



Implementing the European Regional Framework for Action to protect health from climate change

A status report





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Abstract

How far have Member States in the WHO European Region progressed in implementing the European Commitment to Act on climate change and health? This was the question addressed to members of the Working Group on Health in Climate Change (HIC) of the European Environment and Health Task Force in summer 2012. The HIC members were asked to respond to a comprehensive questionnaire to assess the current status of health-relevant climate change mitigation and adaptation actions. A total of 22 Member States answered the questions focusing on eight thematic areas or topics.

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in Climate Change (HIC) on 9 December 2013 in Bonn, Germany. The WHO Regional Office for Europe extends its thanks to the attending representatives of Croatia, Germany, Hungary, Italy, Kyrgyzstan, Lithuania, Montenegro, Serbia, Slovenia, Spain, Tajikistan, the former Yugoslav Republic of Macedonia, Ukraine, and the United Kingdom of Great Britain and Northern Ireland. It also thanks the country representatives who did not attend the meeting, but still reviewed and commented on the report, and all those in national institutions who dedicated their time and effort to the completion of the questionnaire.





How far have the Member States in the WHO European Region progressed in implementing the European Commitment to Act on climate change and health?

This was the question addressed to members of the Working Group on Health in Climate Change (HIC) of the European Environment and Health Task Force in summer 2012. The HIC members were asked to respond to a comprehensive questionnaire to assess the current status of health-relevant climate change mitigation and adaptation actions. A total of 22 Member States answered the questions focusing on eight thematic areas or topics:

- 1. governance;**
- 2. vulnerability, impact and adaptation assessments;**
- 3. national and subnational adaptation strategies;**
- 4. climate change mitigation;**
- 5. strengthening health systems;**
- 6. raising awareness and building capacity;**
- 7. green health services;**
- 8. sharing best practices.**

This report provides a snapshot of the implementation status of measures to protect health from climate change in the WHO European Region by the end of 2012. It describes and summarizes the answers to the questionnaire across the countries. The heterogeneity of answers is substantial. The risks from climate change and the sensitivities of health systems and populations vary among and even within countries. Action or inaction is considered to reflect each country's specific situation, including national priority setting and decision-making, so the report generally avoids offering any judgment or comparative evaluation.

Accordingly, detailed national information (presented in boxes throughout the report) is provided to illustrate action in response to the European Regional Framework for Action, *Protecting health in an environment challenged by climate change* (WHO Regional Office for Europe, 2010a), which all Member States endorsed.

Strong areas of implementation, on average, of the topics covered by the questionnaire are governance (92% of maximum score), vulnerability, impact and adaptation assessments (82%), strengthening health systems (81%) and raising awareness and building capacity (74%). Progress in these activities could also reflect the extended United Nations Framework Convention on Climate Change (UNFCCC) reporting requirements and, to a certain extent, WHO communication, capacity building and training in these areas. The efforts towards climate change mitigation in the form of reducing greenhouse gas emissions in other sectors also form a relatively strong area of implementation (70%).

Any cut-off point in positive response rates is bound to be arbitrary, but areas where – in comparison – it seems that implementation would benefit from further support are the development of national and subnational adaptation strategies (49%), green health services (56%) and sharing best practice (61%).

Despite the small sample size and the limitations of the questionnaire as a tool to monitor policy implementation, some general qualitative conclusions arose from the analysis.

- Governance mechanisms for climate policy seem well established, at least in countries with representatives of the European Environment and Health Task Force's Working Group on Health in Climate Change.

- Resources for climate change health adaptation are financed by ongoing activities in a variety of areas and respective resource planning.
- Although vulnerability, impact and adaptation assessments seem to be an area of relatively strong performance, gaps in knowledge and in translating scientific evidence into action exist.
- The level of government approval and uptake of national health adaptation plans is still low.
- Countries reported several activities on health systems strengthening, including infectious disease surveillance, the International Health Regulations, environmental health and early warning systems. Nevertheless, important areas remain lacking – for instance, integrated climate, environment and health surveillance or building climate-resilient health infrastructures.
- Most countries engage in climate change mitigation activities to reduce greenhouse gas emissions relating to buildings, infrastructure and transportation. The health benefits of these activities, however, are usually not evaluated.
- There is a high level of awareness about climate change in the responding countries, although awareness of its health implications is lower.
- Several countries are undertaking activities to improve the environmental sustainability (“greening”) of health services.
- Regional platforms and the internet seem to be preferred channels for sharing best practice in climate and health policy in the responding countries.

The richness of the questionnaire responses illustrates the importance of the partnership with national focal points. WHO’s work with countries on this topic over the past decade has shown that partnership with engaged individuals and stakeholders in ministries of health and environment is crucial for the advancement of the climate change components of the Parma Declaration on Environment and Health and Commitment to Act (WHO Regional Office for Europe, 2010b).



2.

Background

2.1 The Parma Commitment to Act

Governments across the WHO European Region have adopted the Parma Declaration on Environment and Health and Commitment to Act (WHO Regional Office for Europe, 2010b), pledging to “act on the key environment and health challenges of our time”. The text was endorsed by all 53 Member States attending the Fifth Ministerial Conference on Environment and Health in Parma, Italy on 10–12 March 2010. Participating governments agreed on overall goals and strategies for action and called upon the WHO Regional Office for Europe and other partners to strengthen their collaboration to ensure progress in environment and health implementation in the Region. The Commitment to Act focuses on four topics:

- protecting children’s health;
- protecting health and the environment from climate change;
- involvement of children, young people and other stakeholders;
- knowledge and tools for policy-making and implementation.

In the context of protecting health and the environment from climate change, the Commitment to Act specifies that Member States will:

- i. integrate health issues in all climate change mitigation and adaptation measures, policies and strategies at all levels and in all sectors. We will assess, prevent and address any adverse health effects of such policies by, for example, strengthening health promotion in environmental policies;
- ii. strengthen health, social welfare and environmental systems and services to improve their response to the impacts of climate change in a timely manner,

for example to extreme weather events and heat waves. In particular, we will protect the supply of water and the provision of sanitation and safe food through adequate preventive, preparedness and adaptive measures;

- iii. develop and strengthen early warning surveillance and preparedness systems for extreme weather events and disease outbreaks, for example vector-borne diseases, at the animal-human-ecosystem interface, where appropriate;
- iv. develop and implement educational and public awareness programmes on climate change and health, to encourage healthy, energy-efficient behaviours in all settings and provide information on opportunities for mitigation and adaptation interventions, with a particular focus on vulnerable groups and subregions;
- v. collaborate to increase the health sector’s contribution to reducing greenhouse gas emissions and strengthen its leadership on energy- and resource-efficient management and stimulate other sectors, such as the food sector, to do the same;
- vi. encourage research and development, for example with tools for forecasting climate impacts on health, identifying health vulnerability and developing appropriate mitigation and adaptation measures.

The Commitment to Act further underpins the role of WHO:

“We call on the WHO Regional Office for Europe to discuss with the European Commission, the European Environment Agency (EEA), the United Nations Economic Commission for

Europe, the United Nations Environment Programme and other partners setting up European information platforms for systematic sharing of best practice, research, data, information, technology and tools focused on health at all levels.”

And it refers to the European Regional

Framework for Action as a blueprint for implementation:

“We welcome the Regional Framework for Action entitled Protecting health in an environment challenged by climate change. We recommend that the approaches described in it are used to support action in this area.”

2.2 European Regional Framework for Action

The European Regional Framework for Action, *Protecting health in an environment challenged by climate change* (WHO Regional Office for Europe, 2010a) aims to protect health, promote health equity and security and provide healthy environments in a changing climate in the WHO European Region. The Framework is fully consistent with the WHO Workplan on climate change and health (WHO Regional Office for Europe, 2010), and is designed to support action by Member States towards implementation of the Parma Commitment to Act. It is based on five strategic objectives:

- to ensure that all current and future mitigation and adaptation climate change measures, policies and strategies integrate health issues at all levels;
- to strengthen health, social and environmental systems and services to improve their capacity to prevent, prepare for, and cope with climate change;
- to raise awareness to encourage healthy mitigation and adaptation policies in all sectors;
- to increase the health and environment sectors' contributions to reducing greenhouse gas emissions; and
- to share best practice, research, data, information, technology and tools at all levels on climate change, environment and health.

The Framework suggests action points on how to achieve these objectives and

steps towards implementation, such as setting up a network of national focal points on climate change and health to facilitate exchange of information between countries, and coordination of relevant priorities and activities. The Fifth Ministerial Conference on Environment and Health welcomed the Framework and recommended that its approach be used to support action to protect health from climate change.

At a meeting in Bled, Slovenia, in 2011, the European Environment and Health Task Force decided to establish HIC, which would follow up on implementation of the Parma Commitment to Act and specifically the European Regional Framework for Action. A total of 37 participants nominated by 31 Member States and six international organizations attended the first HIC meeting in Bonn, Germany on 4–6 June 2012.

This and subsequent HIC meetings provided opportunities to report back on climate change and health developments (such as pilot projects, research initiatives and developments) at the regional, subregional, national and subnational levels, and enabled discussion of future needs. The overall scope of HIC is to facilitate dialogue and communication on matters related to climate change and health and to support implementation of the relevant commitments in the Parma Declaration and Commitment to Act using the European Regional Framework for Action as a guide.

2.3 Aim of the report

This report summarizes the responses to a questionnaire on the implementation of the climate change and health part of the European Commitment to Act (WHO Regional Office for Europe, 2010a). The

following sections of this report explain the methods used to summarize the replies from Member States, present and analyse the results and draw conclusions for future work.



3.1 The questionnaire

A comprehensive national questionnaire was developed in line with the strategic objectives of the European Regional Framework for Action, *Protecting health in an environment challenged by climate change* (WHO Regional Office for Europe, 2010a). The questionnaire had the following aims:

- to assess the current status of Member States' activities to mitigate or adapt to the health effects of climate change;
- to identify gaps in the implementation of the Parma Commitment to Act and potential reasons for these gaps;
- to increase the visibility of progress made;
- to share experiences and information on best practice in developing and implementing effective adaptation and mitigation measures;
- to increase the effectiveness of health adaptation strategies; and
- to assess gaps in knowledge and capacity.

Other ongoing activities also collect information that can be used to monitor progress: notably the Environment and Health Information System (ENHIS) database (WHO, 2014a), the EEA climate adapt platform, regular HIC reports and the national communications to the UNFCCC. This information is not reflected in this report.

This report presents only information derived from Member States' responses to the questionnaire. The 45 questions

covered the following eight topics or thematic areas (see the Annex for full list of questions):

1. **governance;**
2. **(health) vulnerability, impact and adaptation assessments;**
3. **national and subnational (health) adaptation strategies;**
4. **climate change mitigation (in the form of reducing greenhouse gas emissions);¹**
5. **strengthening health systems;**
6. **raising awareness and building capacity;**
7. **green health services; and**
8. **sharing best practices.**

The questionnaire was sent via email in English and Russian to Member State-nominated HIC members in May, before their meeting in June 2012. Some Member States nominated HIC members later; they received the questionnaire once the members were nominated. The agreed submission deadline was 31 October 2012. One delayed questionnaire was accepted. Questionnaires were collected via the focal points of each Member State. Those written in Russian were translated into English and reviewed for relevance in comparison to the original questionnaire. In all, 22 fully completed responses were returned, along with a wealth of additional country-specific information (see Section 4.1 for more details of countries' participation).

¹ The Intergovernmental Panel on Climate Change (IPCC) glossary gives the following definition of mitigation: "Although several social, economic and technological policies would produce an emission reduction, with respect to climate change, mitigation means implementing policies to reduce greenhouse gas emissions and enhance sinks" (IPCC, 2007). Topic 4 of the questionnaire focuses on greenhouse gas emission reduction.

3.2 Analysis of questionnaire responses

All the answers were coded into numeric form and stored in a dataset Microsoft® Excel™. The detailed scoring scheme, which was developed through expert discussions, can be found in the Annex. For the quantitative analysis, positive responses to each question were scored as one point and considered to represent progress towards implementing the Parma Commitment to Act (WHO Regional Office for Europe, 2010b). Both negative responses and missing responses were scored as zero. Whereas negative responses can be directly correlated with a relative lack of progress towards policy commitments in different areas, the same cannot be said about missing responses. Reasons for not answering individual items can be manifold and should not be interpreted as negative responses. On the other hand, without further information there is no conceptual basis to assign any quantitative value to a question not answered.

HIC members also specifically asked that negative responses should not be penalized, requesting that a value should explicitly only be assigned to positive responses. Accordingly, they proposed that good examples (countries that performed at the highest level in each topic) should be highlighted in the evaluation report.

Results of the quantitative assessment are summarized in Section 4. To describe and analyse the answers, various approaches were taken. These included creating a descriptive profile of the general characteristics of respondent countries (see Section 4.1), calculating the average positive response score by topic (see Sections 4.2 and 4.4) and presenting top-scoring countries (in positive responses) by topic (see Section 4.3).

In addition, a tentative stratified analysis was carried out (see Section 4.3). Responses were analysed by:

- European Union (EU) membership status (European Union, 2013) (European Union, 2013) (as of 2013);
- Organization for Economic Co-operation and Development (OECD) membership status (as of 2013);
- presence of a WHO country office (as of January 2012);
- WHO subregional mortality stratum² (WHO, 2003);
- HDI level³ (UNDP, 2011).

Although a quantitative analysis helps to summarize responses, it cannot show the specific activities or explanatory factors behind the individual national situation regarding policy implementation. Conversely, looking into the specific responses of a country in a narrative way can provide useful data and rich detail, but the cross-sectional overview could become blurred. Replies were therefore also summarized by topic (see Section 4.4), with useful information and details provided in boxes and bullet lists throughout the text. Particular attention was paid to retaining and highlighting information on best practice. The examples chosen were based on the authors best judgment of alignment with the priorities and activities proposed in the European Regional Framework for Action, *Protecting health in an environment challenged by climate change* (WHO Regional Office for Europe, 2010a), and are thus subjective. No further qualitative analysis of the answers provided, either formal or informal, was performed.



2 WHO epidemiological subregions are defined by current adult and child mortality rates and coded into mortality strata. EUR-A mortality stratum has very low child and very low adult mortality; EUR-B has low child and low adult mortality; EUR-C has low child and high adult mortality.

3 The HDI attempts to measure development by combining indicators of life expectancy, educational attainment and income. The HDI categories are: very high (VHDI), high (HDI), medium (MHI) and low (LHI).

4.

Results

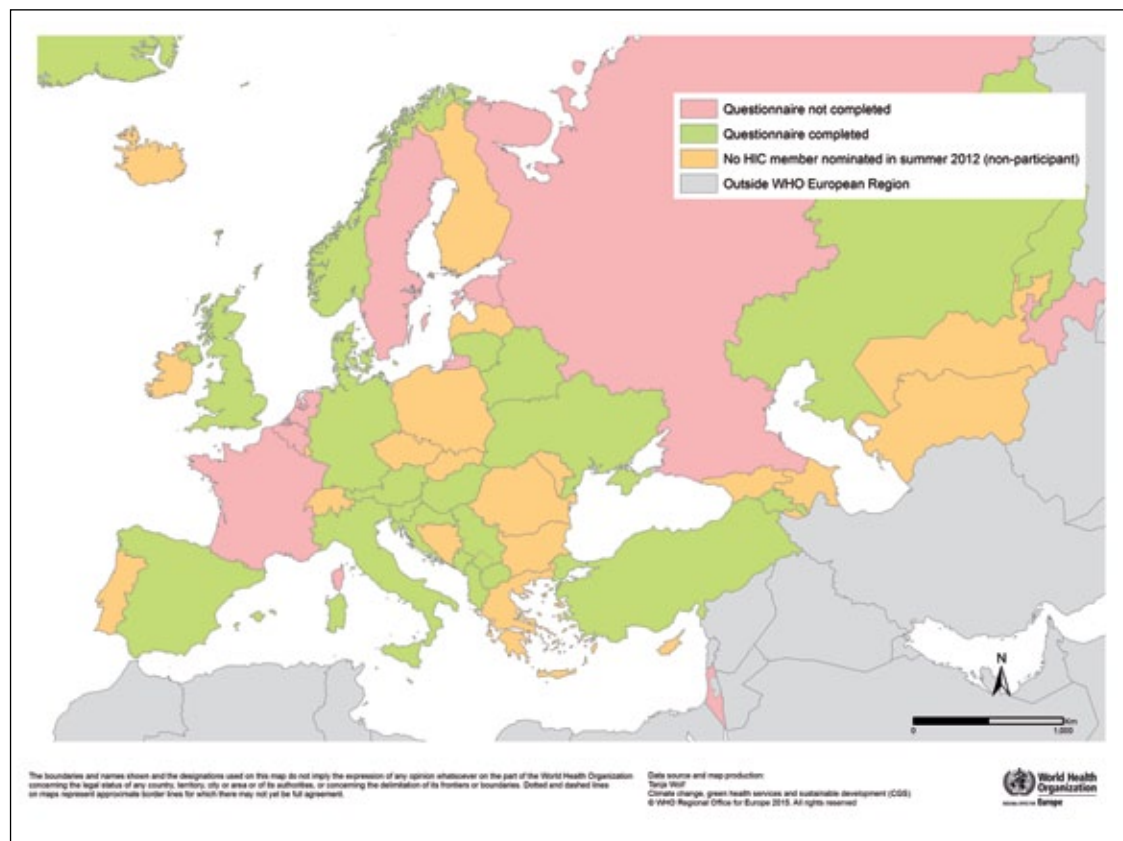
4.1 Number and profile of respondent countries

Of the 53 Member States in the WHO European Region, 31 countries had nominated HIC members in summer 2012 and received the questionnaire. Of these, 22 sent it back completed: Albania, Armenia, Austria, Belarus, Croatia, Denmark, Germany, Hungary, Italy, Kazakhstan, Kyrgyzstan, Lithuania, Montenegro, Norway, San Marino, Serbia, Spain, Slovenia, the former Yugoslav

Republic of Macedonia, Turkey, Ukraine and the United Kingdom. Nine countries did not return the questionnaire.

The remaining 22 countries had not nominated HIC members in summer 2012. They did not receive the questionnaire and were not included in the survey. The distribution of respondents, non-respondents and non-participants is shown in Fig. 1.

Fig. 1. Distribution of countries participating in the questionnaire



The general characteristics of the participating countries are shown in Table 1. These include its EU and OECD membership status, whether it has a

WHO country office, its WHO subregional mortality stratum and its HDI level (see Section 3.2 for further details of these categories).

Table 1. General characteristics of participating countries

Country	EU membership (2013)	OECD membership (2013)	WHO country office	Subregional mortality stratum	HDI level
Albania	no	no	yes	Eur-B	HHDI
Armenia	no	no	yes	Eur-B	HHDI
Austria	yes	yes	no	Eur-A	VHHDI
Belarus	no	no	yes	Eur-C	HHDI
Croatia	yes	no	yes	Eur-A	VHHDI
Denmark	yes	yes	no	Eur-A	VHHDI
Germany	yes	yes	no	Eur-A	VHHDI
Hungary	yes	yes	yes	Eur-C	VHHDI
Italy	yes	yes	no	Eur-A	VHHDI
Kazakhstan	no	no	yes	Eur-C	HHDI
Kyrgyzstan	no	no	yes	Eur-B	MHDI
Lithuania	yes	no	yes	Eur-C	VHHDI
Montenegro	no	no	yes	Eur-B	HHDI
Norway	no	yes	no	Eur-A	VHHDI
San Marino	no	no	no	Eur-A	no data
Serbia	no	no	yes	Eur-B	HHDI
Slovenia	yes	yes	yes	Eur-A	VHHDI
Spain	yes	yes	no	Eur-A	VHHDI
The former Yugoslav Republic of Macedonia	no	no	yes	Eur-B	HHDI
Turkey	no	yes	yes	Eur-B	HHDI
Ukraine	no	no	yes	Eur-C	HHDI
United Kingdom	yes	yes	no	Eur-A	VHHDI

Countries that responded to the questionnaire are slightly more likely to be non-EU countries (12 non-EU vs. 10 EU) and non-OECD countries (12 non-OECD vs. 10 OECD). WHO subregional mortality strata Eur-A and Eur-B (very low and low

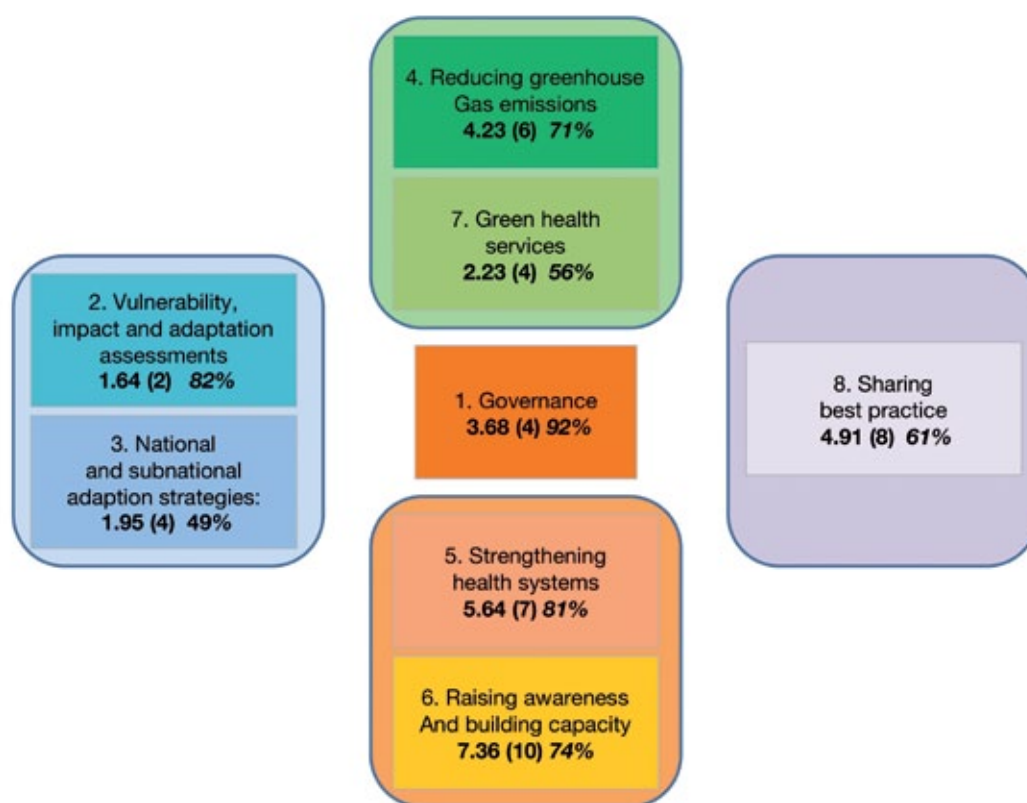
child and adult mortality) predominate. Respondents are more likely to have a WHO country office than not (14 with vs. eight without). All the countries surveyed except one (plus another without data) have either high or very high HDI levels.

4.2 Overview of results by topic

Positive responses of the Member States on the eight topics of the questionnaire are summarized below (Fig. 2). Conceptually related topics are grouped into clusters: governance; vulnerability, impact and adaptation assessments and national and subnational adaptation strategies; reducing greenhouse gas emissions and

green health services; strengthening health systems and raising awareness; and sharing best practice. Each rectangle shows the average positive response score, along with the maximum possible score and the resulting proportion of positive responses.

Fig. 2. Summary of average positive responses by topic



The proportion of countries responding positively varied by topic from below 50% to over 90%.

In topic **1 – governance** – most of the responding countries had established governance structures for climate change and health, scoring 3.68 out of 4 points on average (92%) of the maximum possible score. The health and environment sectors were involved, multisectoral committees had been established and resources identified (for more details see Sections 4.3 and 4.4.1).

In topic **2 – (health) vulnerability, impact and adaptation assessments** – Member States had made progress in assessing vulnerability to and impacts of climate change, scoring 1.64 out of 2 points on average (82%). Cross-sectoral vulnerability, impact and adaptation assessments were often part of national communications to the UNFCCC, and there were several examples of health-specific assessments (for more details see Sections 4.3 and 4.4.2).

In topic **3 – national and subnational (health) adaptation strategies** – action plans and strategies had been prepared in around half of the countries that responded to the survey, giving a score of 1.95 out of 4 points on average (49%). The overall level of government-approved adaptation strategies remained low (for more details see Sections 4.3 and 4.4.3).

In topic **4 – climate change mitigation** (in the form of reducing greenhouse gas emissions) – Member States scored 4.23 out of 6 points on average (71%). Countries reported several mitigation activities pertaining to buildings, infrastructure and sustainable transport, and – to a lesser extent – agriculture (for more details see Sections 4.3 and 4.4.4).

In topic **5 – strengthening health systems** – most countries reported that they had strengthened their public health and health systems to cope with impacts of climate change, scoring 5.64 out of 7 points on average (81%). The engagement of the health sector in extreme weather

preparedness was widely reported (for more details see chapter 4.3 and section 4.4.5).

In topic **6 – raising awareness and building capacity** – Member States reported a high level of awareness of climate change and the subject’s sizeable influence on political developments, scoring 7.36 out of 10 points on average (74%). The relevance of health effects to climate policy was lower (for more details see Sections 4.3 and 4.4.6).

In topic **7 – green health services** – there was a positive response of 2.23 out of 4 points on average (56%) on improving the environmental sustainability (“greening”) of health and environment sectors. Energy efficiency, renewable energy and

reduction of waste and wastewater were the most commonly reported activities (for more details see Sections 4.3 and 4.4.7).

In topic **8 – sharing best practice** – Member States scored 4.91 of 8 points on average (61%) on this topic. Climate change and environmental indicators, and information on pilot projects were the most shared information; regional platforms and web sites were commonly used for the sharing of information (for more details see Sections 4.3 and 4.4.8).

Based on this cross-country snapshot, the responses were further analysed by topic. Sections 4.3 and 4.4 elaborate on the findings.

4.3 Maximum scores and selected examples

Member States in the WHO European Region face a high diversity of climate-change-related exposures and vulnerability, depending on their geographical location and topography, demographics, economic development and infrastructure. Factors affecting the ability to respond to and prepare for climate-related hazards (including economic development, infrastructure, health systems and others) are also very diverse across the Region. The variability in the responses to the questionnaire is therefore not surprising.

A stratified analysis was carried out. Responses were analysed by EU and OECD membership status, presence of a WHO country office, WHO subregional mortality stratum and HDI level (see Sections 3.2 and 4.1 for further details). No obvious patterns or differences arose from the stratified analysis. The groupings of countries by HDI, presence of WHO country office and mortality levels did not reveal any consistent pattern. OECD countries responded slightly less positively than non-OECD countries, especially on vulnerability, impact and adaptation assessment activities. There were no noticeable differences between EU and non-EU countries regarding the proportion of positive responses.

In line with the HIC members’ recommendation that good examples (countries that performed at the highest level in each topic) should be highlighted in the evaluation report, this section features examples or characteristics of the activities undertaken in these countries (Table 2). The examples chosen are those assessed by the authors to be best aligned with the priorities and activities proposed in the European Regional Framework for Action, *Protecting health in an environment challenged by climate change* (WHO Regional Office for Europe, 2010a).

In topic **1 – governance** – 16 Member States reached the maximum score (Albania, Armenia, Austria, Belarus, Croatia, Germany, Hungary, Italy, Kyrgyzstan, Lithuania, Norway, Spain, the former Yugoslav Republic of Macedonia, Turkey, Ukraine and the United Kingdom). Examples of the related activities that one or more of these countries have undertaken include:

- establishing mechanisms for the exchange of information on climate change between agencies;
- allocating resources for implementation at different levels of government (national, regional, local);

Table 2. Countries that reached the maximum score by topic

Country	Topic number							
	1	2	3	4	5	6	7	8
Albania	X	X	X					
Armenia	X	X		X	X			
Austria	X	X		X		X		
Belarus	X	X				X	X	
Croatia	X	X	X	X	X	X		
Denmark		X						
Germany	X	X	X			X	X	X
Hungary	X	X			X			X
Italy	X	X						
Kazakhstan		X						
Kyrgyzstan	X	X						X
Lithuania	X	X			X			
Montenegro								
Norway	X	X						
San Marino								
Serbia								
Slovenia							X	
Spain	X	X	X	X	X		X	X
The former Yugoslav Republic of Macedonia	X	X	X		X		X	
Turkey	X							
Ukraine	X	X				X		
United Kingdom	X	X			X			
Total	16	17	5	4	7	5	5	4

- establishing regulatory or legislative instruments to facilitate implementation;
- involving a wide variety of stakeholders from the inception phase of strategies and plans to their implementation.

In topic **2 – vulnerability, impact and adaptation assessments** – 17 Member States reached the maximum score (Albania, Armenia, Austria, Belarus, Croatia, Denmark, Germany, Hungary, Italy, Kazakhstan, Kyrgyzstan, Lithuania, Norway, Spain, the former Yugoslav Republic of Macedonia, Ukraine and the United Kingdom). Examples of the related activities that one or more of these countries have undertaken include:

- cross-sectoral vulnerability and adaptation evaluations as part of their communications to UNFCCC;
- economic evaluations of sectoral impacts and adaptation;
- studies evaluating climate effects on vulnerable populations;
- supporting subnational authorities in conducting vulnerability, impact and adaptation assessment activities;
- taking into account emerging threats in their vulnerability, impact and adaptation assessment activities.

In topic **3 – national and subnational adaptation strategies** – five Member

States reached the maximum score (Albania, Croatia, Germany, Spain and the former Yugoslav Republic of Macedonia). The national adaptation plans of these countries are quite different in scope and focus, but some notable features are:

- inclusion not only of general strategies to adapt to climate change but also of health-specific adaptation plans, approved by the government;
- inclusion of a capacity-building component;
- consideration of mitigation in the health sector;
- promotion of stakeholder inclusion through participatory processes.

In topic **4 – climate change mitigation** (in the form of reducing greenhouse gas emissions) – four Member States reached the maximum score (Armenia, Austria, Croatia and Spain). These countries not only provided examples of measures to reduce greenhouse gas emissions in different sectors (building, transport, agriculture) but also stated that the health benefits of such measures had been assessed.

In topic **5 – strengthening health systems** – seven Member States reached the maximum score (Armenia, Croatia, Hungary, Lithuania, Spain, the former Yugoslav Republic of Macedonia and the United Kingdom). Examples of the related activities that one or more of these countries have undertaken include:

- enhanced disease surveillance and early warning of climate-sensitive diseases;
- early-warning systems for extreme weather events, with response plans in different areas;
- strengthened health sector engagement in emergency planning for extreme weather events and cross-sector plans;
- improved monitoring of climate-sensitive environmental determinants of health.

In topic **6 – raising awareness and building capacity** – five Member States reached the maximum score (Austria,

Belarus, Croatia, Germany and Ukraine). All five countries stated that:

- climate change and its health effects are perceived as important in political developments nationally;
- the public and/or private sectors are supportive;
- capacity has been expanded for health-related climate change aspects;
- public awareness of climate change and health, as well as mitigation adaptation, has been raised;
- communication messages for extreme weather and climate change and health in general have been developed.

In topic **7 – green health services** – five Member States reached the maximum score (Belarus, Germany, Slovenia, Spain and the former Yugoslav Republic of Macedonia). Examples of the related activities that one or more of these countries have undertaken include:

- incentives for health care facilities engaging in sustainability activities (such as energy efficiency, resource use minimization and similar);
- linking of economic, social and environmental sustainability in their long-term strategies for health systems;
- indicator-based evaluations of sustainability in health systems.

In topic **8 – sharing best practice** – four Member States reached the maximum score (Germany, Hungary, Kyrgyzstan and Spain). Examples of the related activities that one or more of these countries have undertaken include:

- making information on good practice publicly available on the internet;
- referring information to regional repositories of clearinghouses;
- including good practices in comprehensive communications regarding climate change.

While some countries did not reach the maximum score in certain topics they still achieved remarkably good results. For example:

- Denmark, Germany, the former Yugoslav Republic of Macedonia and the United Kingdom scored 5 out of 6 points in reducing greenhouse gas emissions;
- Albania, Denmark, Germany, Norway, Serbia and Slovenia scored 6 out of 7 points in strengthening health systems;
- Denmark, the former Yugoslav Republic of Macedonia and Spain scored 9 out of 10 points in raising awareness and building capacity;
- Croatia, Lithuania, the former Yugoslav Republic of Macedonia and the United Kingdom scored 7 out of 8 points in sharing best practice.

4.4 Analysis by topic

This section gives an analysis of all the individual questions within the eight topics (each topic contains a different number of questions). Since this report is not intended to display all answers and examples provided, it presents a short summary of the main results by question. To complement the summary, boxes featuring selected examples of ongoing activities in Member States are described. The examples featured are those assessed by the authors to be best aligned with the priorities and activities proposed in the European Regional Framework for Action, *Protecting health in an environment challenged by climate change* (WHO Regional Office for Europe, 2010a).

4.4.1 Topic 1: governance

Topic 1 explores the respective governance responsibilities for climate

change, the health aspects of climate change, the establishment of multisectoral committees and the identification of human and economic resources.

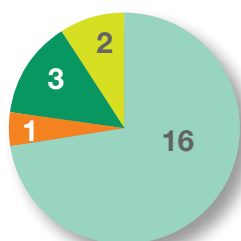
Question 1.1 asked “Who is in charge of climate change in your country?” All participating countries indicated responsible stakeholders. In 16 of the 22 countries (72.7%) the ministry for the environment was in charge of climate change policy; in the remaining countries responsibility was shared among two or more ministries (Fig. 3).

Question 1.2 asked “Who is in charge of the health aspects of climate change?” In all 22 countries the ministry of health had responsibility for the issue of health aspects of climate change, either independently (16 out of 22 countries: 72.7%) or in conjunction with other ministries (Fig. 3).

Fig. 3. Responses to questions 1.1 and 1.2

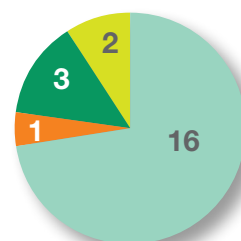
Question 1.1

- Ministry for the environment
- Ministry of health + other
- Ministry for the environment + other
- Ministry of health + ministry for the environment + other



Question 1.2

- Ministry of health
- Ministry of health + ministry for the environment
- Ministry of health + other
- Ministry of health + ministry for the environment + other



Question 1.3 asked “Has a multisectoral committee been established to deal with climate change?” In 21 of the 22 countries (95.5%) a multisectoral committee on climate change had been established, with the primary role and functions of coordinating policy and actions for adaptation and mitigation. Other roles included discussing and verifying UNFCCC reports and adaptation strategies, developing and implementing policies and actions to reduce exposure to harmful environmental factors, developing technical guidelines and recommendations on climate change, monitoring climate change effects, raising awareness and informing other sectors. Most countries did not give details of the specific role of the ministry of health in the committee.

Question 1.4 asked “Have you identified human and economic resources?” In 17 of the 22 countries (77.3%) human and economic resources to implement climate change policy had been identified. In all these countries financial and human resources for climate change adaptation were integrated into ongoing activities and respective resource planning. In other words, no new resources have been made available and the resources used to deal with climate change came from other programs and activities.

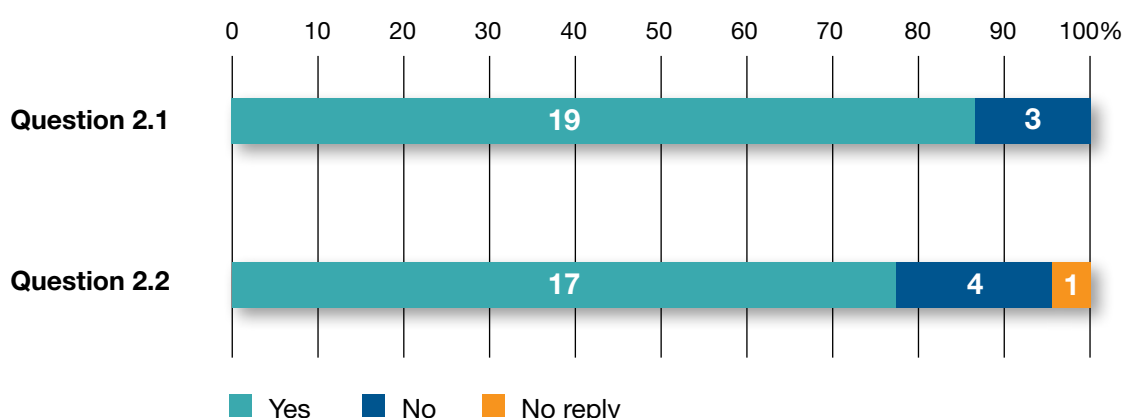
4.4.2 Topic 2: vulnerability, impact and adaptation assessments

Topic 2 covers national assessments of climate change vulnerability, impact and adaptation, and specifically health-related assessments.

Question 2.1 asked “Have you carried out a national assessment of climate change impact, vulnerability and adaptation in your country?” Of the 22 participating countries, 19 (86.4%) stated that they had conducted national assessments of climate change impact and vulnerability, and in one country an assessment was ongoing (Fig. 4). Most efforts were related to the UNFCCC requirement that countries include such assessments as part of their national communications to the Convention. The majority of countries conducted the assessments between 2009 and 2011, although some are older (e.g. Hungary in 2003).

Question 2.2 asked “Have you done a national (or regional) health impact, vulnerability and adaptation assessment in your country?” Of the surveyed countries 17 (77.3%) had conducted health-specific assessments of the impacts of and vulnerability and adaptation to climate change (Fig. 4).

Fig. 4. Responses to questions 2.1 and 2.2



Most of the assessments were completed between 2009 and 2011, with the earliest (the former Yugoslav Republic

of Macedonia) in 2006. The seven-country initiative funded by the German Federal Ministry for the Environment,

Nature Conservation and Nuclear Safety and carried out by the WHO Regional Office for Europe was a driving force for the health vulnerability assessments in

some countries (WHO Regional Office for Europe, 2014b). Some examples of health-related assessments are featured in Box 1.

Box 1. Selected examples of national health-specific assessments related to climate change

In **Albania** a vulnerability assessment of the potential health impacts of climate change for the Albanian population was conducted in 2011. It took place within the framework of the seven-country initiative of the WHO Regional Office for Europe (2014b).

In **Austria** several health assessments have been conducted as part of the national adaptation strategy, including of heat risks, vectors spread potential and allergenic pollens.

In **Denmark** the 2008 national adaptation strategy includes a section on various health assessments. Regions and municipalities also conduct assessments of vulnerability to different kinds of risk as part of local emergency planning.

In **Germany** an assessment of the health and vulnerability effects of climate change was carried out in 2010. Several research projects are looking at outcome-specific climate influences, including vector-borne diseases and allergenic pollens.

In **Kyrgyzstan** an assessment of vulnerability to climate change of the population residing in Bishkek was conducted in 2008 and a report published within the framework of the seven-country initiative of the WHO Regional Office for Europe (2014b).

In **Lithuania** national vulnerability and adaptation to climate change were evaluated as part of the analysis in preparation of a draft national strategy for climate change management for 2013–2050. In particular, heat and pollen allergies were taken into account.

In **Norway** an official Norwegian report of 2010 includes a section on health vulnerability evaluation, featuring qualitative and quantitative estimates of prospective impacts of climate change on climate-sensitive diseases.

In **Spain** the national climate change adaptation plan of 2006 includes a section on health and vulnerability assessments conducted by research institutions and universities.

In **the former Yugoslav Republic of Macedonia** the second national communication to the UNFCCC of 2006 includes a health sector vulnerability and adaptation assessment, and in 2011 several health assessments were conducted within the framework of the seven-country initiative of the WHO Regional Office for Europe (2014b). These focused on heat waves and morbidity, temperature and salmonella infection, the presence of the dengue vector in the country, and climate and airborne allergenic pollen.

4.4.3 Topic 3: national and subnational adaptation strategies

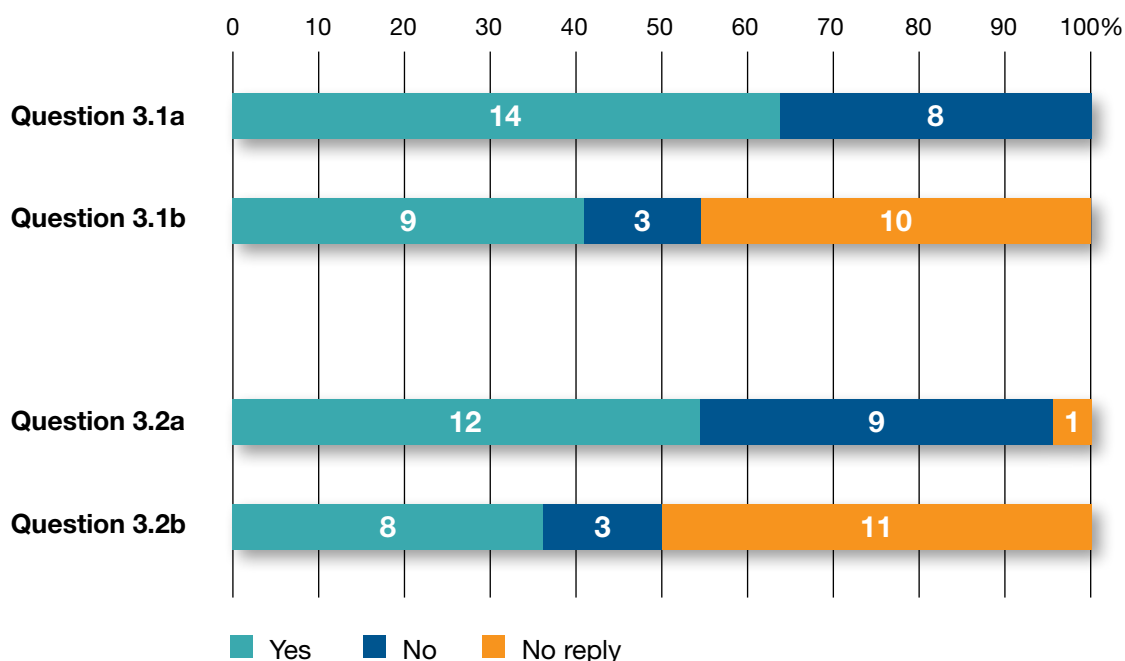
Topic 3 raises questions on the development of adaptation plans and/or strategies for climate change at the national or subnational level, and specifically on health-related adaptation plans. It also addresses approval of plans by the government.

Question 3.1 asked “Have you developed a national adaptation strategy to climate change in your country?” and followed up with “If yes, has it been approved by your government?” National and subnational adaptation strategies and/or action plans on climate change had been developed in 14 (63.6%) of the 22

participating countries (Fig. 5). Among these, nine countries (40.9%) had received approval from the government. A plan was developed as early as 2003 in Croatia, but in most other countries strategies were developed after 2008.

Question 3.2 asked “Have you developed a national climate change health adaptation strategy or health action plan?” and followed up with “If yes, has it been approved by your government?” Of the participating countries 12 (54.5%) had developed a health adaptation plan/strategy on climate change, and in eight countries (36.4%) these had been approved by the government (Fig. 5). The high number of “no reply” answers on this topic may be partly explained by the typically long approval processes of these governmental instruments.

Fig. 5. Responses to questions 3.1a, 3.1b, 3.2a and 3.2b



With regard to the development of (general) national adaptation strategies to climate change, some countries gave more information on the objectives and the process (Austria, Croatia, Denmark, Germany, Hungary, Lithuania, Norway, Slovenia, Spain and Turkey).

Albania, Armenia, Austria, Croatia, Denmark, Germany, Hungary, Italy,

Kyrgyzstan, Spain and the former Yugoslav Republic of Macedonia provided explanatory comments on the aims and specific elements of the health component of their national adaptation strategies. Two country examples (Albania and Spain) are shown in Box 2, highlighting the health-relevant objectives of national adaptation strategies.

Box 2. Selected examples of health-relevant objectives of national adaptation strategies

Albania's national adaptation strategy features several health-relevant objectives:

- raising awareness of climate change and health;
- information, research and innovation;
- integrating health in all policies;
- intersectoral monitoring systems;
- capacity building (heat and cold);
- emergency structures (floods and fires);
- surveillance and control of selected infectious diseases and vectors;
- prevention of pollen exposure-related health issues;
- energy efficiency in the health sector.

In Spain evaluation of the effects of climate change on health took into account projections of the demographic structure in the country and the influence of other sectors under different climate change scenarios. This analysis provided the basis for mapping the most vulnerable areas for health under climate change, as well as the development of:

- plans of action in public health early warning systems that enable the identification of risk situations before they occur;
- specific programmes for monitoring and control of vector-transmitted diseases;
- activities aimed at increasing awareness of and participation in all activities related to climate change and its implications for human health;
 - an observatory on health and climate change.

4.4.4 Topic 4: climate change mitigation

Topic 4 explores some of the main areas of action to mitigate climate change through reducing greenhouse gas emissions, including energy-efficient buildings, transport and agriculture. It does not include land use, land use change and forestry. It also evaluates assessment of the health benefits of action in these sectors. The questions in this topic were the following.

- 4.1 "Do you promote energy-efficient buildings?"
- 4.2 "Do you promote access to safe transport or public transport modes?"
- 4.3 "Do you promote carbon-neutral agriculture practices?"

4.4 "Have you assessed the health benefits of the above measures?"

4.5 "Have mitigation measures in other sectors in your country been taken?"

4.6 "If mitigation measures in other sectors have been taken, have any health effects of those mitigation measures been assessed?"

A number of countries (Albania, Armenia, Austria, Belarus, Croatia, Germany, Hungary, Kazakhstan, Kyrgyzstan, Lithuania, Montenegro, Serbia, Slovenia, Spain, the former Yugoslav Republic of Macedonia, Turkey and Ukraine) provided examples in answer to the topic's questions. These included programmes and projects, legal measures, laws and regulations, certification and national

standards, promotion of research and development, incentive programmes, promotional measures, information dissemination, training and consultation in the context of mitigation activities (buildings, transport, and agriculture). An assessment of the health benefits of mitigation measures in transport, agriculture and other sectors had been conducted in five countries (22.7%).

Boxes 3–5 give selected examples

from the replies to questions 4.1–4.6. Replies were very positive with regard to promotion of energy-efficient buildings (22 positive replies: 100%), promoting access to safe transport or public transportation (21 positive replies: 95.5%) and generally taking mitigation measures in other sectors (21 positive replies: 95.5%). Less progress was reported when asking about shifting to carbon-neutral agriculture (17 positive replies: 77.3%).

Box 3. Selected examples of promotion of energy-efficient buildings

Albania has enacted regulations that require the energy-efficiency labelling of office equipment in its “Energy star” programme.

In Croatia the “House in Order” programme is targeted at energy efficiency in buildings owned by the central government. A pilot project (“Introduction of systematic energy management”) in the city of Sisak has achieved energy savings equivalent to US\$ 180 000, or 10% of the annual municipal budget for energy.

Germany reports that 1 euro of public funds for energy-efficient building attracts private investments to a value of 12 euros. Since 2006 the federal government has reduced greenhouse gas emissions by 5.6 million tonnes through energy-efficient buildings in private dwelling and public infrastructure.

In 2007 the governments of Ukraine and Germany launched the “Energy efficiency in buildings” project. Its main priorities include supporting the development of a national energy-efficiency strategy in Ukraine and increasing the energy efficiency of buildings in Ukrainian cities through projects in four pilot cities (Chernigov, Ivano-Frankovsk, Mirgorod and Novograd-Volynski). Each city, with the support of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), has developed a municipal plan of energy efficiency in buildings with a focus on the following activities:

- collecting data on the use of and demand for energy in buildings;
- developing a long-term strategy (i.e. an energy plan and demand-management activities);
- developing an action plan and preparing for its implementation;
- identifying funding and incentive mechanisms;
- conducting public awareness-raising campaigns;
 - developing a monitoring and reporting framework.

Box 4. Selected examples of mitigation measures in the transport sector

In Austria the “Klima: aktiv mobil” campaign, which has 2700 partners, is achieving a reduction of 530 000 tonnes of carbon dioxide (CO₂)

Box 4. contd

emissions every year. Over the past five years the campaign has supported communities and companies with €56 million, brought in investments of €340 million and created 3800 “green” jobs. An evaluation of the health benefits of the campaign showed that achieving the bicycle-traffic share target of 10% by 2015 will save Austria health costs of over €810 million per year.

Denmark has evaluated the health aspects of mitigation measures, such as the creation of environmental zones in cities, and improved conditions for cyclists (Danish Ministry of Transport, 2012).

Three cities in Croatia are among the 22 most successful cities from 15 countries participating in European Mobility Week.

Italy has funded 187 projects through the sustainable mobility fund (with €195 million). All measures aim to improve urban air quality, reduce road accidents involving pedestrians and cyclists and protect the health of citizens.

“Bicing” is the name of the public bicycle sharing initiative in Barcelona, Spain, which was introduced in 2007 in the context of a national strategy on sustainable mobility.

In Slovenia the “Meet you at the station” project, targeted at kindergartens, schools and individual car users, is part of the activities of the Ministry for Infrastructure and Spatial Planning in the field of public awareness of the impact of public transport. A national cycling network has also been set up.

Ukraine reports large investments in public transport (metro stations in Kiev, city metro developments in Kharkow, Dnepropetrovsk and Donetsk). In Ukrainian cities (Kiev, Lvov) bicycle lanes are being built and improvements are being made to provide free bicycle parking spaces.

The Cross-Border Co-operation Programme 2007–2013 of the European Neighbourhood and Partnership Instrument (ENPI) between Hungary, Romania, Slovakia and Ukraine provided for the construction of cross-border bicycle lanes and bicycle parking lots in Bereghsuran, the development of a database on tourist sites along the bicycle lanes and training for cycling tour guides. Another major cycling infrastructure project is currently being implemented by the village of Baranintsy, in collaboration with Uzhgorod City Council and partners in Poland (the city of Krosno). The allocated funds will cover the establishment of a cycling tourist centre in Bozdosh Park, purchasing of modern bicycles and tourist tents, and the development of cycling itineraries within the city and across the district. A multilingual guide book with a map of bicycle lanes is in the pipeline.

Box 5. Selected examples of carbon-neutral agricultural practice

Germany mentions as an example the implementation at the national level of the EU’s common agricultural policy framework, which financially supports agricultural practice with a positive impact on greenhouse gas emissions.

Lithuania includes mitigation measures in its rural development programme, including agro-environment payments, an organic farming scheme and an environmentally friendly fruit and vegetable cultivation system. Special emphasis is on protection of water quality.

Box 5. contd

Montenegro highlights the importance of better use of agricultural land. A few municipalities are implementing energy-efficiency projects, and further support is needed to prepare local plans for sustainable use of resources.

Spain has undertaken measures to promote forestation of agricultural land and promotion of carbon sinks.

The former Yugoslav Republic of Macedonia highlights as examples the policies being implemented towards alignment with the EU's common agricultural policy legislation, including the completion of institutional and legal reforms in irrigation and the development of a system of application of good agricultural practices, as well as enabling financial support to incentivize farmers to use them.

In Ukraine biogas installations are used for dung recycling at some pig farms. After treatment, the solid and liquid fractions are used as fertilizers and the biogas is used for heating the farm buildings.

Box 6. EU policies and impact on national action on mitigation

Climate policy and specifically mitigation within the EU are, like other environmental issues, of “shared competence” between the EU and its Member States. Mitigation policy in the EU is rather complex and beyond the scope of this document, but the basis for the promotion of action at the national level usually takes the form of directives and regulations. Directives must be implemented by Member States, and the European Commission has the competencies to oversee implementation of policies and open infringement procedures if necessary. Several EU directives are directly relevant to greenhouse gas emissions reduction (see table below).

Sector	Directives
Energy	Energy Taxation Directive (Directive 2003/96/EC) Renewable Energy Directives (2001/77/EC, 2009/28/EC) Energy Efficiency Directive (2012/27/EU) Energy Performance of Buildings (2002/91/EC, 2010/31/EU) Energy Labelling of Products (92/75/EEC, 2010/30/EU) Ecodesign Directive (2009/125/EU)
Transport	Transport Emissions Performance Standards (443/2009) Biofuels in transport (2003/30/EC, 2009/28/EC) Fuel quality Directive (2009/30/EC)
Agriculture	Common Agricultural Policy (1782/2003) Nitrates Directive (91/676/EEC)
Waste	Waste Landfill Directive (1999/31/EC) Waste Incineration Directive (2000/76/EC)
Cross-sectional	EU Emissions Trading Scheme Directives (2003/87/EC, 2008/101/EC, 2009/29/EC) Linking Directive (2004/101/EC) Carbon Capture and Storage Directive (2009/31/EC)

Source: adapted from Cludius, Foerster, & Graichen (2012) and Freyling et al. (2014)

Box 6. contd

In addition to the directives, there is a plethora of EU regulations relevant to mitigation. National action is a legal mandate in most non-health sectors that address mitigation in the questionnaire. All EU Member States within the sample of respondents answered positively in the related sub-questions. In addition to legislation, a full range of EU sectoral plans and programs are designed to facilitate and strengthen national implementation. Overall, the EU has played a highly relevant role in mitigation in its member states, and by extension in countries aligning their own regulations with the EU environmental acquis. In the international arena, the EU Climate and Energy Framework provides the basis for the EU's external positioning in the international climate negotiations.

4.4.5 Topic 5: strengthening health systems

Health system strengthening is a key component of adaptation activity. Topic 5 explores the level of implementation of measures to strengthen health systems through seven questions.

Question 5.1 asked “Have you strengthened public health and health services to cope with climate change?” Of the 22 responding countries 19 (86.4%) had actively conducted such activities. Several countries provided additional details, of which the main items are listed in Table 3.

Table 3. Measures taken by Member States to strengthen health systems

Measure	Number of countries replying “yes” or giving examples
Strengthening infectious disease surveillance	19
Strengthening environmental health services (water, sanitation, vaccinations)	15
Strengthening health security and implementation of International Health Regulations	15
Strengthening early warning and disaster response systems	15
Integrating climate change into public health policy	11
Strengthening primary health care services	13
Ensuring that planning for climate change is included in public health policy	14
Developing integrated climate, environment and health surveillance	7
Building climate-resilient infrastructure	6

Further information was provided on some specific types of action. For example, the strengthening of primary health care services in the face of climate change was undertaken through better provision

for emergency management in Lithuania; a heat-health prevention plan in Italy; chronic disease surveillance in the elderly in Turkey; and training of primary health care practitioners and development of

guidelines in Croatia and the former Yugoslav Republic of Macedonia. Building of climate-resilient infrastructure included the elevation of metro entrances to avoid flooding in Denmark; the renovation or reconstruction of health facilities in Lithuania and the former Yugoslav Republic of Macedonia; and the promotion of the use of renewable energy in the health sector in Germany, Kyrgyzstan, Lithuania, Slovenia and the former Yugoslav Republic of Macedonia.

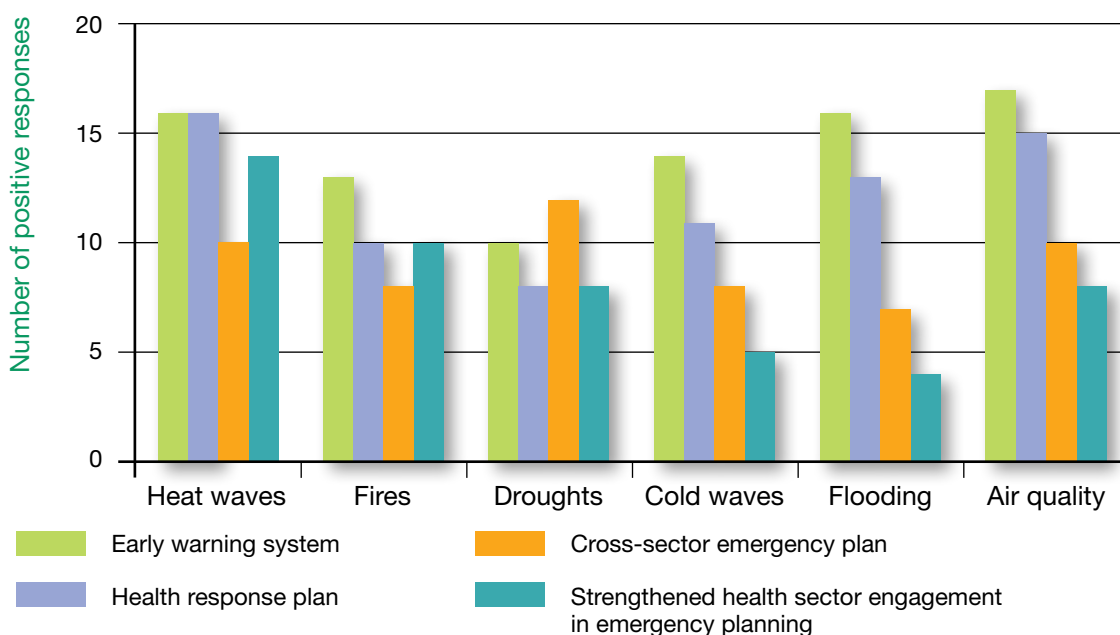
Question 5.2 asked “Have you enhanced disease surveillance and early warning of climate sensitive diseases?” Of the 22 participating countries 17 (77.3%) gave positive responses. Examples included increasing the frequency or number of sites of monitoring; expansion of the list of notifiable infectious diseases; enhancement of case definitions; updating protocols; initiation of new monitoring for vectors; and enhancement of coordination between related institutions on infectious disease and vectors.

Questions 5.3 and 5.4 asked about action with regard to extreme weather (see Fig. 6 for specific areas): “Have you developed early warning systems for

extreme weather events and have you developed appropriate health sector response plans in the areas below?”; “Have you strengthened health sector engagement in emergency planning for extreme weather events and have you developed cross-sector plans?” Of the 22 responding countries 20 (90.9%) had developed early warning systems and 16 (72.7%) had strengthened health sector engagement in emergency planning for extreme weather events.

Further details were provided on early warning systems: 17 countries (77.3%) reported having in place early warning systems for air quality; 16 (72.7%) for heat waves; 16 (72.7%) for flooding; 14 (63.6%) for cold waves; 13 (59.1%) for fires; and 10 (45.5%) for droughts. Health response plans were also strongly developed across all climate-related extreme events listed. Cross-sector emergency plans had been set up in 12 countries (54.5%) to deal with droughts. Health sector engagement had been strengthened to better cope with heat waves in 14 countries (63.6%), and health sector strengthening for other extremes was also reported. The results⁴ are summarized in Fig. 6.

Fig. 6. Measures taken to protect health from extreme weather events



⁴ Note: interpretation of these cross-national results can be misleading, so the figures should be seen as descriptive only (see also Section 3.2).

Question 5.5 asked “Have you improved monitoring of climate-sensitive environmental determinants of health?” Of the 22 responding countries 16 (72.7%) replied positively. Most countries mentioned air pollution monitoring, which is carried out according to EU regulations in EU Member States; other areas were water quality and vector monitoring, both of animal and human diseases.

Question 5.6 asked “Have you developed a cross-sector approach on climate change adaptation?” Of the 22 responding countries 16 (72.7%) replied positively. In many countries, climate change was included in the strategic plan of the ministry of health (Croatia, Germany, Kazakhstan, Kyrgyzstan, Lithuania, the former Yugoslav Republic of Macedonia and Ukraine). Programme development

and formation of working groups had been undertaken in Kazakhstan and Kyrgyzstan. In Spain and Norway, climate change was included in laws on public health.

Question 5.7 asked “Do you intend to address health benefits/damages (e.g. by conducting a health impact assessment)?” Of the 22 responding countries 19 (86.4%) responded positively. Specific areas of ongoing or upcoming health impact assessments were heat waves, water availability and quality, and vector-borne diseases.

All countries replying to questions in this topic provided examples of several activities; selected examples are featured in Boxes 7–9. Further detail on these falls outside the scope of this evaluation, but the quality and richness of the answers highlight that this is an activity that receives much attention.

Box 7. Selected examples of strengthening infectious disease surveillance

In Denmark, real-time surveillance of daily mortality was launched by linking the Danish Central Personal Registry (CPR) to the Statens Serum Institute (SSI), one of the country’s main national disease surveillance bodies. This system is operated in coordination with a project called European monitoring of excess mortality for public health action (EuroMOMO), which is co-funded by the European Commission Directorate-General for Health and Consumers, and in which 22 partners from 20 European countries participate. It was developed and operated to establish a routine public health mortality monitoring system aimed at detecting and measuring the excess number of deaths related to major public health threats, including influenza, to provide essential information for surveillance and action for heat waves.

Kyrgyzstan has strengthened malaria control activities within the framework of the Global Fund to Fight Aids, Tuberculosis and Malaria’s “Malaria control in Kyrgyzstan, 2006–2010” project. Over a period of 5 years more than 200 000 households in malaria foci and settlements densely populated with carriers were treated, with support from rural health committees. Within the framework of the “Partnership development and population involvement in malaria control activities in Kyrgyzstan” strategy, information distribution points were organized by rural health committees. Two training centres were established to improve the knowledge and skills of medical personnel on adequate treatment and epidemic vigilance. From 2006 to 2010 as many as 3350 specialists from different Kyrgyz health care facilities received training and another 15 professionals attended a training course on topical problems of malaria at Moscow State Medical University. Software to aid malaria control in Kyrgyzstan has also been developed. Two reference centres on quality control of laboratory diagnosis have been deployed and provided with computer-based microscopes. Only three indigenous malaria cases were reported in Kyrgyzstan in 2010 versus 225 cases in 2005.

Box 8. Selected example of an early warning system for extreme weather events

In Italy, 27 cities are covered by a specific warning system based on the relationship between temperature and mortality, which serves as a basis for the modulation of prevention measures. During the summer, the National Coordination Centre receives weather forecast data from the Meteorological Service of the Department of Civil Protection every morning. It runs city-specific models to predict at-risk conditions for the following 72 hours and produces a warning bulletin. The level of risk issued by the heat-health watch warning system is graded on the basis of both model (national and city-level) outputs. Level 1 (attention) is issued on days with pre-warning meteorological conditions and low risk of mortality; level 2 (alarm) is issued on days with meteorological conditions associated with a high risk for the population, level 3 (emergency) is issued on the third consecutive day of level 2 and identifies heat wave episodes. The Italian Forestry Corps has also developed a warning and instruction pamphlet and issued an emergency number for forest fires.

Box 9. Selected examples of monitoring of climate-sensitive exposures and outcomes

Insect-borne diseases such as bluetongue disease and infection with Schmallenberg virus in ruminants (transmitted by biting midges), as well as human Chikungunya fever in northern Italy (transmitted by mosquitoes), first occurred in Europe in the last few years. These results illustrate the importance of research on blood-sucking insects. Scientists from the Friedrich-Loeffler-Institute Federal Research Institute for Animal Health and the Leibniz Centre for Agricultural Landscape Research in Germany are investigating the geographical distribution and changes in the seasonal occurrence of the insects. These data are of particular importance with regard to the possible spread of newly introduced animal pathogens. The Robert Koch Institute conducts in-depth analyses of human surveillance data on climate-sensitive pathogens, as well as studies on the determinants of climate-sensitive infectious diseases (such as hantavirus) and on the pathogenicity of pathogens newly introduced into Germany for humans.

The German Pollen Information Service records pollen counts from spring to autumn. Pollen of mugwort, birch, alder, hazel, rye and grasses, as well as Ambrosia (since 2006), is routinely counted. Pollen counts are compiled in a well-established airborne pollen calendar. In addition, pollen level predictions are calculated on the basis of the pollen counts, phenological observations (of plants) and meteorological data of the German Meteorological Service. During the pollen season the public is informed about regional pollen predictions via the internet, broadcasting, a telephone service and newspapers. The pollen calendar and predictions are available free of charge on the internet.

4.4.6 Topic 6: raising awareness and building capacity

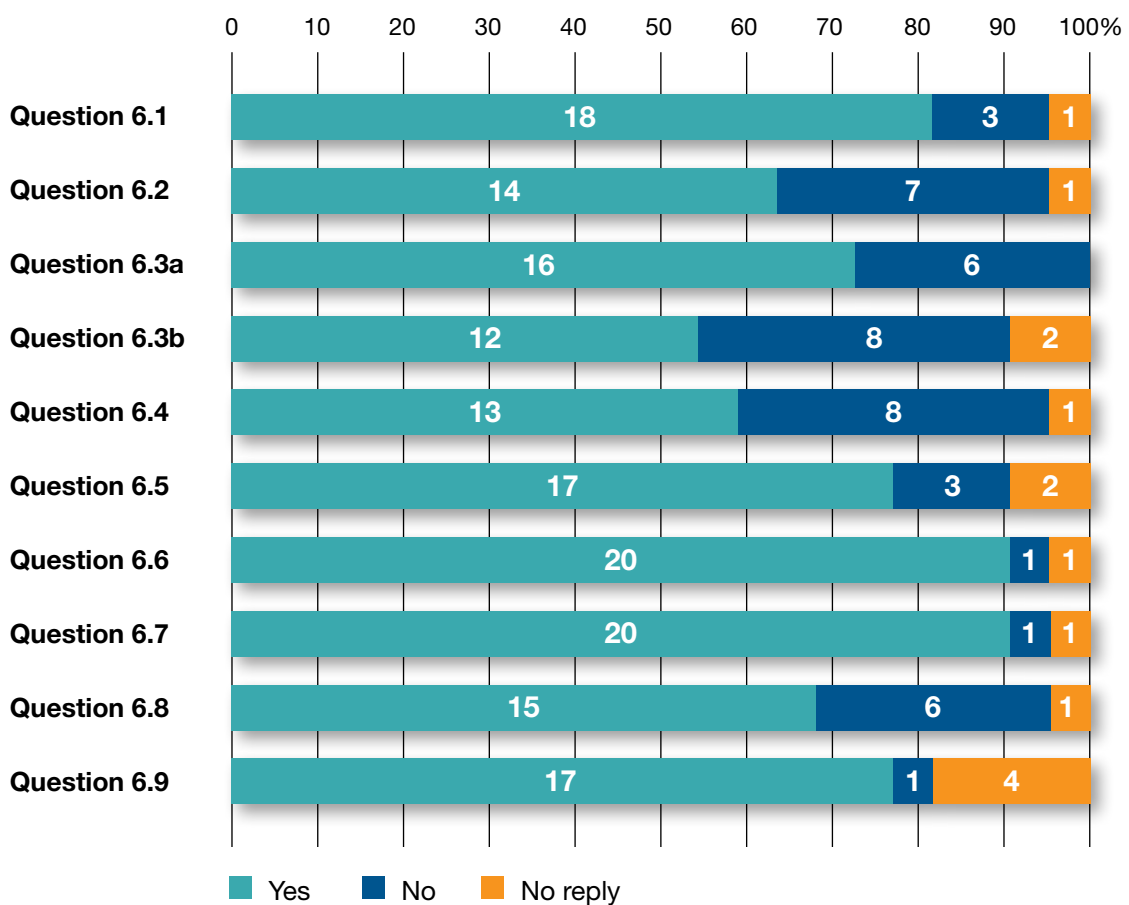
Raising of awareness, together with surveillance strengthening, is a vital aspect

of adaptation activities. Topic 6 has nine questions to investigate this area.

6.1 “Is climate change perceived as important in political developments in your country?”

- 6.2 “Are health effects of climate change of high relevance in political processes?”
 - 6.3a “Is the level of support for policies targeting climate change and related effects on health high in the public sector of society?”
 - 6.3b “Is the level of support for policies targeting climate change and related effects on health high in the private sector of society?”
 - 6.4 “Do you have enough information at your disposal on climate change and its impact on health with regard to your country?”
 - 6.5 “Have you built capacity and developed a workforce on climate change and health-related aspects?”
 - 6.6 “Have you raised public awareness about climate change and health and mitigation and adaptation measures?”
 - 6.7 “Have you developed communication messages for extreme weather events to be released with an early warning for such an event?”
 - 6.8 “Have you developed communication plans for key messages on climate change and health for other sectors and the general public?”
 - 6.9 “What are the main messages on protecting health from climate change you would like to communicate?”
- Overall responses to topic 6 are summarized in Fig. 7.

Fig. 7. Responses to questions 6.1–6.9



Of the 22 responding countries 18 (81.8%) perceived climate change as important in national political developments. High relevance of health effects of climate change in political processes was reported in 14 (63.6%) countries. On the level of support from society, 16 (72.7%) reported support from the public sector to climate policies and 12 (54.5%) reported support from the private sector. Overall, 13 (59.1%) countries responded that they had a good availability of information about climate change and health. On capacity building and development of a workforce on climate change and health-related aspects, 17 (77.3%) countries gave a positive response. Programme development was the main form of action. Of the 22 countries 20 (90.9%) replied positively on activities towards raising public awareness about climate change and health and mitigation and adaptation measures. Various media were used for communication and education,

including TV, internet, flyers, web sites, e-newsletters and magazines. On the development of communication messages for extreme weather events, 20 countries (90.9%) gave a positive response; 15 countries (68.2%) replied positively on the development of communication plans for key messages on climate change and health for other sectors and the general public; and 17 (77.3%) provided specific information on the main messages on protecting health from climate change. Topics of those messages included the health impacts of extreme weather and their prevention, the need for mitigation to avert climate change impacts, health systems preparedness, vectors expansion and individual/family readiness for crises.

Several countries provided further information in their replies to question 6.5 on capacity building, examples of which are displayed in Box 10.

Box 10. Selected examples of training and capacity-building initiatives

Austria offered training to young people to become “CEHAPE Peers” (participants in the Children’s Environment and Health Action Plan for Europe), and youth experts were trained as “youth mobility coaches”, receiving eco-training for drivers, as part of the scheme.

At least 89 public health professionals from 54 state epidemiologic centres in Kyrgyzstan, as well as another 140 specialists from district and regional health promotion centres, have undergone training in climate change and health-related aspects.

In many of Lithuania’s universities, subjects relevant for climate policy change are included in undergraduate and graduate programmes (e.g. sensitivity to climate change and adaptation measures, environmental law, environmental pollution prevention and global and regional environmental problems). Local research is being conducted on future climate change scenarios for Lithuania and on the hydrogeological dynamics of the Baltic seashore, aiming to understand the impacts of climate warming and related phenomena (such as hurricanes and rising sea levels) on the status of the shores, tourism and seaports.

Montenegro ratified the UNFCCC in 2006 and the Kyoto Protocol in 2007. Since ratification, the Montenegrin government is trying to improve its capability to deal with climate change through capacity building: the government recommends that civil servants participate in seminars and workshops and undergo training on climate change.

Box 10. contd

One of the actions of the Spanish Observatory of Health and Climate Change has been the establishment and coordination of a network of scientific experts. This has provided a basis for cooperation and knowledge sharing that facilitates communication and collaboration between various administrations and institutions.

The former Yugoslav Republic of Macedonia has included climate change and health impacts and responses in mainstream undergraduate and postgraduate training in medical faculties in Skopje and Stip.

4.4.7 Topic 7: green health services

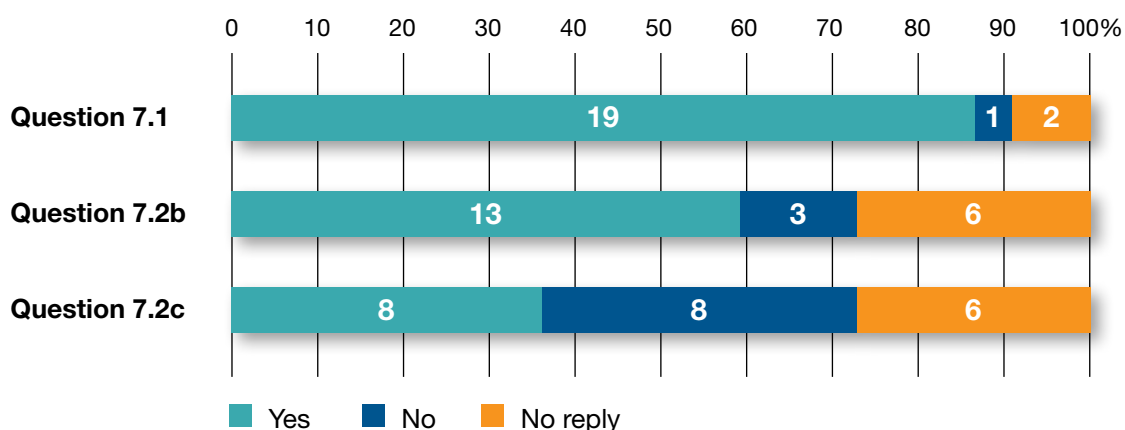
Topic 7 investigates green and sustainable health and environment sectors, a key component of mitigation action in climate change and health. The health sector represents a comparatively large sector of the economy in the WHO European Region. It is also energy-, resource- and carbon-intensive. Most importantly, the exemplary power of the health sector taking the lead in environmental performance cannot be overstated.

Question 7.1 asked about “activities at the national, regional or local level which have been undertaken to reduce the health sectors’ own greenhouse

gas emissions”. In 19 (86.4%) of the 22 responding countries, “greening” of health services is practised at some level.

Question 7.2a asked “Can you list a few examples of measures that have been taken?” Questions 7.2b (“Have local measures in any health care facilities been taken, like training and organizing the workforce?”) and 7.2c (“Has the effectiveness of some of the measures or action on sustainable health been evaluated?”) followed up to address further details. In 13 (59.1%) countries local measures had been taken in health facilities, but the effectiveness of the measures or actions had only been evaluated in 8 (36.4%) countries (Fig. 8).

Fig. 8. Responses to questions 7.1, 7.2b and 7.2c



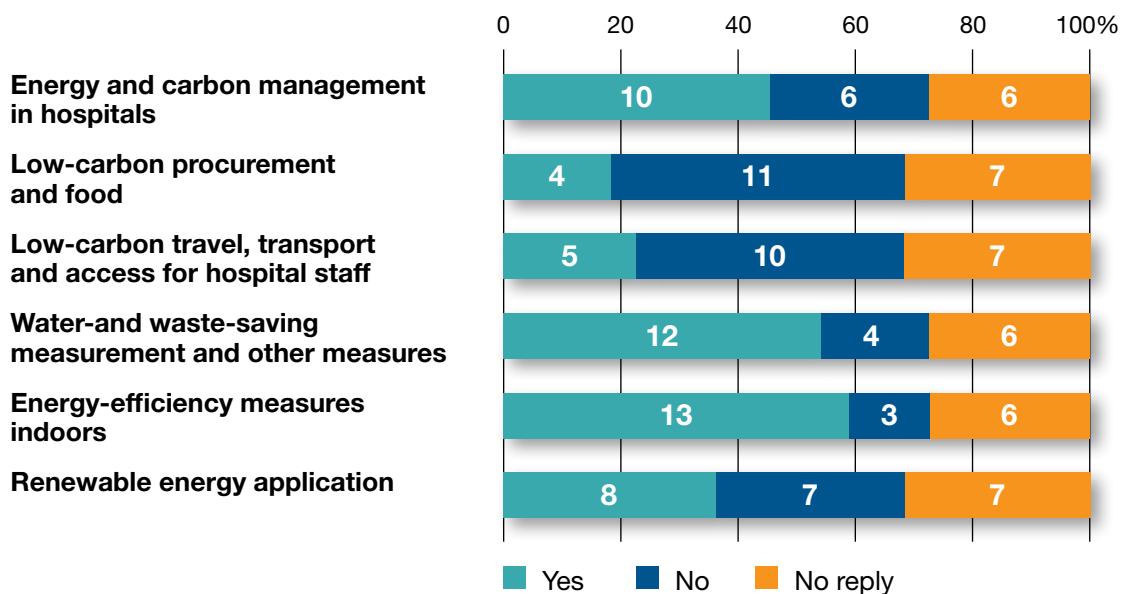
The questionnaire asked respondents to identify examples of activities in this area (“greening of health services”) present in the countries. The categories included

energy and carbon management in hospitals (10 countries: 45.5%), low-carbon procurement and food (4 countries: 18.2%), low-carbon travel,

transport and access for hospital staff (5 countries: 22.7%), water- and waste-saving measurement and other measures (12 countries: 54.5%), energy-efficiency

measures indoors (13 countries: 59.1%) and renewable energy application (8 countries: 36.4%) (Fig. 9).

Fig. 9. Measures taken to “green” health services



Energy saving in health care facilities was the most common practice reported; according to the state of the sector in each country, this took the form of

preliminary assessments, infrastructure and retrofitting investment, or incentives for improved performance (Box 11).

Box 11. Selected examples of energy-saving health care initiatives

The seven-country initiative funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and carried out by the WHO Regional Office for Europe (2014b) provides good examples of early stages of energy efficiency in hospitals. Assessments of energy efficiency in hospitals were conducted:

- in the former Yugoslav Republic of Macedonia, where a manual was developed to increase capacity in energy efficiency for health care and facilities managers;
- in Kyrgyzstan, where renewable energy installations were set up in five hospitals, including one solar water-heating unit and four solar photovoltaic installations.

The Spanish Government passed a regulation to ensure the sustainability of the health care system; this included measures for environmental sustainability, entailing energy efficiency and other areas.

Box 11. contd

In Lithuania recent legislation mandates the inclusion of environmental criteria in every public procurement process, including those for health care supplies.

Good environmental practices are officially recommended by the governments of Slovenia and Kazakhstan to health care providers through various channels.

Hospitals were a substantial proportion (6 out of 15) of the public facilities selected in Montenegro for energy-efficiency improvements financed by the International Bank for Reconstruction and Development.

4.4.8 Topic 8: sharing best practice

Topic 8 examines the exchange of information on best practice between and within countries.

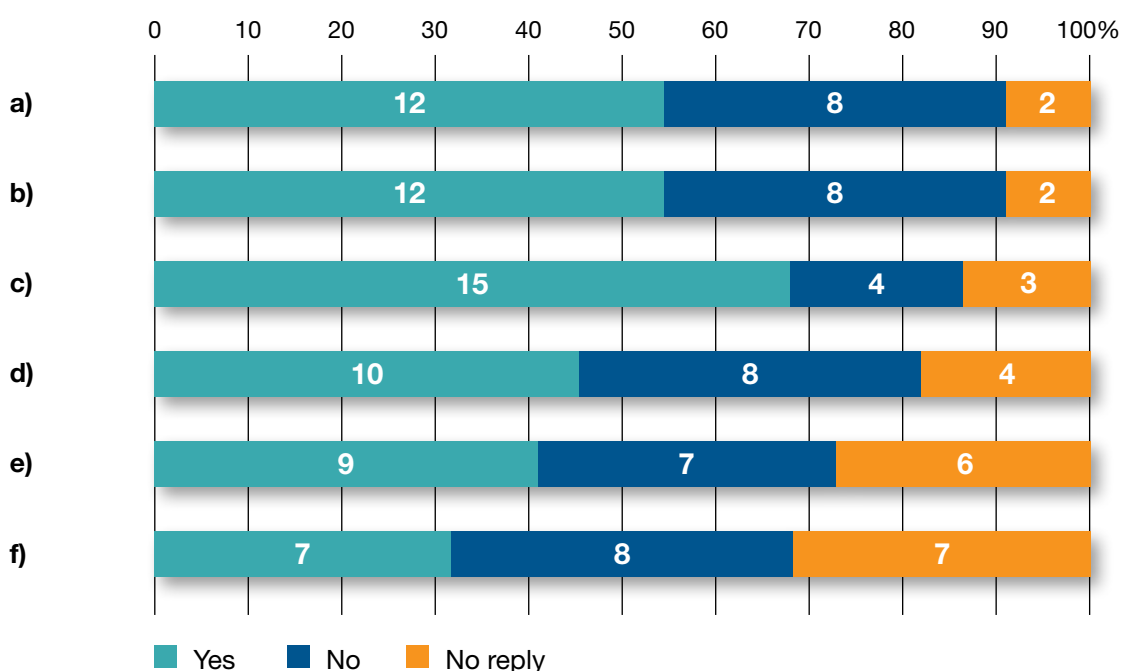
Question 8.1 asked “Can you share information on best practice with regard to:

- a) national health impact assessments
- b) adaptation plans and strategy developments

- c) trends in climate change, environment and health indicators
- d) case studies of best practice and health co-benefits
- e) pilot project funding and research opportunities
- f) effectiveness of adaptation and mitigation measures?”

Of the 22 countries 16 (72.7%) said they share information on best practice. Most responded about the specific areas listed (Fig. 10).

Fig. 10. Responses to components of question 8.1



The remaining questions in this topic were:

8.2 “Have you developed projects or aspects related to innovation and research?”

8.3 “Evaluation of health damage and adaption costs: have you estimated the costs of climate change and/or the health damage costs”

8.4 “Do you measure and evaluate trends in climate change, environment and health indicators?”

8.5 “What do you measure? And to whom do you report?”

8.6 “Are you aware of pilot projects in your country on climate change and health?”

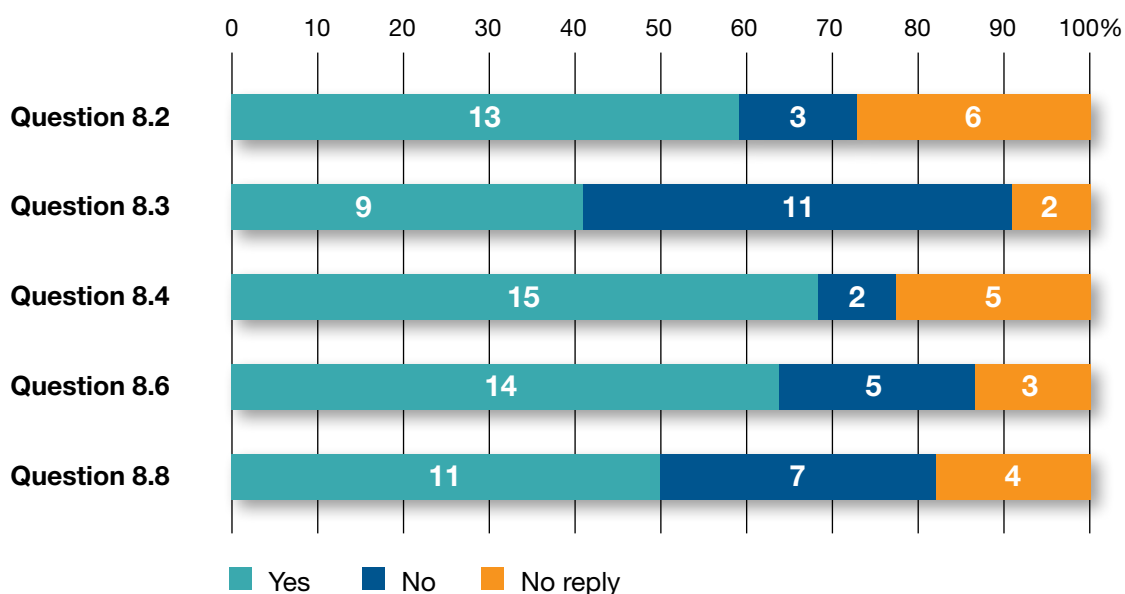
8.7 “Which of the results would you promote to share with other European Member States?”

8.8 “Do you make your information available on the EU adaptation clearinghouse?”

On the development of projects or aspects related to innovation and research, 13 (59.1%) of the countries gave a positive response. Only nine countries (40.9%) had estimated the health costs of climate change or of adaptation.

Sharing information related to climate change, environment and health indicators was a common activity (15 countries: 68.2%) – details of information shared are listed below. 14 countries (63.6%) reported on pilot projects in climate change and health, and 11 countries (50%) made information available on the EU Climate Adaptation platform (EEA) (Fig. 11).

Fig. 11. Responses to questions 8.2, 8.3, 8.4, 8.6 and 8.8

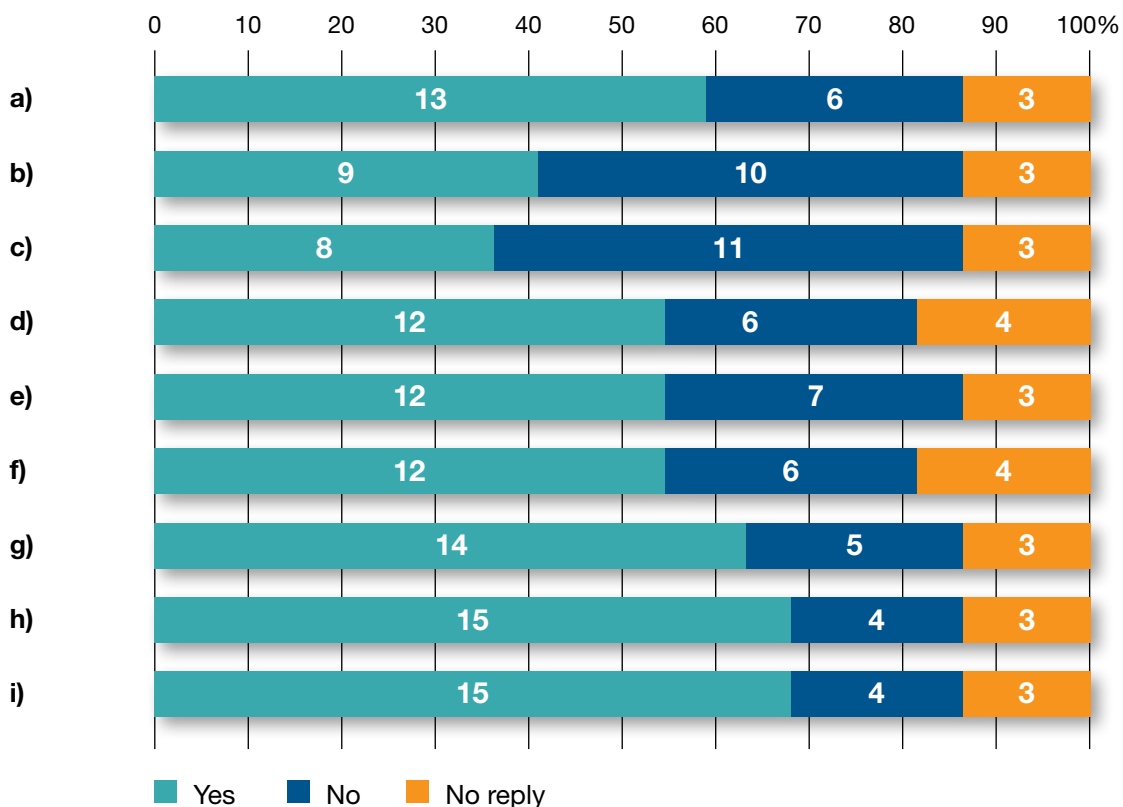


About half of the countries reported the use of specific climate change and health indicators (Fig. 12) listed in full in question 8.5: “What do you measure? And to whom do you report:

- a) heat-wave exposure
- b) excess heat mortality
- c) policies to prevent heat-related deaths

- d) exposure to allergenic pollens
- e) population exposure to flood
- f) Lyme borreliosis
- g) policies to prevent infectious diseases
- h) waterborne diseases
- i) foodborne diseases?”

Fig. 12. Responses to components of question 8.5



Regarding the main areas of information countries were willing to share (question 8.7) with other European partners, 15 (68.2%) reported sharing information on trends and indicators; 12 (54.5%) sharing health impact assessments; 12 (54.5%)

sharing adaptation plans and strategy developments; 10 (45.5%) sharing case studies on co-benefits; 9 (40.9%) sharing funding opportunities and 7 (31.8%) sharing information on effectiveness of measures.



5.

Discussion

The questionnaire was developed as a tool to evaluate the implementation of the Parma Commitment to Act (WHO Regional Office for Europe, 2010b) with regard to climate change. Measuring accurately the level of implementation of such a complex and far-reaching set of policy commitments is a challenging task. Despite the limitations and partial nature of this questionnaire, for WHO, asking relevant stakeholders in Member States is the most practicable way to assess the level of implementation. Furthermore, the effort on the part of the countries to fill in the questionnaire should not be understated. Of particular interest are the examples that countries provided, and here the “limited” number of 22 respondents still delivers a wealth of information that is difficult to condense (hence the abundance of boxes and lists in this report).

Nevertheless, the fact that in 2012 only 31 out of 53 Member States in the WHO European Region had nominated HIC members limits the overall representativeness of the results. Moreover, the response rate of 22 out of 31 underscores the fact that the interest or capacity to retrieve and share information on this topic cannot be taken for granted. More emphasis and more resources to follow up on this could lead to more answers from other countries in an eventual second round.

Several factors add to the difficulties in synthesizing the overall implementation of the Parma Commitment to Act in the Region, for which the diversity of vulnerabilities and national circumstances warrants a country-by-country evaluation. Some countries do more because they are more exposed to climate hazards, because they are more vulnerable or because they have better preparedness and coping capacity. Fewer activities could also reflect the fact that

strengthening of public health and protection from climate change impacts is considered less relevant, compared with other issues. Overall, differences exist that cannot be explained by geographical location, level of development, mortality levels, socioeconomic development or presence of a WHO country office. Thus, the interpretation of a positive reply is limited.

Caution should be exercised in extrapolating the prevalence of relevant governance processes across replying Member States to the whole WHO European Region, since this could be a result of the sampling strategy. Countries with such structures in place may be more likely to have nominated a member of HIC and have the capacity and commitment to complete the survey. Moreover, strong progress in areas of implementation could reflect the extended UNFCCC reporting requirements that support WHO communication and capacity building and training in these areas. While stratified analysis was not useful in describing and explaining the heterogeneity in the answers, clustering the countries according to strong areas of health protection from climate change turned out to be useful for deriving and sharing lessons learnt from the responses.

The aim of this report is not to detail national information but rather to give a cross-country snapshot on implementation across the Region. Moreover, in their HIC meeting in December 2013, members again highlighted their view that the WHO Regional Office for Europe should abstain from using the questionnaire information for ranking and grouping. For this reason, the results are presented in a way that highlights positive action without singling out Member States with fewer activities. It can be assumed, with respect, that any action or lack thereof reflects each country's specific situation, including

national priority setting and decision-making. Moreover, a number of policies and strategies may well have been

developed and implemented between the time of the survey and the publication of this report.



6

Conclusion

The WHO Regional Office for Europe's work over the past decade has shown that partnership with engaged individuals and stakeholders in ministries of health and the environment is crucial for the advancement of the European Commitment to Act on climate change and health. Those contact points (mostly represented in HIC) can best identify the national niches and priorities that best match activities in ongoing national agendas with the protection of health from climate change and green health services.

While acknowledging the limitations of this questionnaire as a tool to measure policy implementation, it is possible to derive some general conclusions for the areas covered.

- The results suggest that Member States are aware of the Parma Commitment to Act and are putting it into practice. Governance mechanisms for climate policy seem well established, at least in countries with HIC representatives.
- Financial and human resources for climate change health adaptation are integrated into ongoing activities and respective resource planning. While effective health adaptation also focuses on strengthening existing systems, there is a need to account for the additional burden of health impacts brought about by climate change.
- Vulnerability, impact and adaptation assessments seem to be an area of strong performance. Most vulnerability assessments are relatively recent, and in this regard provide a more solid foundation for adaptation planning. There are, however, gaps in translating scientific evidence into action. Moreover, key areas like the economic consequences of inaction in climate policy are still rarely included in vulnerability, impact and adaptation assessment materials and communications.
- There is room for improvement regarding governmental approval and uptake of national health adaptation plans. Executive support can dramatically improve the implementation rate of plans, particularly when multiple partners are involved.
- Most countries report climate change mitigation action on reducing greenhouse gases pertaining to the built environment and transportation, whereas action on mitigation in agriculture is less prevalent. Evaluation of the health implications (such as co-benefits) of these activities is as yet rare, even though a proper accounting of these and other ancillary benefits could help in their promotion and implementation. A better evaluation of the water, ecosystems and health effects of energy supplies and systems is necessary in order to make conscious decisions and create evidence-based policies for environment and health protection.
- Countries reported a wealth of activities on health system strengthening, with strong overall performance on infectious disease surveillance, implementation of the International Health Regulations, environmental health and early warning systems. Important areas remain lacking, however, such as the development of integrated climate, environment and health surveillance or building climate-resilient health infrastructures.
- There is a high level of awareness about climate change in the responding countries, although awareness of its health implications is lower.
- Most countries reported activities pertaining to the “greening” of health services (i.e. improving their overall sustainability – mainly environmental).

This may suggest an increasing realization of the potential of the health sector in improving environmental performance. A better and more frequent evaluation of the effectiveness of the measures taken is needed.

- Regional platforms and the internet seem to be preferred channels for the sharing of best practice in climate and health policy in the responding countries. The review of the material indicated that these might be important considerations for organizations in the field when designing their knowledge-dissemination strategies in this area.

From the results, several specific areas for technical improvement can be identified, especially an overall strengthening of capacities for assessment of health-related mitigation benefits; ascertainment of climate-sensitive disease burden in populations; assessment of the adequacy of adaptation and its social, environmental

and economic consequences; and development of climate change health and risk communication principles and materials. WHO will continue to support Member States in these areas, within the mandate of the European Regional Framework for Action and in the context of the policy priorities set forth by Health 2020.

Regarding lessons learnt from the process, it has become clear that any further evaluation of questionnaires may depend heavily on HIC members. This means that information from Member States without a nominated HIC contact could be underrepresented. Therefore, the development of an objective tool for the evaluation of climate change and health activities beyond questionnaires or surveys may be needed. Further evaluations would benefit from including a wider group of Member States, as well as wider representation of societal stakeholders in the countries.



7

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8

Annex. List of questions and quantitative scoring of replies

	Topic	Points	Remark
1	Governance	4	
2	Vulnerability, impact and adaptation assessments	2	
3	National and subnational adaptation strategies	4	
4	Climate change mitigation	6	
5	Strengthening health systems	7	
6	Raising awareness and building capacity	10	
7	Green health services	4	
8	Sharing best practice	8	
		total	45
Question			
1.1	Who is in charge of climate change in your country?	1	for answer
1.2	Who is in charge of the health aspects of climate change?	1	for answer
1.3	Has a multisectoral committee been established to deal with climate change?	1	for yes
1.4	Have you identified human and economic resources (for example, ensured that a national steering group is in place and has responsibility for identifying resources, provides strategic oversight and the delivery and monitoring of the strategy)?	1	for yes
		subtotal	4
2.1	Have you carried out a national assessment of climate change impact, vulnerability and adaptation in your country?	1	for yes
2.2	Have you done a national (or regional) health impact, vulnerability and adaptation assessment of climate change in your country?	1	for yes
		subtotal	2
3.1a	Have you developed a national adaptation strategy to climate change in your country?	1	for yes
3.1b	(If yes, has it been approved by your government?)	1	for yes
3.2a	Have you developed a national climate change health adaptation strategy or health action plan?	1	for yes
3.2b	(If yes, has it been approved by your government?)	1	for yes
		subtotal	4

4.1	Do you promote energy-efficient buildings?	1	for yes
4.2	Do you promote access to safe transport or public transport modes?	1	for yes
4.3	Do you promote carbon-neutral agriculture practices?	1	for yes
4.4	Have you assessed the health benefits of the above measures?	1	for yes
4.5	Have mitigation measures in other sectors in your country been taken?	1	for yes
4.6	If mitigation measures in other sectors have been taken, have any health effects of those mitigation measures been assessed?	1	for yes
		subtotal	6
5.1	Have you strengthened public health and health services to cope with climate change? (If yes, please provide examples...)	1	for yes
5.2	Have you enhanced disease surveillance and early warning of climate sensitive diseases? (If yes, for what diseases? What exactly has been done?)	1	for yes
5.3	Have you developed early warning systems for extreme weather events and have you developed appropriate health sector response plans in the areas below (heat waves, fires, droughts, cold waves, flooding, air quality)?	1	for yes
5.4	Have you strengthened health sector engagement in emergency planning for extreme weather events and have you developed cross-sector plans (heat waves, fires, droughts, cold waves, flooding, air quality)?	1	for yes
5.5	Have you improved monitoring of climate sensitive environmental determinants of health?	1	for yes
5.6	Have you developed a cross-sector approach on climate change adaptation?	1	for yes
5.7	Do you intend to address health benefits/damage (e.g. by conducting a health impact assessment)?	1	for yes
		subtotal	7
6.1	Is climate change perceived as important in political developments in your country?	1	for yes
6.2	Are health effects of climate change of high relevance in political processes?	1	for yes
6.3a	Is the level of support for policies targeting climate change and related effects on health high in the public sector of society?	1	for public
6.3b	Is the level of support for policies targeting climate change and related effects on health high in the private sector of society?	1	for private
6.4	Do you have enough information at your disposal on climate change and its impact on health with regard to your country?	1	for completed answer
6.5	Have you built capacity and developed a workforce on climate change and health-related aspects?	1	for yes
6.6	Have you raised public awareness about climate change and health and mitigation and adaptation measures?	1	for yes

6.7	Have you developed communication messages for extreme weather events to be released with an early warning for such an event?	1	for yes
6.8	Have you developed communication plans for key messages on climate change and health for other sectors and the general public?	1	for yes
6.9	What are the main messages on protecting health from climate change you would like to communicate?	1	for example
		subtotal	10
7.1	Greening health services: please report on activities at the national, regional or local levels that have been undertaken to reduce the health sectors' own greenhouse gas emissions	1	for example
7.2a	Can you list a few examples of measures that have been taken?	1	for legislation
7.2b	Have local measures in any health care facilities been taken, like training and organizing the workforce?	1	for measures
7.2c	Has the effectiveness of some of the measures or action on sustainable health been evaluated?	1	for evaluation
		subtotal	4
8.1	Can you share information on best practice with regard to: national health impact assessments; adaptation plans and strategy developments; trends in climate change, environment and health indicators; case studies of best practices and health co-benefits; pilot project funding and research opportunities; effectiveness of adaptation and mitigation measures.	1	for yes
8.2	Have you developed projects or aspects related to innovation and research?	1	for yes
8.3	Evaluation of health damage and adaption costs: have you estimated the costs of climate change and/or the health damage costs?	1	for yes
8.4	Do you measure and evaluate trends in climate change, environment and health indicators?	1	for yes
8.5	What do you measure? And to whom do you report: exposure to heat-waves; excess heat mortality; policies to prevent heat-related deaths; exposure to allergenic pollen; population exposure to floods; Lyme borreliosis; policies to prevent infectious diseases; waterborne diseases; foodborne diseases?	1	for any measurements
8.6	Are you aware of pilot projects in your country on climate change and health? (If so, please list some of them.)	1	for example
8.7	Which of the results would you promote to share with other European Member States?	1	for any results
8.8	Do you make your information available on the EU adaptation clearinghouse? ⁵	1	for yes
		subtotal	8
		total	45

5 The correct name of this information platform is the EU Climate Adaptation Platform (Climate-ADAPT) but the original survey referred to it as the "EU adaptation clearinghouse".

The WHO Regional Office for Europe

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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