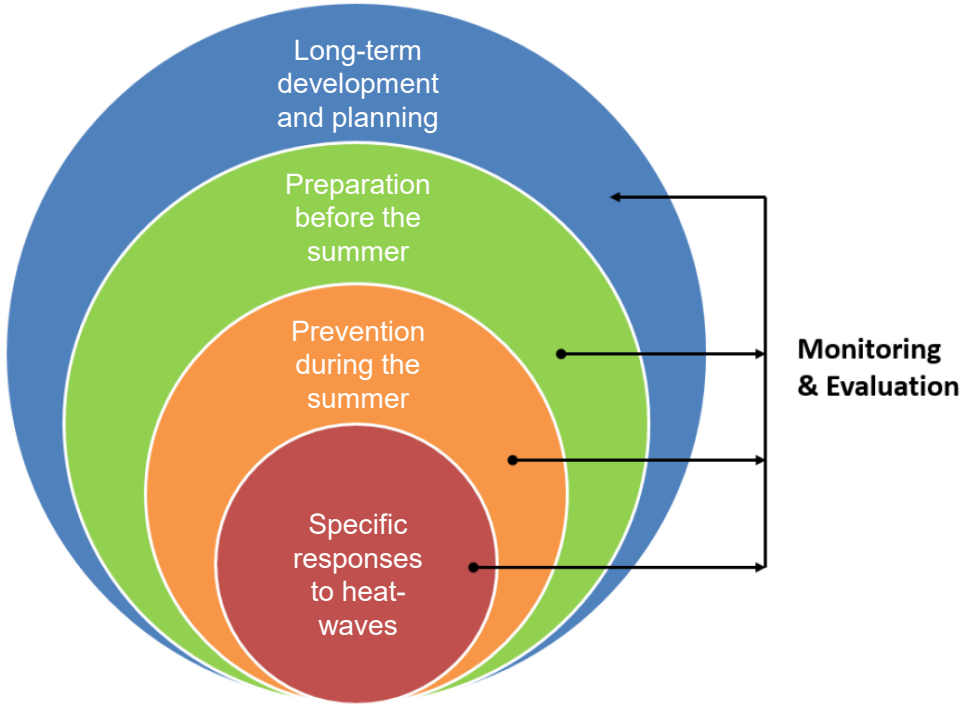

Source: GAK Recommendations for Heat Action Plans, BMUV 2017, translated

Core elements of heat-health action plans

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Agreement on a lead body	Accurate and timely alert systems	Heat-related health information plan	Reduction in indoor heat exposure
Particular care for vulnerable population groups	Preparedness of the health and social care system	Long-term urban planning	Surveillance, monitoring and evaluation

Source: WHO 2008

Heat health actionplanning ≠ heat health action plan

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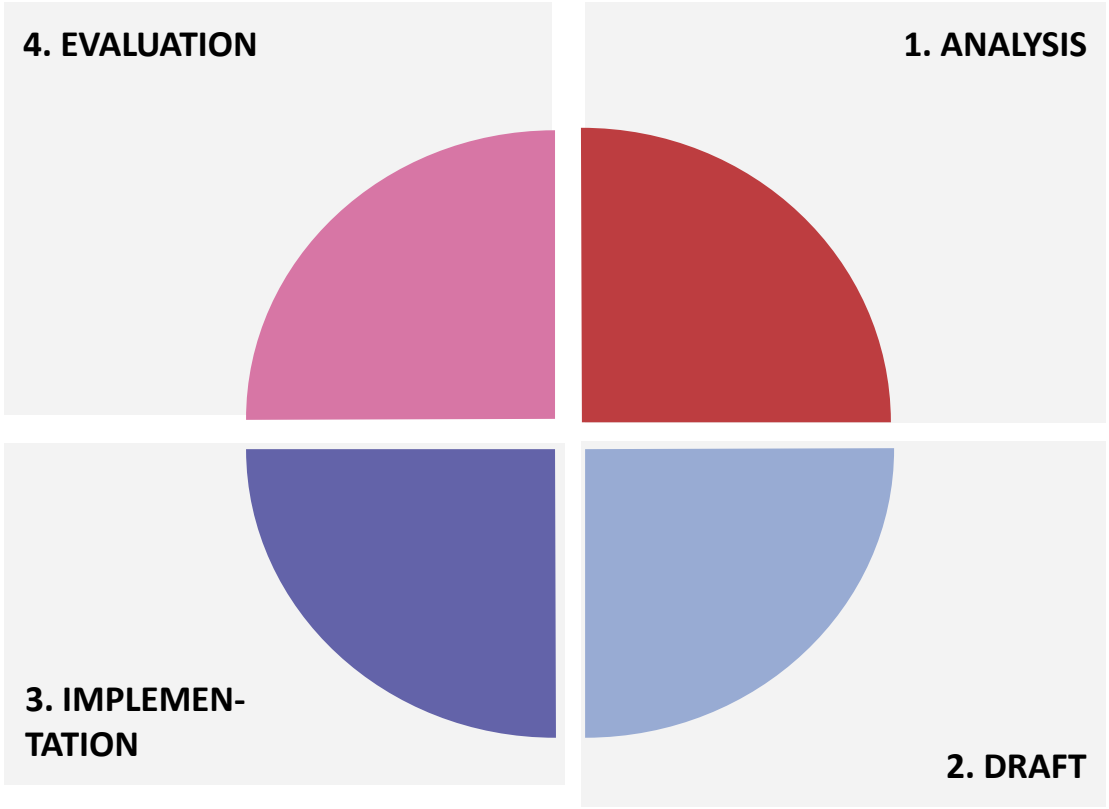

- Focusing only on a heat action plan risks neglecting actual implementation
- Heat action planning is a cyclical process
- Continuous (cooperative) further development and learning
- Evaluation must be considered from the very beginning

Local alliances for heat-health action

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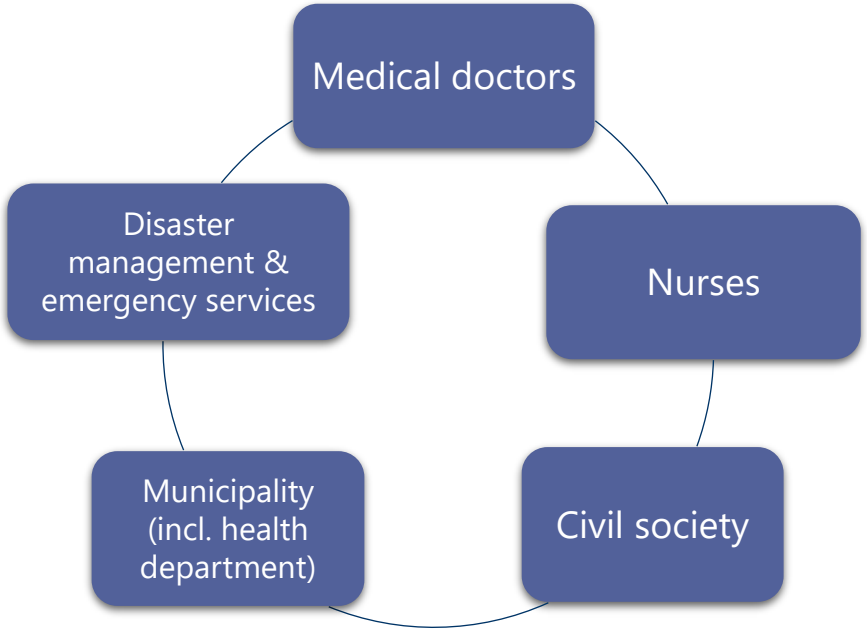
- Acute response to heatwaves requires a diverse set of stakeholders
- Heat protection is a joint task
- Continuity is the key to long-term effectiveness



QUELLEN

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https://www.theguardian.com/environment/2022/nov/24/over-20000-died-western-europe-heatwaves-figures-climate-crisis

Global Heat Health Information Network: https://ghhin.org/understanding-heat/

Global Heat Health Information Network: https://ghhin.org/heat-and-health/

Aktionsbündnis Hitzeschutz Berlin: https://hitzeschutz-berlin.de

https://hitze.info

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What is being done to address heat and health in Europe?

Vincent Möller

Climate adaptation management, State of Bremen (Germany)

Zuriñe Maestre

Ihobe S.A., Environmental Management Agency of the Basque Government (Spain)

Wolfgang Hofstetter, Climate Alliance Ready4Heat project (Austria, Hungary, Germany, Slovenia)

Marco Elischer, Climate adaptation manager, City of Worms (Germany)

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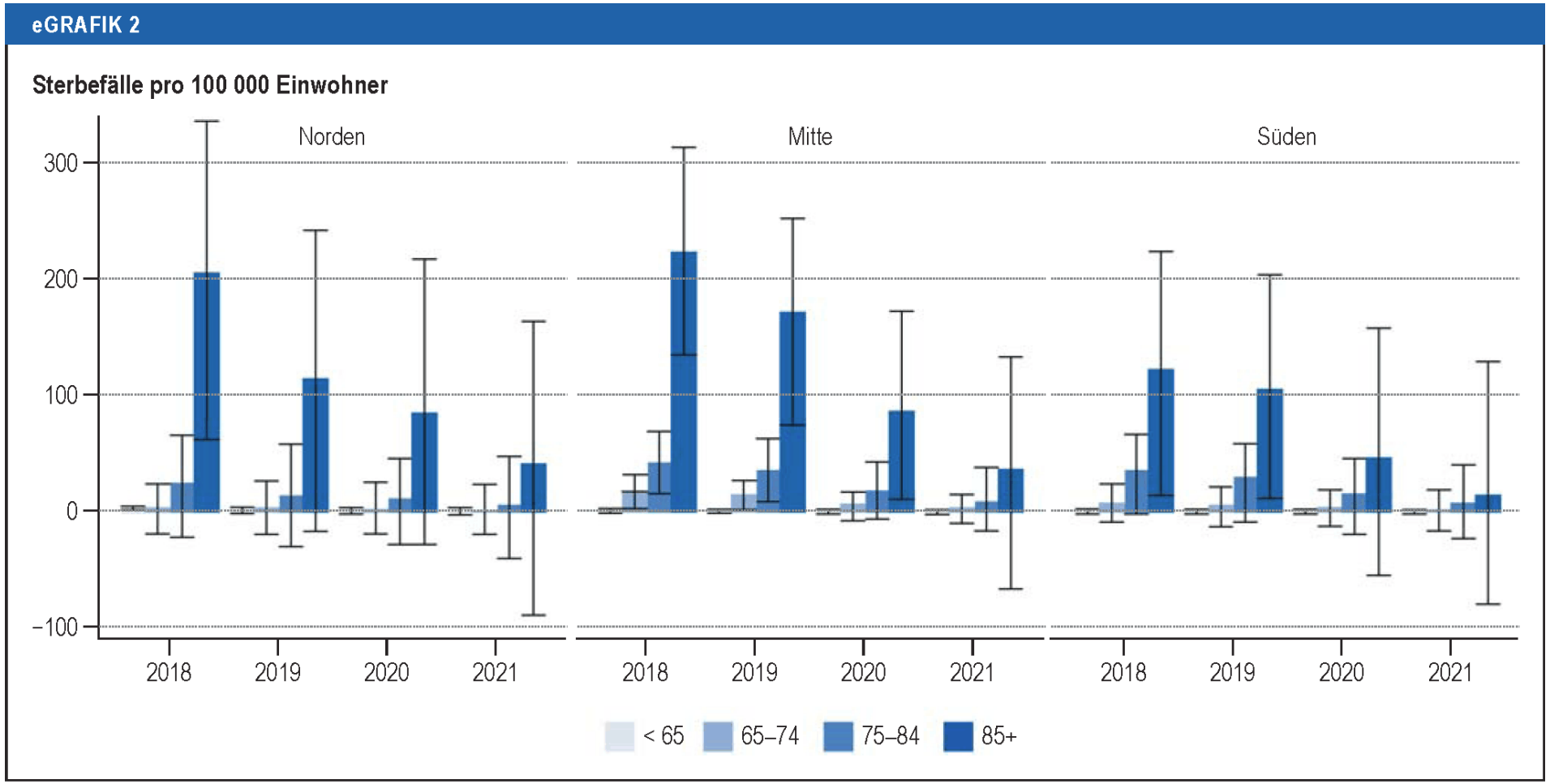
Addressing heat and health in Bremen

Vincent Möller, State office for Climate Adaptation Bremen

15 September 2025

1. Heat adaptation in Bremen.Bremerhaven



Hitzebedingte Mortalität (Sterbefälle pro 100 000 Einwohner) in den Jahren 2018–2021 aufgeteilt nach Region und Altersgruppe. Trotz der kürzeren Dauer der Hitzeperioden *(eGrafik 1)* in der Region „Norden" ist die hitzebedingte Mortalität der ältesten Altersgruppe in dieser Region vergleichbar mit den Regionen „Mitte" und „Süden".

Winklmayr C, Muthers S, Niemann H, Mücke HG, an der Heiden M: Heat-related mortality in Germany from 1992 to 2021. Dtsch Arztebl Int 2022; 119: 451–7. DOI: 10.3238/arztebl.m2022.0202

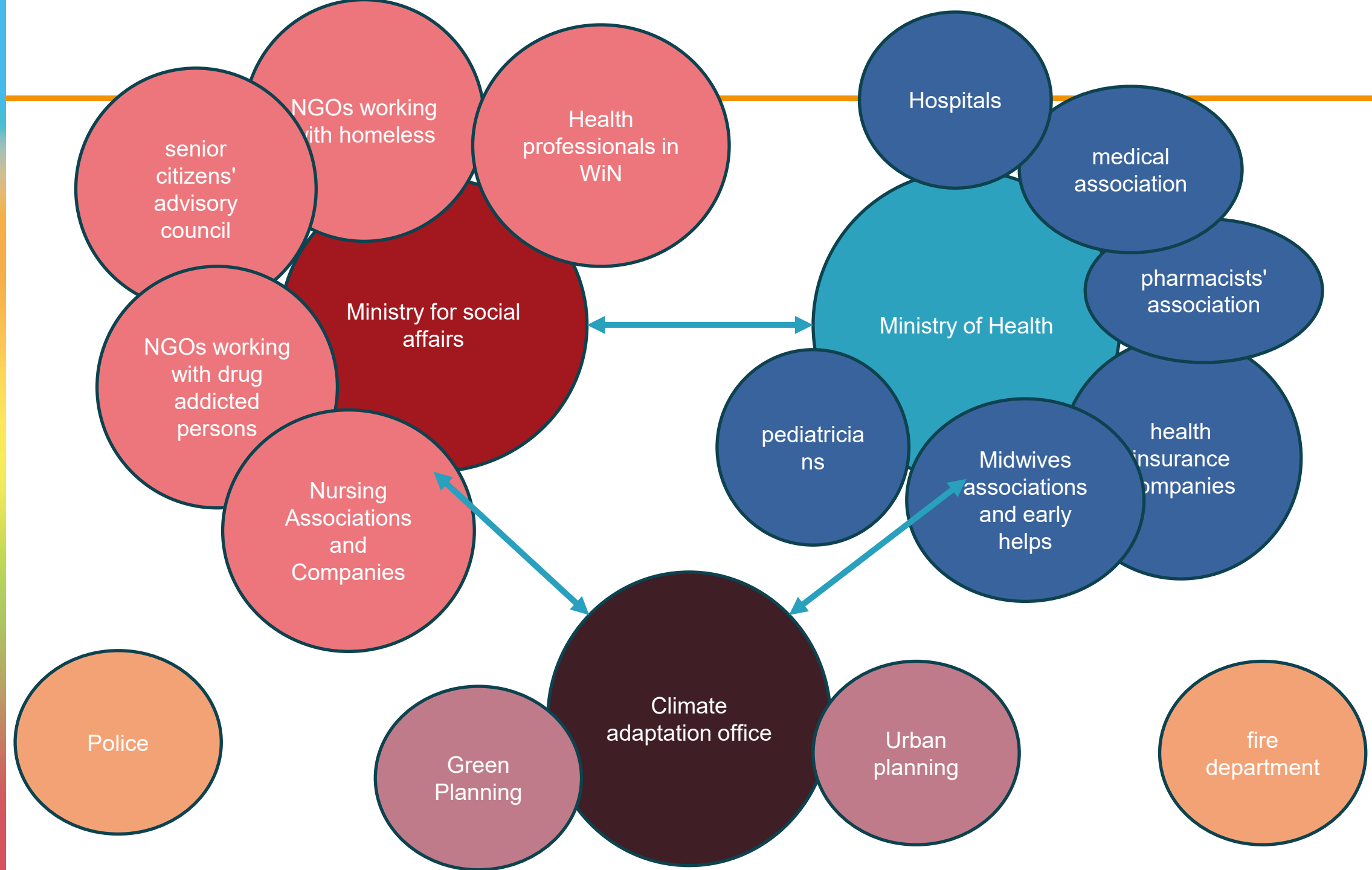
Risk awareness for heat is…improveable

Lauf auf der Waldau

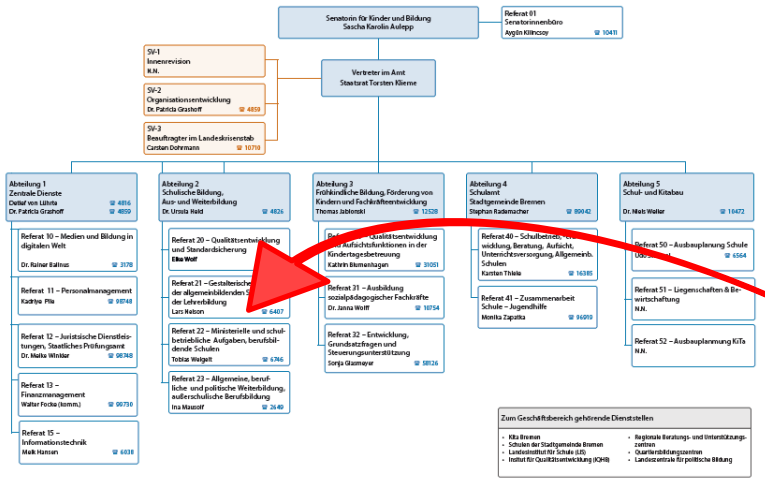
AOK Firmenlauf Stuttgart findet trotz Hitze statt

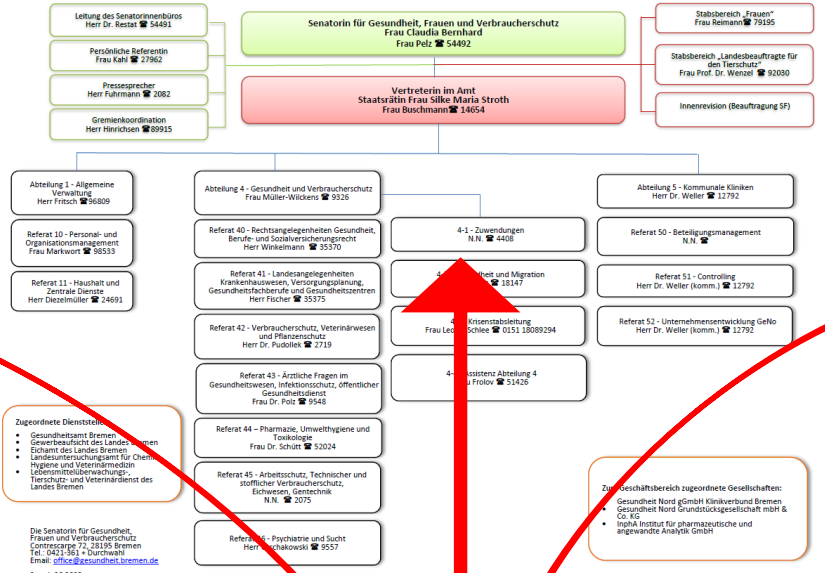
Stand: 2.7.2025, 11:40 Uhr

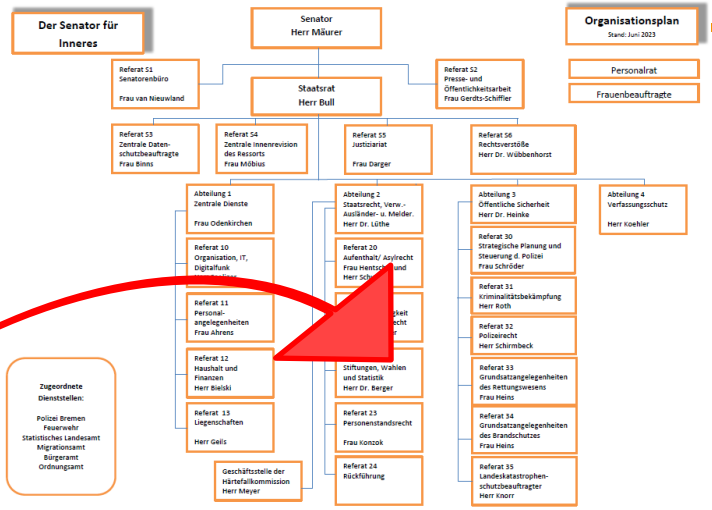
AOK Run takes place in spite of heat
(Official heat warning on the same day)

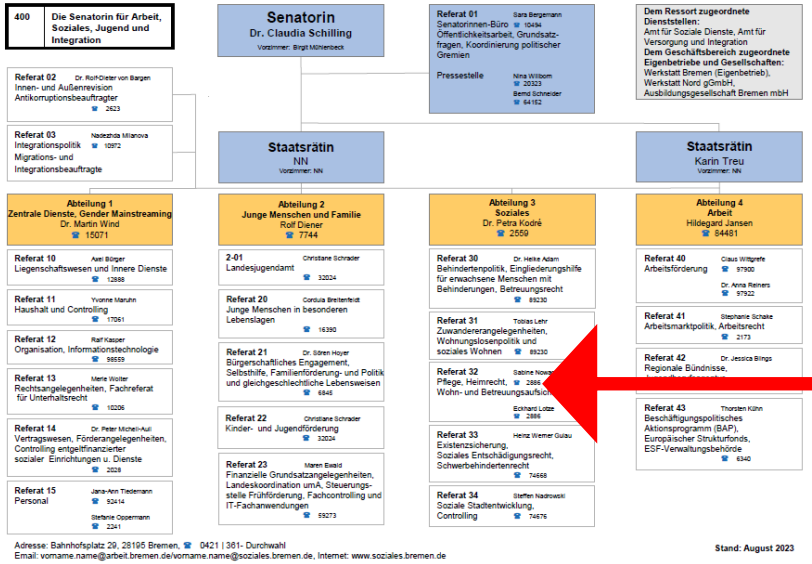

NGOs working with homeless
Health professionals in WiN
senior citizens' advisory council
Ministry for social affairs
NGOs working with drug addicted persons
Nursing Associations and Companies
Hospitals
medical association
pharmacists' association
Ministry of Health
pediatricians
Midwives associations and early helps
health insurance companies
Police
Green Planning
Climate adaptation office
Urban planning
fire department

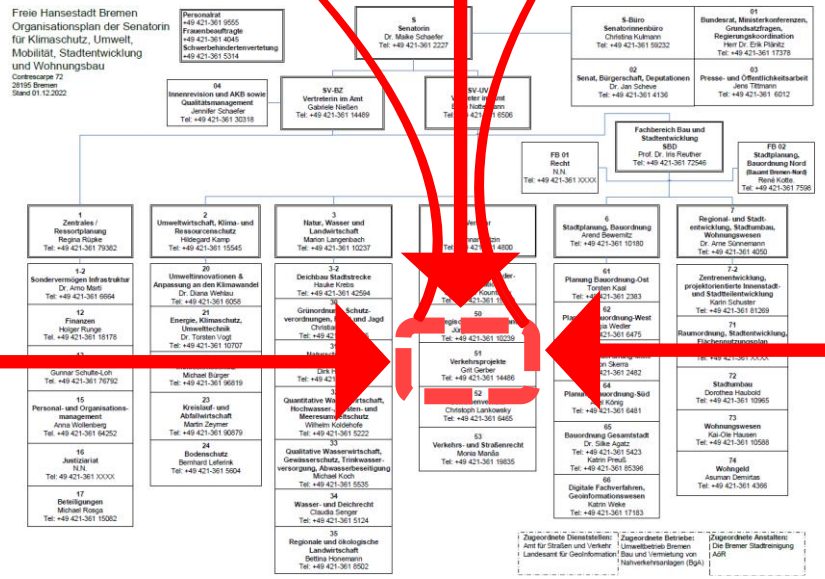
Management of the process?

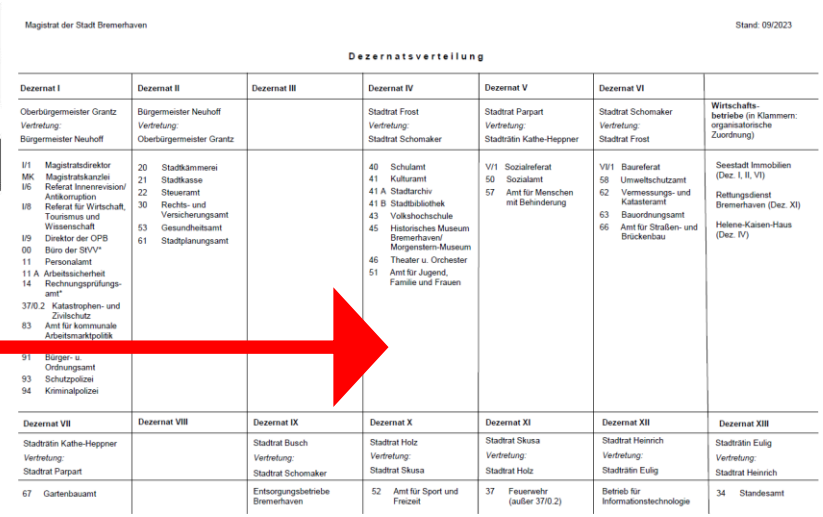






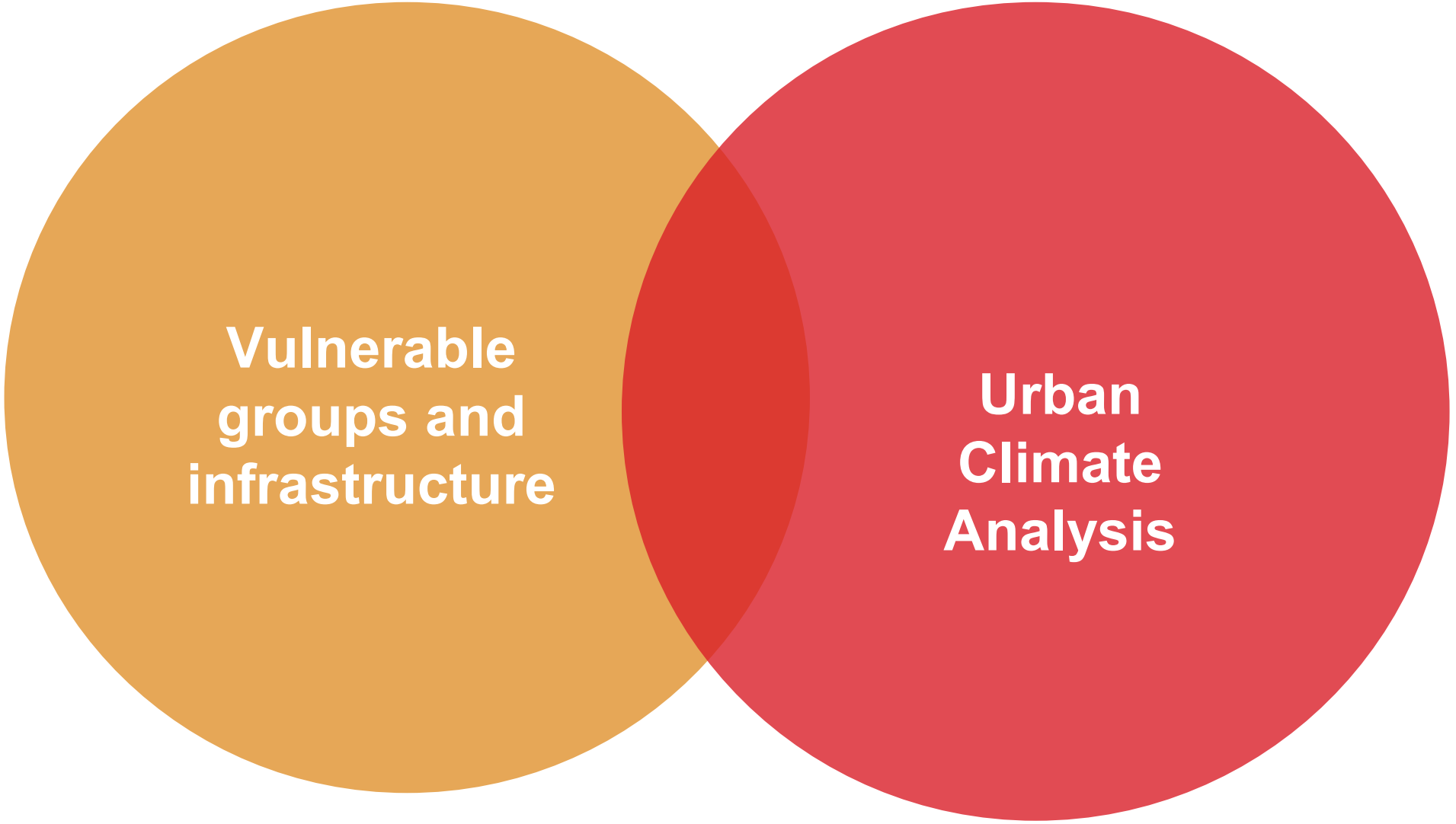




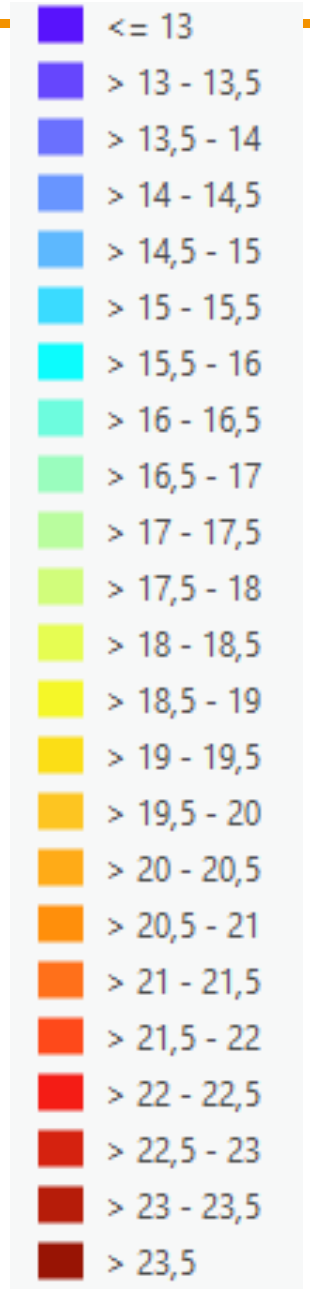


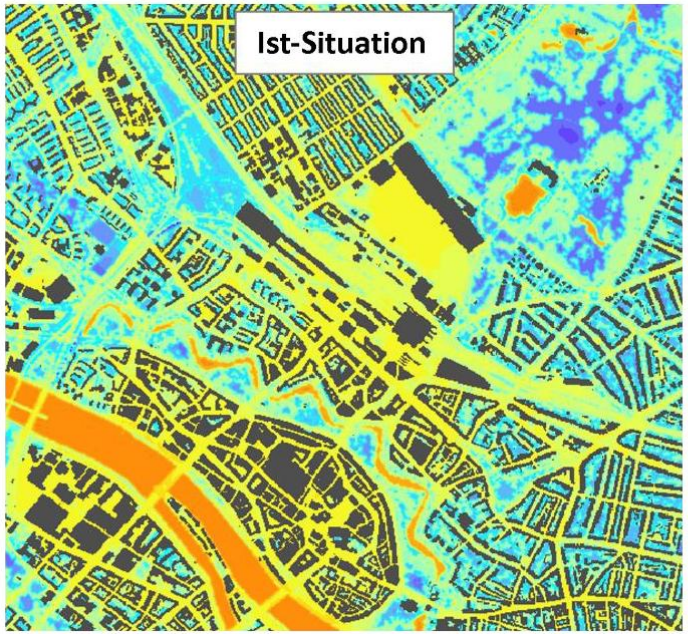
A: Structures	B: Risk Communication, Awareness and information	C: Management of Heat Waves		D: Climate sensitive urban planning	E: Monitoring and Evaluation
A.1 Coordinating Unit	B.1 Communications Plan for Heat warning	C.1 Communication of heat warmings	C.6 Change of medication plans (pharmacies)	D.1 Climate adapted green keeping	E.1 Monitoring of measures
A.2 Steering Committee	B.2 Heat Portal	C.2 Heat plans for health institutions		D.2 Action plan Urban Treens	
A.3 Network external actors	B.3 General information campaign	**C.3 Support of pediatricians and midwifes**	**C.7 Support of homeless and drug consuming persons**	**D.3 Redesign of public space based on NbS**	E.2 Improved Monitoring Morbidity and Mortality
	B.4 Information campaign for vulnerable groups	**C.4 Pilot project „heat buddies“/ health professionals**	**C.8 Seasonal shading of schoolyards and kindergardens**	**D.4 Heat resilient public buildings**	
	B.5 Training for persons working with vulnerable groups (health care, social work etc.)	C.5 Communication of „cool spots“ in the city	C.9 Drinking fountains in public space	D.9 Climate adaptation on business districts	
	B.6 Training for relatives supporting vulnerable persons				
	B.7 Heat protection for persons working in exposed positions				

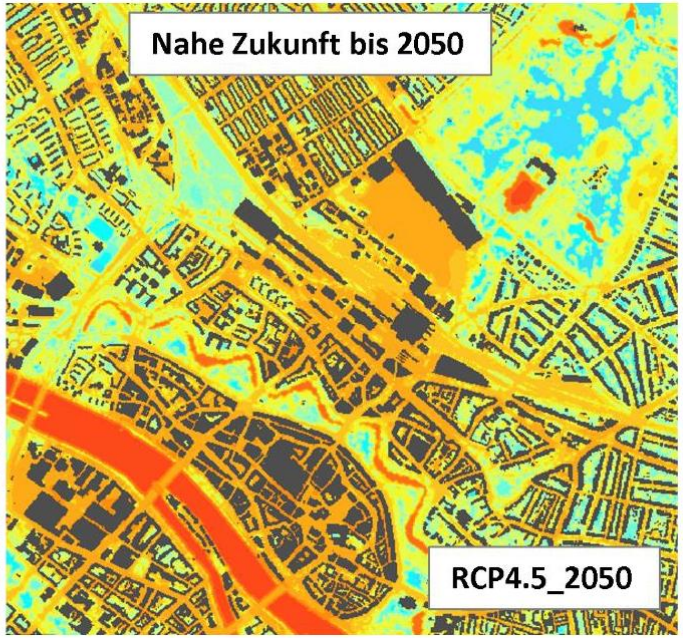
Hitzebelastung sensitiver Bevölkerungsgruppen

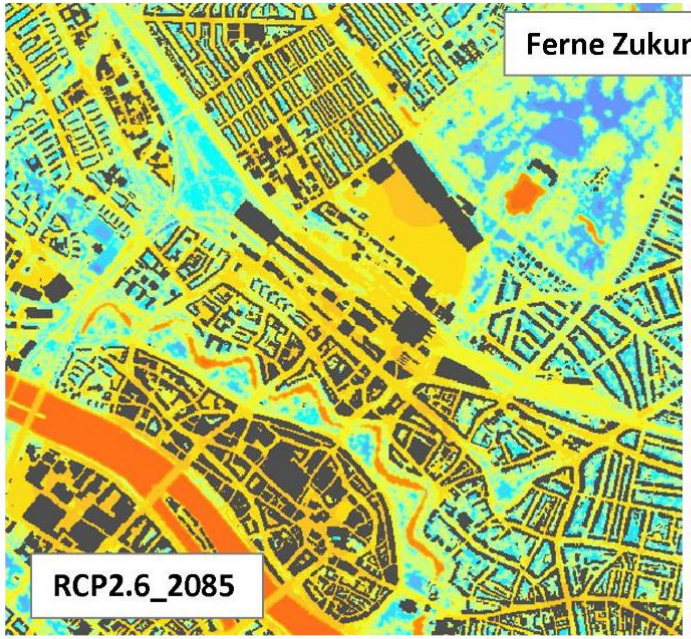


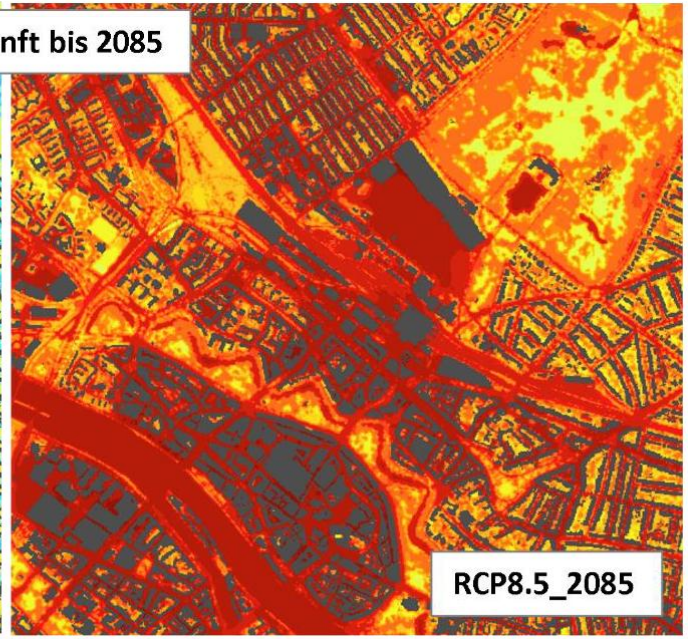
Klimaanalysekarte Nachts











Legende

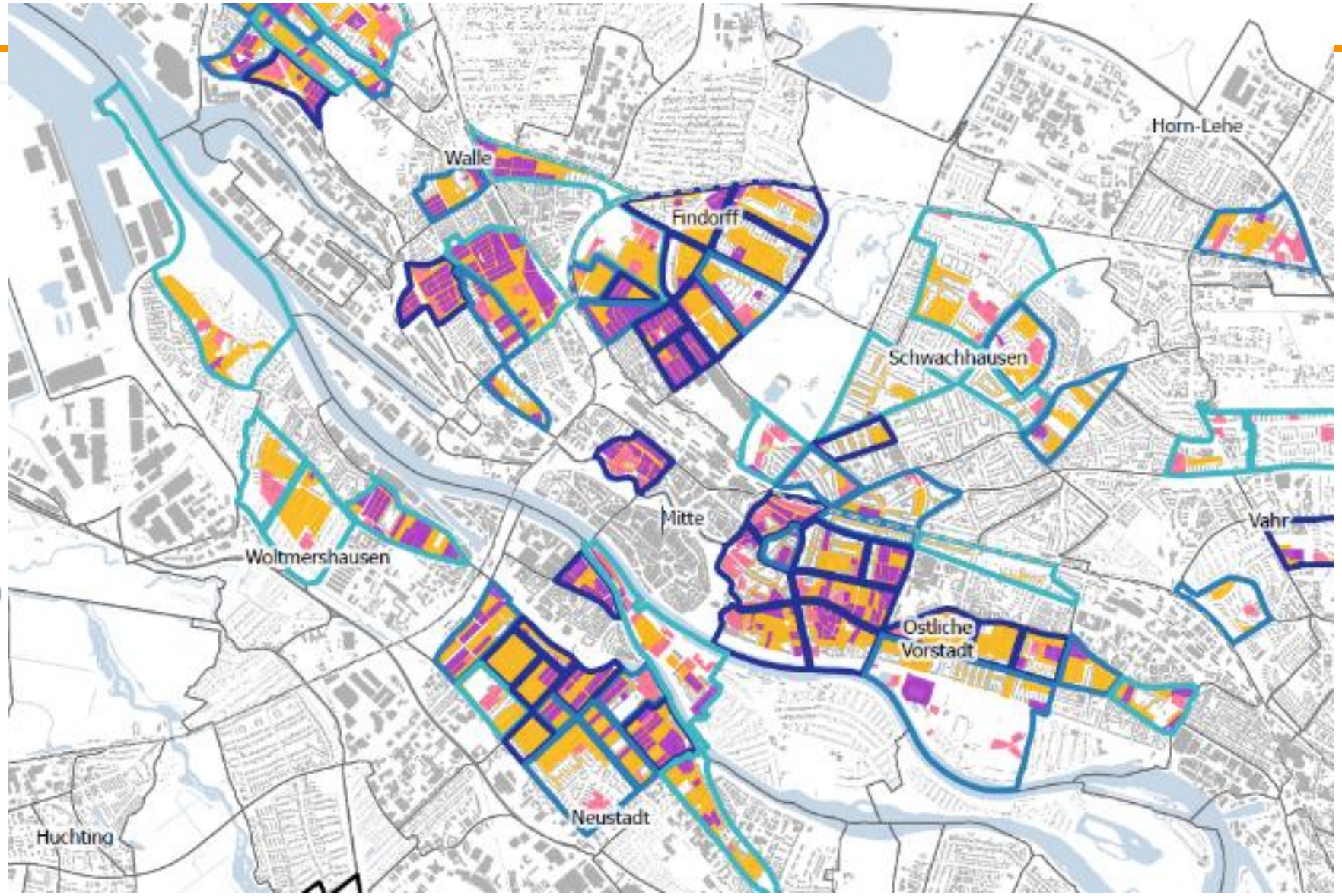
Senior:innendichte (über 65)

- mittel-hoch; 8. Dezil (17,4 - 20,7 EW/ha)
- hoch; 9. Dezil (20,8 - 24,7 EW/ha)
- sehr hoch; 10. Dezil (24,8 - 42,9 EW/ha)

Die Berechnung der Dichte bezieht sich ausschließlich auf den Siedlungsraum

Bioklimatische Belastung

- Überdurchschnittliche Wärmebelastung in der Nacht (nach Normalisierung)
- Starke Wärmebelastung am Tag > 35°C (anhand eines Sommertages)
- Überdurchschnittliche Wärmebelastung in der Nacht und am Tag



Legende

Kleinkinderdicht (bis 6)

- mittel-hoch; 8. Dezil (5,8 - 7,2 EW/ha)
- hoch; 9. Dezil (7,3 - 9,2 EW/ha)
- sehr hoch; 10. Dezil (9,3 - 35,6 EW/ha)

Die Berechnung der Dichte bezieht sich ausschließlich auf den Siedlungsraum

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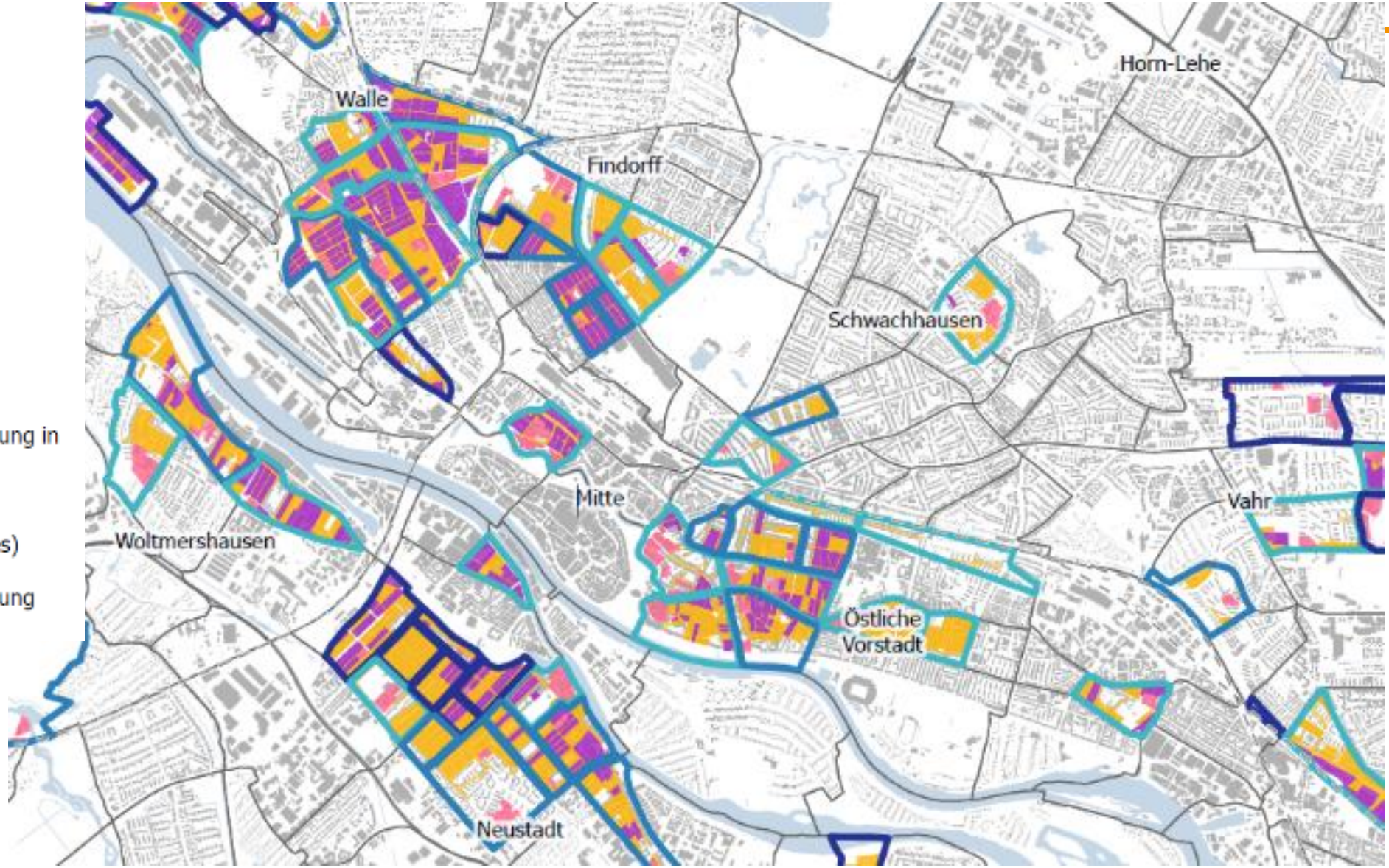


Legende

Bioklimatische Belastung

Die Berechnung basiert auf den Ergebnissen der aktualisierten Stadtklimaanalyse 2024.

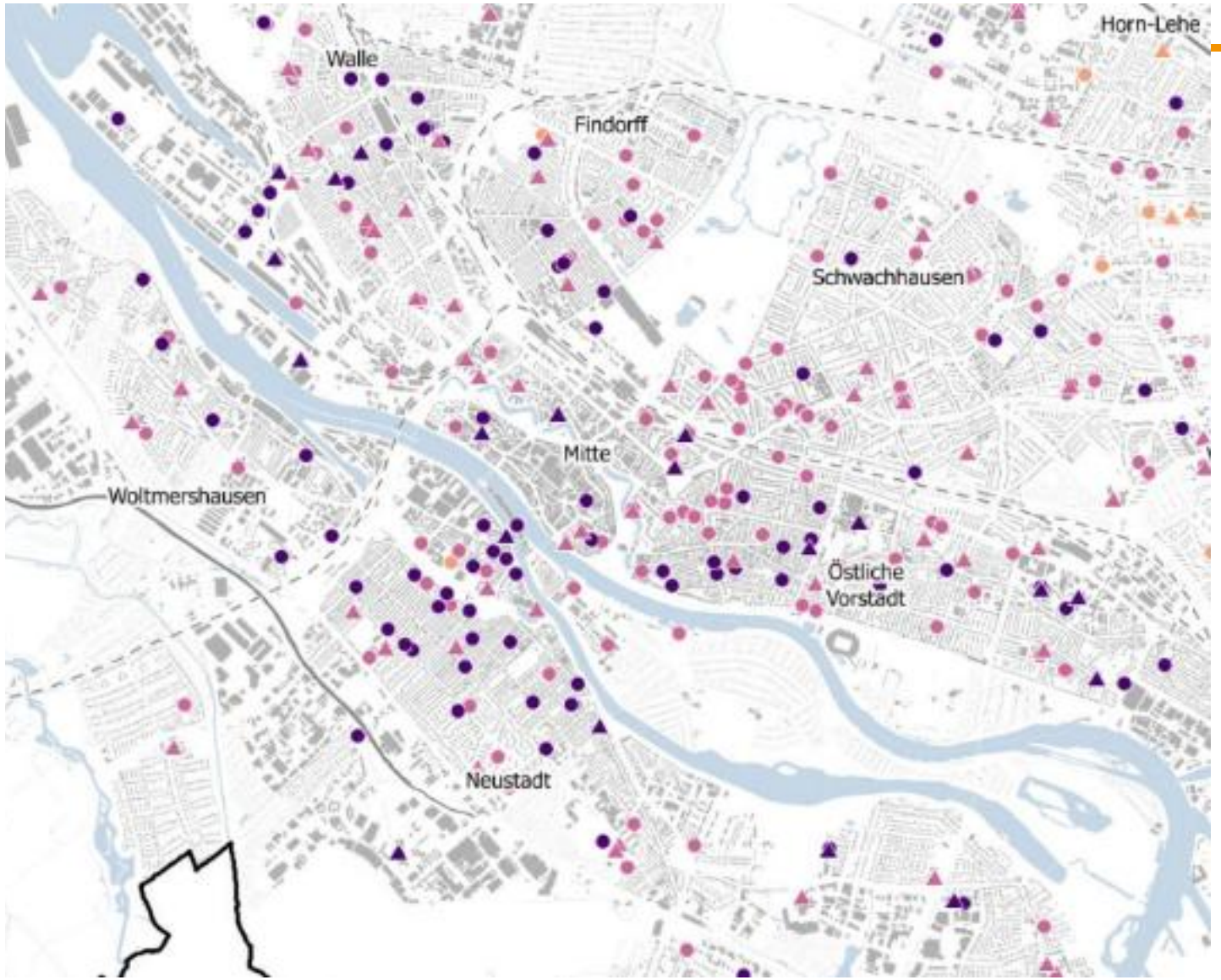
Hitzebelastung am Tag

Klassifikation auf Basis der VDI-Schwellenwerte.

- keine Wärmebelastung (<23 °C)
- schwache Wärmebelastung (>23-29 °C)
- mäßige Wärmebelastung (>29-35 °C)
- starke Wärmebelastung (>35-41°C)
- extreme Wärmebelastung (>41 °C)

Soziale Einrichtung

- ▲ Schule
- ● Kita



Lessons Learnt

- Heat risks & climate Change: – concerns social, health and environmental departments – mixed key responsibility ☹
  - New Coordinating Unit
- Focus on vulnerable groups and involve right stakeholders and groups!
- Build upon existing structures and actors – supporting them and their actions with the heat action plan!
- Learn from other cities and adapt to local realities
- Develop measures first and then take care of finance!
- Find a key responsible actor for every measure – along budget lines!
- Be Patient ☺

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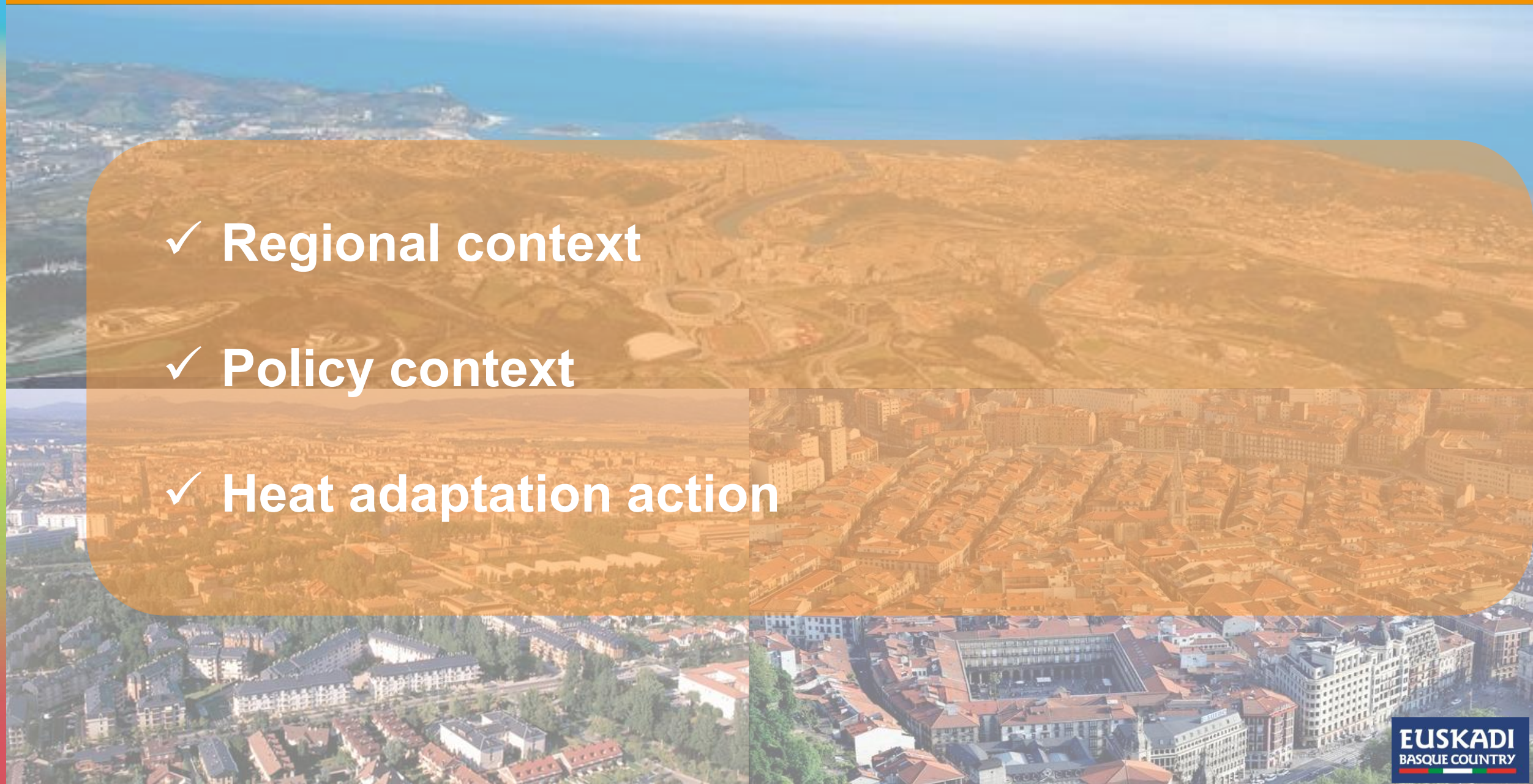
Addressing heat and health in the Basque Country

Zuriñe Maestre Zuazua, Climate Action – Ihobe, Basque Environmental Agency

15 September 2025

EUSKADI BASQUE COUNTRY

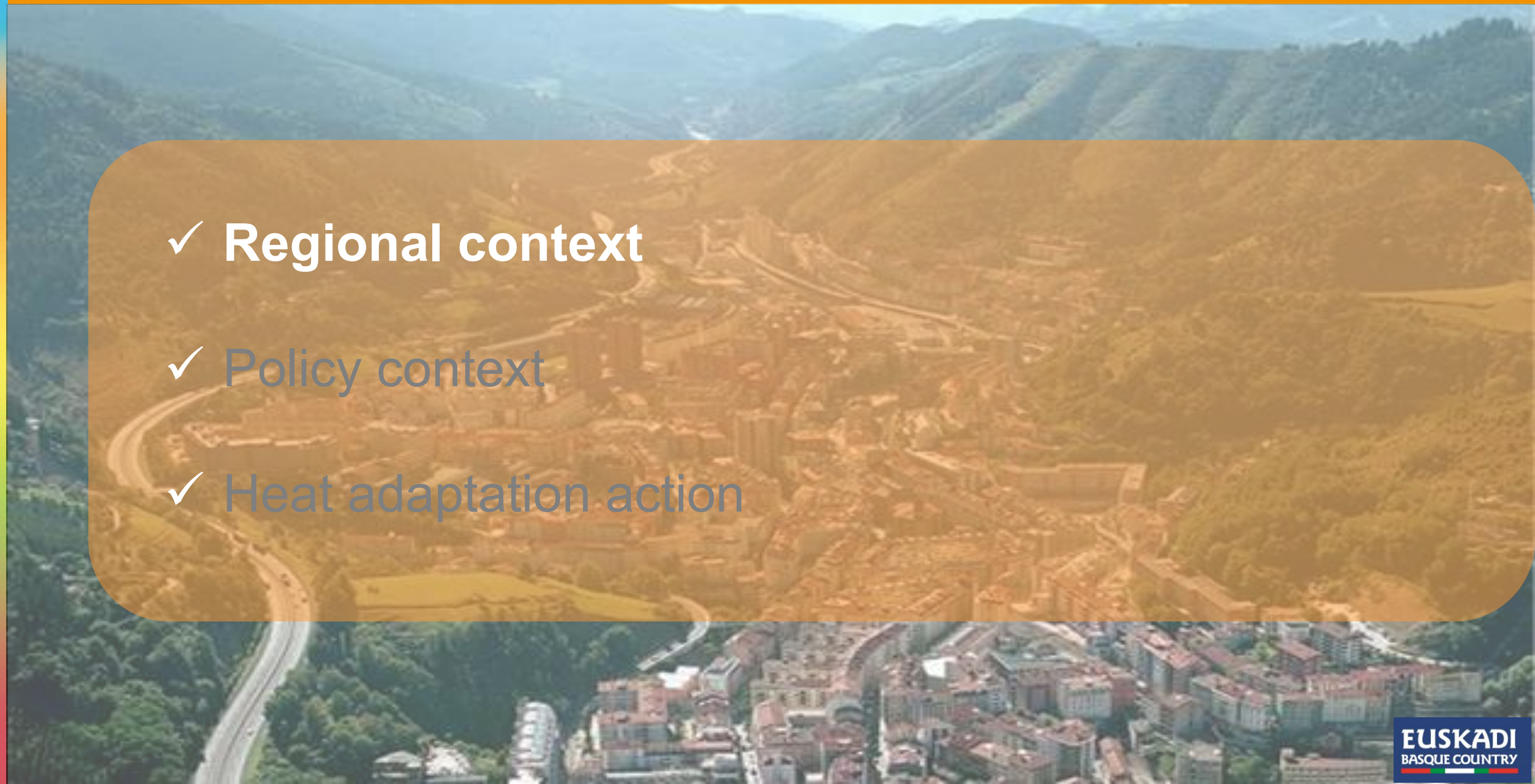
Addressing heat and health in the Basque Country



- ✓ Regional context
- ✓ Policy context
- ✓ Heat adaptation action

EUSKADI
BASQUE COUNTRY

Addressing heat and health in the Basque Country



- ✓ **Regional context**
- ✓ Policy context
- ✓ Heat adaptation action

EUSKADI
BASQUE COUNTRY

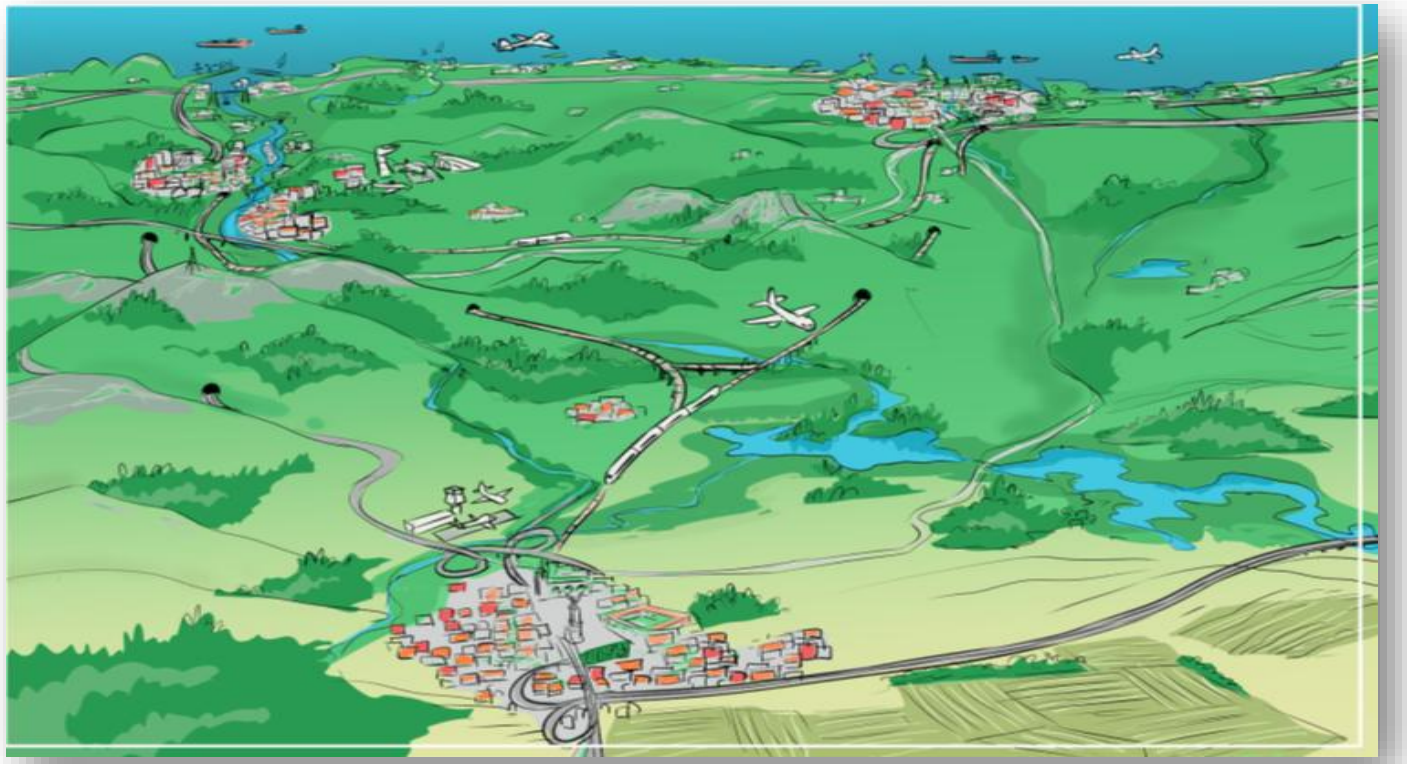
What is our region like?

7,234 km^2

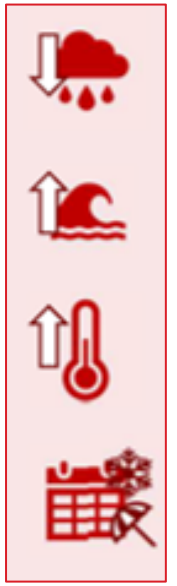
2.2 M inhabitants

304 inhabitants/km^2

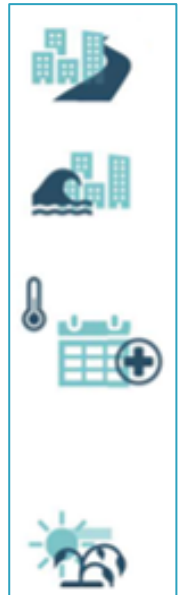
4,459 inhabitants/km^2 in urban areas



Climate change threats

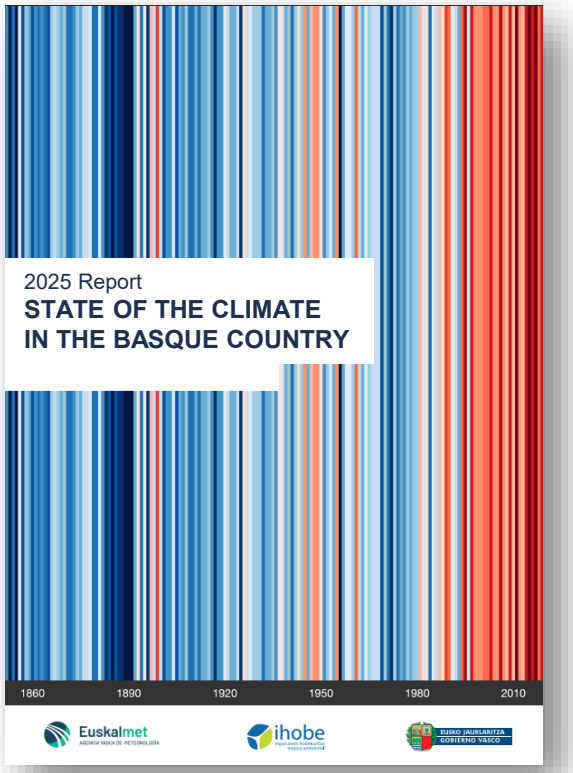


Climate change risks



EUSKADI
BASQUE COUNTRY

How much is the temperature increasing in the Basque Country?



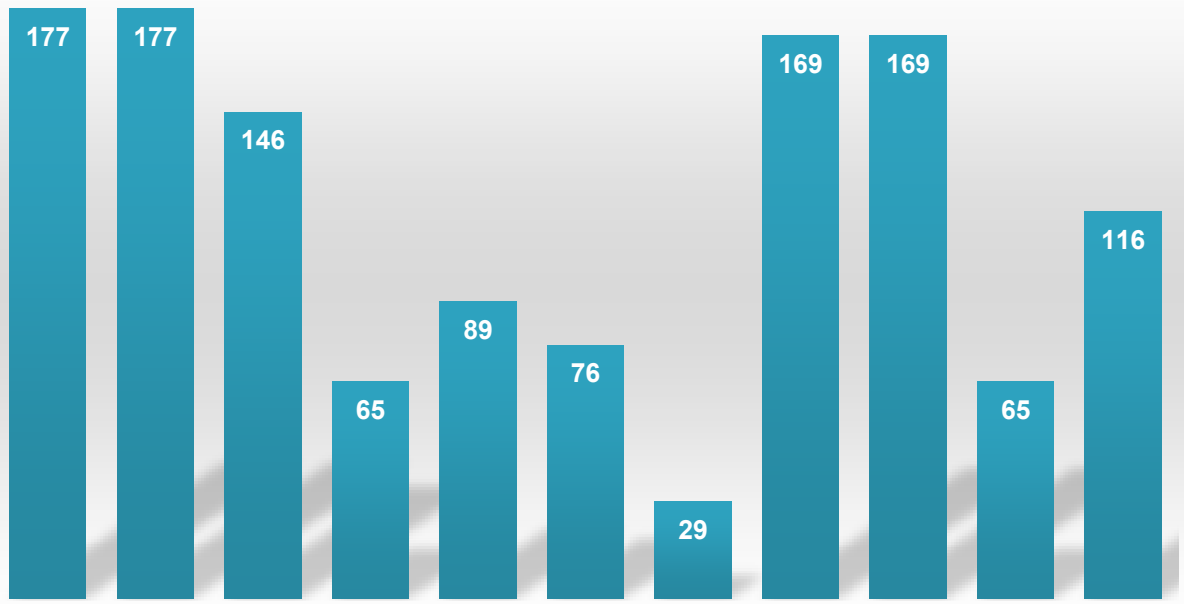
[2014-2023] was 0.3°C warmer than [1991-2020] and 0,7°C warmer than [1971-2000].

Warm days have increased 6 days/decade since 1970.

Heat wave days have increased by 1 day per decade since 1970.

Warm nights have increased 6 days/decade since 1970.

Deaths attributable to extreme temperatures in the Basque Country



Daily Mortality Monitoring System

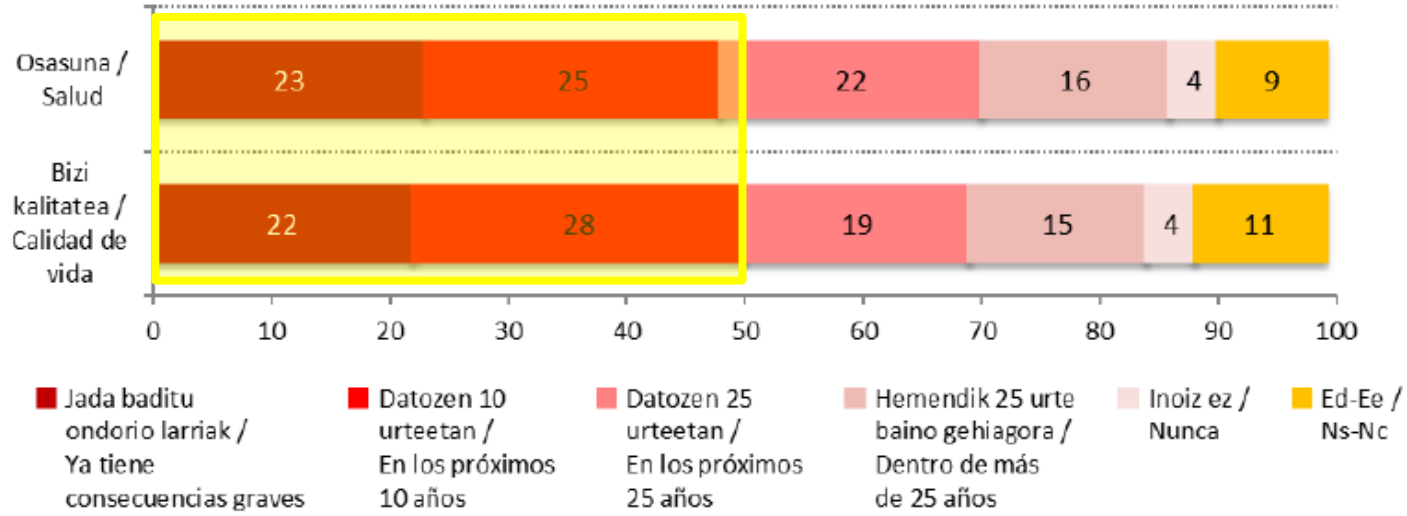
GOBIERNO DE ESPAÑA
MINISTERIO DE SANIDAD

EUSKADI
BASQUE COUNTRY

What is the perception among citizens about health and climate change?

2.1 – Osasunaren eta bizi kalitatearen gaineko ondorioen denbora-aurreikuspena / Previsión temporal de las consecuencias sobre la salud y la calidad de vida

Zure ustez, klima-aldaketak Euskadin noiz izango ditu ondorio larriak osasunarentzat? Eta Euskadiko bizi kalitatearentzat? / Y ¿cuándo cree Ud. que el cambio climático tendrá consecuencias graves para la salud en Euskadi? ¿Y para la calidad de vida en Euskadi?



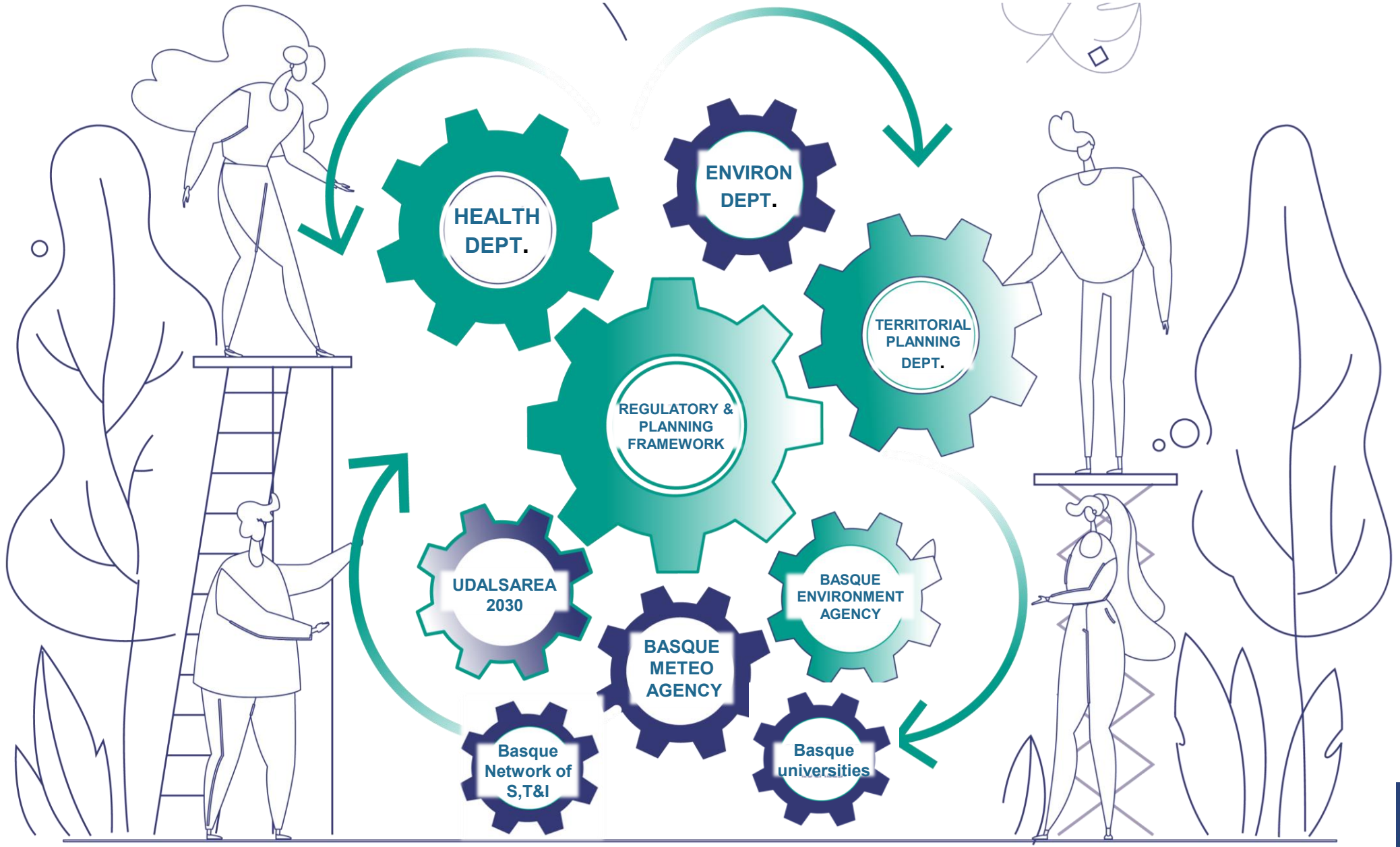
EUSKADI BASQUE COUNTRY

Addressing heat and health in the Basque Country

- ✓ Regional context
- ✓ **Policy context**
- ✓ Heat adaptation action

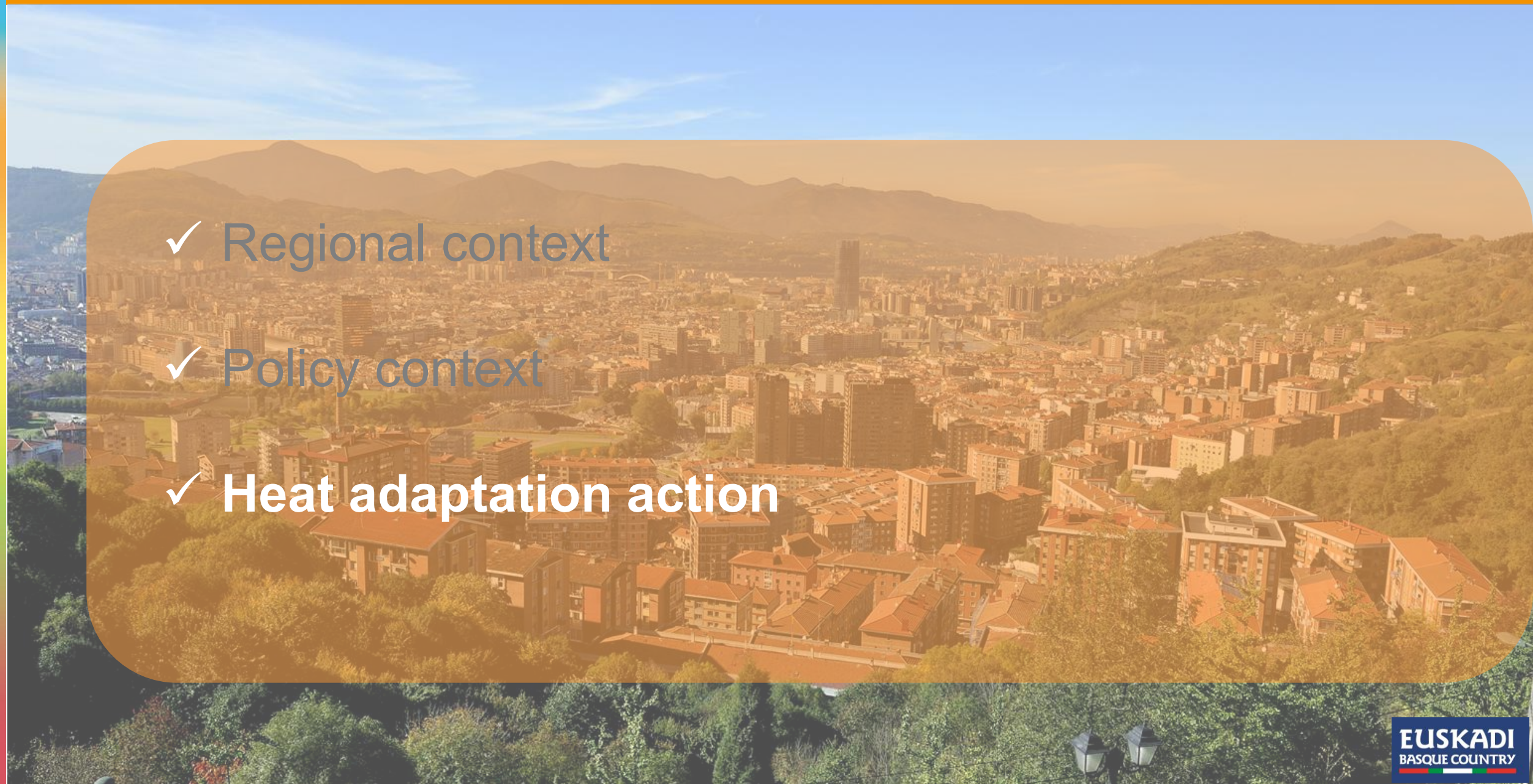
EUSKADI
BASQUE COUNTRY

Who coordinates climate change and health in the regional authority?



EUSKADI
BASQUE COUNTRY

Addressing heat and health in the Basque Country



- ✓ Regional context
- ✓ Policy context
- ✓ **Heat adaptation action**

EUSKADI
BASQUE COUNTRY

How does regional authority manage re: heat adaptation?

Basque Country Health Plan 2030

CLIMATE CHANGE: THE MAIN GLOBAL HEALTH THREAT

Creating and developing healthy, sustainable and **resilient environments and communities**

Advancing in the **knowledge of the health risks related to climate change**, especially for the most vulnerable population.

Developing and implementing **early warning and response systems** for climate hazards

Contributing to the **development of mitigation and adaptation strategies for health challenges** arising from climate change

EUSKADI
BASQUE COUNTRY

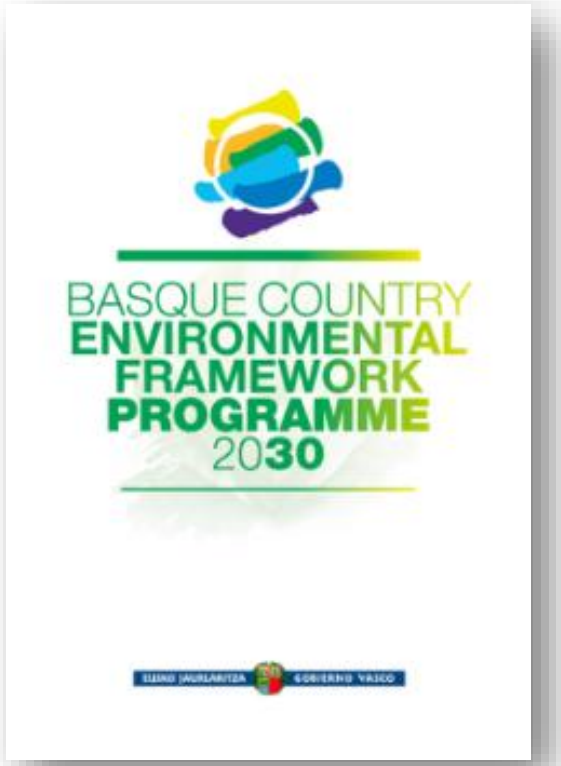
How does regional authority manage re: heat adaptation?

HEAT WAVE PREVENTION PLAN

Mitigating health impacts of elevated temperatures in Euskadi

EUSKADI BASQUE COUNTRY

How does regional authority manage re: heat adaptation?



Basque Health and Environment Observatory

(*in progress*)

Improve knowledge on health-environment linkages to anticipate risks and improve decision making

PROJECT LEAD AGENT

- Deputy Ministry of Health.
- Deputy Ministry of Environmental Sustainability.

AGENTS INVOLVED IN THE PROJECT

- Deputy Ministry of Education.
- Basque Universities.
- Basque Network of Science, Technology and Innovation.
- Udalsarea 2030 (city halls and Provincial Councils).

EUSKADI
BASQUE COUNTRY

How does regional authority manage re: heat adaptation?

GENERATION & FINANCING

R&D&I DEMONSTRATION PROJECTS ON CLIMATE CHANGE ADAPTATION

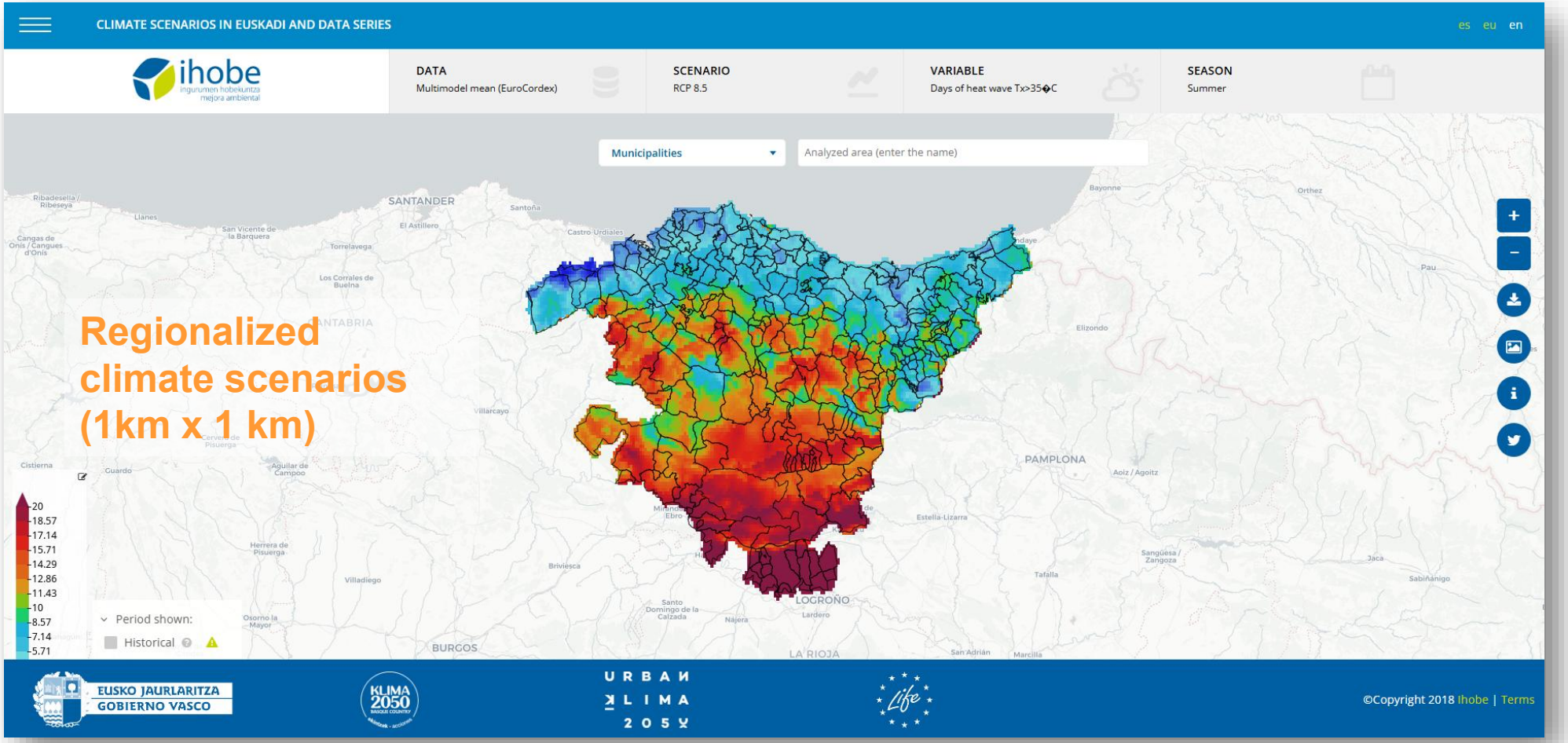
- ˚C projections under climate change scenarios
- Potential health impacts of heat waves
- Economic assessment of impacts on mortality
- Cost-benefit analysis of a heat wave alert system
- Impact assessment model

EUSKADI BASQUE COUNTRY

How does regional authority manage re: heat adaptation?

CLIMATE TOOLS & SERVICES

FOR DIAGNOSIS AND SUPPORT ACTION



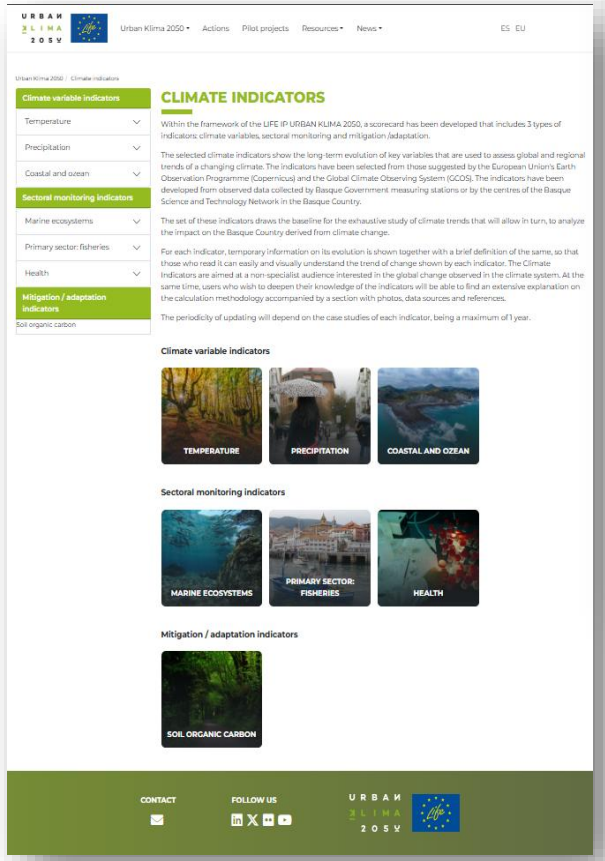
EUSKADI BASQUE COUNTRY

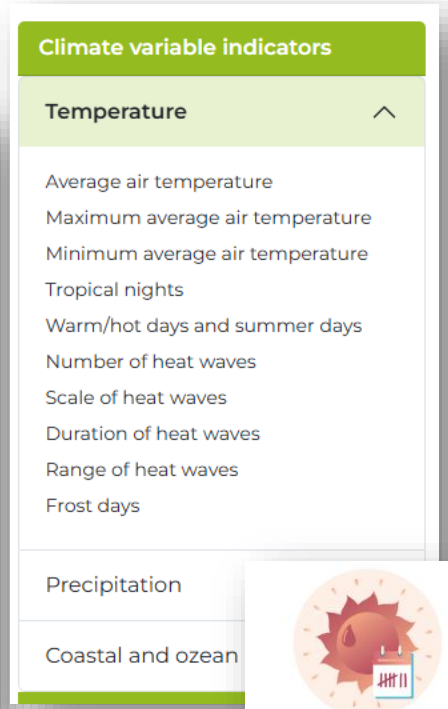
How does regional authority manage re: heat adaptation?

Climate Change Hub: observation, monitoring & interpreting regional climate data

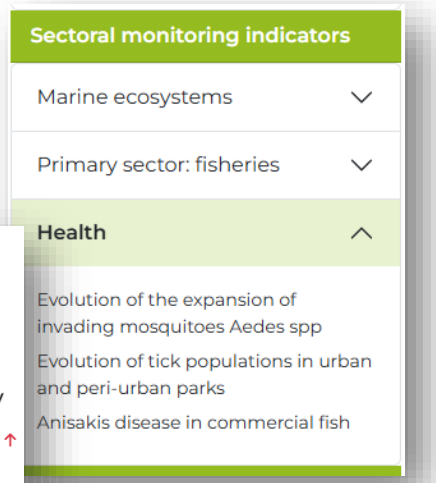
CLIMATE TOOLS & SERVICES

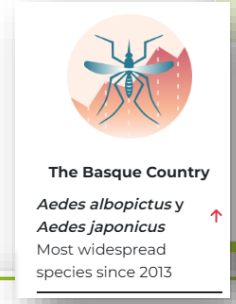
FOR DIAGNOSIS AND SUPPORT ACTION





- Since 1971, there has been an upward trend in the number of heat waves in the Basque Country, with an increase of 0.14 days per decade.
- The spatial variability in the number of heat waves is not uniform across the region. It affects the Mediterranean region and Gipuzkoa to a higher extent, and Bizkaia to a lesser degree.





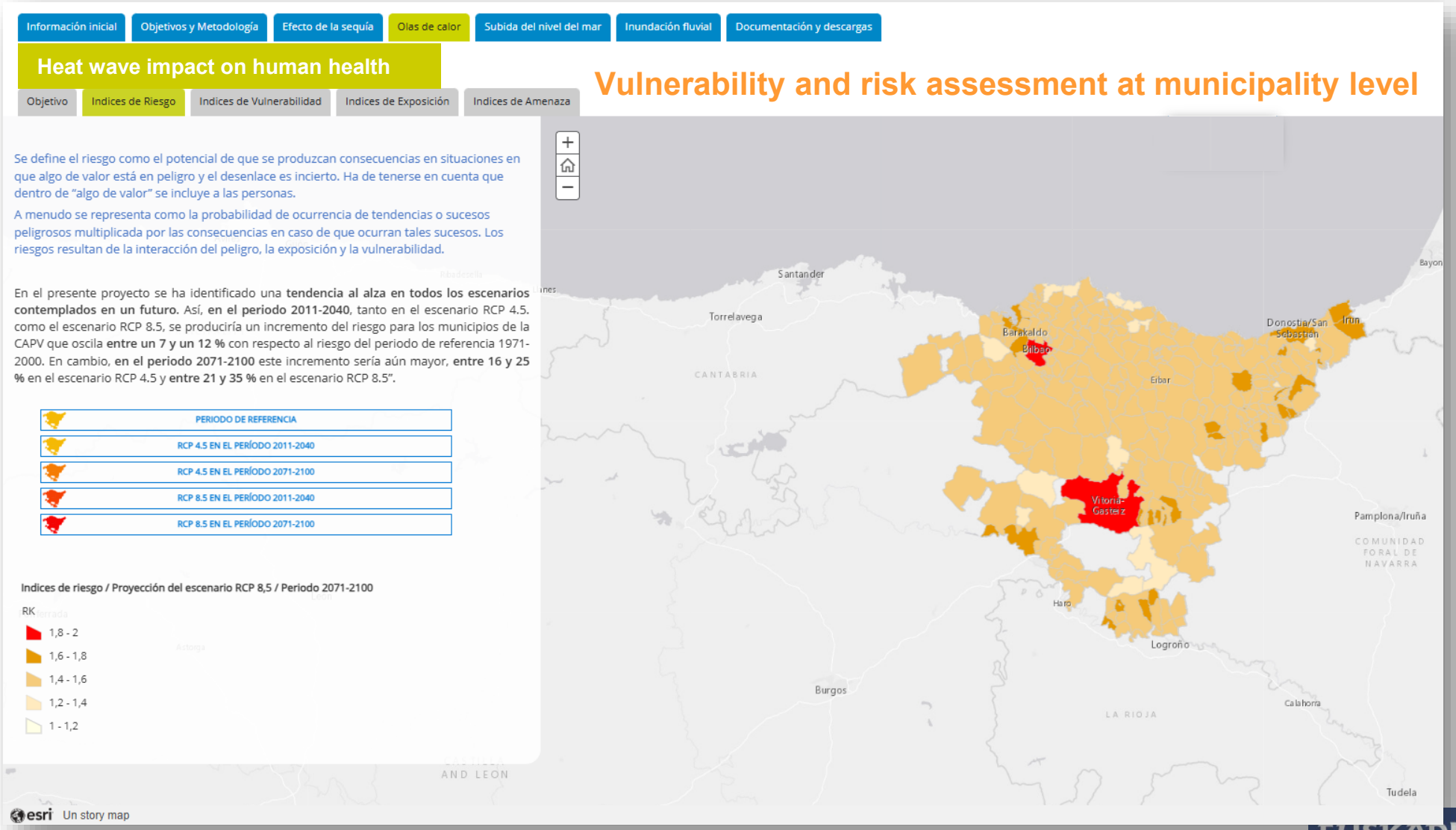
- If these invasive mosquitoes do settle in an area, they can create discomfort associated with bites, and, in addition, their settlement in urban areas represents a potential risk of local transmission of viral diseases.
- Of the 5 invasive species existing in Europe, *Aedes albopictus* and *Aedes japonicus* have been identified in the Basque Country. Both show different characteristics in their activity, and climate change may affect them differently.

EUSKADI BASQUE COUNTRY

How does regional authority manage re: heat adaptation?

CLIMATE TOOLS & SERVICES

FOR DIAGNOSIS AND SUPPORT ACTION



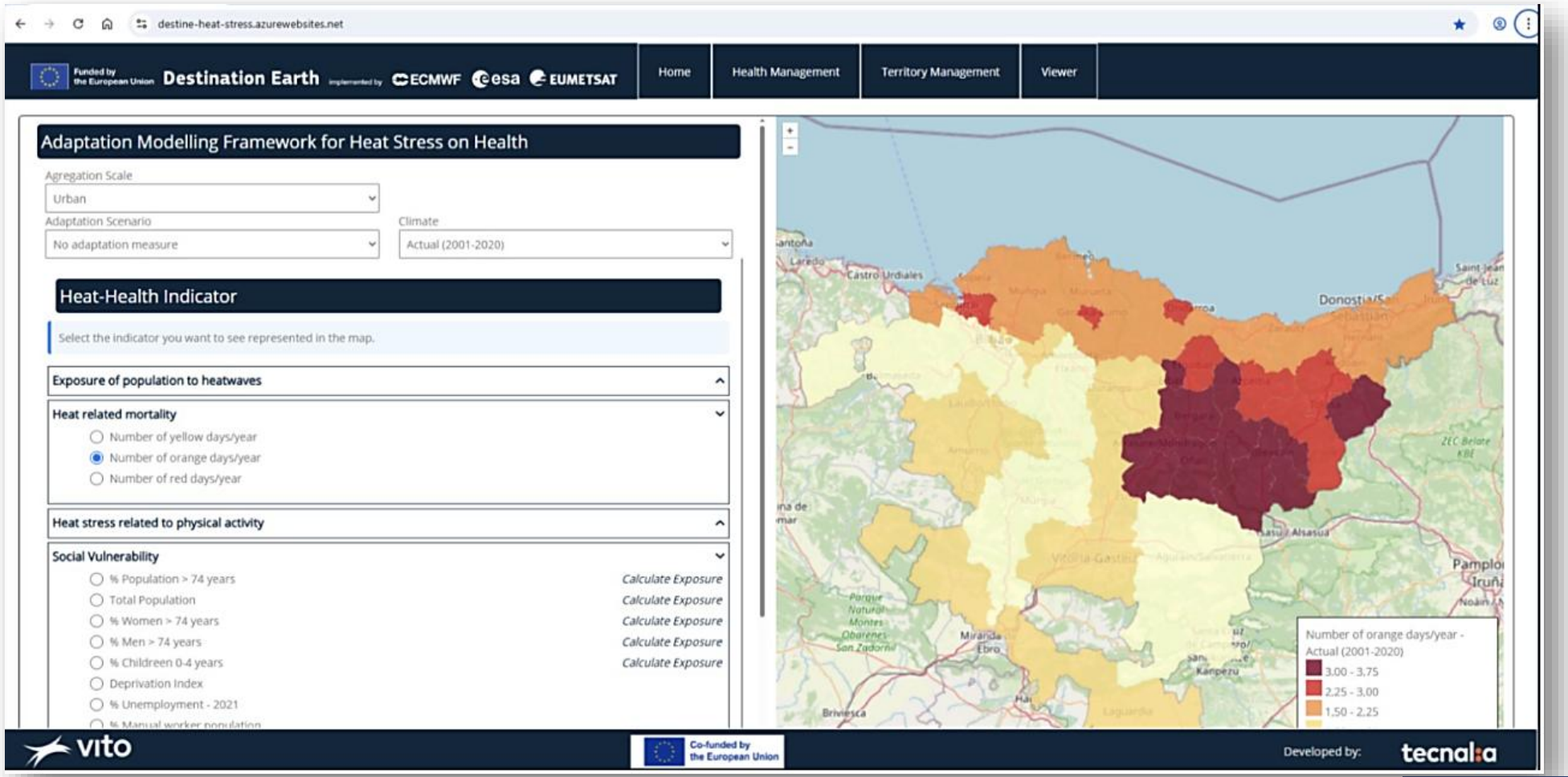
EUSKADI BASQUE COUNTRY

How does regional authority manage re: heat adaptation?

CLIMATE TOOLS & SERVICES

FOR DIAGNOSIS AND SUPPORT ACTION

High-resolution (100m) urban heat map for addressing Urban Heat Island Effect

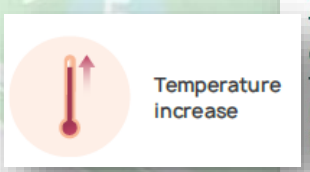


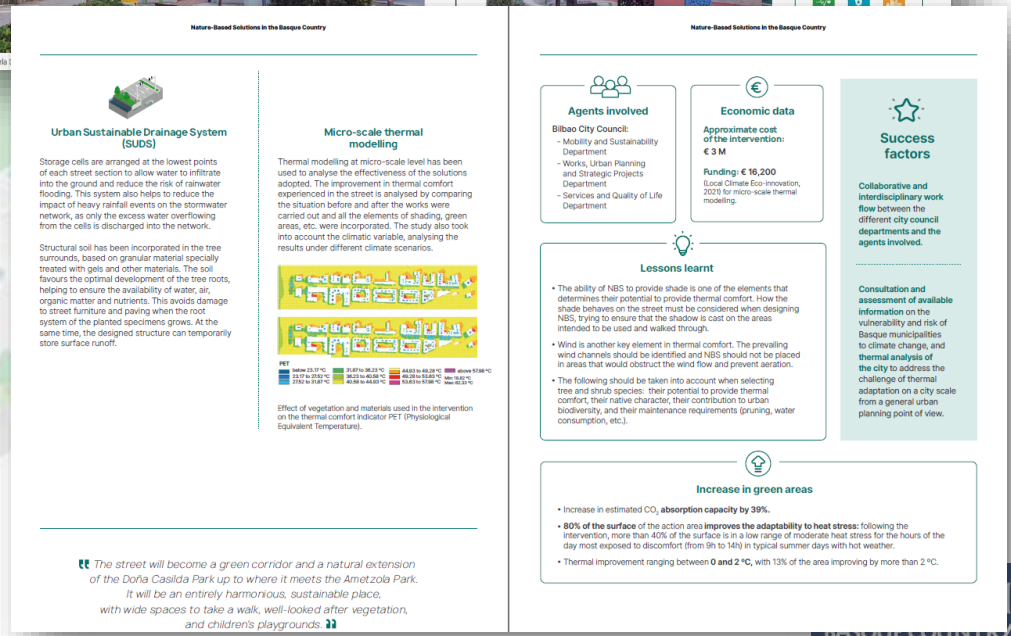
EUSKADI BASQUE COUNTRY

How does regional authority manage re: heat adaptation?

SUPPORTING LOCAL AUTHORITIES

FOR PROMOTING NBS DEPLOYMENT





≈ 2M€ funding programmes for local authorities

How does regional authority manage re: heat adaptation?

SUPPORTING LOCAL AUTHORITIES

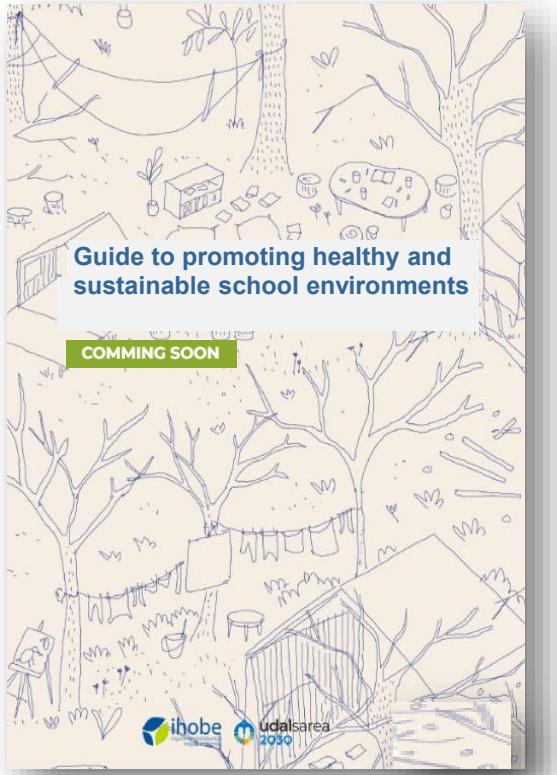
FOR CLIMATE RESILIENT AND HEALTHY URBAN PLANNING

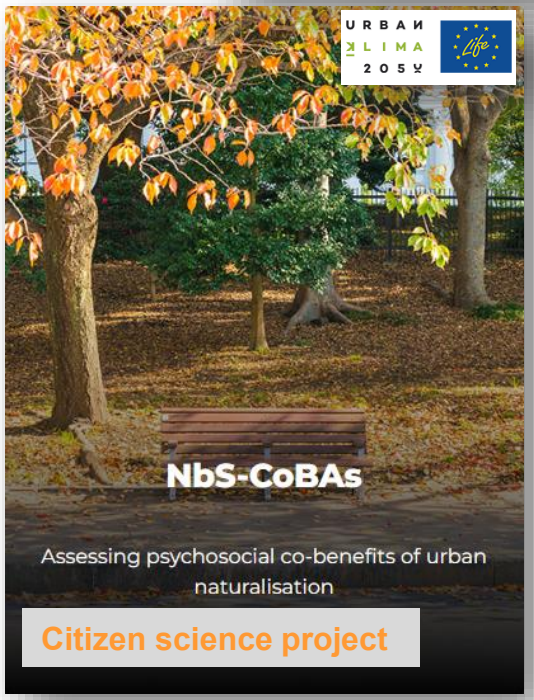
EUSKADI BASQUE COUNTRY

How does regional authority manage re: heat adaptation?

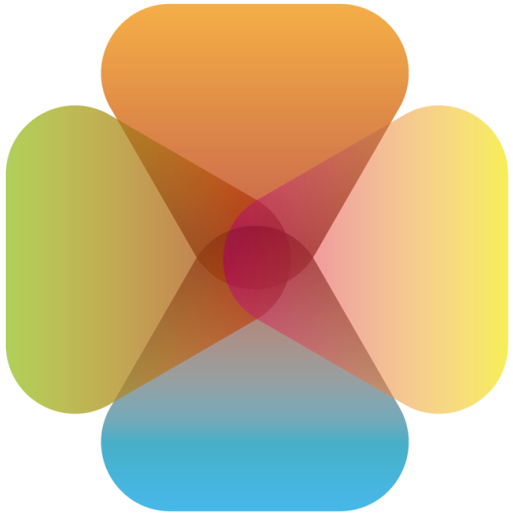
CITIZENS AND AFFECTED COLLECTIVES CLIMATE AWARENESS RAISING

FOR EMPOWERING AND MOVING TO ACTION





EUSKADI BASQUE COUNTRY



ACCREU

Assessing Climate Change Risk in EUrope

Eskerrik asko

Thank you

EUSKADI BASQUE COUNTRY

Addressing extreme heat: Develop municipal Heat & Health Action Plans (HHAPs)

Interreg CENTRAL EUROPE

Co-funded by the European Union

Ready4Heat

ACCREU Workshop: Heat resilient european regions

Monday, SEP 15, 2025

Wolfgang Hofstetter, Climate Alliance

Who are we: 4 Cities, 5 Supporters, 4 Countries

- **Lead**: Sinergija, Development Agency / Slovenia
- **Slovenia** Pilot city: Maribor
  Local Supporter: Murska Sobota, Health & Development Center
- **Austria** Pilot city: Weiz
  Local supporter: Climate Alliance Styria
- **Hungary**: Pilot city: Hajdúböszörmény
  Local supporter: Reflex, environmental association
- **Germany**: Pilot city: Worms
  Local supporter: Climate Alliance

Heat hotspots in the city

- Available data vary, needed to be open access and no cost data
- Satellite analysis of earth-observing satellites Landsat 8/9 Operated by NASA and USGS
- Allow for the monitoring of the land surface temperature
- Show the relative heat differences in a city
- Analysis via Copernicus, the European Data Center

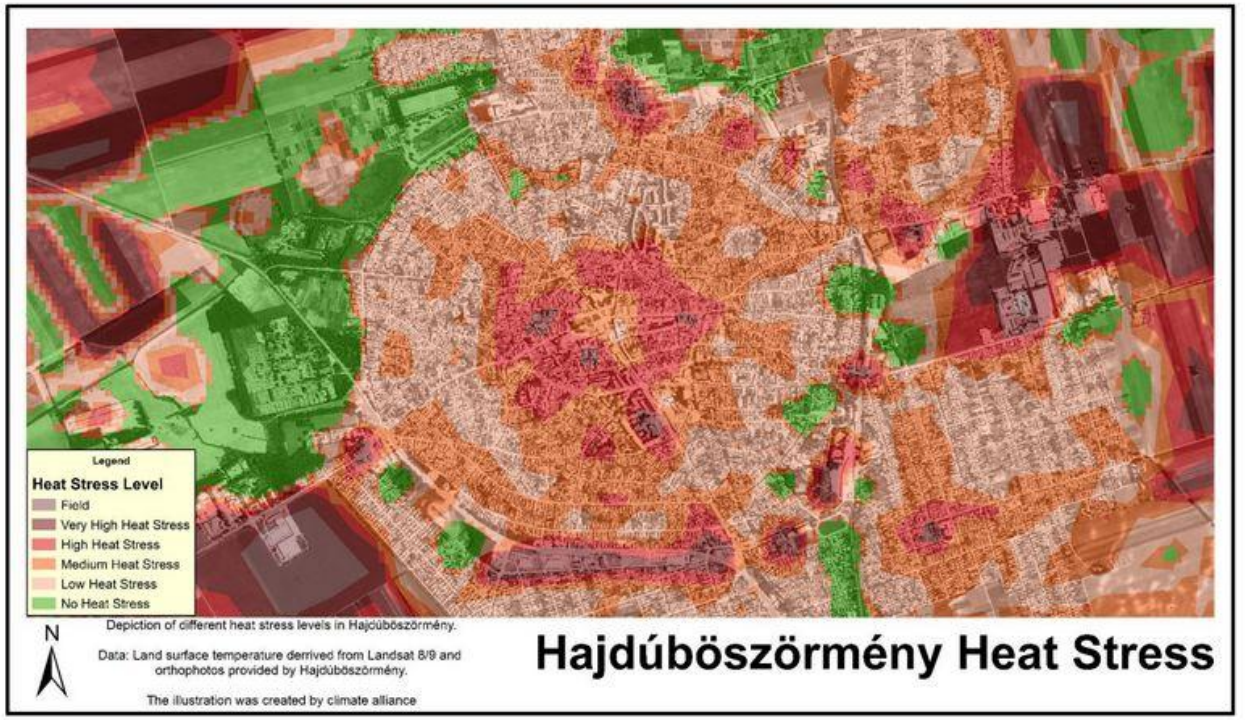


Figure 9: Heat stress map of Hajdúböszörmény

Image: City of Hajdúböszörmény

Citizen engagement for meaningful actions

- Series of Workshops/events
- All stakeholders dealing with vulnerable groups invited:

  Elderly, health care, pregnant women und young kids, outdoor workers, homeless care
- Collecting ideas for the HHAPs catalogue of short-term, mid-term and long-term measures
- Find the stakeholders interested in forming a sustainable HHAP network

Image: City of Weiz

How to make a Heat and Health Action Plan sustainable

- HHAP has to be voted on in the cities parliament for long-term sustainability
- A network of local stakeholder has to be created, composed by persons working with vulnerable groups and willing to act in the case of a heat event
- Marco Elischer, city of Worms / Germany knows how to achieve this

Interreg CENTRAL EUROPE

Co-funded by the European Union

Ready4Heat

Reaching intermediary actors for heat protection

Actor-centred approaches to Participation and Implementation of Heat Plans

City of Worms

Typology of Measures

	Multiplier-focused	**Affected-focused**
Top-down	Municipal steering committees, heat warnings	Official warnings, centralized cooling programs
Community-based	Training caregivers, local awareness campaigns	Co-design workshops, participatory urban mapping

City of Worms

Implementation Stream

City of Worms

Heat action plan & Ready4Heat

Interreg CENTRAL EUROPE

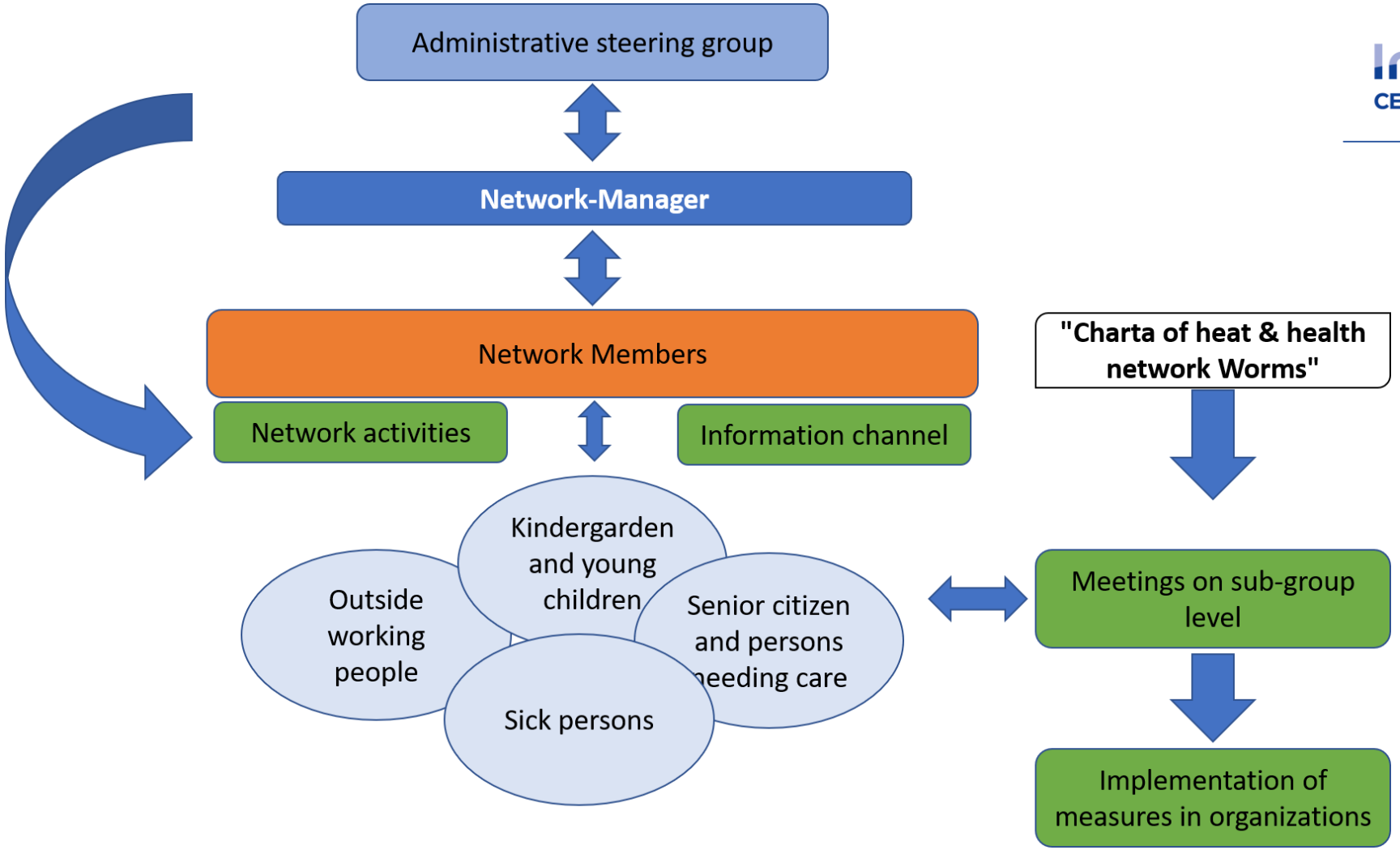
Co-funded by the European Union

Ready4Heat

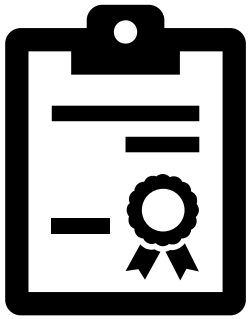
- Funded by Interreg Central Europe together with cities from Slovenia (Maribor), Hungary (Hajdúböszörmény) and Austria (Weiz)

- Pilot city of Cities Refresh campaign by Covenant of Mayors

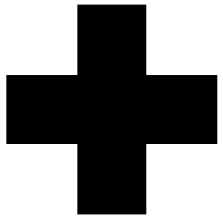
City of Worms

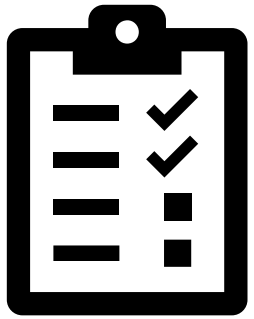

Administrative steering group
Network-Manager
Network Members
Network activities
Information channel
Kindergarden and young children
Outside working people
Senior citizen and persons needing care
Sick persons
"Charta of heat & health network Worms"
Meetings on sub-group level
Implementation of measures in organizations

Formalizing the heat network



charter





Self assessment

City of Worms


Jahreskalender Hitzeplanung
STADTVERWALTUNG WORMS
23


Ready4Heat
Die Hitze kann kommen, wir bleiben cool!


Unsere Ziele

Structure of the charter

- Purpose & Context
  - *Content*
  - Roles and Responsibilities
  - Information Flow and Warning Systems
  - Member Support and Knowledge Sharing
  - Comprehensive Climate Adaptation Planning
- Collective Vision

City of Worms

Benefits per stakeholder group

Target Groups	***Measures***
Senior citizen	• Support for funding applications for care facilities (11/2024) • Expert seminar with facility managers on measure development • Development of recommendations with a student group • Heat hotline for seniors living at home
People with illnesses	• Rickshaw service through the GRK network • Outreach to medical practices for the network (measures in development)
Outdoor workers	• Expert seminar on climate-resilient orchards and private gardens (04/2025) • Expert seminar on heat protection in sports clubs (05/2025) • Event on EU funding landscape for climate adaptation for winemakers (10/2025)
Children	City of Worms • Expert seminar with daycare managers on measure development (03/2025) • Summer campaign

Self assessment

Interreg CENTRAL EUROPE — Co-funded by the European Union

Ready4Heat

Hitzeschutznetzwerk Worms

Selbsteinschätzung: Hitzeschutz in unserer Pflegeeinrichtung

1. Allgemeine Einschätzung

Wie gut fühlst du dich zum Thema Hitzeschutz in der Pflegeeinrichtung informiert?

- ☐ sehr gut informiert
- ☐ einigermaßen informiert
- ☐ eher wenig informiert
- ☐ gar nicht informiert

Wie stark wirkt sich Hitze in den Sommermonaten auf den Alltag in der Pflegeeinrichtung aus?

- ☐ stark, besonders:
- ☐ merklich, aber noch gut händelbar, weil:
- ☐ kaum spürbar, weil:

2. Bestehende Maßnahmen

Maßnahme	machen wir schon	wäre sinnvoll	kommt (derzeit) nicht in Frage
Es gibt einen Sommerspeiseplan (leichte Kost, viel Obst, ausreichende Getränkeangebote).	☑	☐	☐
Kinder werden bei Hitze zu deutlich mehr Flüssigkeitsaufnahme ermutigt.	☐	☑	☐
Wir vermeiden bei unseren Unternehmungen die Mittagshitze (ca. 11 – 16 Uhr).	☐	☐	☑
Unsere Innenräume können durch Verschattung oder Lüftung kühl gehalten werden.	☐	☑	☐
Wir haben einen kühlen Ort (innen oder außen), an dem sich das Team oder die Kinder abkühlen können.	☐	☐	☐

City of Worms

HITZE SICHER WORMS

Gemeinsam handeln.

5 gute Gründe für das Wormser Hitzeschutznetzwerk

Mitmachen lohnt sich!

1. Austauschpartner finden
2. Gute Praxis kennenlernen
3. Gemeinsam Ideen umsetzen
4. Förderchancen nutzen
5. Engagement sichtbar machen

Hitze – sind wir gut vorbereitet?

Weiterführende Informationen unter:

Fragen eher mit **„Ja"** beantwortet? Super, Sie sind auf dem richtigen Weg!

Fragen eher mit **„Nein"** beantwortet? Dann werden Sie am besten noch vor dem Sommer aktiv!

In jedem Fall: Teilen Sie ihre Bemühungen mit dem Hitzeschutznetzwerk und lernen Sie von anderen!

Stehen ausreichend Getränke zur Verfügung?

○ Ja ○ Nein

Können Arbeits- und Schichtzeiten angepasst werden?

○ Ja ○ Nein

Gibt es Möglichkeiten zur Abkühlung?

○ Ja ○ Nein

Sind Pausen zur Erholung festgelegt?

○ Ja ○ Nein

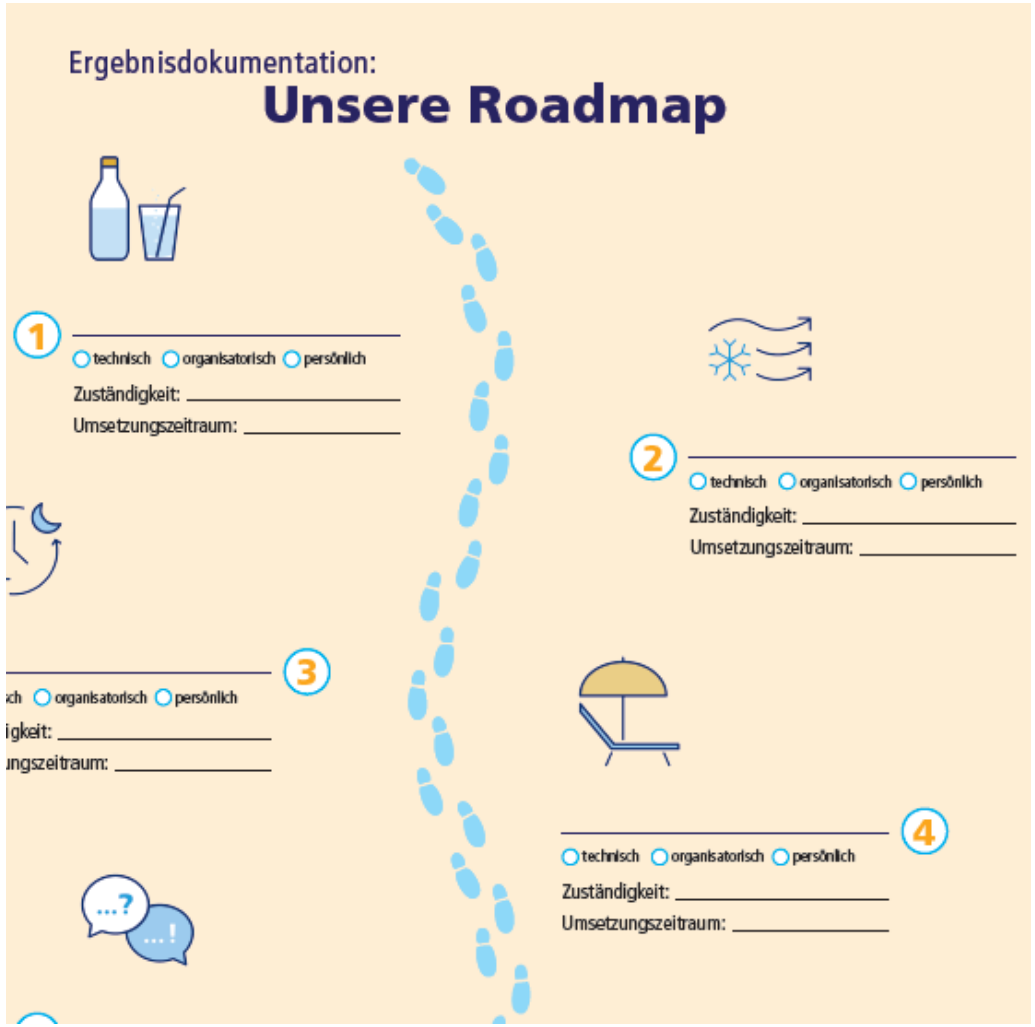
Ist luftige Arbeitskleidung möglich?

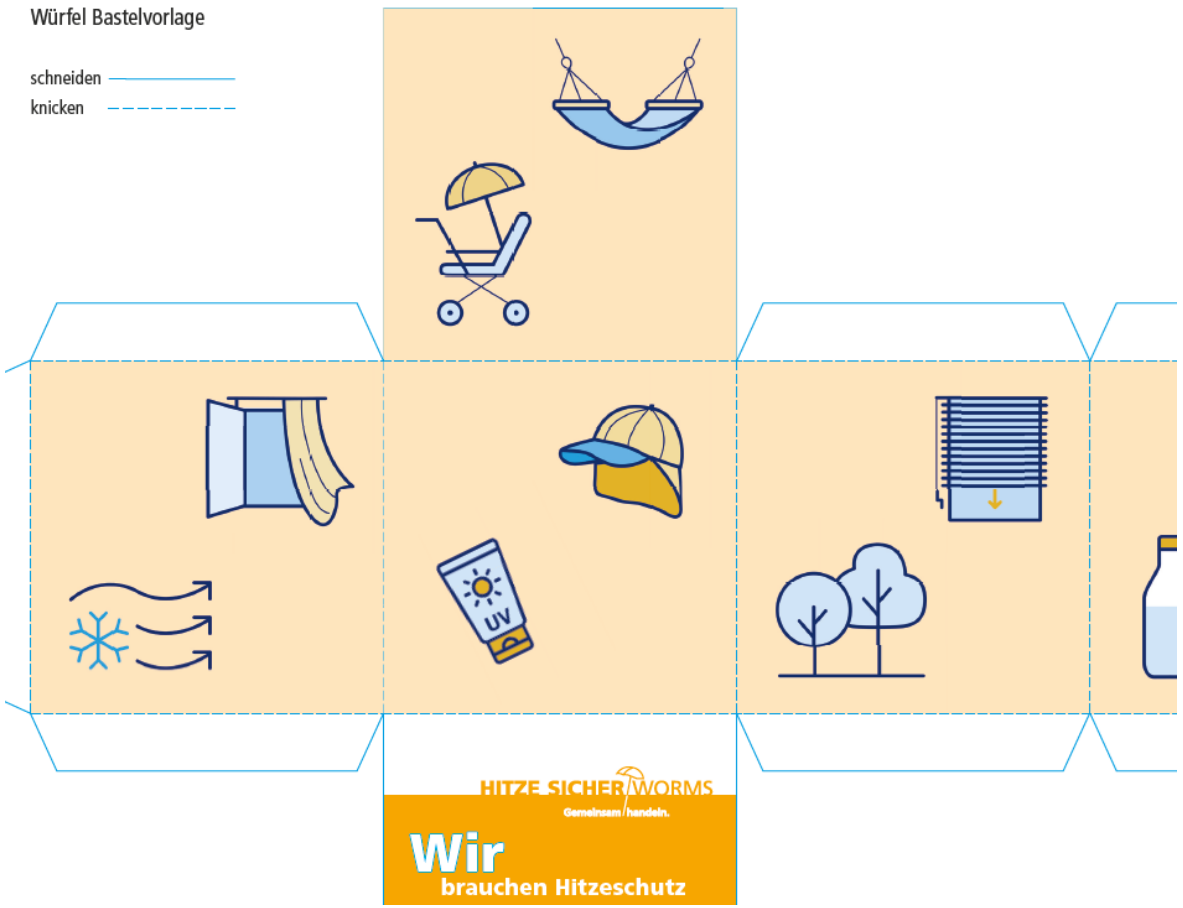
○ Ja ○ Nein

Wird über Hitzeschutz informiert?

○ Ja ○ Nein

Additional material





Current challenges

- **No Workshop Registrations for** sports club trainers and group leaders
  → Now planned as a digital format during peak summer
- **No active project with vintners** in connection with daycare/elderly care
  → Instead: **Event on EU funding for climate adaptation** for winemakers in October 2025

Current Achievements

- Motivating senior citizens' and care facilities with application support and assistance in systematising heat protection work
- Attracting daycare centres to participate with specialist workshops and ‘small’ incentives
- High motivation potential through interlinking with disaster prevention scenarios (cooperation with Frankfurt University of Applied Sciences)
- Formalisation of the network with a charter and self-assessment

City of Worms

Blindspots

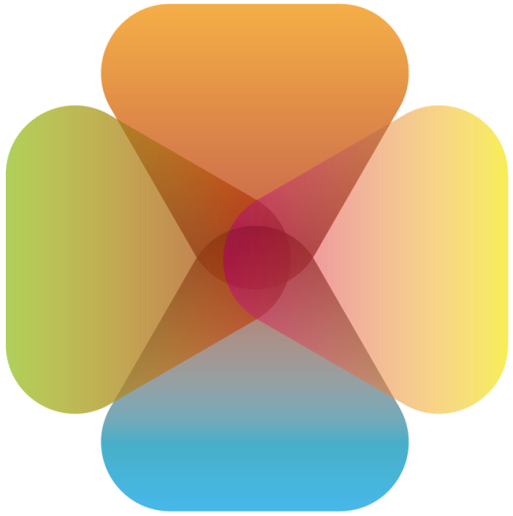
- Sensitise vulnerable groups through outreach
- Further development of urban planning measures
- Broad communication measures to win over the urban community

Strenghts

- Sensitising multipliers
- Winning over organisations for systematic climate adaptation
- Indirectly address people with very low adaptive capacity

City of Worms

Worr



ACCREU
Assessing Climate Change Risk in EUrope

Barriers and Enablers to Heat Adaptation in a Public Health Context

Flora Dicke, Ecologic Institute

15 September 2025

Barriers

Financial & Resource Constraints

Knowledge, Expertise, Data & Awareness Gaps

Political Barriers

Legal, Institutional & Governance Barriers

Physical/Built Environment & Urban Form

Infrastructure & Service Gaps

Workplace & Industry Barriers

Enablers

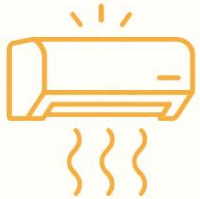
Awareness & knowledge, political support & leadership

Public Health Communication & Education

Community Engagement, Partnerships & Collaboration

Governance and Mainstreaming

Early Warning, Planning & Emergency Response



Cooling & Indoor Environment Management

Urban Design & Nature Based Solutions

Health and Heat Adaptation

Barriers

Resources

Political

Institutional

Information

Workplace

Physical environment

Infrastructure and services

Enablers

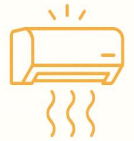
Communication & Education

Community Partnerships

Awareness & leadership

Early Warning Systems

Governance



Environmental Management

Urban Design & Nature Based Solutions

ACCREU Workshop

Heat-resilient European regions

Climate vulnerabilities and inequalities

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What is climate vulnerability?

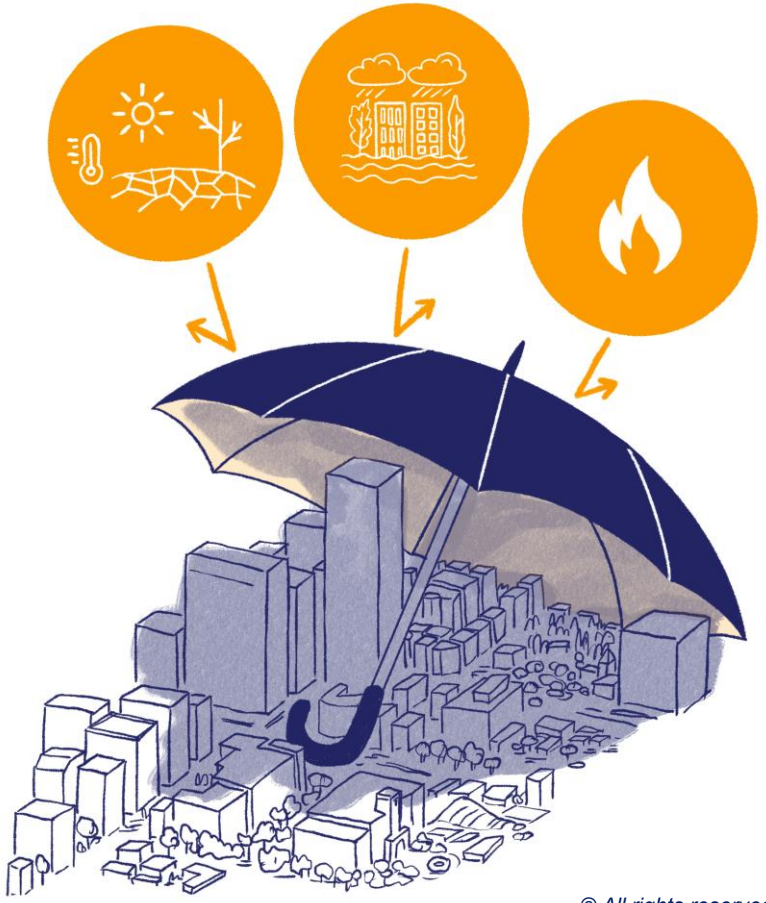
- "The propensity or predisposition to be adversely affected" (IPCC, 2022).
- Vulnerability is <u>not</u> innate or static – it is **contextual** and **dynamic**; it varies across **temporal** and **spatial** scales and depends on a multitude of factors.
- It is common to see blanket labels of groups like the **elderly**, **children**, or **women** as *'vulnerable'* without clarifying <u>what</u> they are vulnerable to or <u>why</u>.
- While climate vulnerability is generally **hazard-specific**, factors such as **poverty** and **weak social networks** can aggravate or create new vulnerabilities
  → Eric Klinenberg's *Heat Wave: A Social Autopsy of Disaster in Chicago, 1995.*
- Vulnerability reflects conditions shaped by **historical** and prevailing **cultural**, **social**, **political**, **economic**, and **environmental** contexts. Groups are not only at risk because of **exposure to hazards**, but as a result of **marginality, precarity, and unequal access to resources.**

Conceptualising vulnerability

Exposure: the degree to which people or systems are subject to stresses such as heat, flood, or droughts

Sensitivity: how strongly people or systems are affected once they are exposed to stress

Adaptive Capacity: the ability to cope with, adjust to, or transform in response to stresses



Adger, W. N. (2006). Vulnerability. Global environmental change, 16(3), 268-281. https://doi.org/10.1016/j.gloenvcha.2006.02.006

Who is vulnerable?

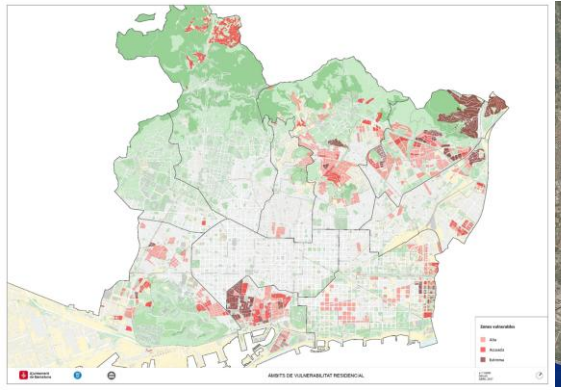
- Climate vulnerability is <u>not</u> distributed equitably across the **territory** or **social positions**.
- Related to **geographic**, **socioeconomic**, **political**, and **historical** conditions.
- Climate change brings to light and increases existing **inequalities**

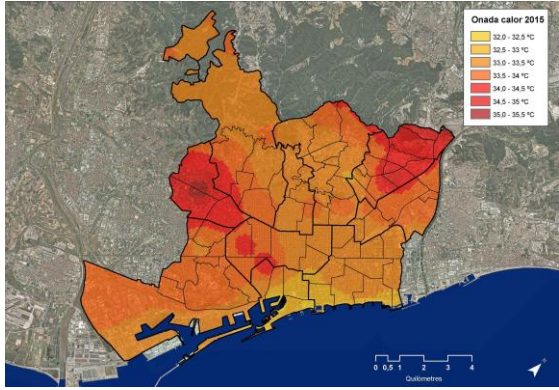
  ✓USA: Communities of colour, low-income, and older adults are more likely to suffer from heat-related illnesses.

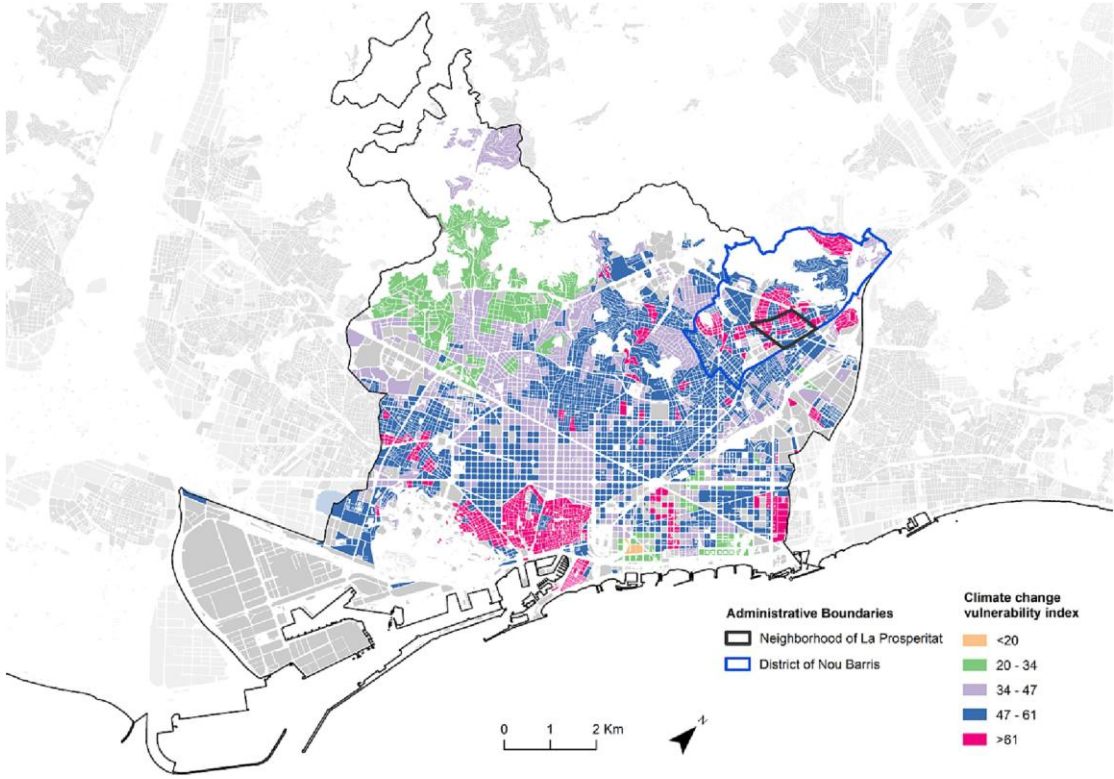
  ✓Spain: Women, older adults and residents from the Global South are most affected by energy poverty (ASPB).

  ✓My research: Women, immigrants from the Global South, and low-income residents face more thermal "dis-comfort" – physical experiences of extreme heat and cold, combined with domestic and socioeconomic conditions, and (lack of) access to shelter spaces.

- Climate planning requires asking **who** is affected, **where**, and **how** these impacts are experienced at the **intersection** of gender, social class, age, and origin.





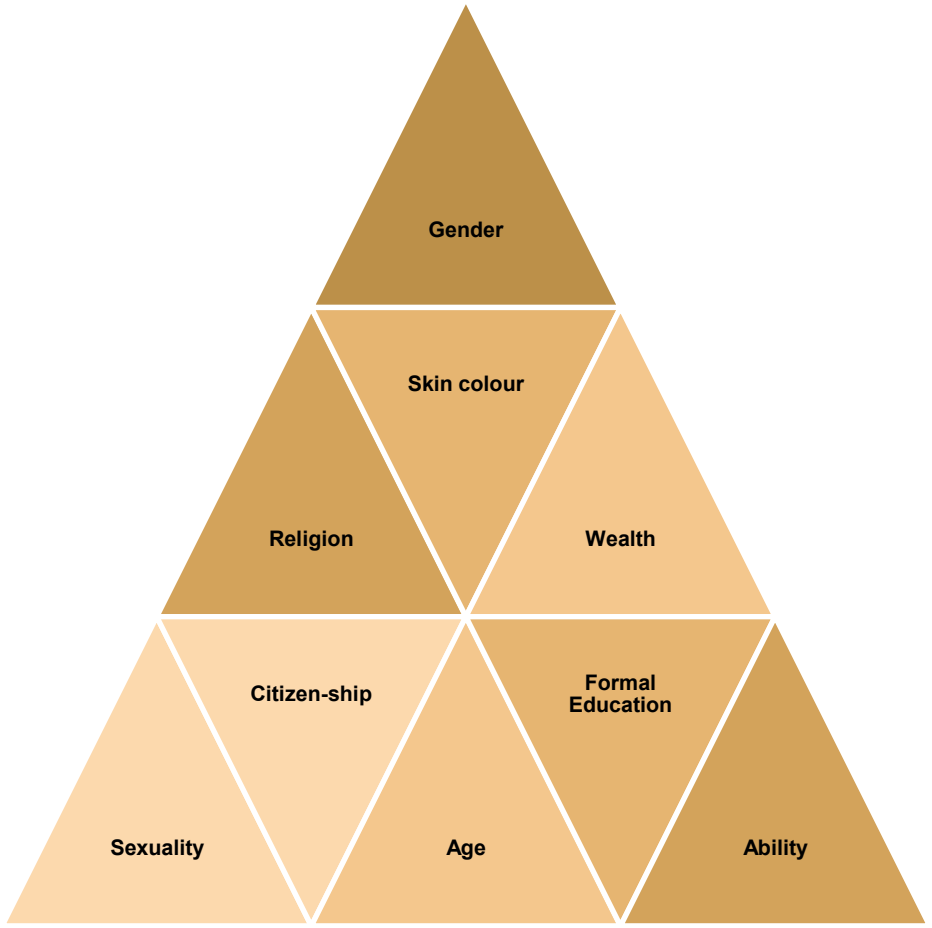


Amorim-Maia, A. T., Anguelovski, I., Connolly, J., & Chu, E. (2023). Seeking refuge? The potential of urban climate shelters to address intersecting vulnerabilities. *Landscape and Urban Planning*, *238*, 104836. https://doi.org/10.1016/j.landurbplan.2023.104836

Intersectionality

*"The **interconnected** nature of social and political categories that apply to an individual or group, which **overlap** creating unique systems of **disadvantage** and **discrimination."***

Crenshaw, Kimberle (1989) "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics," *University of Chicago Legal Forum*: Vol. 1989, Article 8. https://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8



Intersectionality is a framework to understand how **interconnected** systems of **power** and **domination** shape **inequality.**

Intersectionality and climate vulnerability

- Intersectionality helps understand how multiple axes of identities and social positions shape experiences of **privilege** and **vulnerability** in climate-affected communities.

  ✓Single mother who does not speak Spanish well

  ✓Migrant man living in an overcrowded household

  ✓Child with a health problem with unemployed parents

  ✓Older woman with a disability living alone

- Vulnerability is **context-specific**. Intersectionality shows which axes are most relevant in a given context, enriching our understanding of **inequality**.

- An intersectional understanding helps to **target action** to **those who need it most** and to design more **integrated** policies that address **multiple problems** at once.

Adaptation is not only a technical process….

… it is also a socio-political process.

Takeaways

- Different **identities** and social **positions** shape people's **ability to adapt** – we must be attentive to their **intersections** to protect those **most at risk**.
- There is no one-size-fits-all adaptation solution. Universalisation ignores local vulnerabilities and priorities.
- Adaptation policies or programs alone may not address deeper vulnerabilities.
- Some groups require **targeted**, **regular**, and **culturally** sensitive support in new infrastructure or adaptation programs.
- Adaptive infrastructure must be **accessible** and **welcoming** across **cultures**, **abilities** and **ages**.
- Measures should **safeguard** people where they **live** and prevent further **isolation** if heat infrastructure fails to respond to intersectional needs.

Some resources

- Amorim-Maia, A. T., Anguelovski, I., Chu, E., & Connolly, J. (2022). Intersectional climate justice: A conceptual pathway for bridging adaptation planning, transformative action, and social equity. *Urban climate*, *41*, 101053. https://doi.org/10.1016/j.uclim.2021.101053

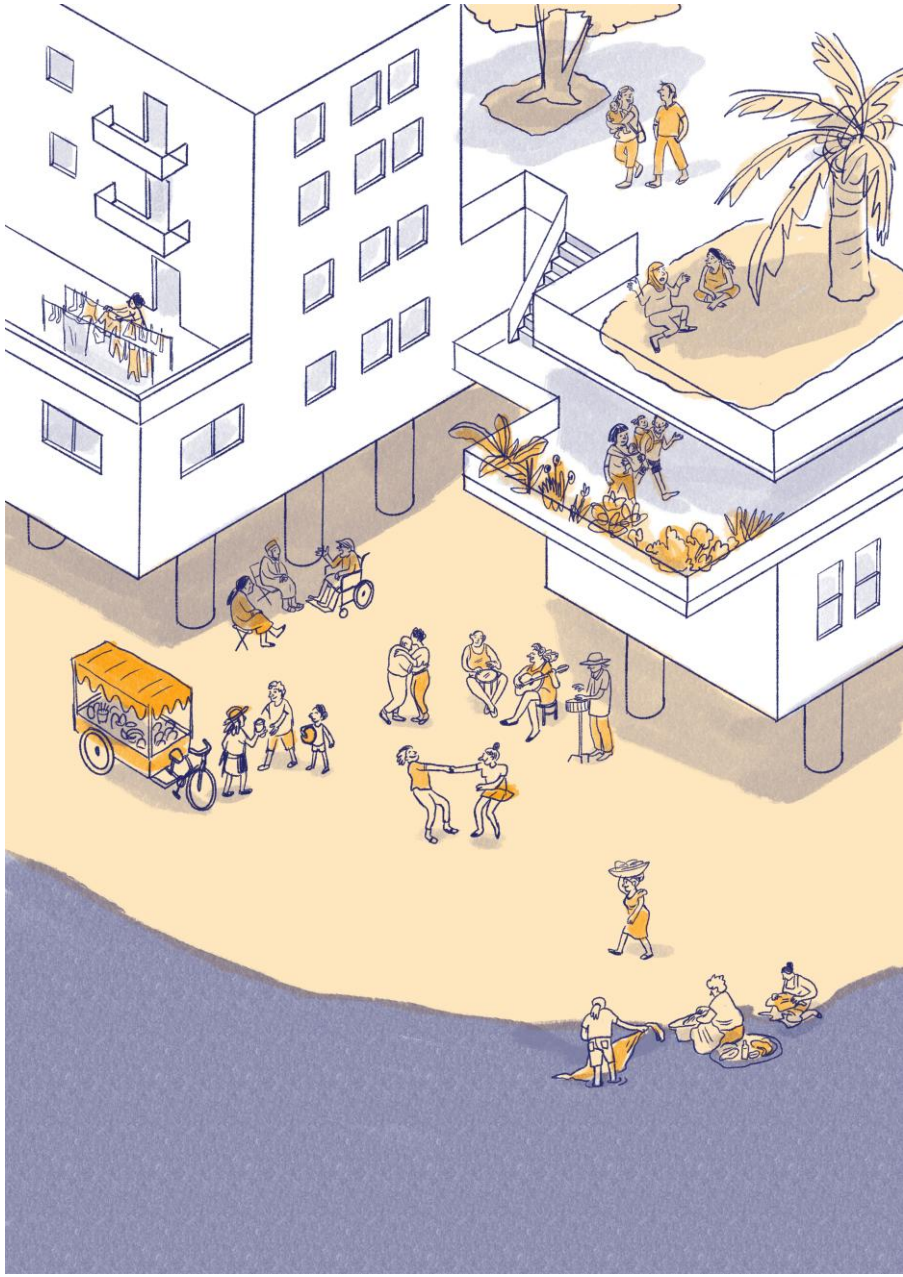
- Hamstead, Z. A. (2023). Critical heat studies: Deconstructing heat studies for climate justice. *Planning Theory & Practice*, *24*(2), 153-172. https://doi.org/10.1080/14649357.2023.2201604

- Tschakert, P., Ogra, A., Sharma, U., Karthikeyan, K., Singh, A., & Bhowmik, A. (2025). Intersecting inequalities and urban heat adaptation. *Global Environmental Change*, *92*, 103003. https://doi.org/10.1016/j.gloenvcha.2025.103003

- Jurgilevich, A., Käyhkö, J., Räsänen, A., Pörsti, S., Lagström, H., Käyhkö, J., & Juhola, S. (2023). Factors influencing vulnerability to climate change-related health impacts in cities–A conceptual framework. *Environment International*, *173*, 107837. https://doi.org/10.1016/j.envint.2023.107837

- Hankivsky, O., Grace, D., Hunting, G., Giesbrecht, M., Fridkin, A., Rudrum, S., ... & Clark, N. (2014). An intersectionality-based policy analysis framework: critical reflections on a methodology for advancing equity. *International journal for equity in health*, *13*(1), 119. https://www.researchgate.net/publication/261772913_An_Intersectionality-Based_Policy_Analysis_Framework#fullTextFileContent

- Rodó-de-Zárate, M. (2014). Developing geographies of intersectionality with Relief Maps: reflections from youth research in Manresa, Catalonia. *Gender, place & culture*, *21*(8), 925-944. https://www.reliefmaps.cat/en/about



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ACCREU upcoming activities

- Social justice and socio-economic assessment of Heat Action Plans in Bremen and Basque Region

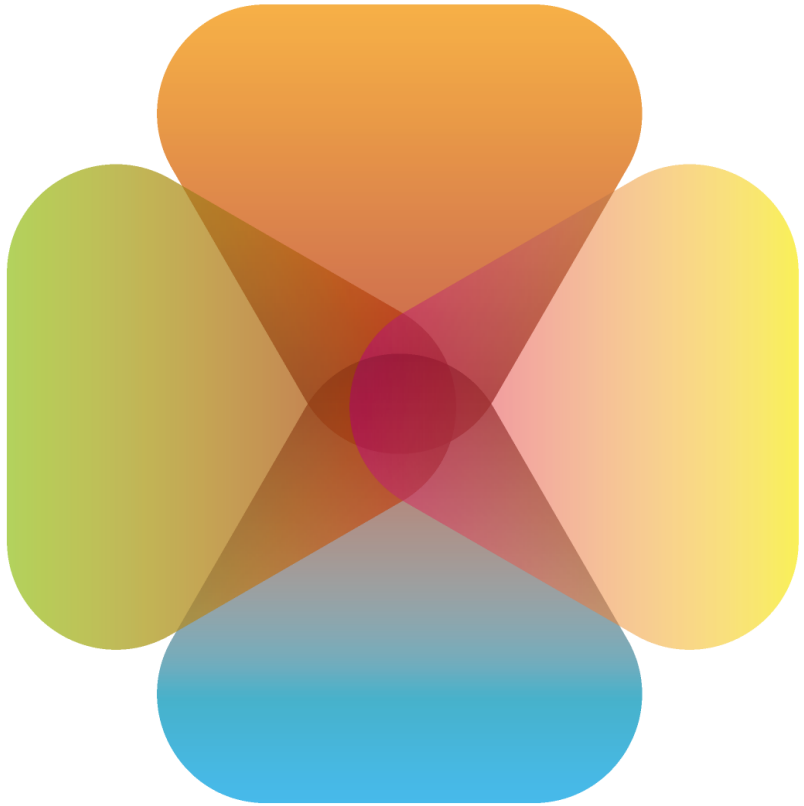
(Autumn 2025)

- Report on socio-economic enablers and barriers to adaptation to heat and health (Winter 2025-26)

- Integration of case study insights on heat and health to draw broader conclusions about impacts and economic costs of climate change and adaptation (2026)

- Synthesis and outreach events (2026)

Thank you for your participation and contributions!



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Workshop evaluation