

# Evidence report on climate change and health governance structures in Germany

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# Preliminary remarks

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## List of abbreviations

AOLG	Permanent Working Group of the Highest State Health Authorities
APA	Action Plan for Adaptation
AWO	Workers' Welfare Organisation
BÄK	German Medical Association
BfArM	Federal Institute for Drugs and Medical Devices
BIPAM	Federal Institute for Prevention and Education in Medicine
BMAS	Federal Ministry of Labour and Social Affairs
BMBF	Federal Ministry of Education and Research
BMDV	Federal Ministry for Digital and Economic Affairs and Transport
BMEL	Federal Ministry of Food and Agriculture
BMFSFJ	Federal Ministry for Family Affairs, Senior Citizens, Women and Youth
BMG	Federal Ministry of Health
BMI	Federal Ministry of the Interior and Community
BMUV	Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection
BMW	Federal Ministry of Economics and Climate Protection
BMWSB	Federal Ministry of Housing, Urban Development and Building
BMZ	Federal Ministry for Economic Cooperation and Development
BZgA	Federal Centre for Health Education
CO <sub>2</sub>	Carbon dioxide
COP	Conference of the Parties
CPHP	Centre for Planetary Health Policy
DAS	German Strategy for Adaptation to Climate Change
DKG	German Hospital Federation
DLR	German Aerospace Centre
DWD	German Weather Service
EIA	Environmental impact assessment
GAK	Health adaptation to the consequences of climate change
GHHG	Global Health Hub Germany
GKV-SV	National Association of Statutory Health Insurance Funds
GLOHRA	German Alliance for Global Health Research
GMK	Conference of the State Health Ministers
HAGE	Hessian Committee for Health Promotion
HHAP	Hessian Heat Action Plan
HHA	Health impact assessment
HLfGP	Hessian State Office for Health and Care
HMFG	Hessian Ministry for Family, Senior Citizens, Sport, Health and Care
HMLU	Hessian Ministry for Agriculture, Environment, Viticulture, Forests, Hunting and Heritage
IMA	Interministerial Working Group
IMAA	Interministerial Working Group on Adaptation to Climate Change
KAnG	Climate Adaptation Act
KGNW	Hospital Association North Rhine-Westphalia
KIAnG	Climate Adaptation Plan of North Rhine-Westphalia
KlimGesundAkt	Climate change and health - status report/update with expert group: content, communication, working methods
KLUG	German Alliance Climate Change and Health e.V.

KomPass	Competence Centre for Climate Impacts and Adaptation
KSG	Climate Protection Act
KWRA	Climate impact and risk analysis
LAG	Regional working group
LÄKH	Hessian Medical Association
LAUG	Länderarbeitsgruppe Umweltbezogener Gesundheitsschutz
LGK	State Health Conference
LZG.NRW	State Health Centre North Rhine-Westphalia
MAGS	Ministry of Labour, Health and Social Affairs
MPUG	Masterplan Environment and Health NRW
NAP	National Adaptation Plan
NGO	Non-governmental organisation
NHS	National Health Service
NKI	National climate protection initiative
NRW	North Rhine-Westphalia
OCCHE	Office for Climate Change and Health Equity
PEI	Paul Ehrlich Institute
PHONIC	<b>P</b> ublic <b>H</b> ealth <b>O</b> peratio <b>N</b> s for <b>c</b> limate <b>a</b> ction
PHEAH	Planetary Health Eastern Africa Hub
RKI	Robert Koch Institute
SRU	German Advisory Council on the Environment
SVR	German Advisory Council for the Assessment of Developments in the Healthcare System
UBA	Federal Environment Agency
UNFCCC	United Nations Framework Convention on Climate Change
UVPG	Environmental Impact Assessment Act
V&A	Vulnerability and Adaptation Analysis
WBGU	German Advisory Council on Global Change
WHO	World Health Organization
ZNGH	Centre network for health-related heat protection

# 1 Background

After decades of progress in the field of global health, the effects of advancing climate change represent the greatest health risk of the 21st century.<sup>1,2</sup> Vulnerable population groups in particular, such as children, the elderly or people with pre-existing health conditions, are disproportionately affected by climate-related health impacts.<sup>3,4</sup>

The experiences of recent decades show that public health measures, such as the provision of clean drinking water or access to safe food, have made a significant contribution to reducing the global burden of disease.<sup>5</sup>

To make healthcare systems more resilient to current and future impacts of climate change on our health, effective measures are needed across all sectors—particularly public health initiatives that offer co-benefits for health, the environment, and the climate.<sup>6,7</sup> Given the progression of climate change, it

is crucial to develop appropriate tools for evidence-informed decision-making. These tools should help prioritise public health measures with the greatest potential for climate adaptation and mitigation.

The PHONIC (**P**ublic **H**ealth **O**perati**o**Ns for **c**limate **a**ction) project aims to develop a practical guide for identifying priority public health measures to mitigate and adapt to climate change. The focus of the project lies on the identification of indicators and measures for governance structures according to the „Essential Public Health Operations/Functions“. <sup>8</sup> Strong political governance in the health sector (and beyond) as well as a clear commitment at the highest level of government to acknowledge and address the links between climate change and health in an ambitious way are essential foundations for the development and expansion of climate-resilient health systems and societies.<sup>8,9</sup>

## 2 Methodology

The following section outlines the methodological approach used in the development and piloting of the indicator set as well as for the preparation of this evidence report.

More detailed information on the methodology of the PHONIC project will be described in future scientific publications.

### 2.1 Development and structure of the indicator set

The set of indicators developed as part of the PHONIC project aims to assess the current implementation of governance structures related to climate change and health in a country, and to provide a starting point for identifying gaps and strengths in this area.

The development of the indicator set described below is based on indicators of the World Health Organization (WHO) that were

developed for Component 1 “Climate-transformative leadership and governance” of the “Operational framework for building climate resilient and low carbon health systems” published in November 2023.<sup>6</sup> These were discussed and further refined as part of the project through consultations with international experts in the field of climate change and health (governance). The further development of the set of indicators was

carried out in accordance with the WHO indicators in English. The indicators were then translated into German by the research team for the pilot phase in Germany. The set of indicators in German language can be found in the appendix of this report.

The indicator set that the research team developed comprised two areas with three and six indicators respectively: political governance and policy development. The indicators for both areas are listed in the following table:

Objective	Indicator
<b>1. Gouvernance</b>	1.1 A person or team is working on climate change and health is designated within the health ministry and/or the responsible health agency (at national and subnational level).
	1.2 Interministerial and/or interagency working groups on climate change and health with regular working meetings are established.
	1.3 Exchange platforms and/or -formats between the Ministry of Health and key stakeholders (e.g., research institutions, civil society, private sector) at national level (if applicable also at sub-national level) with regular working meetings are established.
<b>2. Policy development</b>	2.1 A national strategy on climate change and health considering both climate change adaptation and mitigation is developed in cross-sectoral cooperation (with governmental and non-governmental actors) and implemented (if applicable: with corresponding regulations).
	2.2 2.2.1 A health sector commitment with clearly defined goals to transition the health system (including healthcare facilities and supply chains) to low carbon or net-zero emissions is made. 2.2.2 Mechanisms to estimate, monitor and regularly report the progress and target achievements of the health sector's transition towards low carbon or net-zero emissions are established.
	2.3 The government is committed to use the best available evidence/ data for health and climate change decision-making processes and to support gathering of further evidence.
	2.4 2.4.1 Vulnerabilities and health inequities are streamlined, explicitly named and defined in the regulations and strategies on climate change and health. 2.4.2 If applicable: Vulnerability and adaptation assessments (V&As) are repeatedly conducted, publicly reported on a regular basis, and serve as a basis for improvement and development of (new) climate mitigation and adaptation policies and programmes.
	2.5 2.5.1 Policy measures for climate change adaptation and mitigation are regularly assessed through health and environment impact assessments and their results are made publicly available.

Continuation of the table on the following page.

<b>Continued Objective 2 Policy development</b>	2.5.2 If applicable: The given results are used for developing, adapting, and implementing (new) mitigation and adaptation policies and programmes.
	2.6 Non-state actors (e.g. multi-actor networks, non-governmental organisations (NGOs), research institutions, industry) are informed, considered and actively involved in the development and adaptation of strategies and regulatory processes on climate change and health (at national and sub-national level).

## 2.2 Piloting the indicator set in Germany

i As the developed indicator set aims to be a globally applicable tool, the indicators were piloted not only in Germany, but also in another country. Building on previous collaborations, Kenya was selected, as it differs significantly from the German context in terms of geographic location and the structure of its healthcare system. The pilot testing in Kenya was conducted in collaboration with PHEAH and the results will be published in a separate evidence report. A comprehensive comparison between the pilot studies in Germany and Kenya will be provided in subsequent scientific publications of the PHONIC project.

ii The methodology used in the PHONIC project for piloting the indicator set in Germany and Kenya is based on the validated methodology of the Food Environment Policy Index (Food-EPI). (10)

The developed set of indicators for assessing and analysing climate change and health governance was piloted in Germany and Kenya<sup>i</sup> from February to August 2024 in order to test and validate it.

The pilot methodology comprised the following steps and was based on comparable scientific methods for policy field analyses<sup>ii</sup>:

1. Convening a group of experts to assess the governance structures of climate change and health in the national context.
2. Assessing the degree of implementation of the indicators by analysing relevant documents and presenting these results in the form of a preliminary evidence report that was shared with the expert group.
3. The expert group reviews and amends the preliminary evidence report.
4. Identifying relevant international „good practice“ examples for the implementation of the indicators.
5. The expert group evaluates the degree of implementation of the indicators in Germany in comparison to the international „good practice“ examples.
6. The expert group identifies and prioritises concrete actions and recommendations for strengthening and improving the governance of climate change and health in Germany.

The individual steps are described below:

Firstly, a group of experts was convened to evaluate the governance structures related to climate change and health in the national context. Experts from the fields of climate change and health were invited to participate in convening the group. Various disciplines, sectors and governmental and non-governmental institutions were considered in the composition of the group.

Secondly, the implementation status of the indicators in Germany was assessed through an analysis of relevant documents. The initial literature search considered publicly available documents and information in German and/or English. The project team searched the websites of the responsible ministries, authorities, the Federal Government, and the German Parliament, with predefined keywords supplemented by Google and Google Scholar searches to find relevant documents related to the individual indicators. The collected materials included laws, government documents, scientific papers, and other sources that allowed for outlining and evaluating the implementation of each indicator. Additionally, the „tool Polit-X“ was used, enabling systematic policy monitoring for Germany with specific keywords. The results were summarised in a preliminary evidence report.

Thirdly, the participating experts reviewed and enhanced the preliminary evidence re-



port. These additions, which relate exclusively to expert knowledge, are marked accordingly.

Fourthly, international “good practice” examples for climate change and health governance were identified. These examples allow for a qualitative comparison of one country’s implementation level of individual indicators with practical examples from other countries. The search and selection of these examples initially included relevant sources and literature from the preliminary results of a scoping review on public health measures related to climate change and health conducted by the project team.<sup>11</sup> Further examples were found through searches of websites and publications of the WHO, the European Climate and Health Observatory, and national health ministries and authorities. Finally, a supplementary keyword search was conducted using Google and Google Scholar. Only sources available in English or German were included. The project team discussed and agreed which particular “good practice” examples to include.

Fifthly, the expert group evaluated the degree of implementation of the indicators

in Germany in comparison to the selected international practice examples.

Sixthly, based on this foundation, the expert group proposed and prioritised specific actions and recommendations for strengthening or improving the governance of climate change and health in Germany.

To implement methodological steps 3-6 of the piloting in Germany, a half-day workshop was held on 16 May 2024 with the group of experts selected in the first step. The aims of the workshop were (1) to discuss and evaluate the current status of the implementation of climate change and health governance in Germany using the developed indicator set; (2) to familiarise the participants with international practice examples of „good“ climate change and health governance; and (3) to identify gaps and priorities for climate change and health governance in Germany.

A total of twelve national experts from the fields of science, practice, administration and civil society participated in the workshop.

## 2.3 Limitations

Overall, it should be noted that this report does not represent a complete and/or finalised evidence synthesis. Rather, the indicators serve as a starting point for further discussions and analyses of the climate change and health governance structures in Germany (and beyond). The set of indicators, in line with the WHO indicators, place a strong focus on the health sector and therefore primarily outline governmental (and non-governmental) climate change and health governance initiatives that originate from the health sector. Initiatives from other sectors, such as the environmental and/or social sectors, can only be explored to a limited extent or only in connection with the health sector using these indicators. In Germany, non-governmental actors, such as those involved in self-administration<sup>iii</sup>, also play central roles in the health system. It is important to note

that the indicators used in the pilot study and their application in Germany cannot and are not meant to fully capture these initiatives and structures. This also applies to the federal nature of German health policy, which, for practical reasons, could only be partially considered in this analysis. Finally, it should be noted that only nationally oriented initiatives are considered. The role and design of state governance in international climate change and health processes could not be included in the indicator set due to limited resources.

Despite these limitations, the project offers valuable insights and indications for the current status and future development of climate change and health governance structures in Germany. This is achieved through the comparative approach with international

iii The healthcare in Germany is not provided exclusively by the government or the state. Instead, the principle of self-administration applies. This means that although the state sets the legal framework, the healthcare providers organise themselves to ensure healthcare provision under their own responsibility. The self-governing organisations include e.g., the statutory health insurances. (143)

examples, the systematic assessment using the advanced set of indicators, and the involvement of various experts. The research team considers cross-sectoral political gover-

nance essential for achieving the necessary profound transformation toward resilient and climate-neutral health systems and societies.<sup>6,12</sup>

## 3 Status of implementation of climate change and health governance in Germany

The following chapter briefly describes the current implementation status of climate change and health governance in Germany for each of the indicators. Based on the experience and feedback from the expert workshops, the description of the implementation of the indicators in Germany includes not only the federal level but also the state level. Since the degree and nature of implementation vary significantly between federal states, particularly due to historically developed structures and their respective legislative competencies, two federal states were selected as examples and explored for this report. Using existing contacts and partnerships, the project team selected the

federal states of Hesse and North Rhine-Westphalia (NRW) as examples to ensure the possibility of further amendment and validation of the research by experts from these two states. Their selection does not imply a „best practices“ rating compared to other federal states.

Additionally, the following chapter briefly describes the international „good practice“ examples identified for each of the indicators. For some indicators, brief explanations and/or footnotes with further definitions have been added to assist with the contextualisation and understanding of these indicators.

### 3.1 Governance

#### Indicator 1.1

A person or team is working on climate change and health is designated within the health ministry and/or the responsible health agency (at national and subnational level).

#### Definition

This indicator assesses whether a person or a team<sup>iv</sup> within the Ministry of Health or its subordinate health authorities is responsible for the area of climate change and health. It aims to show whether there is a formal all-

location of responsibilities and resources for integrating climate change aspects into the health sector.

#### International „good practice“ examples

In many countries, there are contact persons or entire teams/departments responsible for climate change and health in the ministry of health and/or in subordinate authorities at national and subnational level.<sup>13</sup>

For example, the Australian Department of Health and Aged Care has a dedicated division for „Environmental Health and Climate Change“ as part of the Centre for Disease

iv We acknowledge that the reliability of one person and/or an entire team cannot be assessed equally. What is meant here is the structurally institutionalised responsibility, e.g. in the form of a unit or a specialised group.

Control. Additionally, a „National Health, Sustainability and Climate Unit“ was established within the Department of Health and Aged Care, which published a national strategy on climate change and health in 2023.<sup>15</sup>

In Finland, the „Finnish Institute for Health and Welfare“, the national public health institute, has its own department for „Environmental Health“ under the „Health Security“ division.<sup>16</sup> There are thematic areas/programmes that are noted in the organisational chart as „horizontal“, i.e. cross-institutional. These include the „Safe and Healthy Living Environments“ research programme. All projects carried out at the Finnish Public Health Institute in the area of climate change and health can be assigned to this research programme. The programme has its own formalised contact person („Research Programme Director“) who is responsible for climate change and health.<sup>17</sup>

### Status of implementation at federal level

Germany’s Federal Ministry of Health (BMG), includes division 6 „Public Health,“ with the unit 622 „Environmental Health Protection, Climate and Health.“ The organisational chart of the ministry identifies two designated contacts.<sup>18</sup> At the level of the relevant subordinate authorities within the BMG, corresponding individuals or teams can be partially identified. For example, the Robert Koch Institute (RKI), the national public health institute, has a dedicated „Office for Climate Change and Health“ within its Department 24 „Health Reporting,“ with relevant contacts.<sup>19</sup> According to the experts consulted by the PHONIC research team, the Federal Centre for Health Education (BZgA) also works on the topic of climate change and health, but without an outwardly formalised personnel structure assigned to this topic.

Finally, the establishment of a new Federal Institute for Prevention and Education in Medicine (BIPAM) within the BMG’s portfolio is noteworthy. It will incorporate parts of the RKI and the BZgA.<sup>20</sup> According to the draft law on strengthening public health, approved by the Federal Cabinet on 17 July

2024, the BIPAM will take on tasks including the collection, analysis, and evaluation of data on the health impacts of climate and the environment, as well as public education on health risks.<sup>21</sup> It is unclear what additional formalised structures related to climate change and health will be created in this context. The BIPAM is expected to commence working on 1 January 2025.<sup>20,21</sup>

### Status of implementation at state level

**Example Hesse:** The Hessian Ministry for Families, Seniors, Sports, Health, and Care (HMFG) includes Department IV7, which covers „Infection Protection, Medical Emergency Response, Environmental Health Protection, Climate Change, Drinking Water, Child and Youth Health, and Public Health Services“. <sup>22</sup> This department also oversees the Hessian Heat Action Plan (HHAP).<sup>23</sup> Additionally, the organisational chart of the Hessian State Office for Health and Care (HLfGP) lists Department II5 „Climate Change and Health“ under Division II „Health and Infection Protection“. A specific contact person is not designated.<sup>24</sup> This department primarily addresses the increased transmission of diseases by vectors, such as tiger mosquitoes and ticks, and is currently working with the HMFG to develop a dedicated monitoring system.<sup>25</sup>

**Example NRW:** The organisational chart of the Ministry of Labour, Health and Social Affairs (MAGS) does not include a separate department for climate and health.<sup>26</sup> The State Health Centre North Rhine-Westphalia (LZG.NRW) has the specialist group 35 „Climate and Health“ with several responsible contact persons who are assigned to the „Healthy Living“ department.<sup>27</sup>

#### Indicator 1.2

Interministerial and/or interagency working groups on climate change and health with regular working meetings are established.

## Definition

This indicator captures, on one hand, the institutionalised collaboration of the Ministry of Health with its subordinate authorities in the area of climate change and health. On the other hand, it also assesses the collaboration between the Ministry of Health and its subordinate authorities with ministries and/or government agencies from other sectors. Initiatives and processes related to climate change and health in which the Ministry of Health or its subordinate authorities are not involved, are not included under this indicator.

## International „good practice“ examples

In the international context, there are several examples of joint working groups involving ministries and/or subordinate authorities as well as within administrative agencies. For instance, France has an interministerial working group on climate and health, which includes ministries from the sectors of health, environment, agriculture, research, education, and consumer protection. In collaboration with a national steering committee of relevant stakeholders, such as various associations, civil society groups, and health professionals, this working group coordinates the regular revision process of the national adaptation plan. The chair of the national steering committee is a member of the French Parliament who is responsible for overseeing the implementation and alignment of the action plans.<sup>28</sup>

The US city of San Francisco is home to the Climate Change Coordination Committee. This is a working group that promotes and publicises health in activities and strategies for mitigating climate change and climate adaptation both within the city administration and across the individual departments.<sup>29</sup>

Finally, the “Naturfareforum” network in Norway is notable. It was founded in 2016 and aims to improve intersectoral cooperation and knowledge exchange between national, regional and local authorities in dealing with natural and environmental hazards,

including the effects of climate change.<sup>30</sup> The network is coordinated and organised by a secretariat consisting of the Ministries of Civil Protection, Water Resources and Energy, Health, and Road Administration, as well as a steering committee, which primarily includes local and regional authorities and the National Environment Agency. The network also serves as a national platform for the implementation of the global Sendai Framework for Disaster Risk Reduction.<sup>31,32</sup>

## Status of implementation at federal level

In Germany, several relevant working groups can be identified. The „Interministerial Working Group on Climate Change Adaptation (IMAA)“, for example, was established in 2009 as a body to oversee the updating of the German Adaptation Strategy to Climate Change (DAS). The IMAA includes all federal ministries and the Federal Environment Agency (UBA) as a permanent supervisory authority, under the leadership of the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety, and Consumer Protection (BMUV). The IMAA is responsible, among other things, for publishing monitoring reports on the DAS, which include specific indicators related to human health.<sup>33</sup> The „Climate Change and Adaptation“ network of federal agencies, consisting of 26 federal authorities from nine departments and managed by the Competence Centre for Climate Impacts and Adaptation (KomPass) at the UBA, supports the IMAA in this task.<sup>34,35</sup> A current and complete list of the federal authorities that are part of this network could not be found.

There was also a federal-state ad hoc working group named “Health Adaptation to the Effects of Climate Change” (GAK), which published recommendations in 2017 for developing action plans for health-related heat protection.<sup>36</sup> This working group was perpetuated as a dialogue between federal and state agencies called “Health in Climate Change” in 2018.<sup>37,38,39</sup>

In early November 2023, the BMG established the interministerial working group

(IMA) “Heat Protection” as part of the development of a national heat action plan. The IMA is tasked with coordinating and designing health-related heat protection measures. The group includes the following ministries: BMUV, Federal Ministry of the Interior and Community (BMD), Federal Ministry for Digital and Transport (BMDV), Federal Ministry for Housing, Urban Development and Building (BMWSB), Federal Ministry of Labour and Social Affairs (BMAS), Federal Ministry for Economic Affairs and Climate Action (BMWK), Federal Ministry of Food and Agriculture (BMEL), and the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (BMFSFJ).<sup>40</sup>

Moreover, the State Secretaries’ Committee for Sustainable Development meets up to four times a year. This committee serves as the highest steering body for the German sustainability strategy. It is chaired by a state minister from the Federal Chancellery and all federal ministries are represented in this committee by their respective state secretaries.

In addition to government representatives, the committee also includes members from relevant scientific advisory councils and sector coordinators who assist in the implementation of the strategy.<sup>41</sup> The BMG’s departmental coordination is the responsibility of the head of Department 6 „Public Health“.<sup>42</sup>

The Conference of State Health Ministers (GMK), an annual conference of the current health ministers and senators of the German federal states, has also addressed the issue of climate change in past meetings, e.g. by coordinating the advancement of heat action plans.<sup>43</sup> With the resolution of the 95th GMK in 2022, all working groups of the Permanent Working Group of the Highest State Health Authorities (AOLG) were instructed to address the topic of climate change and health and to report back to the GMK.<sup>44</sup> The AOLG consists of the heads of health departments from all states, and meets twice a year. Representatives from the BMG, the RKI, the Paul Ehrlich Institute (PEI), and the Federal Institute for Drugs and Medi-

cal Devices (BfArM) are permanent guests.<sup>45</sup> Within the AOLG, there are currently ten state working groups that facilitate regular exchange between the states, including the state working group on “Environmental Health Protection” (LAUG).<sup>46</sup> According to the experts consulted by the PHONIC research team, the LAUG also has further sub working groups, e.g. for the development of indicators on climate change and health. Moreover, the aforementioned resolution of the 95th GMK established the creation of the coordination body “Climate Change in Healthcare”, chaired by the state of Berlin.<sup>44</sup> The chair represents the GMK in the “Health in Climate Change” dialogue between authorities mentioned in indicator 1.2, among other things. The work of the committee and the processes on climate change and health promoted in the AOLG are to be evaluated after two years.<sup>44</sup>

Overall, the situation analysis reveals that in many of the aforementioned working groups, it is not disclosed how, with what frequency, and to what extent the collaboration takes place. The research team was only able to view minutes and documentation in isolated cases. Furthermore, hardly any information on evaluations of the processes and working groups could be found.

### Status of implementation at state level

**Example of Hesse:** In Hesse, the Heat Action Plan (HHAP) was developed in 2023 by the then Hessian Ministry of Social Affairs and Integration (HMSI) as the coordinating body, in collaboration with the State working group on the Heat Action Plan Hesse (LAG HHAP) and other departments at the highest state level. The leadership for the HHAP has since been transferred to the Ministry of Families, Seniors, Sports, Health, and Care (HMFG). The LAG HHAP remains in place, and the cross-departmental collaboration continues.<sup>47</sup>

**Example NRW:** The LZG.NRW takes on the statewide coordination of health-related heat protection in NRW in close collaboration with the MAGS. The state coordination office



works with the Central Network for Health-Related Heat Protection (ZNGH), which was established by the MAGS. The ZNGH consists of representatives from various departments of the MAGS, LZG.NRW and other state ministries, as well as representatives from district governments, municipal umbrella associations, and other key players in the social and health sectors.<sup>48</sup>

From 2020 until mid-2024, the working group „Climate Change, Environment, and Health“ existed as part of the implementation of the „Master Plan Environment and Health NRW“ Led by the Ministry for Environment, Nature Conservation, and Transport, it included various state ministries, subordinate authorities, and federal representatives. The group’s goal was to prepare coordinated communication on climate and health and to strengthen intersectoral collaboration.<sup>76</sup> The working group was dissolved in June 2024 after achieving its objectives and in the context of the implementation of the NRW Climate Adaptation Strategy that commenced in parallel.

### Indicator 1.3

Exchange platforms and/or -formats between the Ministry of Health and key stakeholders (e.g., research institutions, civil society, private sector) at national level (if applicable also at sub-national level) with regular working meetings are established.

#### Definition

This indicator covers all types of formats and platforms where government authorities in the health sector exchange information with other relevant organisations and institutions. The research team acknowledges that the observation of exchange and cooperation between government authorities and other actors alone does not allow any conclusion about the quality of the work processes and the degree of institutionalisation. Therefore, the regularity of the exchan-

ges (as far as known to the research team) is also considered to better reflect the degree of institutionalisation.

#### International „good practice“ examples

„Quebec’s Multi-Party Observatory of Zoonoses and Adaptation to Climate Change“ is a platform for scientists and political decision-makers from the fields of animal health, human health and environmental sciences. The group works on specific tasks at regular meetings. Its members work on a voluntary basis and are supported by two part-time coordinators.<sup>49</sup>

#### Status of implementation at federal level

Several exchange platforms on climate change and health in Germany between the Federal Ministry of Health and relevant non-governmental actors were identified by the research team.

One example is the „Climate Pact for Health“, a joint declaration for climate adaptation and climate protection in the German healthcare system, which the BMG published together with stakeholders from the self-administration and associations, e.g. the National Association of Statutory Health Insurance Funds (GKV-Spitzenverband) and the German Nursing Council.<sup>50</sup> It is not known whether further exchange has taken place after the declaration was drawn up.

The BMG also organised status conferences with responsible actors from the Federal Government, federal states, local authorities, the self-administration, associations and civil society as part of the national heat protection plan.<sup>51</sup> The last „Heat Protection Status Conference“ took place in November 2023. The results of the conferences were incorporated into the creation of a roadmap for the further implementation of the heat protection plan for health for the summer of 2024.<sup>40</sup> In this context, the growing number of heat protection alliances at state and municipal level are also worth mentioning. One example is the „Action Alliance for Heat

Protection“ for the state of Berlin, in which the Berlin Senate Administration, the Berlin State Health Office, the Berlin Medical Association, various hospitals, as well as associations and organisations such as the German Alliance on Climate Change and Health (KLUG e.V.) and the State Association of Workers' Welfare (AWO) work together.<sup>52</sup>

There are also several explicit exchange platforms between ministries, authorities, and the scientific community. The RKI, for example, has an Environmental Public Health Committee, which was appointed by the BMG and that works closely with the UBA. The committee consists primarily of scientists from various university research institutions and is appointed for a period of four years.<sup>53</sup> Several scientific advisory councils of the Federal Government are also noteworthy. These are interdisciplinary exchange platforms for leading scientists. Further details and information on the advisory councils relevant to climate change and health can be found under indicator 2.3.

Another example of such an exchange platform is the project „Climate change and health - status report/update with expert group: content, communication, working methods“ (KlimGesundAkt), funded by the BMG. As part of the project, in 2023 the RKI updated the status report on climate change and health with a network of authors from various fields of expertise.<sup>54</sup> According to the experts consulted by the PHONIC research team, the KlimGesundAkt is currently being developed into a network called „KLiG- Net“, which will initially be coordinated by the RKI until the end of 2024 and further funded by the BMG. The network is intended to be a cross-sectoral association of scientists and scientifically interested practitioners in the field of climate change and health.

To the best of the research team's knowledge, detailed information on the regularity and degree of institutionalisation of the aforementioned exchange formats and platforms is not publicly available or only available to a limited extent.

Finally, there are also formats and platforms that were not explicitly established for the exchange on climate change and health but were/are nevertheless partially used for this purpose: The Global Health Hub Germany (GHHG), funded by the BMG and by the Federal Ministry for Economic Cooperation and Development (BMZ), aims to bring together global health actors in Germany. These include e.g., members of the Federal parliament (Bundestag), representatives of civil society, academia, foundations, and youth organisations. There are various working groups within the GHHG that e.g., develop position papers. One of these working groups explicitly addresses the topic of „Global Health and Climate Change“.<sup>55</sup>

In the area of global health and climate change, the BMG also regularly organises the event „In dialogue with non-governmental actors: News from global health policy“. The topic of climate change and health was addressed here, e.g., at a panel discussion addressing the Conference of the Parties (COP) in November 2023.<sup>56</sup>

### **Status of implementation at state level**

**Example Hesse:** As described in Indicator 1.2, the LAG HHAP is active in Hesse. It consists of representatives from associations and authorities in the social, health and environmental sectors as well as the German Meteorological Service (DWD) and municipal umbrella organisations. Together with the departmental representatives, the LAG HHAP forms the central network of the HHAP.<sup>47</sup> There is also the Hessische Arbeitsgemeinschaft für Gesundheitsförderung e.V. (Hessian Committee on Health Promotion - HAGE), which is partly funded by the HMFG. HAGE consists of around 60 institutional members, including state ministries, local authorities, professional associations, statutory health insurances and organisations from the education, social and health sectors.<sup>57</sup> Furthermore, as part of the Hesse Climate Plan in 2023, the „Specialist and Networking Centre (FuV) for Health Promotion and Climate Change“ was established, which is also funded by the HMFG.<sup>58</sup>

The main task of the FuV is to advise and qualify municipal actors and to build networks at state and municipal level. Lastly, the state coordination of the Hessian Heat Action Plan meets regularly with the decentralised coordination offices.<sup>47</sup>

**Example NRW:** In NRW, as mentioned in indicator 1.2, reference can be made to the ZNGH, which was convened by the MAGS for the state-wide coordination of heat protection. In addition to heat protection, the ZNGH also offers opportunities for exchange and coordination on the topic of climate and health, in which municipal

umbrella organisations and central government agencies also participate. The ZNGH also includes working groups with different focal points, such as „equal opportunities in health-related heat protection“ or „communication for heat-sensitive health literacy“.<sup>48</sup>

The LZG.NRW also operates an information portal on heat and health, which advises local authorities on questions relating to health policy, notifies health authorities of impending heatwaves, informs about possible health effects and provides tips on health behaviour.<sup>60</sup>

### 3.2 Policy development

#### Indicator 2.1

A national strategy<sup>v</sup> on climate change and health considering both climate change adaptation and mitigation is developed in cross-sectoral cooperation (with governmental and non-governmental actors) and implemented (if applicable: with corresponding regulations).

#### Definition

This indicator measures whether there is a national strategy on climate change and health that fulfils the above-mentioned conditions and criteria. Even though this indicator initially corresponds to a dichotomous structure, (intersectoral) political processes, projects and measures that only partially fulfil the requirements are also taken into account when describing the degree of implementation. This should make it possible to recognise and record various political strategy processes in the area of climate change and health. The following presentation of international „good practice“ examples emphasises the range of processes and projects that can be recorded under this indicator.

#### International „good practice“ examples

Some countries have developed and implemented their own explicit strategies for climate change and health. For example, the Australian Ministry of Health published a national strategy for climate change and health in 2023.<sup>62</sup> It addresses both mitigation measures, e.g., the measurement and reduction of greenhouse gas emissions in the health sector, and adaptation measures, e.g., for heat protection.

Other processes and approaches to this indicator can also be identified in the international context. In some countries, human health is integrated as a separate chapter/cluster in existing legislative procedures and strategies for climate change mitigation and/or adaptation. In most cases, this takes place under the leadership of the respective countries' environment/climate ministries. At the same time, explicit climate protection and adaptation goals and measure are increasingly included in legislative processes and strategies in the health sector, led by the respective national health ministries. For instance, Thailand's National Adaptation Plan (NAP) includes a specific action area for „Public Health“ with detailed measures and guidelines.<sup>63</sup> Zambia's national health strate-

v Strategy is understood here as the development and implementation of an overall concept that is geared towards a long-term (overall) goal (cf. 61).



gy for 2022–2026 features explicit goals related to climate change and health, including plans to significantly increase measures for climate change mitigation and adaptation in health facilities by 2026.<sup>64</sup>

### Status of implementation at federal level

Above all, there is currently no cross-sectoral national strategy for climate change and health in Germany. There is also no national health or public health strategy at the federal level that addresses climate change as a topic or area of action. Furthermore, there is no climate-related strategy that addresses both mitigation and adaptation together. However, there are some relevant processes and legislative initiatives that will be outlined below.

Two separate strategic processes and regulatory frameworks can generally be identified for climate adaptation and mitigation in Germany. On the one hand, there is the Climate Protection Act (KSG)<sup>65</sup> with the Climate Protection Programme<sup>66</sup> and the long-term Climate Protection Plan 2050.<sup>67</sup> On the other hand, there is the Climate Adaptation Act (KAnG)<sup>68</sup> and the DAS<sup>69</sup> with the Action Plans for Adaptation (APAs).<sup>70</sup> There are no explicit subchapters or references to the field of health in the KSG or the Climate Protection Plan 2050. The climate protection programme, whose primary goal is to achieve the targets set in the KSG and the climate protection plan, includes „climate protection in the healthcare sector“ as one of the cross-sectoral measures for shaping a socially just transformation.<sup>65</sup>

In contrast, the new KAnG, which came into force on 1 July 2024, identifies a „human health and care cluster“ as a separate field of action for climate adaptation, which will be included in the climate adaptation strategy. In the KAnG, the Federal Government also committed to presenting a precautionary climate adaptation strategy with measurable targets by the end of September 2025. In the first rough draft of these measurable targets, the BMG is named as the ministry responsible for the health cluster.<sup>71</sup> The APA

III, which builds on the results of the second progress report on the DAS and outlines climate adaptation measures for Germany from 2020 to 2024, identifies health as one of six clusters or areas of action. The APA III specifies 28 different measures for this cluster/area of action.<sup>39</sup>

Furthermore, the current implementation of the national heat protection action plan announced by the BMG can be cited as a topic-specific example of strategic climate adaptation in Germany.<sup>72</sup>

Lastly, the Federal Government’s strategy on global health is worth mentioning. This strategy encompasses five key areas, one of which is to address “Holistic approaches to the environment, climate change and public health”. In this context, the Federal Government commits to advancing climate and environmental protection in the interest of health protection and to promoting both the adaptation of health systems to climate change and the reduction of carbon dioxide (CO<sub>2</sub>) emissions in the health sector.<sup>73</sup>

### Implementation at state level

As part of the KAnG, the Federal Government instructed the federal states to present and implement their own climate adaptation strategies. The Federal Government provides support, particularly in the areas of advice and funding.<sup>68</sup> Other relevant processes are presented below as examples for Hesse and North Rhine-Westphalia:

**Example Hesse:** The state of Hesse has developed the new state-wide climate plan “On the way to climate neutrality”. This plan includes a catalogue of 57 measures across 10 areas of action, including a specific area for “health and civil protection”.<sup>74</sup> The climate plan was developed by various departments in collaboration with a scientific expert consortium and public involvement, with the overarching goal of making Hesse climate-neutral by 2045. To achieve this goal, the measures outlined in the climate plan are to be implemented by 2030. The plan encompasses both climate protection and adaptation measures. The website for the climate

plan provides updates on the progress of implementation across the different areas of action.<sup>75</sup>

**Example NRW:** In NRW, the state government adopted the „Masterplan Environment and Health NRW“ (MPUG) in 2016.<sup>76</sup> It was developed and updated by a cross-sectoral coordination group consisting of representatives from the health, economy, social affairs, transportation, urban planning, environment, and family ministries, as well as local actors, patient advocates, business representatives, environmental organisations, academics, and civil society. Furthermore, in October 2022, the State Health Conference (LGK) passed a resolution outlining joint measures for climate adaptation and protection in the health sector, which are to be implemented in the coming years. This aims to prepare the healthcare system in NRW for the challenges posed by climate change while also contributing to climate protection.<sup>77</sup> According to the experts consulted by the PHONIC research team, the LZG.NRW will initiate a monitoring process on climate change and health starting in the fourth quarter of 2024, with the process expected to be completed in 2025.

se include not only companies in the health sector, but also e.g., healthcare facilities, interest groups, associations, the self-administration and public institutions. Since the indicator set, as described in Chapter 2.2, places a special focus on government action in the health sector, this indicator primarily considers governance structures that promote voluntary commitments to climate neutrality from health sector actors.

### International “good practice” examples

In some countries, health sectors have already set clear targets for reducing their own carbon footprint and established mechanisms and measures to regularly track progress.<sup>79</sup> A prominent example is the National Health Service (NHS) in the United Kingdom. In October 2020, the NHS England became the first healthcare system in the world to commit to a path towards CO<sub>2</sub> neutrality. The NHS has set the goal of achieving net-zero for direct emissions by 2040, and for indirect emissions influenced by the NHS, such as those from medical product supply chains, by 2045. The underlying report “Delivering a Net Zero National Health Service” outlines an iterative and adaptive approach with concrete measures to achieve these goals, with regular progress reviews.<sup>80</sup> Since July 2022, the NHS targets have also been legally enshrined in the “Health and Care Act”.<sup>81</sup>

### Status of implementation at federal level

To date, there are no targets or voluntary commitments for reducing the CO<sub>2</sub> footprint in the German health sector creating a standardised regulatory framework or incentives in this area. Standardised monitoring to review the reduction of the CO<sub>2</sub> footprint is also still lacking for the German health sector.

Nevertheless, various initiatives and activities in the German health sector can be identified in this context, some of which make vague, some of which make ambitious demands and commitments.

### Indicator 2.2

2.2.1 A health sector commitment<sup>vi</sup> with clearly defined goals to transition the health system (including healthcare facilities and supply chains) to low carbon or net-zero emissions is made.

2.2.2 Mechanisms to estimate, monitor and regularly report the progress and target achievements of the health sector’s transition towards low carbon or net-zero emissions are established.

### Definition

This indicator measures the efforts of the health sector on the path to climate neutrality. To this end, voluntary commitments of actors in the health sector are recorded. The-

vi Voluntary commitments are defined as „legally non-binding commitments, usually by companies or business associations, to the state to achieve specific environmental policy goals through concrete environmental measures“. (78)

For instance, the German Medical Association (BÄK) passed far-reaching resolutions on climate change and health at the German Medical Assembly in 2021, including the goal of achieving climate neutrality for the BÄK by 2030.<sup>82</sup> In 2023, the German Hospital Association (DKG) positioned itself on climate neutrality, particularly in hospitals, and issued policy recommendations.<sup>83</sup> Some clinics and healthcare facilities have been leading ambitious efforts for years. For example, the Havelhöhe Community Hospital published a practical guide on climate transformation in hospitals in 2022.<sup>84</sup> The GKV-SV published a position paper titled “Sustainable and Climate-Neutral Development of Health and Nursing Care”, advocating for climate neutrality in the German healthcare system by 2045.<sup>85</sup> However, this only corresponds to the statutory national requirements of the KSG.<sup>65</sup> By contrast, individual health insurance funds, such as BARMER<sup>86</sup> or BKK ProVita<sup>87</sup>, have already achieved climate neutrality.

Finally, the Climate Pact for Health, already described for indicator 1.3, also emphasises that the healthcare sector must contribute to achieving the national goal of climate neutrality by 2045.<sup>50</sup>

### Implementation at state level

**Example Hesse:** As part of the climate plan, measures were established in Hesse to assess the CO<sub>2</sub> reduction potential of hospitals and to reduce energy consumption. To support this, various advisory services are provided to hospitals in Hesse. However, the number of hospitals that have already utilised this consultation is not publicly available.<sup>88</sup> The Hesse State Medical Association (LÄKH) adopted the resolutions of the BÄK at the 2021 Medical Assembly, committing to achieve climate neutrality by 2030.<sup>89</sup> At the same time, a climate officer was appointed, who is responsible for reviewing the measures to achieve climate neutrality and encouraging practice owners and hospitals to operate more sustainably. Furthermore, a “Climate Protection” working group was established to focus on implementing climate protection within the association.<sup>90</sup>

**Example NRW:** To move towards the goal of climate neutrality in the health sector, the resolution of the LGK of 2022, mentioned in indicator 2.1, emphasised the need to advocate for the creation of legal frameworks at the federal level to promote and reward climate adaptation and mitigation measures.<sup>77</sup> It also stated that every effort should be made “[...] to make the health sector in North Rhine-Westphalia climate-neutral and sustainable in the medium and long-term” (own translation). NRW plans to establish a “Hospital Climate Protection Fund” with negotiations with the Federal Government to begin promptly, according to the resolution.<sup>77</sup> Additionally, in November 2023, the MAGS announced a NRW Health Award, aimed at recognising and rewarding pioneering initiatives and measures for climate protection and adaptation in the health sector.<sup>91</sup>

The involvement of the NRW Hospital Association (KGNW) in the KLIK Green project is also noteworthy.<sup>92</sup> Funded by the BMUV as part of the National Climate Protection Initiative (NKI) from 2019 to 2022, the project aimed to reduce at least 100,000 tons of CO<sub>2</sub> equivalents in hospitals and rehabilitation clinics. Climate managers were trained and a large network of over 250 clinics was established, including 63 in NRW.<sup>93</sup>

Building on this, the KGNW launched the “Climate protection in hospitals is the future” initiative in 2022, which is funded by the Ministry of Economic Affairs, Industry, Climate Protection and Energy of the state of NRW.<sup>94</sup> As part of this initiative, the KGNW commissioned two groundbreaking reports. The Wuppertal Institute developed a „Vision for a Climate-Neutral Hospital“ with specific measures, while the Institute for Health Care Business Essen produced the report „The Climate-Neutral Hospital: Funding Options for Implementation Measures,“ which highlighted the need for hospital climate funds.<sup>95,96</sup>

Finally, the new hospital plan for NRW, passed in 2022, allocated €2.5 billion until 2027 to address structural changes, including climate adaptation measures.<sup>97</sup>

vii The best available evidence is understood here in the sense of “evidence-based public health”. According to the definition by Gerhardus et al., “the available knowledge of the medical, economic, ethical, sociocultural and legal aspects of disease and measures is systematically, transparently and purposefully evaluated and incorporated into decision-making processes” (own translation, 98). In the context of this indicator, climate and environmental science findings are also to be included. In doing so, “all steps - from the definition of the problem to the implementation of the measures and programmes – [...] [should] be explicit, transparent and justified”. (own translation, 98)

### Indicator 2.3

The government is committed to use the best available evidence/data<sup>vii</sup> for health and climate change decision-making processes and to support gathering of further evidence.

#### Definition

This indicator measures whether the government particularly in the health sector is officially committed to considering the best available scientific evidence in policy-making processes related to health and climate change. Such commitments can be made in the form of written documents, such as strategy papers or legislative initiatives.<sup>99</sup> They can also come in the form of national governments’ support for generating new evidence in this area, for example through government-funded research programmes. The project team acknowledges that government commitments to include evidence do not necessarily indicate the quality of these processes.

#### International “good practice” examples

In 2021, the US government established the Office for Climate Change and Health Equity (OCCHE) within the Department of Health and Human Services to assess and address the impact of climate change on the health of the American population with a special focus on vulnerable groups. One of OCCHE’s priority tasks is to provide evidence-based advice on climate change and health to the White House, the Department of Health and Human Services and subordinate authorities at the federal level.<sup>100</sup> To support this, the office publishes a monthly Climate and Health Outlook, which provides information on how climate change impacts may affect health in the coming months and what resources should be allocated for potential measures.<sup>101</sup>

In Chile, evidence-informed policy development has been institutionally anchored in

the form of the “Health Technology Assessment and Evidence-Based Health” department since 2017. This department supports decision-making in the areas of health policy, clinical practice and healthcare finance.<sup>102</sup>

#### Status of implementation at federal level

The German Federal Government has made no explicit declaration or commitment to take evidence and scientific data and findings into account in (political) decision-making processes related to climate change and health. Nevertheless, relevant intentions can be identified in various areas.

For instance, the Federal Government references the inclusion and generation of relevant scientific data in the DAS and the development of the Climate Action Programme.<sup>103</sup> In 2020, the GMK passed a resolution under agenda item 5.1, „Climate Change – A Challenge for the German Healthcare System“, calling for the strengthening of research and science in this area. The health ministers of the federal states urged the Federal Ministry of Education and Research (BMBF) to provide further funding for such efforts.<sup>104</sup> Additionally, the Climate Pact for Health, already described for indicator 1.3, highlighted the necessity of generating and using scientific evidence and epidemiological insights as one of its core elements.<sup>50</sup>

Various scientific advisory bodies provide guidance to the Federal Government on issues related to climate change and health. In 2023, the German Advisory Council on Global Change (WBGU), the German Advisory Council on the Environment (SRU) and the German Advisory Council on Health (SVR Gesundheit) published reports and expert opinions specifically addressing the topic of climate change and health.<sup>105,106,107</sup> These reports were presented to the Federal Minister of Health, Karl Lauterbach, and/or the Federal Minister of the Environment, Steffi Lemke. In some policy processes these reports were directly referenced, such as during the 2024 GMK, which officially acknowledged the SRU’s report.<sup>108</sup>

In April 2024, a new expert council on “Health and Resilience” was appointed by the Federal Government as the successor to the COVID-19 expert council.<sup>109</sup>

Additionally, there have been relevant government-funded initiatives. For instance, the German Aerospace Centre (DLR) was commissioned by the BMBF to develop a funding guideline for linking climate, environmental and health research. Twelve projects were launched in 2023 as part of this funding programme.<sup>110</sup> The BMG also funded the KlimGesundAkt project coordinated by the RKI. As mentioned under indicator 1.3, within the scope of this project, the 2010 status report on climate change and health was updated in collaboration with more than 90 authors from 30 authorities and institutions to support evidence-based policy and practice in Germany.<sup>111</sup> Furthermore, ministries such as the BMG and BMAS have commissioned smaller projects and reports on specific climate change and health topics, such as reaching vulnerable target groups and examining the impacts of climate change on the workplace.<sup>40,112</sup> While these formalised advisory processes involve external scientists, the internal advisory mechanisms within ministries or their subordinate agencies are not transparent from an outside perspective and are difficult to assess.

### Status of implementation at state level

**Example Hesse:** The Hessian Act on the Promotion of Climate Protection and Adaptation to the Consequences of Climate Change (HKlimaG) stipulates that the state government must convene an independent Climate Advisory Council.<sup>113</sup> The members of the Council are appointed for five years and come from various fields, e.g., engineering, environmental sciences, economics, law, social sciences and medicine. The Council is tasked with advising the state government on issues of climate protection and climate change adaptation.<sup>114</sup> So far, the Climate Advisory Council has issued a press release on electric vehicles and a statement on the occasion of the 2023 coalition negotiations.<sup>115</sup>

**Example NRW:** The NRW Climate Adaptation Act (KlAnG), in which the MAGS was also involved, stipulated in 2021 that the state-wide climate strategy should be “updated every five years at the latest, taking into account new scientific findings and developments in climate adaptation at international, federal, state and municipal level” (own translation).<sup>116</sup>

### Indicator 2.4

2.4.1 Vulnerabilities and health inequalities are streamlined, explicitly named and defined in the regulations and strategies on climate change and health.

2.4.2 If applicable: Vulnerability and adaptation assessments (V&As)<sup>viii</sup> are repeatedly conducted, publicly reported on a regular basis, and serve as a basis for improvement and development of (new) climate mitigation and adaptation policies and programmes.

viii The WHO defines vulnerability and adaptation analyses (V&As) as systematic investigations that assess the vulnerability and adaptability of health systems to the effects of climate change. These analyses help to develop suitable strategies to protect the health of the population and strengthen resilience to climate change. (117)

### Definition

This indicator captures the consideration of vulnerabilities and health inequality in relevant government documents, such as strategies and legislative initiatives on climate change and health. Both the simple naming of related aspects and definitions are taken into account. The research team acknowledges that merely mentioning vulnerabilities and health inequalities in government documents is insufficient to adequately address the disproportionate impact of climate change on certain disadvantaged population groups. Therefore, the indicator also assesses whether corresponding analyses and evaluations in the form of V&As are regularly conducted, reported, and integrated into new and existing strategies and measures.

### International “good practice” examples

Many countries’ relevant climate and health strategies and regulations explicitly refer to



the consideration and inclusion of vulnerabilities and health inequalities. For example, the Canadian climate adaptation strategy “Building resilient communities and a strong economy” sets out principles that should guide all adaptation activities. One of the principles is described as “Advance equity and climate and environmental justice”. The explanation of this principle recognises that certain vulnerable groups are disproportionately affected by the impacts of climate change. At the same time, adaptation measures are identified as a direct means to promote equity and justice, and this is acknowledged within the strategy. Health and well-being are also described in the strategy as one of five “key systems” for climate adaptation.<sup>118</sup>

The international comparison shows that V&As are generally carried out and utilised in many countries. However, a systematic and regular establishment of this instrument could only be identified in a few countries during the research. Sweden’s 2019 adaptation regulation, e.g., created under the leadership of the Swedish Ministry of the Environment, mandates that 32 national authorities and all regional district administrative authorities conduct systematic V&As. These assessments should be updated in the event of significant changes but at least every five years.<sup>119</sup> National guidelines have been developed to support this process.<sup>120</sup>

### Status of implementation at federal level

Neither the national Climate Protection Act nor the Climate Protection Programme, explicitly name or define vulnerabilities, vulnerable groups or health inequalities.<sup>65,121</sup> Only the concept of social justice is mentioned, but not defined.

The recently adopted Climate Adaptation Act (KAnG) stipulates that vulnerable groups should be considered, though specific groups are not further defined. The Act’s objectives include preventing „[...] the increase of social inequalities due to the negative impacts of climate change[...]“ (own translation) but this is not elaborated upon.<sup>68</sup>

In the DAS, vulnerabilities related to climate change are not only named and defined but also analysed in the form of a climate impact and risk analysis (KWRA) that is conducted every six years.<sup>69</sup> The KWRA was carried out by an interdisciplinary scientific consortium on behalf of the Federal Government firstly in 2015 and secondly in 2021. The KWRA determine which areas of activity and which regions in Germany are particularly vulnerable to climate change and where there is a specific need for action.<sup>122</sup> Vulnerable groups and individuals are therefore only considered in the KWRA in isolated cases. One of the fields of action analysed as part of the KWRA is “Human health”, which specifically looks at heat stress, UV-related health risks, and allergic reactions with corresponding indicators. The “spatial exposure and sensitivity” (own translation) section identifies vulnerable population groups but health inequalities are not addressed. The results of the KWRA serve as a basis for improving and developing adaptation measures in Germany, particularly for the adaptation action plans.<sup>34</sup>

Germany’s global health strategy also contains the German government’s commitment to protect vulnerable population groups from the effects of climate change. However, it does not specify which population groups are considered particularly vulnerable. The strategy also mentions the goal of reducing health inequalities but not specifically in the context of climate change and health.<sup>73</sup>

### Status of implementation at state level

**Example Hesse:** The HHAP identifies improving health equity as a cross-cutting task and calls for disadvantaged individuals to be considered in climate adaptation measures to prevent existing inequalities from being further exacerbated by the advancing climate change.<sup>47</sup> In contrast, the climate plan does not mention vulnerable groups or inequalities.

**Example NRW:** The MPUG identifies vulnerabilities and existing inequalities, addressing these with a dedicated action field on

„environmental justice.“ Additionally, the topic area „heat“ includes a climate analysis that identifies particularly affected population groups and considers health impacts for them.<sup>123</sup> Furthermore, addressing particularly vulnerable groups is also part of the work of the State Coordination Centre for Heat and Health at the LZG.NRW. For example, the ZNGH has a working group on equal opportunities in health-related heat protection.<sup>48</sup>

## Indicator 2.5

2.5.1 Policy measures for climate change adaptation and mitigation are regularly assessed through health<sup>ix</sup> and environment impact assessments<sup>x</sup> and their results are made publicly available.

2.5.2 If applicable: The given results are used for developing, adapting, and implementing (new) mitigation and adaptation policies and programmes.

## Definition

This indicator measures the use of systematic health and/or environmental impact assessments. If these are carried out, the indicator also captures the extent to which the results of these assessment procedures are considered in political decision-making processes with regard to regulatory measures, strategies or programmes. As described below for the international “good practice” examples, there are various ways of integrating health and/or environmental impact assessments in the short, medium and long term.

## International “good practice” examples

As part of the research for this indicator, various examples of HIAs and environmental impact assessments EIAs can be identified. In some cases, HIAs are integrated into EIAs.<sup>126</sup>

In the European Union, Directive 2014/52/EU currently specifies how and by whom EIAs must be carried out, which projects and proposals must be examined, and what information must be provided. Since 2014, the amended version of the directive also requires that human health be considered when conducting EIAs. Recital 41 of EU Directive 2014/52/EU also states that the aim of EIAs is to ensure a high level of protection of the environment and human health.<sup>125</sup>

In the US state of Minnesota, HIAs are used to assess the health effects of planned climate change adaptation measures.<sup>127</sup> There are other examples from the USA in which climate change adaptation and mitigation policies are assessed using HIAs.<sup>128</sup>

## Status of implementation at federal level

In Germany, HIAs are carried out at regional or municipal level as part of EIAs.<sup>129,130</sup> However, there is no obligation to conduct HIAs for political decision-making in general or specifically in the area of climate adaptation or mitigation.<sup>131</sup>

Furthermore, the “Environmental Impact Assessment Act (UVPG)”<sup>132</sup> designates, among other things, that EIAs are obligatory for “food, beverages, and animal feed, the manufacturing of chemical products, road construction projects and transportation initiatives, construction projects, waste disposal sites, mining, land consolidation, etc.” (own translation). However, the specific implementation and the inclusion of the results depend on the respective context.<sup>129</sup> A study from 2023 concluded that EIAs in Germany are relevant to outcomes in practice but there remains potential for further development.<sup>133</sup> In the analysed cases, the majority of the cited examples were considered appropriate for describing the current state of human health, while 17% of the examples were deemed inadequate. A lack of cooperation from health authorities was identified as a barrier. It was also criticised that only significant limitations were listed and that health aspects, particularly concerning social determinants, were often insufficiently operationalised.<sup>130</sup>

- ix A health environment assessment (HIA) is a process used to assess the potential health impact of policies, programmes or projects on a population, in particular on vulnerable or disadvantaged groups. (124)
- x An environmental impact assessment (EIA) is a procedure that ensures that the potential environmental impact of certain public and private projects is assessed before they are authorised. It serves to ensure a high level of protection for the environment and to integrate environmental aspects into the planning and authorisation of projects. (125)

## Status of implementation at state level

**Example Hesse:** In the HKlimaG (§7), the “exemplary role of the state” is established, stating that in all decisions, actions and planning by public authorities, the purposes of the law and in particular the goals for reducing greenhouse gas emissions must be taken into account. As a result, all decisions by the state government regarding regulations and draft laws are to be evaluated in terms of their impact on climate protection goals. This also applies to funding programmes of significant financial importance.<sup>113</sup>

**Example NRW:** On its website, the LZG.NRW describes what a HIA is and the steps it involves.<sup>134</sup> However, there is no description of when and whether such a health impact assessment will be carried out in NRW. Furthermore, the information is limited solely to the health impacts, but not to health impacts in connection with climate and/or environmental impacts.

### Indicator 2.6

Non-state actors (e.g. multi-actor networks, non-governmental organisations (NGOs), research institutions, industry) are informed, considered and actively involved in the development and adaptation of strategies and regulatory processes on climate change and health (at national and sub-national level).

### Definition

This indicator places a stronger focus on the exchange and collaboration between government actors and non-governmental stakeholders. Unlike Indicator 1.3, this indicator only includes processes that explicitly serve the development and/or adaptation of new and/or existing government documents on climate change and health, such as strategies and legislative initiatives. It assesses whether non-governmental stakeholders

are formally involved in these processes. Only processes related to climate change and health in which the Federal Ministry of Health and/or its subordinate agencies are involved, are considered. The project team acknowledges that the formalisation of participation processes for non-governmental stakeholders does not provide any indication of the quality of these processes.

## International “good practice” examples

Numerous international policy processes feature explicit mechanisms for the involvement of non-state actors, particularly in the area of climate adaptation and mitigation. In the climate negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), e.g., government representatives are accompanied by representatives of civil society organisations as so-called “observers”.<sup>135</sup>

In Australia, the “Final thematic stakeholder engagement report” accompanies the national strategy on climate change and health. This report describes the methodological approach and the results of the participation process with relevant stakeholders in the development of the national strategy.<sup>136</sup> As part of this, the Australian Department of Health published a consultation paper for the participation process and conducted a number of different participation formats (e.g., workshops, round tables and surveys) for various stakeholder groups. The workshops reached over 300 stakeholders from politics, science, healthcare practice, industry, think tanks, civil society, and representatives of vulnerable groups. These engagement formats were intended both to advise the Department of Health in developing the strategy and to identify sector- and actor-specific priorities and measures to support the successful implementation of the strategy.<sup>15</sup>

## Status of implementation at federal level

In Germany, there is no general obligation to carry out consultation or participation procedures before laws are passed. Hence,



no institutionalised systematic consultation processes for the development and improvement of strategies can be identified in the area of climate change and health. Nevertheless, there are some formats that are worth mentioning in this context.

To promote a participatory process in the development of a new climate adaptation strategy, the German government launched the “Climate Adaptation Dialogue – Mastering Life in a Changing Climate Together” (own translation) at the end of 2023. This format provides citizens with the opportunity to share their aspirations and goals and offer recommendations on how these should be achieved. An online youth engagement component is also included, targeting young people aged 14 to 25.<sup>137</sup> Additionally, experts from federal states, municipalities, associations, and the scientific community were able to participate in a two-day dialogue event at the end of 2023, contributing their expertise in various thematic clusters, including the health cluster, to the strategy development. A further formal consultation process is planned for the autumn of 2024.<sup>138,139</sup>

In addition, as mentioned in indicator 1.3, ad hoc exchange forums were created by the BMG in 2023 to inform the development of national heat protection planning. Representatives from various disciplines met with the Federal Minister of Health, Karl Lauterbach, in several expert discussions. The results were presented at a joint final conference. A supplementary heat status conference will also be held in 2024.<sup>40</sup>

## Status of implementation at state level

**Example Hesse:** The HHAP is to be regularly evaluated. This task falls to the central coordination office of the Hessian Ministry for Social Affairs and Integration (HMFG), involving the LAG HHAP and representatives from various departments. As mentioned for indicator 2.1, the Hesse Climate Plan was developed with the support of a consortium of experts and the measures identified in the plan were publicised with the participation of more than 200 representatives from civil society, associations and government departments. “Climate municipalities”<sup>xi</sup> evaluated and amended the Plan.<sup>47</sup>

**Example NRW:** As described for indicator 2.1, various stakeholders were involved in the development of the master plan. Similarly, in creating a climate adaptation strategy, not only the state government but also civil society stakeholders were included.<sup>141</sup> At state level, some state governments offer online participation platforms for their citizens (e-democracy/participation). These platforms allow citizens to be informed about specific political decisions, including those in the areas of environmental and nature protection, as well as health and care, and to actively shape and influence them. For example, the state of NRW maintains a participation portal in this context that provides information on projects at state, municipal and district level and the associated participation formats.<sup>142</sup>

xi “Climate municipalities” are an alliance of 396 (as of 07.08.2024) Hessian cities, municipalities and districts that are committed to mitigating and adapting to climate change. The alliance is coordinated by the State Energy Agency of Hesse on behalf of the Hessian Ministry of Economics, Energy, Transport, Housing and Rural Areas and the Hessian Ministry of Agriculture and Environment, Viticulture, Forestry, Hunting and Homeland (HMLU). It provides a central platform for bringing local authorities together and promoting the exchange and transfer of knowledge. (140)

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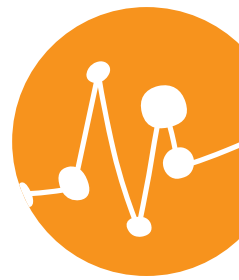
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## 5 Appendix

### Edited indicator set for component 1 "Climate-transformative leadership and governance"

Version 1.7, 16.05.2024 – updated after the conduction of two consultations with international experts and the desk review for Germany.

Bereich	Indikator
<b>1. Politische Steuerung/ Gouvernance</b>	1.1 Eine Person oder ein Team, die/das zu Klimawandel und Gesundheit arbeitet, wird innerhalb des Gesundheitsministeriums und/oder der zuständigen Gesundheitsbehörde (auf nationaler und/oder subnationaler Ebene) benannt.
	1.2 Arbeitsgruppen zu Klimawandel und Gesundheit sind zwischen Ministerien und/oder zwischen Behörden etabliert und arbeiten in regelmäßigen Treffen zusammen.
	1.3 Austauschplattformen und/oder -formate zu Klimawandel und Gesundheit zwischen dem Gesundheitsministerium und weiteren relevanten Akteuren (z.B. Forschungseinrichtungen, Zivilgesellschaft, privater Sektor) sind auf nationaler Ebene (falls zutreffend: auch auf subnationaler Ebene) etabliert und finden in regelmäßigen Abständen statt.
<b>2. Politik- &amp; Strategieentwicklung</b>	2.1 Eine nationale Strategie zu Klimawandel und Gesundheit, die sowohl Aspekte der Anpassung an den Klimawandel, als auch Aspekte des Klimaschutzes enthält, wurde in sektorenübergreifender Zusammenarbeit (mit staatlichen sowie nichtstaatlichen Akteur:innen) entwickelt und umgesetzt (falls zutreffend: mit entsprechenden Vorschriften).
	2.2
	2.2.1 Im Gesundheitssektor gibt es eine Selbstverpflichtung mit klar definierten Zielen zur Transformation des Gesundheitssystems (einschließlich Gesundheitseinrichtungen und Lieferketten) zur Klimaneutralität.
	2.2.2 Es sind Mechanismen der Datenerhebung etabliert, die den Fortschritt und die Zielerreichung des Gesundheitssektors in Richtung Klimaneutralität überwachen. Die Ergebnisse werden regelmäßig öffentlich zur Verfügung gestellt.
	2.3 Die Regierung verpflichtet sich, die beste derzeit verfügbare Evidenz für (politische) Entscheidungsprozesse im Bereich Gesundheit und Klimawandel einzubeziehen und Evidenzgenerierung zu unterstützen.
2.4	
2.4.1 Vulnerabilitäten und gesundheitliche Ungleichheiten werden in den regulativen Strategien und Programmen zu Klimawandel und Gesundheit explizit benannt und definiert.	



**Fortsetzung  
Bereich 2.  
Politik- &  
Strategie-  
entwicklung**

2.4.2 Falls zutreffend: Es werden regelmäßig Vulnerabilitäts- und Adaptationsanalysen (V&As) durchgeführt, deren Ergebnisse öffentlich berichtet und als Grundlage für die Verbesserung und Entwicklung von (neuen) regulativen Strategien und Programmen im Bereich Klimawandel und Gesundheit verwendet werden.

2.5

2.5.1 Politikmaßnahmen zur Klimawandeladaptation und -mitigation werden durch Beurteilungen zur Gefährdung von Gesundheit und Umwelt (Health and Environment Impact Assessments) geprüft und deren Ergebnisse öffentlich zur Verfügung gestellt.

2.5.2 Falls zutreffend: Die Ergebnisse werden als Grundlage für die Verbesserung und Entwicklung von (neuen) regulativen Maßnahmen und Programmen im Bereich Klimawandel und Gesundheit verwendet.

2.6 Nichtstaatliche Akteur:innen (z.B. Multiakteursnetzwerke, Nichtregierungsorganisationen (NGOs), Forschungseinrichtungen, Industrie) werden bei der Entwicklung und Anpassung von Strategien und regulativen Prozessen zu Klimawandel und Gesundheit (auf nationaler und subnationaler Ebene) informiert, berücksichtigt und aktiv beteiligt.

Adapted from: WHO (2023). Operational framework for building climate resilient and low carbon health systems. <https://www.who.int/publications/i/item/9789240081888> [13.08.2024].

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