Responding to the impacts of climate change on human health and wellbeing

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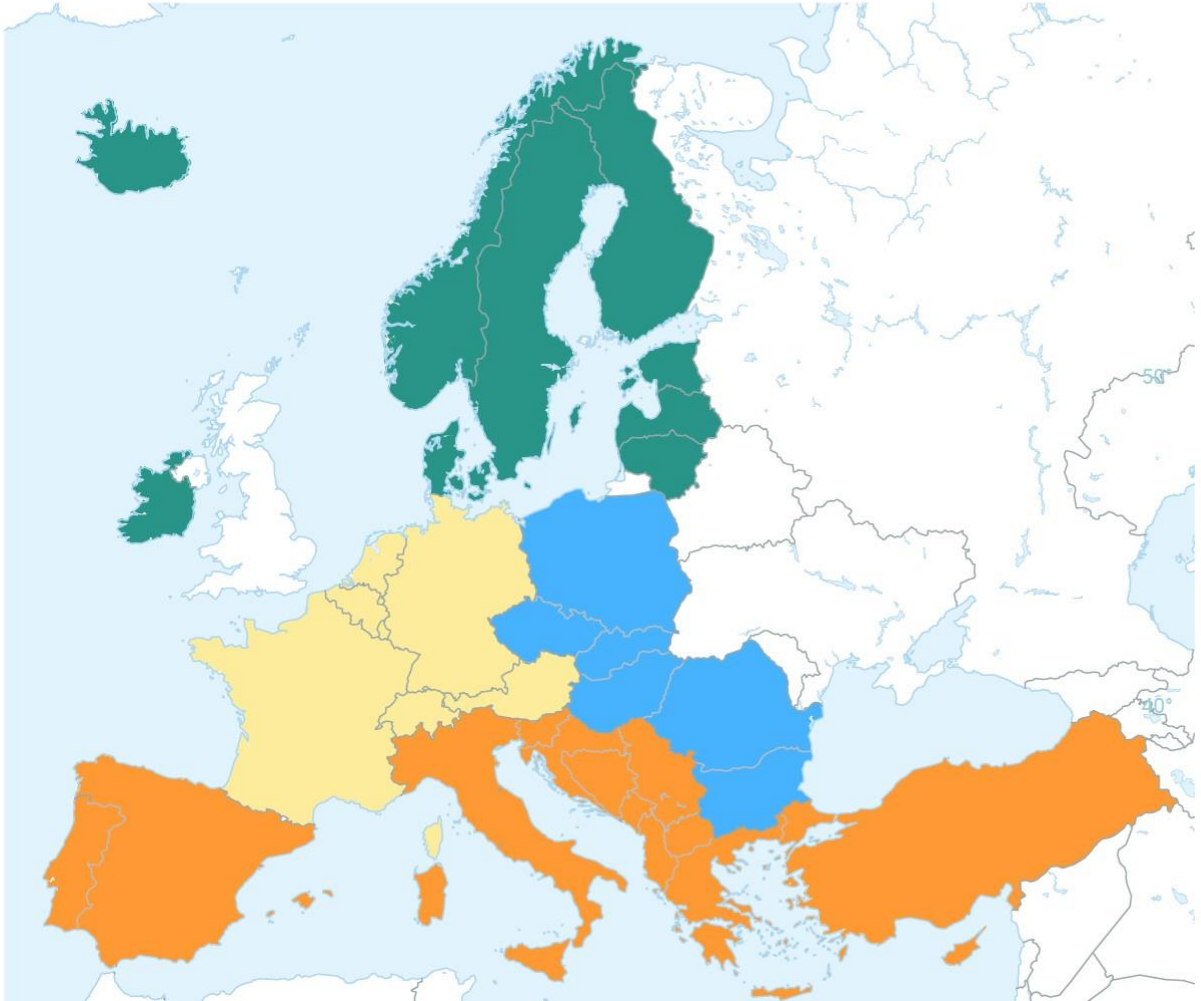
European Environment Agency
3 October 2024

30 YEARS
European Environment Agency

European Climate Risk Assesment

Land regions	Northern Europe			Western Europe			Central-Eastern Europe			Southern Europe		
	Past	Future		Past	Future		Past	Future		Past	Future	
		Low	High		Low	High		Low	High		Low	High
Mean temperature	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Heat wave days	□(*)	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Total precipitation	↗	↗	↗	↗	⟋	↘	↗	↗	⟋	↘	↘	↘
Heavy precipitation	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Drought	↗	↘	↘	↗	⟋	↗	↗	⟋	↗	↗	↗	↗

European regional seas	Past	Future
Sea surface temperature	↗	↗
Sea level	↗	↗



Legend

- ↗ Increase
- ↗ Increase (limited agreement between models, datasets or indices)
- ↘ Decrease
- ↘ Decrease (limited agreement between models, datasets or indices)
- ⟋ Low confidence in direction of change
- □ No change

Note

(*) Other heatwave indices show an increase for the past

"Which climate change factors will have the greatest impact on the health and wellbeing of patients in Europe in the next ten years?" Select up to three.

	Total	France	Germany	UK
Increased heatwaves	62%	68%	66%	52%
Increased air pollution	55%	56%	46%	64%
Emergence of infectious diseases through the rise of disease vectors	41%	54%	40%	28%
Increased flooding	33%	20%	30%	50%
Droughts	23%	28%	22%	20%
Poor food security	20%	14%	20%	26%
Increased water pollution	17%	12%	22%	18%
Pollen level changes	17%	18%	16%	16%
Forest fires	11%	2%	18%	14%
Thunderstorms	10 %	20%	8%	2%

Economist Impact, 2022, Do no harm: Healthcare professionals address sustainability and climate change

Cascading climate risks affect health

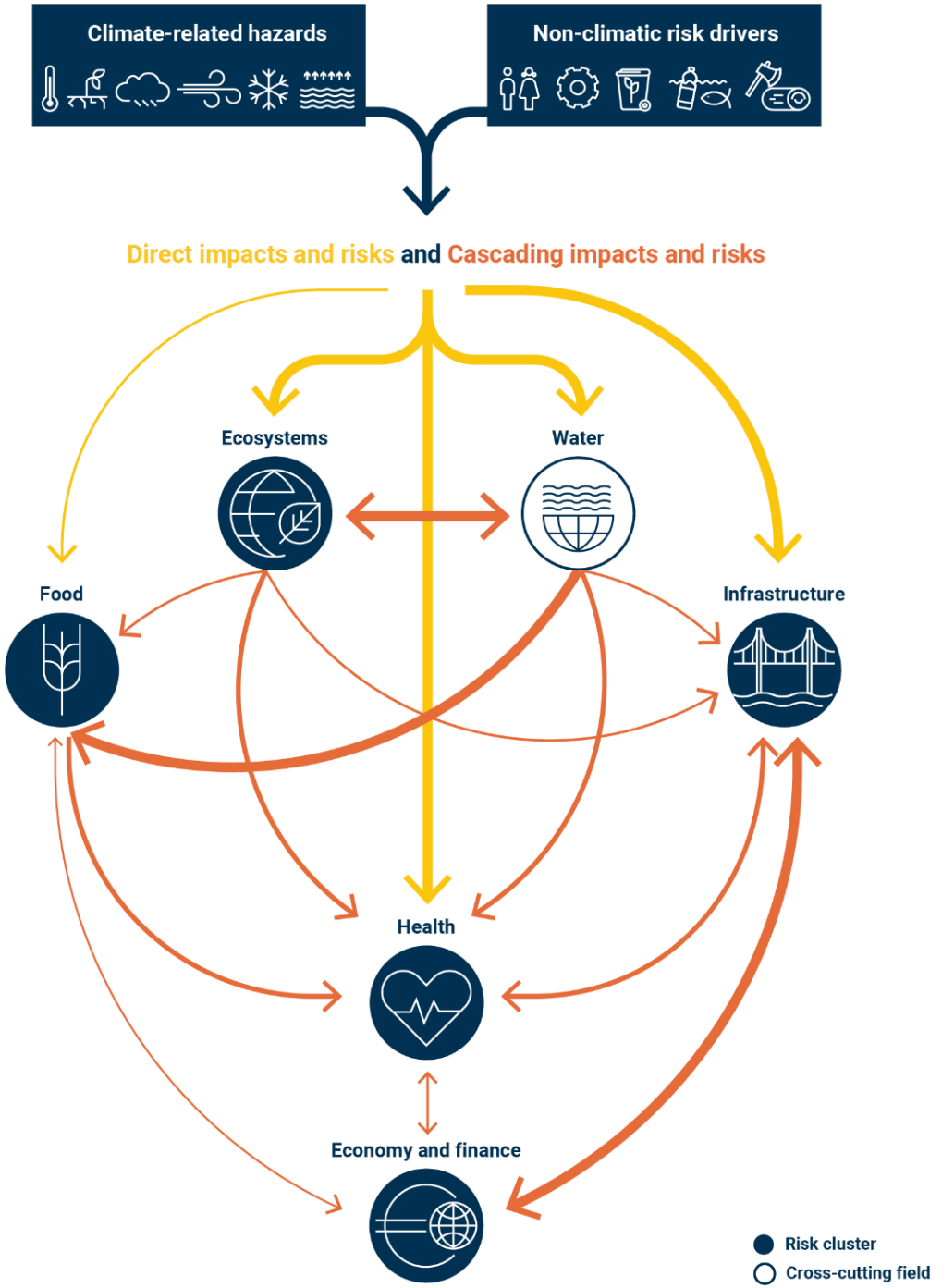
Food – e.g. prices of products leading to changing diets

Ecosystems – e.g. impact on green spaces in cities

Water – e.g. pollution caused by droughts/floods

Infrastructure – e.g. reduced access to hospitals

Economy and finance – e.g. mental health implications



EEA, 2024, European Climate Risk Assessment

European Climate and Health Observatory

European Commission

European Environment Agency

ecdc EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL

efsa European Food Safety Authority

Eurofound

European Agency for Safety and Health at Work

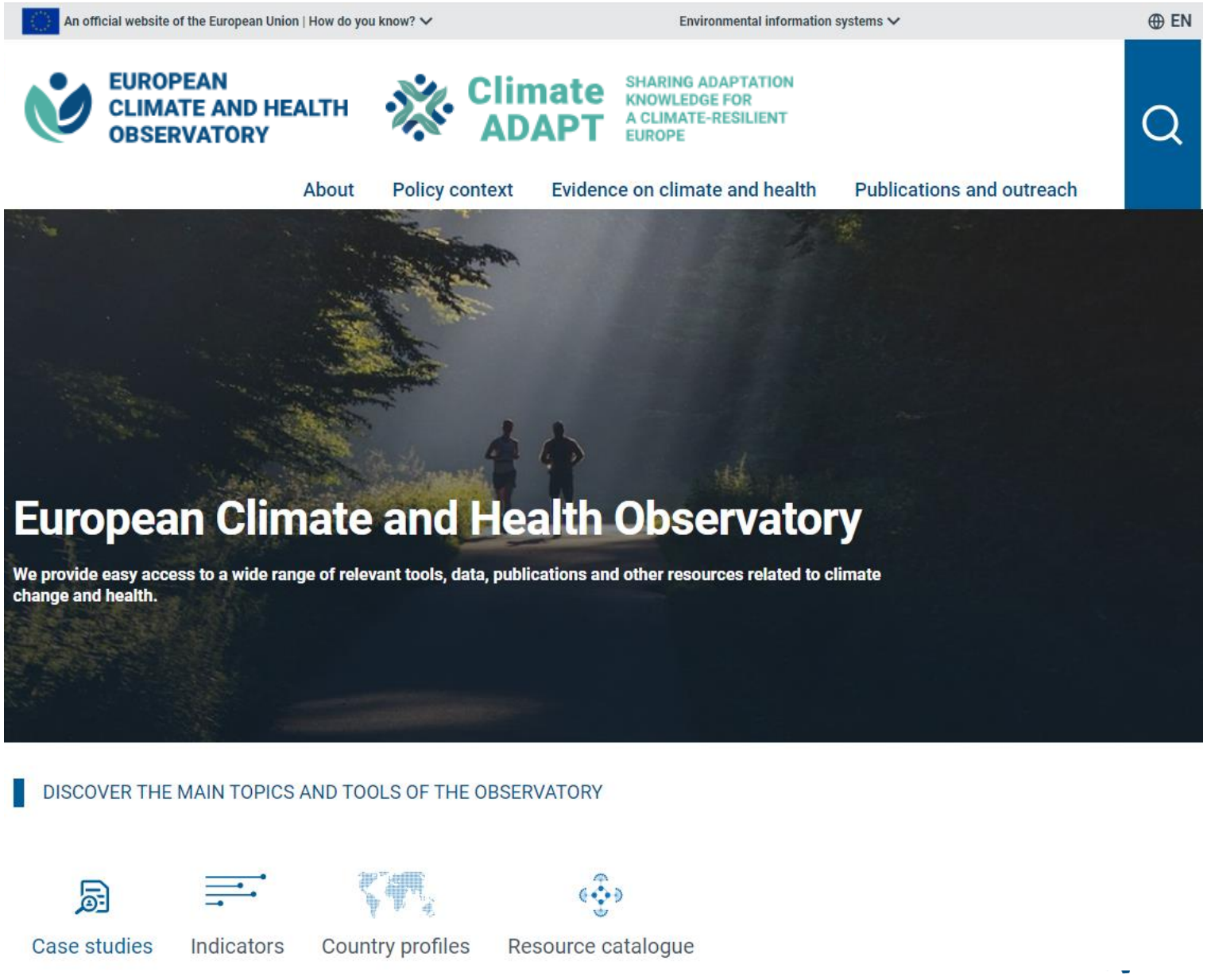
Copernicus Europe's eyes on Earth

World Health Organization REGIONAL OFFICE FOR Europe

LANCET COUNTDOWN: HEALTH AND CLIMATE CHANGE IN EUROPE

ASPHER The Association of Schools of Public Health in the European Region

Public Health Institutes of the World IANPHI



EEA Report | No 07/2022

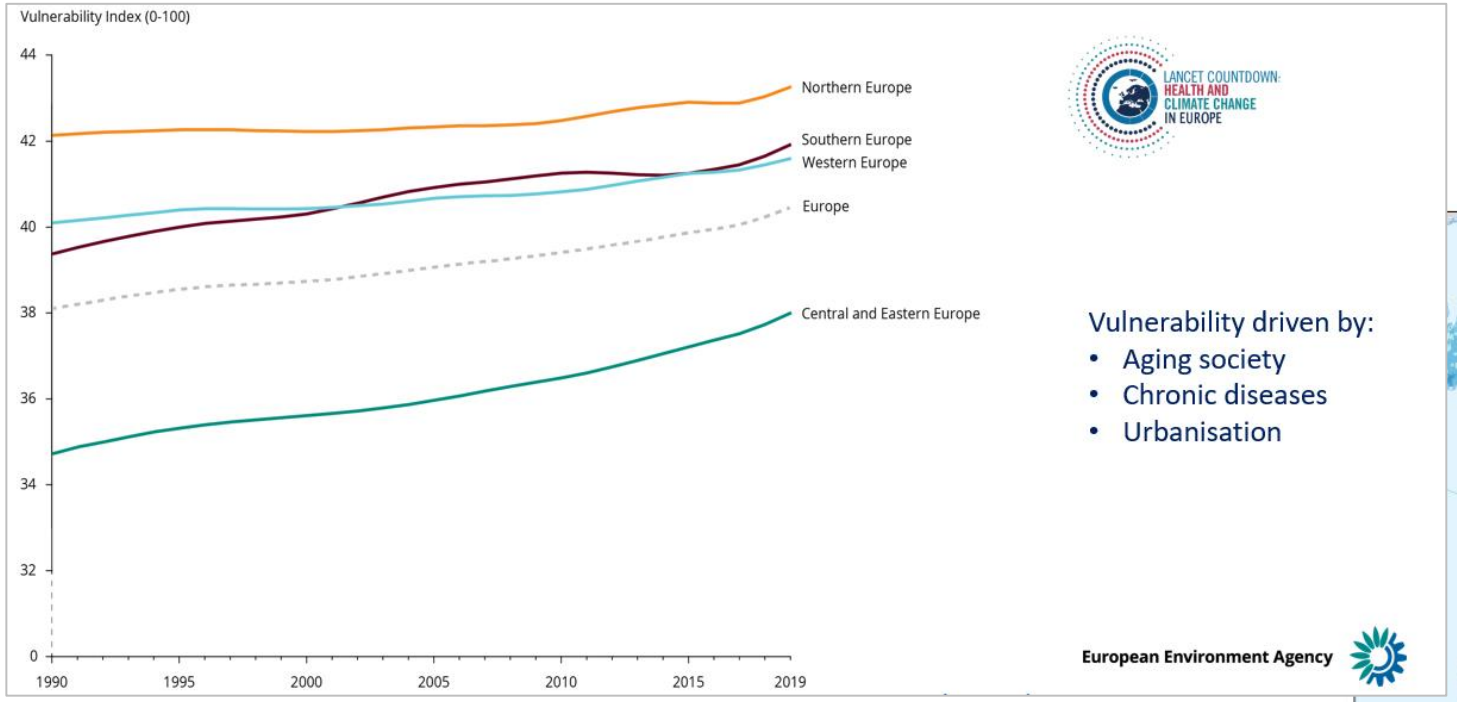
Climate change as a threat to health and well-being in Europe: focus on heat and infectious diseases

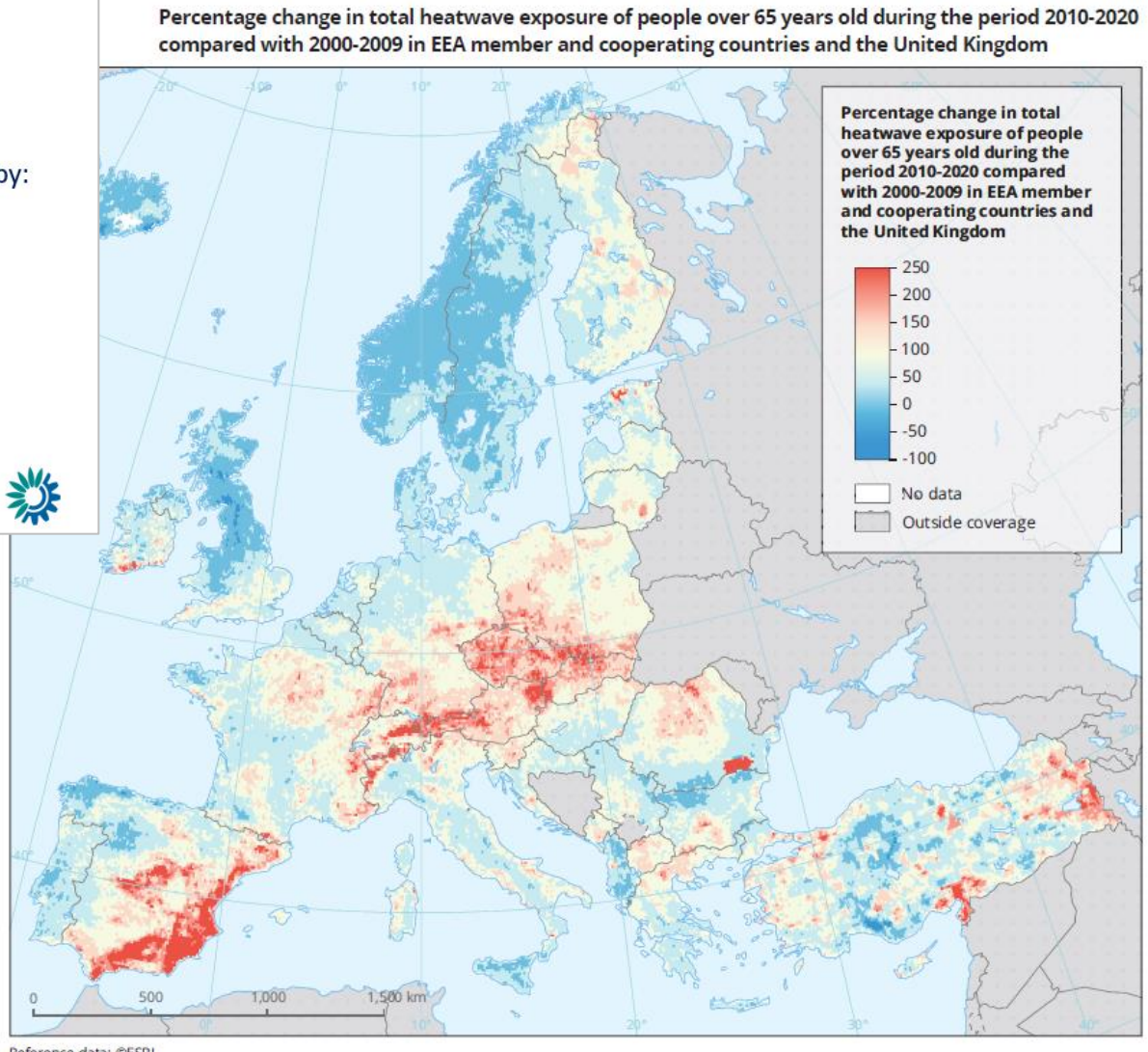
European Environment Agency

Responding to climate change impacts on human health in Europe: focus on floods, droughts and water quality

EEA Report 3/2024

Increasing vulnerability and exposure to heat





Heat-related deaths and illnesses


Danie Franco@ unsplash

Guilherme Cunha @ unsplash

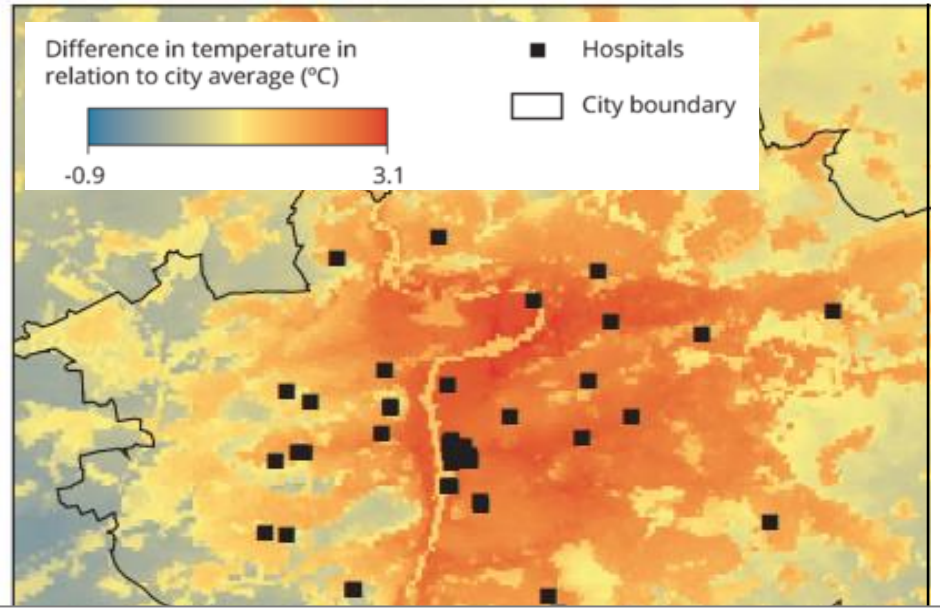
2022: 70,000 deaths
2023: 47,000 deaths


Alexander Grey@ unsplash

Agency

Heat impacts health systems and economy

46% of urban hospitals in areas at least **2°C warmer** than the city average

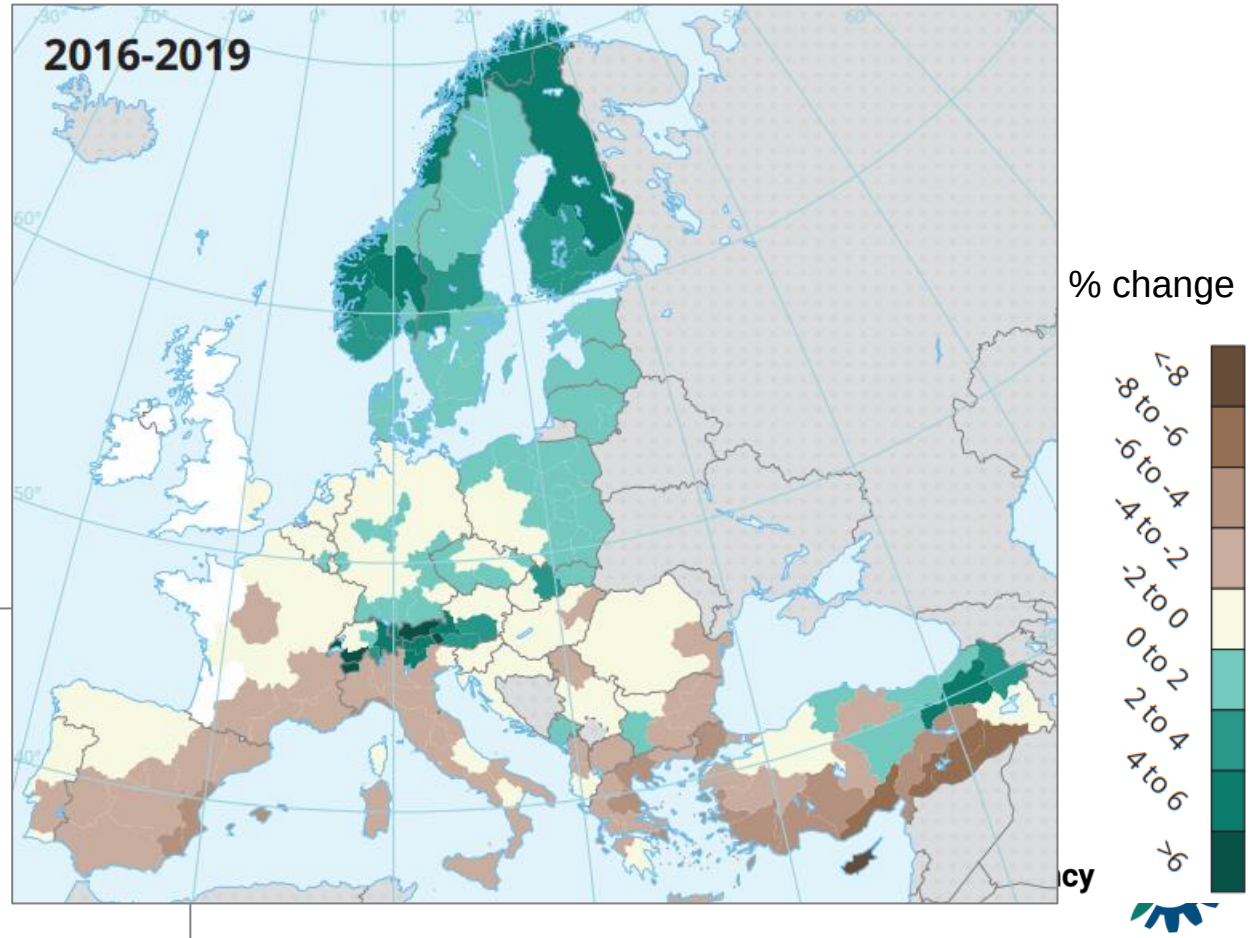


Peak of 2022 heatwave forced fifth of UK hospitals to cancel operations – research

Findings reveal level of disruption over three days in July when temperatures reached as high as 40C

Reference data: ©ESRI

Annual loss of **16 working hours / worker** in high-exposure jobs compared to 1965-1994



Health cluster

Climate risks for 'Health' cluster	Urgency to act	Risk severity			Policy characteristics		
		Current	Mid-century	Late century (low/high warming scenario)	Policy horizon	Policy readiness	Risk ownership
Heat stress — general population	Urgent action needed	+++	+++	+++	Long	Medium	National
Population/built environment due to wildfires (hotspot region: southern Europe)	Urgent action needed	+++	+++	+++ / Urgent action needed	Medium	Medium	Co-owned
Population/built environment due to wildfires	More action needed	+++	++	++ / Urgent action needed	Medium	Medium	Co-owned
Well-being due to non-adapted buildings (*)	More action needed	++	++	++ / More action needed	Long	Medium	Co-owned
Heat stress — outdoor workers (hotspot region: southern Europe)	More action needed	+++	+++	+++	Short	Medium	Co-owned
Heat stress — outdoor workers	Watching brief	+++	+++	+++ / Further investigation	Short	Medium	Co-owned
Pathogens in coastal waters	Further investigation	+	+	+ / More action needed	Medium	Medium	Co-owned
Health systems and infrastructure	Further investigation	+++	++	++ / More action needed	Medium	Medium	National
Infectious diseases	Sustain current action	+++	++	++ / More action needed	Short	Advanced	Co-owned

Legends and notes

Urgency to act
- Urgent action needed
- More action needed
- Further investigation
- Sustain current action
- Watching brief

Risk severity
- Catastrophic
- Critical
- Substantial
- Limited

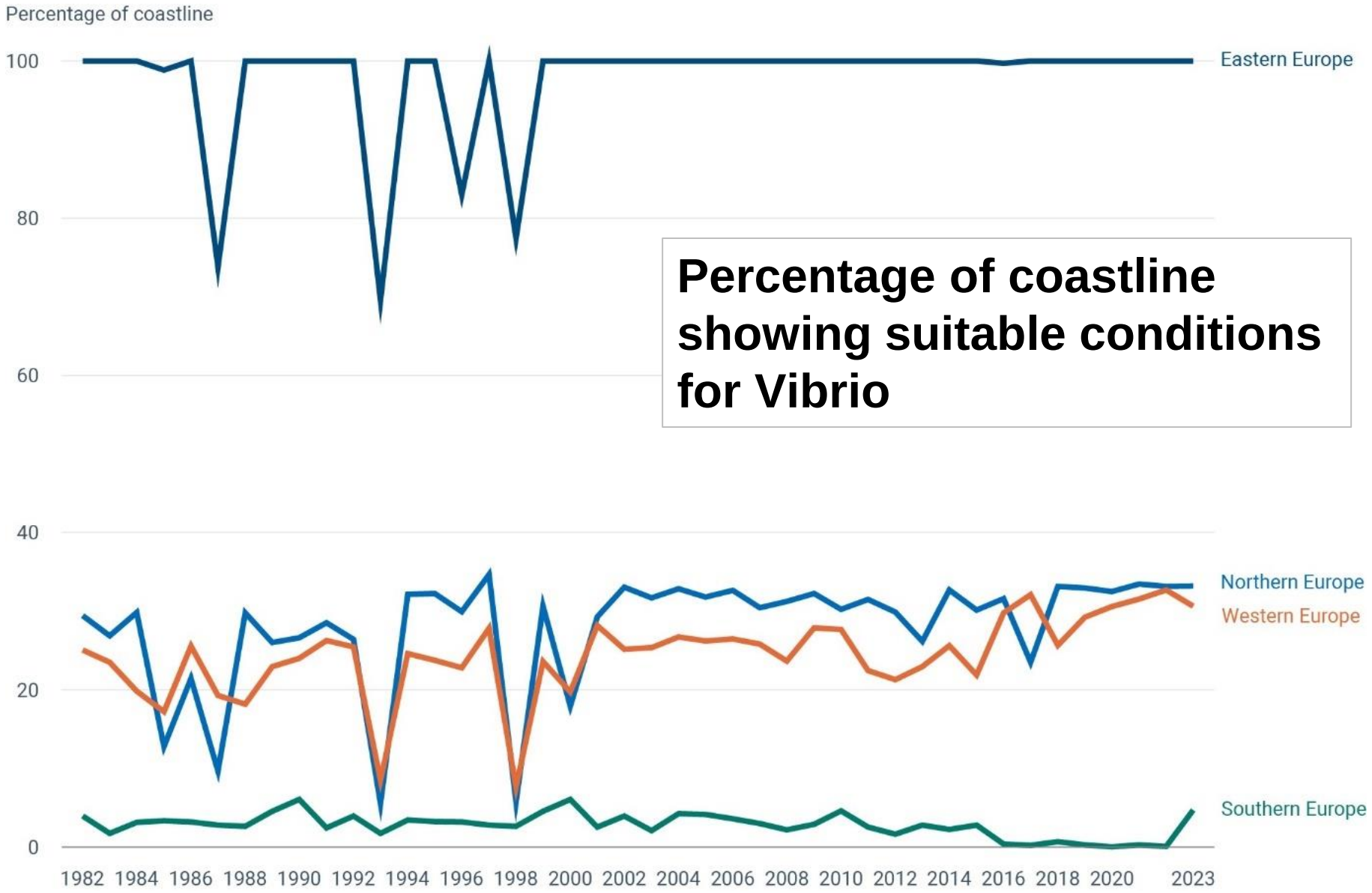
Confidence

Low: +
Medium: ++
High: +++

(*) Urgency based on high warming scenario (late century).

EEA, 2024, European Climate Risk Assessment

Higher water temperatures introduce new risks



Percentage of coastline showing suitable conditions for Vibrio

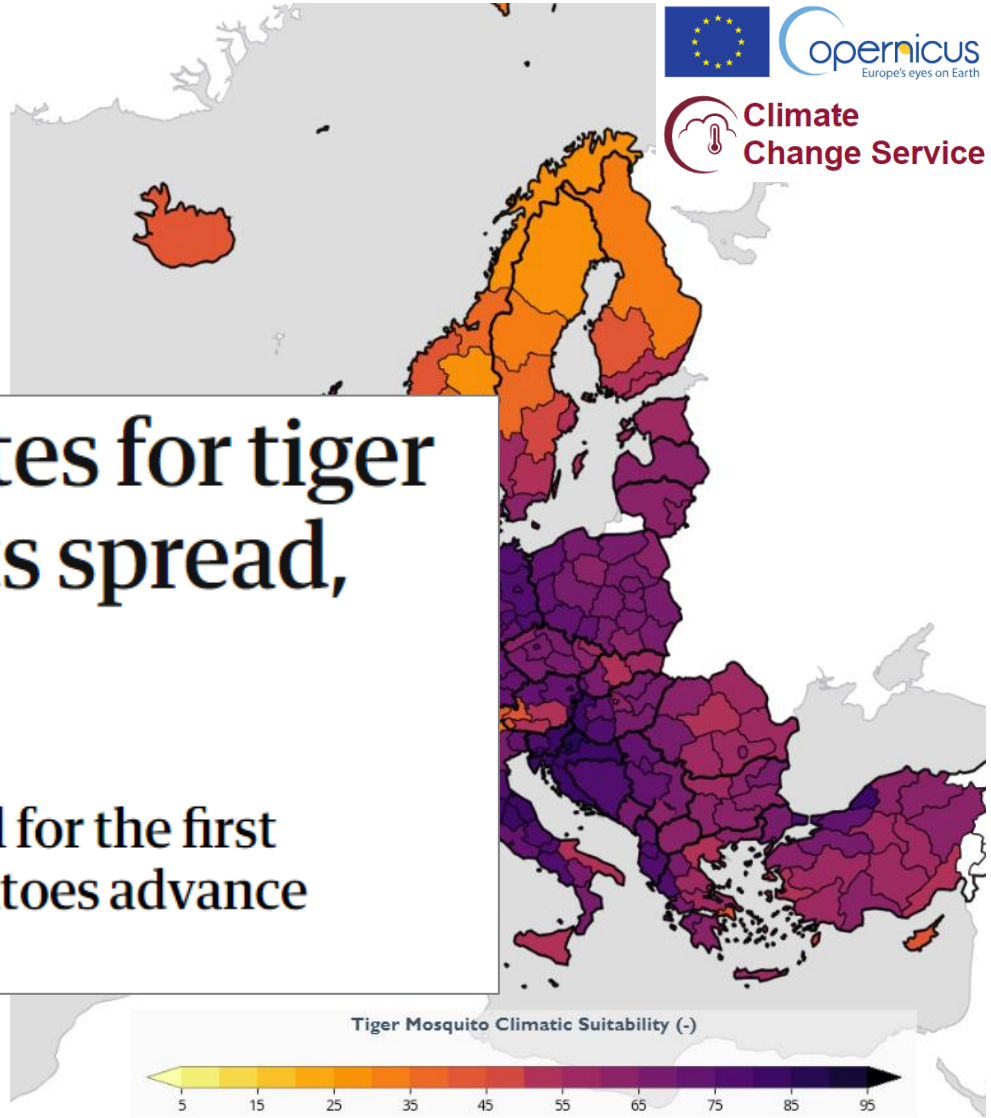
LANCET COUNTDOWN: HEALTH AND CLIMATE CHANGE IN EUROPE

European Environment Agency

Climatic suitability for tiger mosquito

Known distribution, May 2024

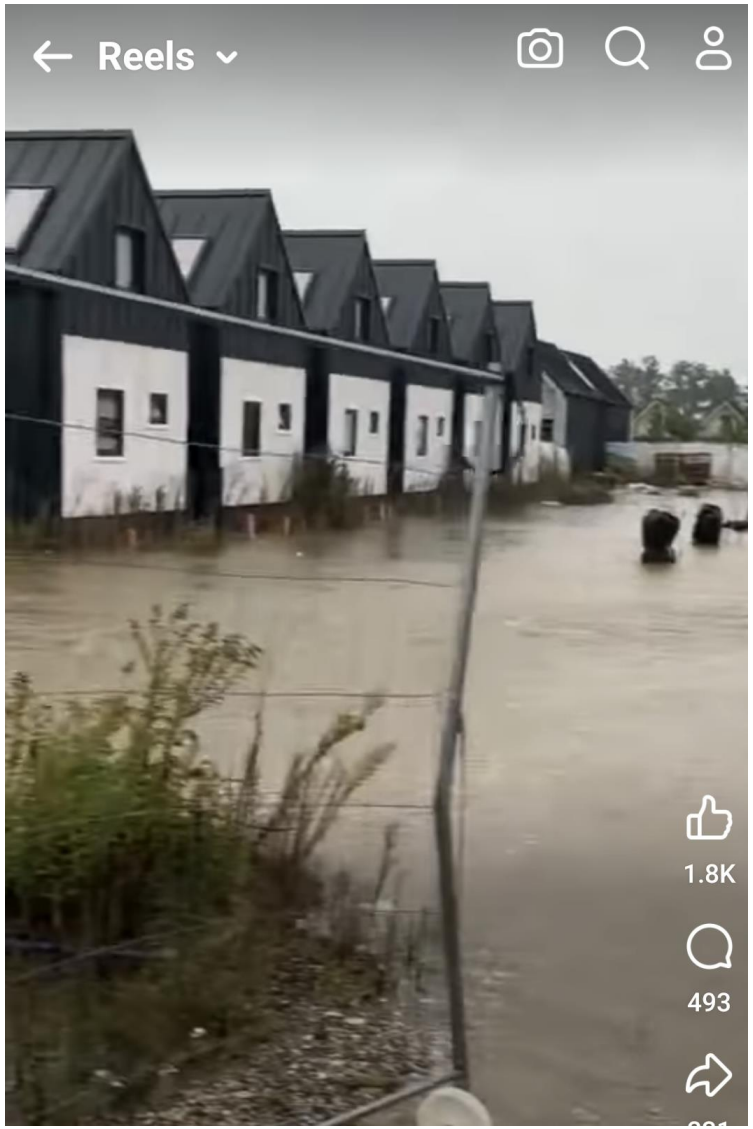
Climatic suitability 2041-70, RCP 8.5



‘A first in Paris’: city fumigates for tiger mosquitoes as tropical pests spread, bringing disease

Parisian health authorities treat French capital for the first time as Zika and dengue-carrying tiger mosquitoes advance through northeastern Europe

Recent floods in Central Europe



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Exposure to water-related health hazards

FLOODS

12% of people and

11% of hospitals in

river flood risk areas

WATER SCARCITY

In Southern Europe

30% of population in areas with **permanent water stress**

IMPAIRED WATER QUALITY

15% of industrial facilities in flood risk areas

Estimated **650,000** combined sewer overflows

FATALITIES

direct deaths (1980-2022)

5,582 from **floods**

702 from **wildfires**

INFECTIOUS DISEASES

Fecal bacteria in bathing water are two times more likely after heavy rain events

NON-COMMUNICABLE DISEASES

Increase in **asthma** and **allergies** linked to water-damanged buildings and drought episodes

MENTAL HEALTH

Children particularly affected by floods and wildfires

Farmers and rural communities affected by droughts

Water-related climate impacts on health

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12% of people and

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WATER SCARCITY

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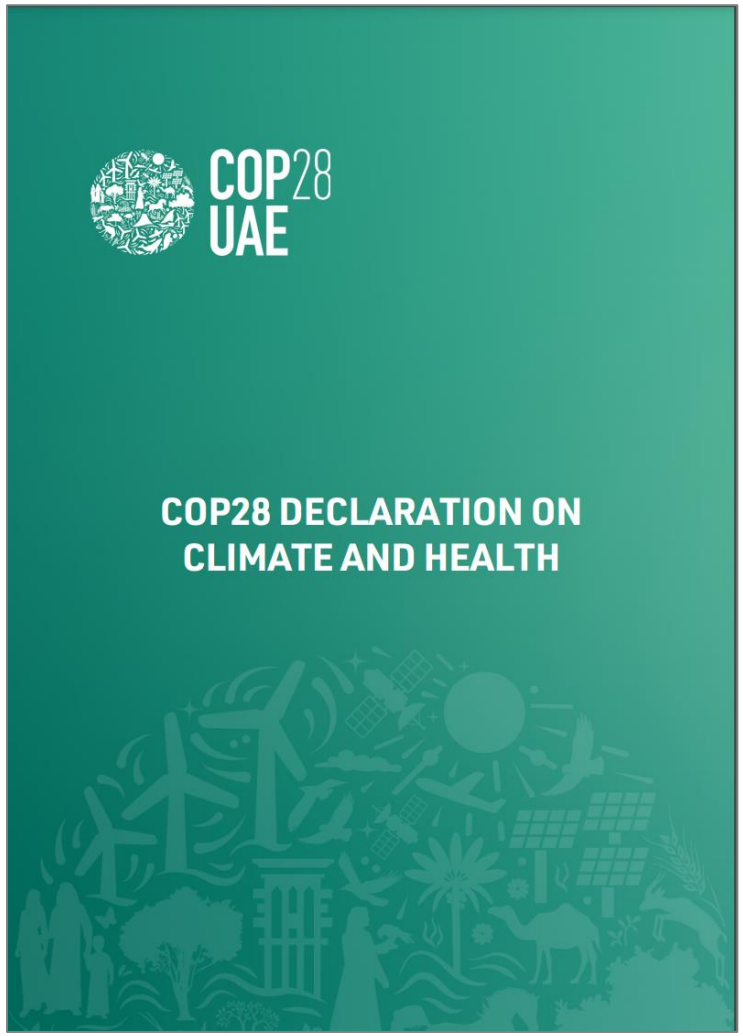
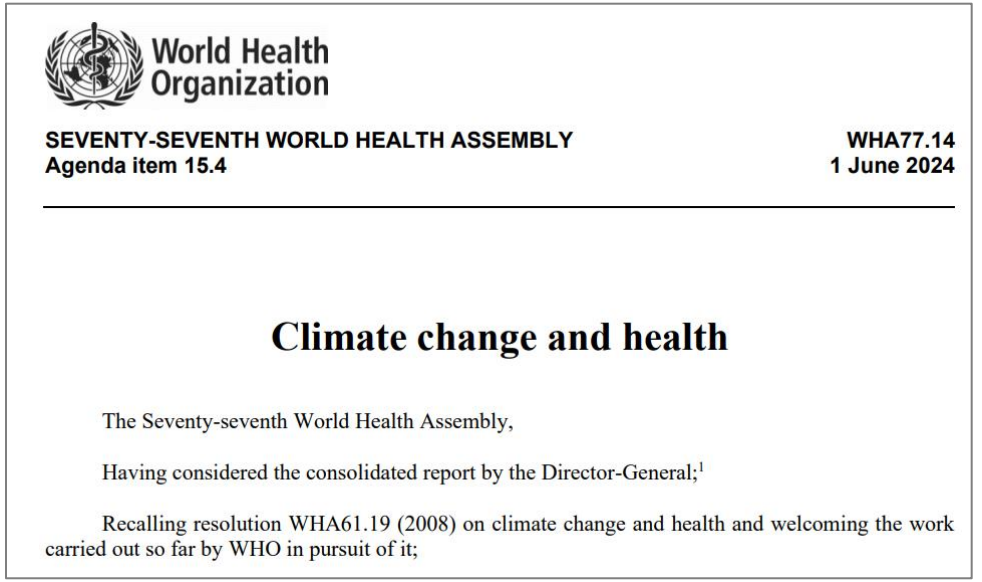
Political interest in climate and health





World Health Organization

SEVENTY-SEVENTH WORLD HEALTH ASSEMBLY **WHA77.14**
Agenda item 15.4 **1 June 2024**

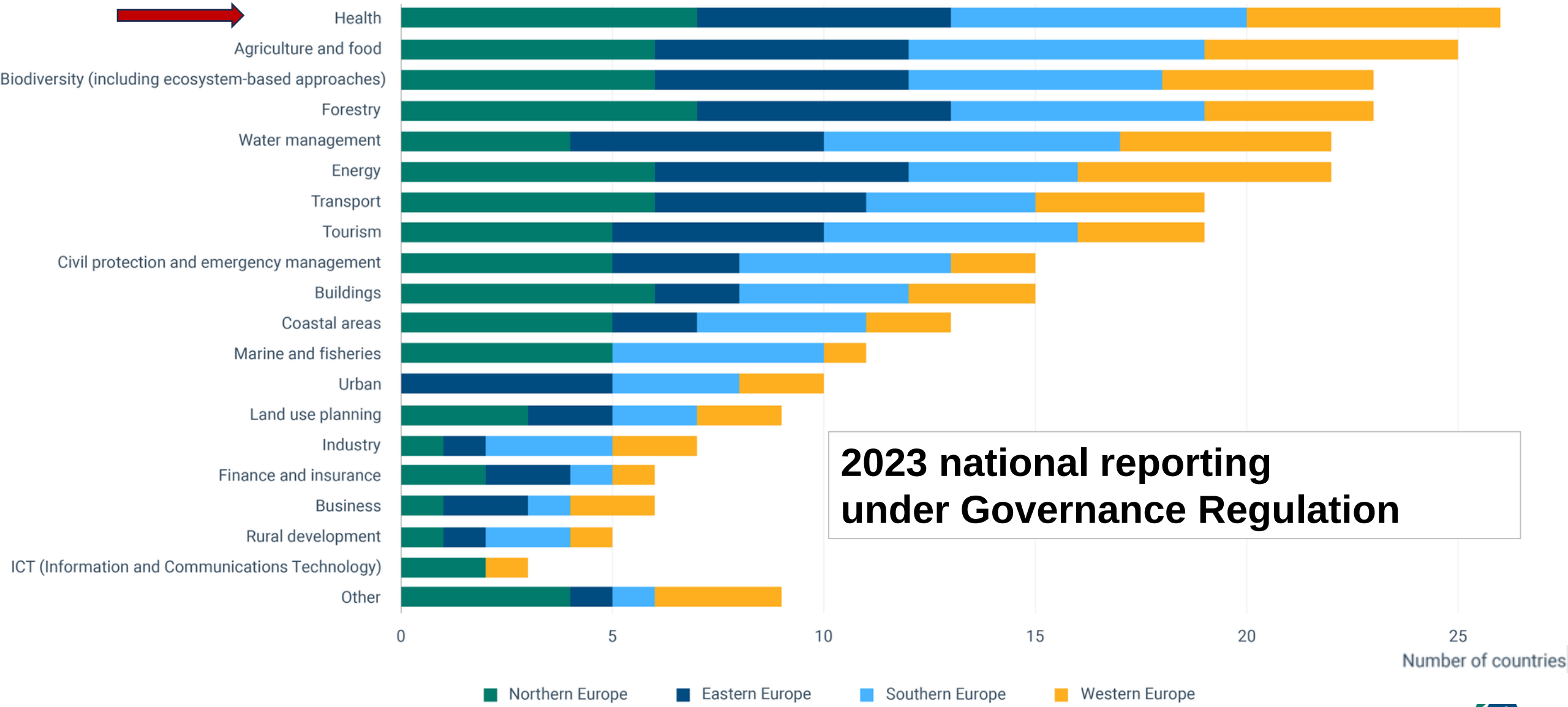
Climate change and health

The Seventy-seventh World Health Assembly,

Having considered the consolidated report by the Director-General;[1]

Recalling resolution WHA61.19 (2008) on climate change and health and welcoming the work carried out so far by WHO in pursuit of it;

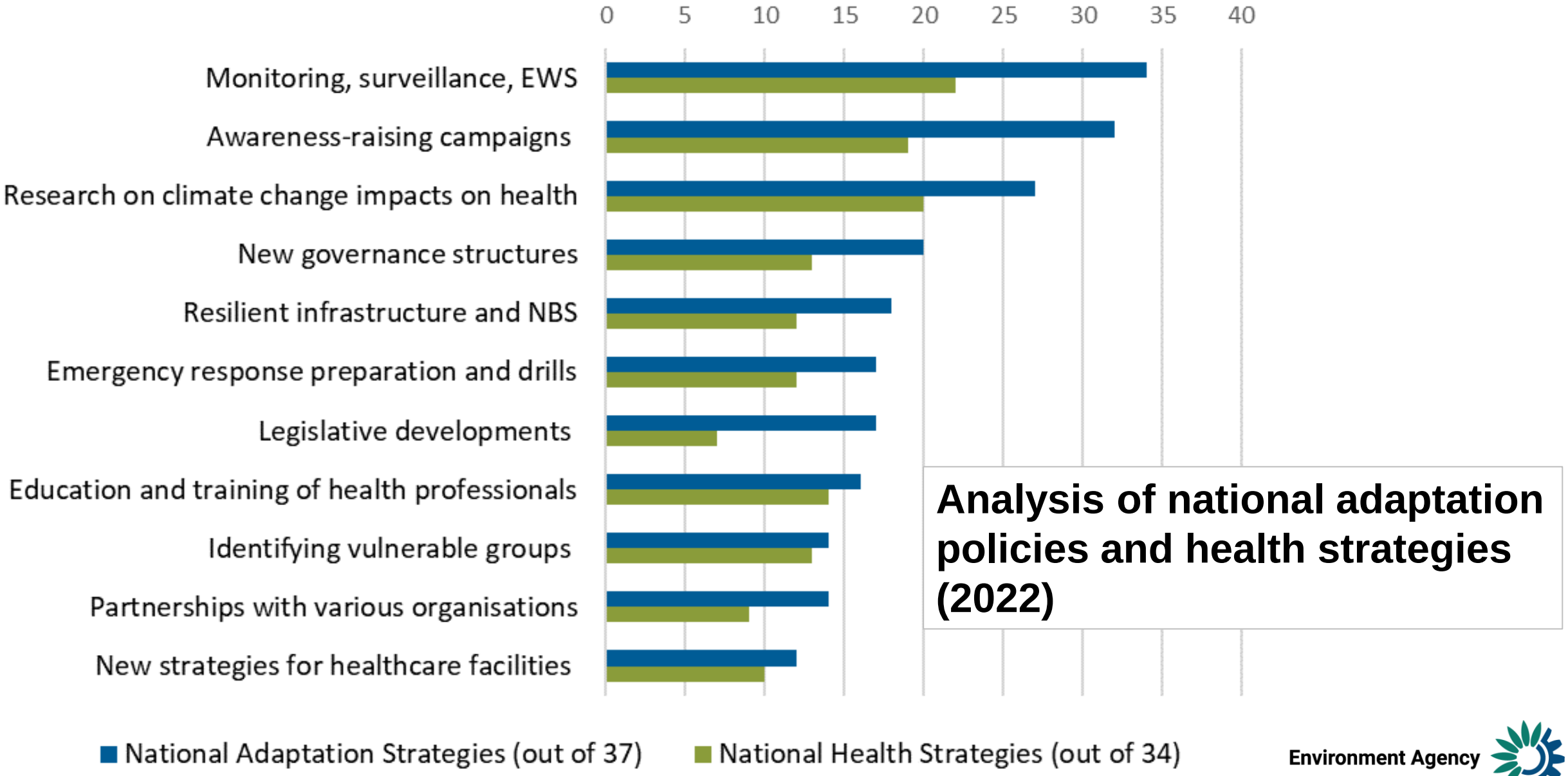
Health sector reported as the most affected



2023 national reporting under Governance Regulation

https://www.eea.europa.eu/publications/is-europe-on-track-towards-climate-resilience

Measures in national policies



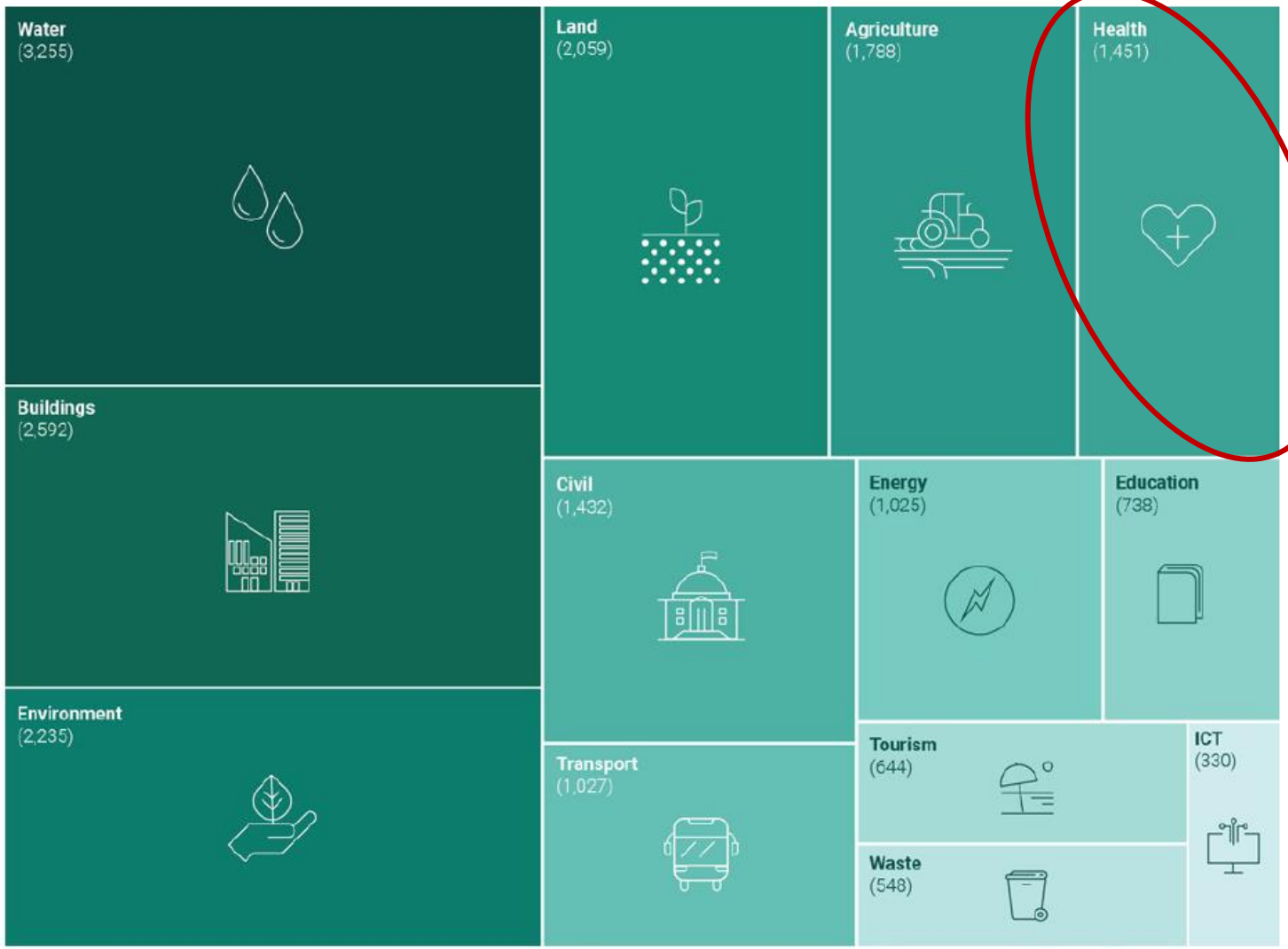
Analysis of national adaptation policies and health strategies (2022)

Environment Agency

https://climate-adapt.eea.europa.eu/observatory/policy-context/national-policy-analysis-2022

Climate-health gap at subnational level

Adaptation actions planned by the Covenant of Mayors signatories in 2022 *(EEA, 2024)*



Barriers to working on public health:

- Budgets
- Knowledge and expertise
- Low political priority
- No direct responsibility for healthcare *(CDP, 2022)*

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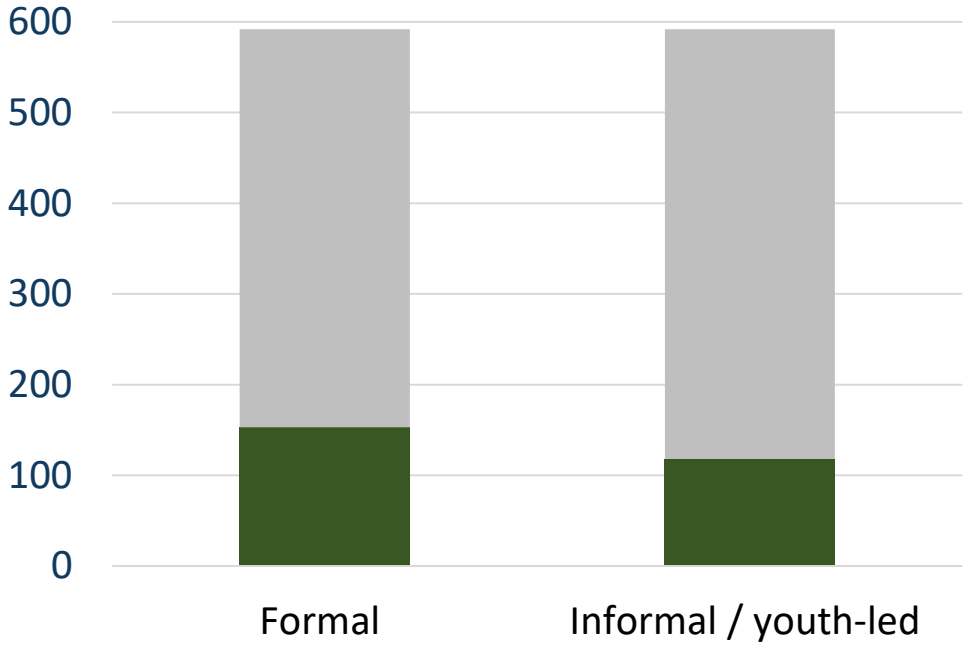
Climate change in health education

Climate change education in European medical schools



Source: IFMSA (2020)

29 out of 45 schools of public health provided climate and health education

Source: ASPHER (2021)

HCPs say they want to educate patients about climate change—but first, they need more education themselves. When asked what personal responsibility they'd like to take around sustainability, most selected the role of educator to patients around sustainable lifestyles (33%) and various climate risk factors (25%). However, sustainability education is not part of HCP's core responsibility, so it is unsurprising that others expressed that they lacked the time and resources (12%) and education (9%) to do this effectively. Most (74%) said that thus far they have not been supported in green literacy efforts.

Economist Impact, 2022, Do no harm: Healthcare professionals address sustainability and climate change

Need for solutions across spatial scales and sectors

Level

EU

National

Regional

Local

Measure type

Governance and institutional measures


Nature-based solutions


Physical and technological measures

Knowledge and behaviour change


Economic and financial measures

Sector

Health

Water management

Spatial planning

Built environment

Insurance

...

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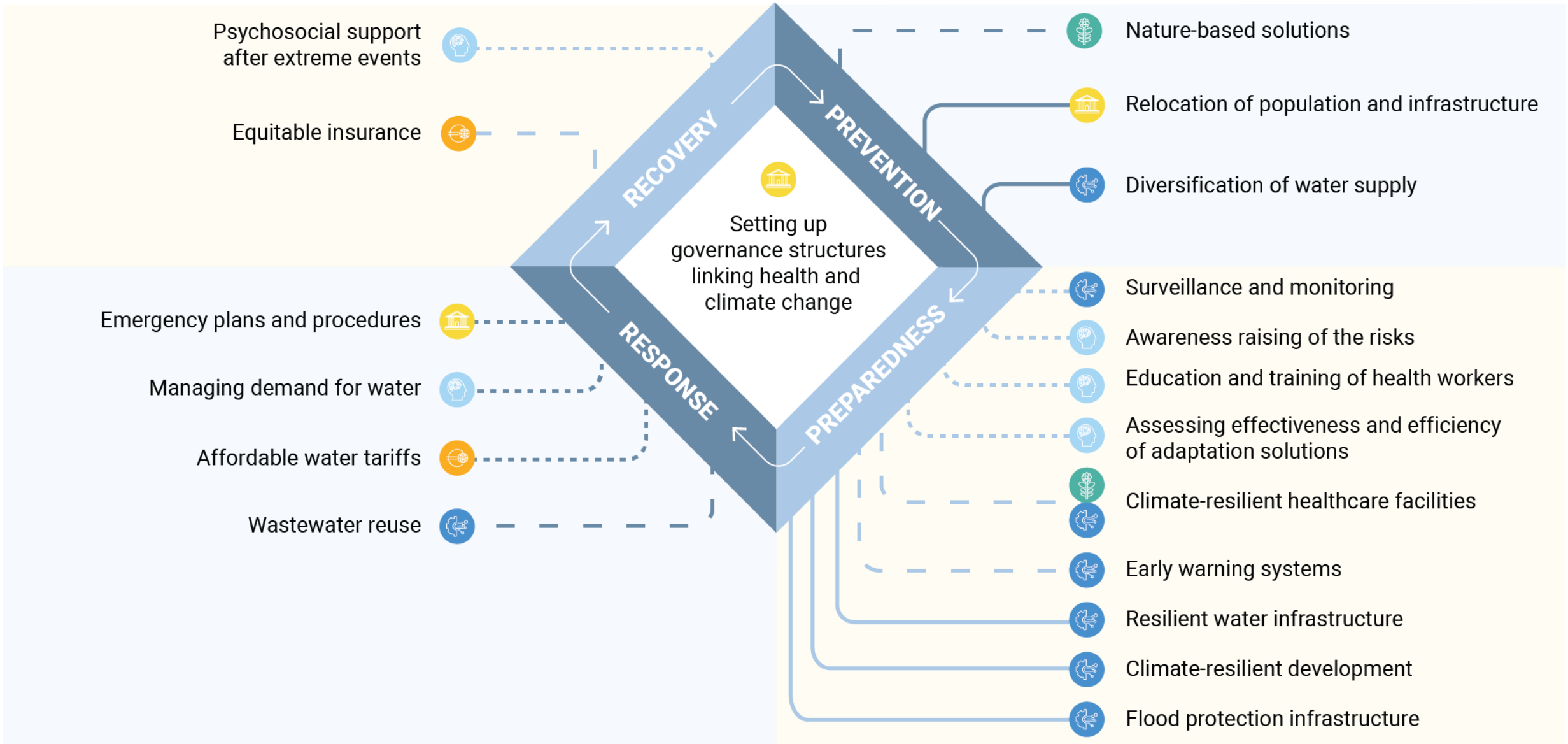
Prevention (and preparedness) is better than cure



Examples in the European Climate and Health Observatory

New North Zealand Hospital: A resilient acute care hospital for the future, Hillerød, Denmark


© Herzog & de Meuron

The new North Zealand Hospital in Hillerød aims to enhance resilience against climate-related impacts by incorporating a climate-informed design, innovative solutions for flood risk reduction and flexible organisation. It sets a blueprint for future hospitals of the country.

Climate change is increasing the frequency and magnitude of extreme weather events and creates risks that will impact health care facilities. Exposure of hospitals and other health facilities to heatwaves, flooding or other climate impacts can have negative impact on the patient and staff health. Strategies have to be adopted to strengthen resilience of health facilities to climate change and to promote environmental sustainability in order to provide quality and affordable care (WHO, 2020). The adaptation of buildings to climate change is seen as an asset to promote resilience to both natural and health risks.

Heat Hotline Parasol – Kassel region


© Henny Anette Grewe

Demographic change and climate change together place great challenges on the society. The life expectancy of the population in Germany rises and so does the share of older people. Besides chronic patients and children, the elderly are especially affected by the effects of the climate change. At the same time more and more people live in single person households (increase from 14.56 million in 2004 to 16.83 million in 2016 in Germany), which can influence their social isolation. How can we reach these people in order to prevent negative impacts during heatwaves? This is where the heat hotline parasol from the city of Kassel (around 200.000 inhabitants) in Germany comes into play. The heat hotline parasol is a free of charge hotline that calls registered citizens and provides information on heat-warnings from the German Weather Service and suggest measures how to best deal with and adapt to higher temperatures and heat. With this hotline special support is provided to citizens, especially elderly and their families, to deal with heat in the urban area of the city of Kassel. The Elderly Committee of the City of Kassel and the Health Department of the Kassel region cooperates in the heat hotline parasol.

Intercommunal trauma centre for psychosocial assistance in response to floods in Schleiden, Germany


© Malteser Flood Aid

An intercommunal trauma centre provides free short- to long-term psychosocial support to citizens and emergency service workers in the Schleiden region, Germany to reduce mental health impacts of heavy rain and flood events.

Heavy rains and floods hit North Rhine-Westphalia and Rhineland-Palatinate, Germany in July 2021, affecting thousands of people in the region and beyond. With climate change, extreme events such as heavy rains and resulting floods are expected to increase in frequency and severity. To support people affected by the heavy rains and floods in July 2021, a variety of relief measures were implemented in the Schleiden region near the border between North Rhine-Westphalia and Rhineland-Palatinate. An important element of this effort was offering acute, medium-term and long-term psychosocial support to reduce mental health impacts for those affected by flooding, including local citizens and emergency service workers, and strengthen community resilience. Shortly after the floods, an intercommunal trauma centre was established, which is still operational in 2024 and offers psychosocial support in the form of free-of-charge psychological counselling services, psychotherapy, and trauma care.

Nurses Climate Challenge Europe: A campaign to engage health professionals on the impacts of climate change on health

(Case study developed for the European Climate and Health Observatory)

Climate change is already having adverse impacts on human health which are projected to worsen with **inevitable further temperature increases in the coming decades**.

The healthcare sector is at the frontline of climate change, bearing the costs of increased disease prevalence and more frequent extreme weather events. Nurses and midwives account for **nearly 50% of the global health workforce** and have as such a huge role to play in making the health sector resilient to impacts of climate change. As one of the **most trusted professions**, nurses play a critical role in health promotion, disease prevention and delivering primary and community care, and a vital role in educating healthcare professionals about climate solutions.

Protecting outdoor agricultural workers from extreme heat in Puglia, southern Italy


© Sabina Baseggio

Average annual temperature in Italy has increased by 1.1°C since 1880, and with that the exposure of people to heatwaves. High temperatures create uncomfortable or even dangerous working conditions for health that may reduce both working hours (labour supply) and workers' performance during these working hours (labour productivity; Dasgupta et al., 2021). The number of occupational injuries related to exposure to extreme temperatures has significantly increased in Italy. Due to future warming, the southern Italian regions are projected to suffer the highest declines in labour productivity in Europe (Schleypen et al., 2020).

The region of Puglia experienced prolonged high temperatures during June and July 2021, reaching as high as 40°C is some places. Along with declining productivity, the climatic conditions

Subsidised drought insurance for farmers in Austria


© Osman Kartal, Climate Change PIX /EEA

The subsidised public-private drought insurance system for agriculture adopted by the Austrian government combines indemnity-based insurance with weather index-based products. It aims at preparing farmers to overcome extreme events, reduce their dependence on subsidies and as such promote their well-being and mental health, while simultaneously allowing through public-private partnerships for better financial planning.

Agriculture is highly sensitive to weather extremes, such as droughts, floods, storms, hail and heat. Drought in particular poses a significant challenge to farmers and governments due to its potential, negative impact on crop yields. Climate change amplifies the occurrence and severity of droughts and increases the risk of agricultural losses. In Austria, recent drought-induced crop losses and impacts on agricultural production led the government to adopt a subsidised drought insurance system for farmers. This system replaces the traditional approach of providing ad-hoc compensation to farmers for economic damages due to droughts. The public-private insurance system combines indemnity- and index-based products for drought-related agricultural damage to:

Thank you

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