Climate Change and Health Policy Assessment Project Report:

A Global Survey 2015

A report on the results from a global survey to evaluate the actions of national governments in protecting the health of their citizens from the impacts of climate change.

Environmental Health Working Group of the World Federation of Public Health Associations (WFPHA)

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WMA

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Executive Summary

As reported by diverse scientific and health research organizations (including the World Health Organization), climate change poses a central and increasing threat to the health of the world's people in this century. However, little is known about how national governments are planning for this unprecedented public health challenge. To address this gap in knowledge, the Climate Change Health Policy Assessment Project was developed by the World Federation for Public Health Association's (WFPHA) Environmental Health Working Group. An online survey of actions by national governments for completion by health non-governmental organisations from each country was developed with the support of the Climate and Health Alliance, Health Care Without Harm, and the Public Health Association of Australia. It was conducted during August and September 2015 by WFPHA with support from the World Medical Association and its Young Doctors Network.

National public health associations, medical associations, and other health professional organizations responded, providing information on the actions of thirty-five governments (15 developed and 20 developing nations).

The respondent countries are spread across the globe, with six continents represented, and include USA, Canada, Brazil, Spain, China, Australia, Japan and the EU.

The survey revealed a lack of climate-health preparedness, with more than half of respondent countries (51%) having no national plan to protect their citizens from the health impacts of climate change in their countries. Twelve (35%) countries have yet not developed policies for long-range climate change and its impact on health and 13 (37%) countries did not have any policies for public health adaptation.

The majority of respondent countries (77.1%) have no comprehensive identification of health risks of climate change projections for their citizens and 65.7% had done little towards identifying vulnerable populations and infrastructure, developing public health adaptation responses, assessing coping capacity or gaps in knowledge.

More than 40% of the respondent countries had failed to involve the health sector in mitigation planning or invest in research on the health effects of climate change. The specifics of these responses provide insight into the lack of focus of national governments around the world on climate and health. While these findings represent only a small number of countries, it is likely that mainly those countries that have attempted to tackle climate change responded. Thus, a much broader global picture may reveal the lack of focus on health in the CCAPs to be more widespread.

Some positive examples bucking the trend include Taiwan and Lithuania, reporting comprehensive climate change action plans with both mitigation and adaptation strategies, along with climate-health risk surveillance, and early warming systems for health risks from extreme weather. Others fared less well, including some less developed and climate-vulnerable countries, with little attention reportedly paid to the health risks of climate

change, nor a national climate change response, despite facing significant climate-health threats.

These preliminary findings strongly emphasize the need for national governments to strengthen their policy planning efforts to increase the focus on health risks of climate change. More importantly, the study highlights the need for international leadership from COP21 participants, to ensure that the health impacts of climate change are recognised by national governments as a key threat to their citizens' health requiring immediate planning and action to prevent the catastrophic projections of the Intergovernmental Panel on Climate Change (IPCC) and the World Health Organization (WHO).

Recommendations include:

- The development of national Climate Change Action Plans that recognise and respond to climate change health risks as a mandatory element of international climate agreements;
- All nations develop national climate and health strategies as a core element of their national Climate Change Action Plans;
- For all national Climate Change Action Plans to include strategies for mitigation, with a particular emphasis on transitioning away from fossil fuels;
- For health and medical professional associations to make it a priority to raise the awareness of the multiple public health risks from climate change and opportunities for improved health from climate action;
- For a collaborative information sharing platform and decision support tools be established to enable nations to access knowledge and share experience from leading countries on climate and health responses.

Survey results Matrix

Questions	Q2. Have a CCAP	Q3. Mitigation in CCAP	Q4. Adaptation in CCAP	Q5. Health impacts in CCAP	Q6(i) CC projections	Q6 (ii) CC health projections	Q6(iii) Long term health impacts	Q7(i) Awareness of vulnerabilities	Q7(ii) Heatlth adaptation response	Q7(iii) Awareness of adaptation gaps	Q8(i) Energey	Q8(ii) Transport	Q8(iii) Building	Q8(iv) Agriculture	Q9(i) Health surveillance	Q9 (ii) Early warning	Q9 (iii) involvement of health sector	Q9(iv) Support for health research
Countries	**2**	**3**	**4**	**5**	**6i**	**6ii**	**6iii**	**7i**	**7ii**	**7iii**	**8i**	**8ii**	**8iii**	**8iv**	**9i**	**9ii**	**9iii**	**9iv**
Australia	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Bangladesh	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Bosnia & Herzegovina	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●
Brazil	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
Cameroon	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●
Canada	●	●	●	●	●	●	●	●	●	●	●	●			●	●	●	●
China	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Colombia	●	●	●	●	●			●	●	●	●	●	●		●	●	●	●
Denmark	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Egypt	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Georgia	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Hungary	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Italy	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Japan	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Kuwait	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Lithuania	●	●	●	●	●	●	●	●	●	●					●	●		●
Malaysia	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Malta	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●

Questions	Q2. Have a CCAP	Q3. Mitigation in CCAP	Q4. Adaptation in CCAP	Q5. Health impacts in CCAP	Q6(i) CC projections	Q6 (ii) CC health projections	Q6(iii) Long term health impacts	Q7(i) Awareness of vulnerabilities	Q7(ii) Health adaptation response	Q7(iii) Awareness of adaptation gaps	Q8(i) Energey	Q8(ii) Transport	Q8(iii) Building	Q8(iv) Agriculture	Q9(i) Health surveillance	Q9 (ii) Early warning	Q9 (iii) involvement of health sector	Q9(iv) Support for health research
Countries	**2**	**3**	**4**	**5**	**6 i**	**6 ii**	**6 iii**	**7 i**	**7 ii**	**7 iii**	**8 i**	**8 ii**	**8 iii**	**8 iv**	**9 i**	**9 ii**	**9 iii**	**9 iv**
Mongolia	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●
Nepal	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●
New Zealand	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●
Nicaragua	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Nigeria	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Philippines	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Russia	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Sierra Leone	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
South Africa	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●
South Korea	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Spain	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Sudan	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Sweden	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Taiwan	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Thailand	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
USA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Vietnam	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Key

● **Yes / Have comprehensive plans**

● **Have plans and programs with limited monitoring**

● **No Work Done**

CCAP **Climate Change Action Plan**

CC **Climate Change**

Foreword

The health impacts of climate change is one of the most significant public health risks facing the global community. The health impacts of climate change include increases in heat-related illnesses and death; extreme weather-related injuries and mortality; aggravated chronic illnesses; spread of infectious diseases; increases in asthma, respiratory allergies, and chronic respiratory disorders; regional malnutrition and child development complications; increases in stress-related and mental health disorders; population displacement and migration due to sea level rise and droughts; as well as political instability and conflict. These will have major impact on health care costs, services and delivery in every country.

The changes in climate will impact disproportionately on poor countries with marginal abilities to cope with environmental disasters. Drought will impact food supplies in countries of northern Africa and Asia already at risk of significant malnutrition. The death and disability toll of these potential changes to the earths climate are staggering and will have primary impact on the most vulnerable – the young and elderly.

The health sector itself is paradoxically making a significant contribution to climate change. Through the products and technologies it deploys, the energy and resources it consumes, the waste it generates and the buildings it constructs and operates, the health sector is a significant source of climate change carbon emissions, and therefore a contributor to these changes that undermine public health.

The World Federation of Public Health Associations has concluded that we must act now to secure public health, and reap the benefits, for health budgets and the global community. Designing policies and programs at national and global level to protect people from climate change provides an immediate global health opportunity to reduce the burden of illness, while delivering a more stable climate in the longer term. We encourage all national governments to develop national climate and health plans to ensure their citizens are not unprotected from the major health risks from climate change

During the last year, governments participating in the 21st Conference of the Parties of the Climate Negotiations to be held in Paris in December 2015 have been preparing their national climate adaptation and mitigation reports. The World Federation of Public Health Associations initiated this global survey of national health care organizations to determine the integration of the health sector in all aspects of the national responses to climate change. WFPHA's Environmental Working Group, with the support of the Climate and Health Alliance, Health Care Without Harm, and the Public Health Association of Australia, World Medical Association and its Young Doctors Network, conducted this survey over the past four months. The following is the result of this effort whose message from the global public health community is very clear and reveals that we are failing, as a global community, to tap into the benefits that climate action will bring for nations, for communities and for individual health and well-being. This should provide a call to action in each nation about the importance of the integration of public health concerns into all climate change planning and mitigation efforts.

Dr. Mengistu Asnake

President

World Federation of Public Health Associations

1 Introduction

Public health is perhaps the most important marker of human success. However, many human endeavours that have produced health status improvements of the population (such as increased life expectancy) have also degraded Earth's ecological and bio-physical systems and accelerated climate change.[1] Paradoxically, the unintended consequences of human success in the form of the Industrial Revolution are the risks to global public health due to human induced climate change.

Scientific evidence of health risks posed by the changing climate and associated extreme weather events (EWEs) has been well documented.[2,3,4,5,6] The emerging discipline of 'planetary health' seeks to address this situation. However, there is limited awareness of how individual nations and their governments are responding to the public health challenge presented by climate change.[7] To address this gap in knowledge, this project has been developed to establish a benchmark on national initiatives to deal with global climate change as it impacts on public health.

This project is the first global effort to evaluate climate change and national health policies, and it represents an initial effort to document and communicate how governments around the world are addressing this important area. The aim of the project was to determine the degree to which nations have developed plans or policies to address the risks of climate change on health by conducting an international survey involving national health professional organisations.

The report briefly presents the health impacts of climate change, followed by survey findings and discussions that emphasise the urgent and concerted actions needed to improve the focus on health in climate change policy planning.

2 Project Background

The World Federation of Public Health Associations (WFPHA) is an international, non-governmental organisation composed of multidisciplinary national public health associations. It is the only worldwide professional society representing and serving the broad field of public health. Members include over 100 national public health associations from around the world.

Within the WFPHA, the Environmental Health Work Group (EHWG) aims to influence international policy by bringing environmental health issues to the public health community and a public health approach to the environmental advocacy community.

This project was conceived at the annual meeting of the WFPHA Environmental Health Work Group at the World Congress on Public Health in Kolkata, India in February 2015.

Members of the Australian and American Public Health Associations agreed to lead the development of this project to evaluate actions and plans of respondent countries in relation to the health impacts of climate change. They also agreed to develop a report to communicate the findings of the survey, for release prior to the global climate change negotiations in Paris in December 2015.

The Climate and Health Alliance, and Health Care Without Harm provided professional and technical support, and the World Medical Asociation and its Junior Doctors Network aided in the circulation of the survey.

It is intended that this project will provide a platform on which to build more comprehensive efforts regarding research and analysis on national and international climate change and health policies and planning efforts.

3 Climate Change and Public Health

3.1 What is climate change?

The phenomenon of climate change is defined as "a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer".[8] Since the 1950's, evidence of changes in climatic conditions has been recorded.[7, 9] However, the unprecedented increase in the warming of the earth's temperatures, outside recent variation, has been significantly contributed by anthropogenic (human caused) activities during the 19th century[2] and continuing today. This human induced warming has been driven by increased greenhouse gas emissions, in particular carbon dioxide (CO2). Global CO2 levels measured in 2014 increased by 52% between 1992 and 2012, with the highest increase in CO2 emission of 2.9 ppm taking place between 2012 to 2013.[10,11] The effect of these emissions is to change the global climate and alter weather patterns, such as ocean currents that circulate warm and cold water around the world's oceans. These changes may cause abrupt changes in local climate variability and extremes. For instance, higher temperatures directly cause heat waves and drive wildfires, and soil drying provokes more extreme droughts.[8, 12]

According to the IPCC (2013), the average global temperature increased by 0.85% from 1880 to 2012, and the increase may, by the end of this century, exceed 1.5° C. Meanwhile, warm air can hold more moisture and result in heavy precipitations.[13] Climate projections indicate that the frequency and magnitude of daily warm temperature extremes will increase, causing longer heat waves.

These temperature changes are also expected to increase the frequency of unevenly distributed heavy precipitation that can cause severe flooding events. The oceans absorb most of the added heat, leading to rising sea levels and contributing to polar ice melt. Higher sea levels worsen the effects of coastal storms. Additionally, warmer oceans may drive more intense tropical cyclone systems.

3.2 Public health risks associated with climate change

It is widely acknowledged that climate change related EWEs and environmental changes pose significant threats to human health.[2,6,14,15,16,17] Projections from the Intergovernmental Panel on Climate Change Working Group II indicate a very high likelihood of increasing impacts on human health by the mid-21st century.[2] According to AAS (2015) EWEs have a direct impact on "lives, homes and communities". These impacts range from direct exposures to extreme weather events to indirect and flow-on impacts on resource availability that affect human wellbeing and survival.

The impacts of climate change on human health are illustrated in Fig. 1a and further broken down into primary, secondary and tertiary impacts in Fig. 1b. These include the direct (primary) effects of heat and weather extremes and two sets of indirect adverse effects that arise from a warmer planet. These can be considered secondary (or indirect) and tertiary (or flow-on) effects.[18]

As illustrated in both ***Figure 3.1*** and ***3.2***, the direct (primary) effects result from the exposure to extreme weather events, such as storms, cyclones, bushfires, and heatwaves. According to Whitmee et al. (2015), 1.94 million deaths were caused by climate, weather and water-based disasters between 1970 and 2012, where each life lost equates to another 1,000 people affected physically, mentally or by loss of livelihood. The 2003 heat wave in France claimed 14,800 deaths[18] and is linked to a total of 70,000 deaths across Europe.[19] An excess 374 deaths occurred during the 2009 heat wave and bushfires in Victoria, Australia.[20] In addition, displacement, forced migration, consequent homelessness and loss of livelihood are likely to increase from coastal erosion and inundation as the sea level continues to rise, as 13% of the world's population lives in coastal regions or close to the sea.[1,2] According to the International Organisation for Migration report.[21] 20 million people were displaced by EWEs in 2008. In 2014, more than 19.3 million people were displaced by disasters across 100 countries.[22]

While the primary effects impact health through injuries and deaths from natural disasters, the greater impacts play out through the secondary and tertiary effects on the biosphere and human society. For example, key issues are likely to involve water and food security, and these will carry much more serious implications for human health and wellbeing.

Further to the direct thermal effects on ocean temperature, increased absorption of CO2 directly affects ocean acidity, with effects on ocean biodiversity. The high acidity will cause changes in the seasonal activities, migration patterns and abundance of freshwater and marine species.[2] In terrestrial ecosystems, CO2 has complex effects on plant growth and more importantly plant protein and toxin levels (not shown in the diagram) which, as concentrations of CO2 increase and the direct effects of temperature take hold, reduce plant growth and nutritional value. Secondary effects can be considered within a frame of physical, ecosystem and biological effects. Any damage to these systems has an impact on agricultural viability (soil health, pollination, and nutrient cycles) and therefore food and water security, vector-borne diseases (e.g., malaria, influenza, dengue; changes to exposure and virulence), as well as increased exposure

to chemical pollutants and allergens (volatile organic compounds, ozone, pollens).

The increasing dry conditions (with prolonged droughts and reduced water flows) support the growth of pathogens in water and food. Hot and dry conditions not only reduce crop yield, but also make plants susceptible to diseases that are responsible for infectious diseases in animals and humans. In 2012, it was estimated that there were1.5 million deaths from diarrheal diseases globally, of which 502,000 deaths were associated with inadequate water and 280,000 deaths with inadequate sanitation.[23] Similarly, Githeko et al. (2000)[24] estimated that with the global temperature rise from 1° C-3.5° C by 2100, the likelihood of many vector-borne diseases will also increase due to environmental changes.

According to Hales et al. (2002)[25], as a result of climate change six billion people will be at risk of contracting dengue fever, compared with 3.5 billion people if the climate does not change. Hay et al. (2006)[26] used models to predict that approximately 260-320 million more people will be affected globally by malaria by 2080 as the changing climate creates new transmission zones.

Furthermore, the adverse health impacts due to warming temperatures and droughts have also been documented across the United States of America (USA) and Canada in regard to respiratory problems from dust and water-borne diseases.[27] For example, there has been an increase in the number of emergency room visits

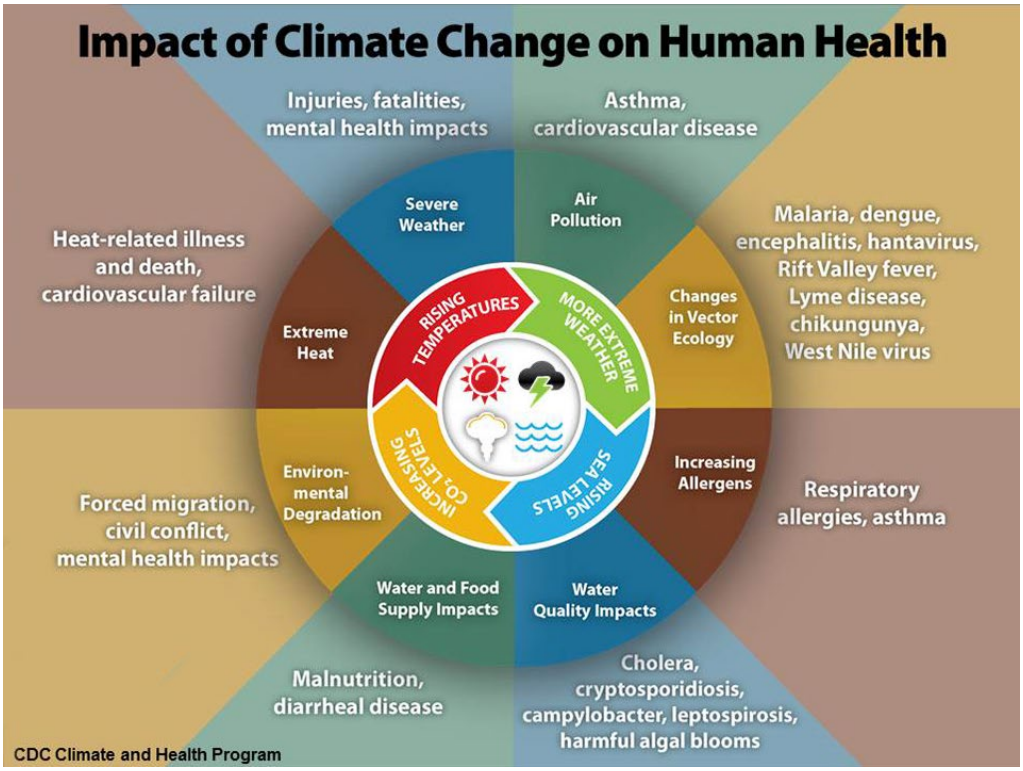

Figure 3.1 Impact of climate change on human health. Source: http://www.cdc.gov/climateandhealth/effects/default.htm

for bronchitis and sinusitis in the USA following dust storms.[28] A study by Silva et al. (2013)[29] argued that the air pollution related mortalities in 2000 may have been due to the modelled changes in the concentration of air pollutants between 1850 and 2000.

The tertiary effects of climate change on health are a result of many factors: the psycho-social distress from disasters, displacement of habitation and livelihood, resource, water and food shortages, and related conflict.[30] Even the anticipation of change and adaptive change itself has psychosocial effects such as anxiety. Most studies of people that survived disasters indicated a post-traumatic-stress-disorder (PTSD) prevalence of 30-60%.[31,32,33,34,35] In Australia, various drought related mental health impacts, such as stress, depression and suicide were recorded amongst older women, youths and farmers in the rural regions.[36, 37, 38, 39, 40, 41]

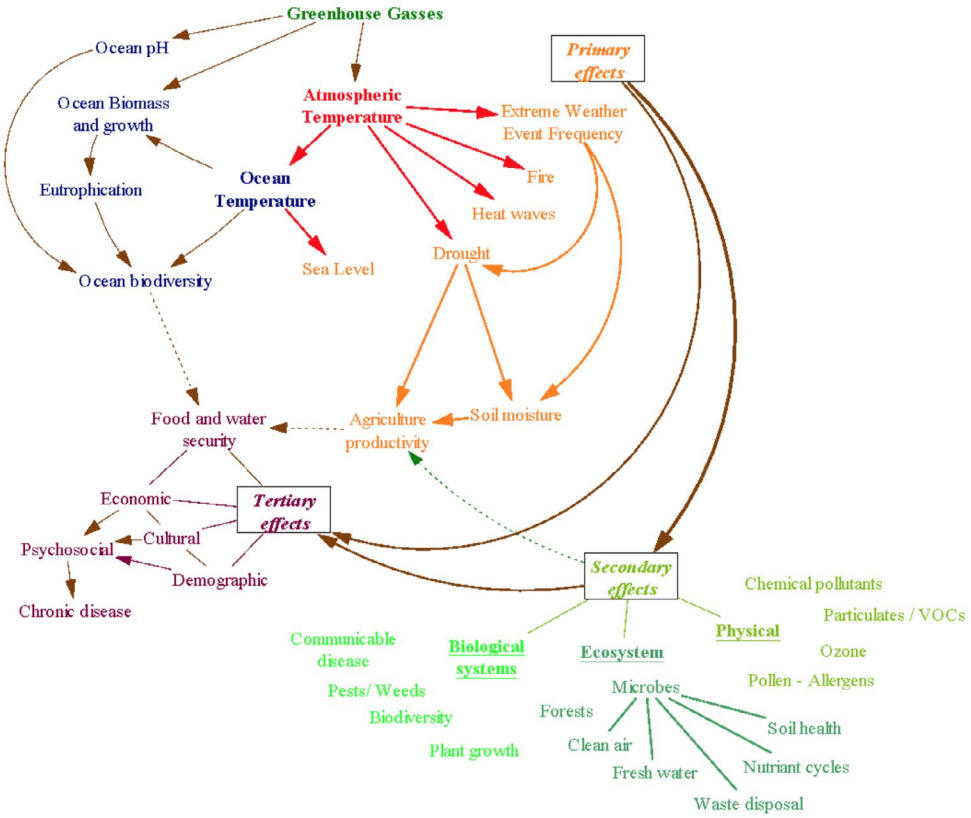

Figure 3.2 The direct and indirect effects of climate change on human health. Source: Unpublished, Peter W Tait.

3.3 Towards a public health response to climate change

According to the IPCC 2014 [2] report, the negative health impacts of climate change can be minimised by the development of adaptation and mitigation policies. In health portfolios, it means to improve health services, disaster management planning and efforts to alleviate poverty. The report recommended mapping current and future health risks related to climate change; for instance, to improve understanding of how species respond to environmental changes and predicting the movement of diseases through ecosystems.[14] Disaster preparedness can be improved with early warning and alert systems to avert the worst health impacts from extreme weather events such as heatwaves and avoid the spread of virus and pandemics.

The 2009 [20] and 2015 Lancet reports[42] recognised the need for an urgent response from various stakeholders to adapt to the effects of climate change and deal with the global health crisis. The 2015 report indicated that health professionals must be empowered and health and climate considerations must be thoroughly integrated in government wide strategies. The 2009 Victorian bushfires provided significant insights for the Australian health system that enabled it to improve its capacity to deal with a sudden influx of disaster patients as well as improve the response coordination across all support agencies either government or non-government.[43] Similarly, the lessons from Hurricanes Sandy and Katrina in the USA reveal the extent to which health services can be severely impacted by flooding, and how populations can be displaced with serious and enduring health consequences. While international lessons and expertise can be drawn to build the local adaptive capacities, it is necessary for all adaptation initiatives developed to be inclusive and empower the local communities.[16]

However, as the 2015 Lancet Commission on Health and Climate Change makes clear, unmitigated climate change presents serious health consequences that could reach potentially catastrophic proportions.[16] Successful adaptation to the rate and scale of climate change predicted under Business as Usual (BAU) scenarios may not be possible. Strong, effective and urgent action to mitigate further climate change by rapidly reducing the production of greenhouse gases is vital, as well as adaptation to warming that has already occurred and will occur in the near term.

The 2015 Lancet Comission report states unequivocally that "tackling climate change could be the greatest global health opportunity of the 21st century." It calls for ten key initiatives that, if implemented, could not only ameliorate the potentially catastrophic risks to human health from climate change, but could lead to an opportunity to improve global health, reduce the burden of illness and disease, alleviate poverty, and address global inequity. Investing in climate and health research, scaling up financing in climate resilient health systems, rapidly phasing out coal and other fossil fuels in the global energy mix, transitioning to healthy building and transport design, introducing an international carbon pricing mechanism, rapidly expanding renewable energy, evaluating the health costs associated with carbon intensive economies, adopting a governmnet-wide cross-portfolio approach to protecting health from climate change, adopting an international agreement to transition to a low carbon economy worldwide, and

establishing an initiative to monitor and report on this transition – these are the key steps outlined to not only reduce health threats from climate change, but to arrest further warming and deliver unparalleled and profound improvement in health and equity worldwide.

It is against this background of an urgent need not only to address the causes of climate change, but also to develop strategies to cope with its impact on health, that the current project was undertaken to assess worldwide national responses to the health effects of climate change. Though only a partial view, it is a beginning in terms of documenting where the action is occurring and a first step to identify gaps to help in prioritising immediate responses.

4 Methods

A quantitative descriptive survey (Appendix 1) was distributed in electronic format to national public health associations that are members of the WFPHA in September 2015. The World Medical Association committed to supporting this effort as well and distributed the survey to their member national medical associations. The Young Doctors Network of the WMA also participated in reporting on countries in which they are organized. Respondents were asked via email to complete the online survey.

Follow-up emails and phone calls were made by the researchers. The survey responses were collated and analysed using mixed methods.

The survey asked the WFPHA members to report on their country's response to climate change in the context of addressing:

- Factors that cause or contribute to anthropogenic climate change (e.g., large sectoral sources of greenhouse gas emissions)
- Factors that change people's risk of harm or ill-health when considering projected changes to climate conditions (e.g., identifying vulnerable populations, developing flood resilient infrastructure, and ensuring energy security)
- Measures that can be taken to protect people from exposures that will be caused by or exacerbated by climate change, that cannot be avoided (e.g., establishing early warning systems to enable people to act to reduce exposures)
- The existence of health surveillance systems to alert authorities to the risk of potential health impacts
- The engagement of the health sector in policy development, research and mitigation efforts.

5 Results and Discussion

The online survey required responses for nine questions. The initial questions specifically assessed national action plans and policies, while the remainder assessed progress more generally in relation to climate change related public health challenges. The results for each question and the implication of the findings are discussed next.

5.1 Survey respondents

The survey email containing background information and the link to the electronic survey was distributed to Public and Environmental Health Associations, Medical Associations and Young Doctors Networks. A total of 47 survey responses were received from 15 developed and 20 developing countries (see ***Table 5.1***). This included multiple respondents from five countries: Australia, South Africa, Canada, Nigeria and the United States of America (USA). The United Nations (UN) country classification was used to categorise the respondent countries as developed or developing, which is defined by the country's economic performance.

Table 5.1: Number of survey responses

Countries	Number of Responses	Developed	Developing
Australia	7	✓	
Bangladesh	1		✓
Bosnia & Herzegovina	1	✓	
Brazil	1		✓
Cameroon	1		✓
Canada	2	✓	
China	1		✓
Colombia	1		✓

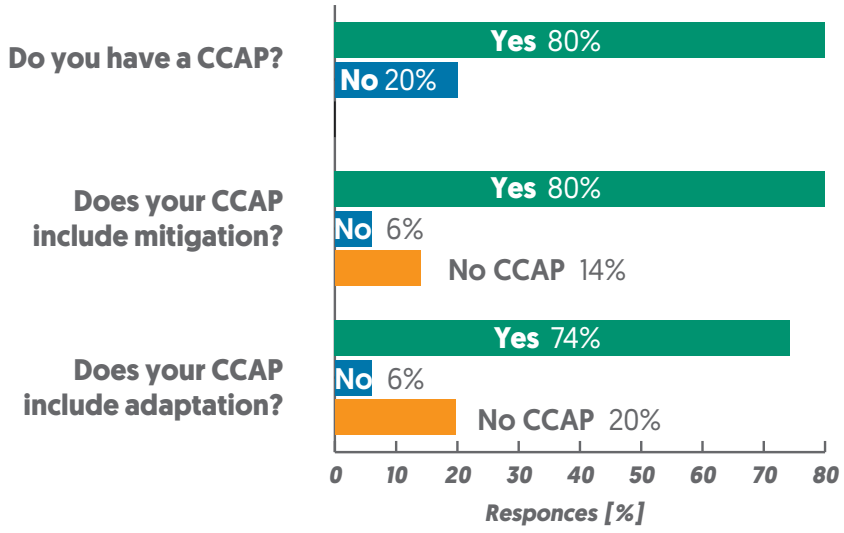

Figure 5.1 Percentage of respondent nations that had a CCAP, and addressed mitigation and adaptation

Countries	Number of Responses	Developed	Developing
Denmark	1	✓	
Egypt	1		✓
Georgia	1	✓	
Hungary	1	✓	
Italy	1	✓	
Japan	1	✓	
Kuwait	1		✓
Lithuania	1	✓	
Malaysia	1		✓
Malta	1	✓	
Mongolia	1		✓
Nepal	1		✓
New Zealand	1	✓	
Nicaragua	1		✓
Nigeria	3		✓
Philippines	1		✓
Russia	1	✓	
Sierra Leone	1		✓
South Africa	2		✓
South Korea	1		✓
Spain	1	✓	
Sudan	1		✓
Sweden	1	✓	
Taiwan	1		✓
Thailand	1		✓
USA	2	✓	
Vietnam	1		✓

Source: 2012 UN Countries classification: http://bit.ly/1MJsKSv

Where multiple responses for a country were obtained, the information was analysed by the researchers to create a single response that reflected the approach at the national level and a "best-case" interpretation of the data. As a result, 35 countries' online survey responses were gathered within a five week period during August and September 2015, as shown in ***Table 5.2***.

Table 5.2 Frequency of respondent by the type of associations

Associations	Number of respondents
Public Health Associations	22 including 5 with multiple (Australia, Nigeria, America, Canada, South Africa)
Medical Associations	11 including 5 with multiple (Australia, Nigeria, America, Canada, South Africa)
Environmental Health Association	5 Environmental health groups, including 2 with multiple (Australia)
Other health groups	5 including 1 from Nigeria

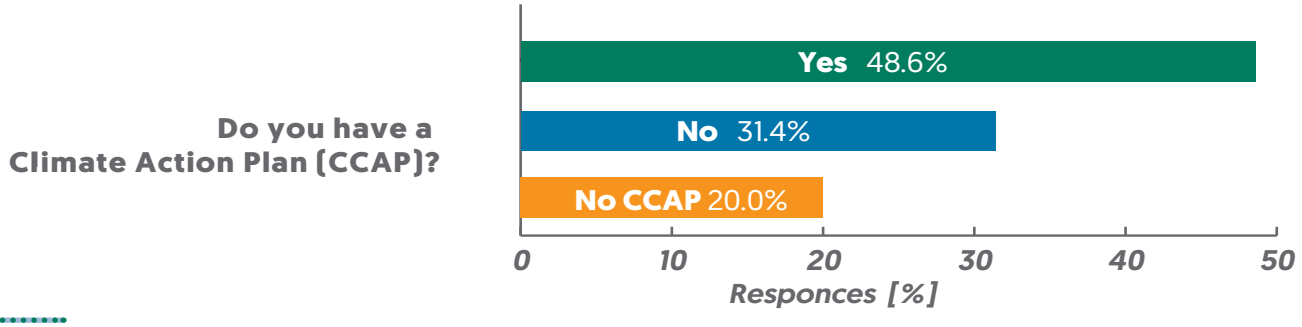

Figure 5.2 Percentage of countries with CAPPs that adequately address the health impacts of climate change

5.2 Survey findings

5.2.1 Assessing national governments Climate Change Action Plans

The first three survey questions (survey Q. 2, 3 & 4) related to establishing an understanding of whether the national governments had developed a Climate Change Action Plan (CCAP), and whether their plans address mitigation and adaptation initiatives and strategies. The 35 responses are plotted in ***Figure 5.1***.

From 35 responses, 28 countries (80%) indicated that their government had developed CCAPs. Given all the countries included in the analysis are members of the United Nations Framework Convention on Climate Change (UNFCCC), it is worth noting that seven countries (20% of the responses from five developing and two developed nations) did not report having a CCAP and/or climate mitigation measures. Two additional countries (5.7% of the responses from one developing and one developed country) had a national CCAP that did not focus on adaptation.

These findings demonstrate that despite many decades of effort by the United Nations in advocating for the development of responses to climate change, there are nine countries that have not yet addressed adaptation to climate change threats with a national CCAP. It should be noted, however, whilst national level policy may be absent, ten respondents indicated that there are policies and programs at the state or local jurisdictional level that are not captured in this analysis. Two respondents that do not currently have a CCAP revealed that their governments' plans and initiatives are being developed. Consequently, this finding emphasises the need for further in-depth analysis of CCAPs at various levels within a country, as well as the development of national CAPPs in all countries that addresses both adaptation and mitigation.

5.2.2 Assessing if national governments' Climate Change Action Plans addressed health impacts of climate change

In the results from survey Q. 5, the term 'adequately' represents the public health respondents' assessment and interpretation of their CCAP's. The responses from all 35 countries are illustrated in ***Figure 4***.

As shown in ***Figure 5.2***, the percentage of responses from countries that have a CCAP which adequately addresses public health impacts of climate change was 48.6%, illustrating that of the 28 countries identifying as having a CCAP, 11 failed to recognise or adequately

address the health impacts of climate change. This finding demonstrates that some governments have not taken into account the health impacts of climate change. This finding draws attention to the need for these national governments to prioritise climate change related health impacts in national policies and planning efforts.

Further categorisation of this finding across developed and developing countries (see Table 3), revealed that most of the developed nations (73.3%, n=11) indicated health impacts were adequately addressed in their CCAP. However, a high percentage of the respondents from developing countries either did not think their CCAPs adequately addressed health impacts (35%, n=7) or did not have a CCAP (35%, n=7).

This high percentage of developing countries that have not addressed the health impacts of climate change in their CCAP warrant further in-depth analysis to better understand the individual nation's circumstances such as resource availability. While there may be activities developed at more local or state levels, this finding emphasises the need in both developed and developing countries to identify factors and opportunities that would facilitate better integration of health risks into policies and plans by national governments in addressing climate change.

Table 5.3 Comparison of developing and developed in relation to whether the national government CCAPs adequately addressed health impacts of climate change.

Action Plans	Developed	Developing
Yes	11 (73.3% of them)	6 (30% of them)
No	2 (13.3%)	7 (35%)
No CCAP	2 (13.3%)	7 (35%)

5.2.3 Assessing national government's progress in relation to climate change projections

This question (Q. 6) investigated the progress of national governments' progress in three domains related to climate change projections and health.

1. ***Analysis and understanding of climate change projections for your country.***

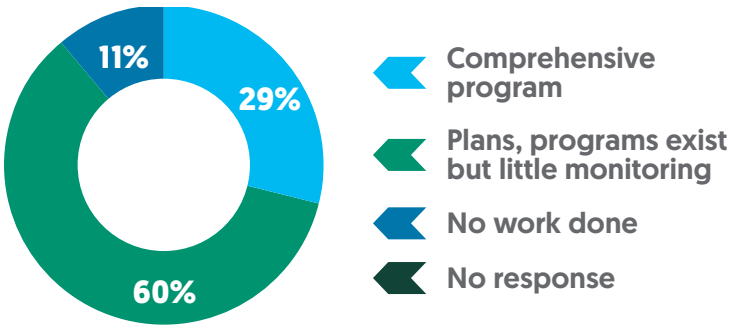

Figure 5.3 Percentage of national governments progress in climate change projections.

As shown in ***Figure 5.3***, most countries either had a comprehensive program (29%, n=10) or partial programs (60%, n=21) in place to analyse and understand their country's climate projections. Additionally, five of seven countries that did not have any CCAP had some form of plans and programs in place for climate projection. Four countries (11%) did not have any national policies or programs to determine their climate projections. It is possible that these countries have local or state policies or programs that were not captured in this survey. This finding demonstrates the need for on-going efforts to encourage national government to recognise their potential threats from climate change and better plan to deal with them.

2. *Identification of potential health impacts associated with the climate change projections for your country.*

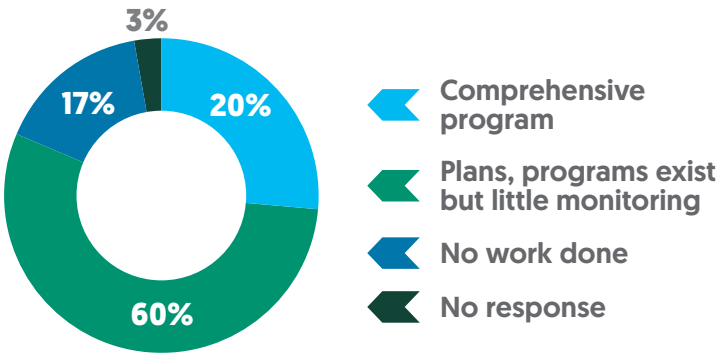

Figure 5.4 Percentage of national governments projecting potential health impacts.

In considering the health impacts of climate change the number of countries that have made no progress increases. While 80% (n=28) of the countries have either comprehensive or partial forms of policies and programs, six countries (17.1%) still do not have national policies or programs to identify health impacts associated with climate change projections for their country (see ***Figure 5.3***). This finding may demonstrate the need for a more vigorous and in-depth assessment of the policies and programs at different levels within a country to evaluate the extent of those knowledge gaps. However, the failure of national governments to develop national policies that focus on identifying potential health impacts when dealing with climate change emphasises the need for greater advocacy on climate change and health internationally.

3. *Estimation of the projected change in health impacts at long range future timeframes (multi-decadal), either qualitative or quantitative.*

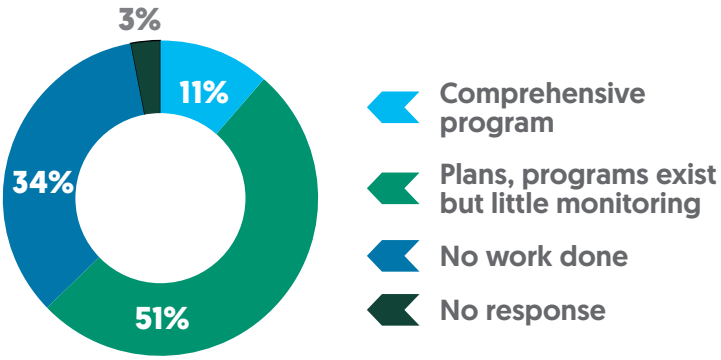

Figure 5.5 Percentage of national governments' progress in estimating the projected change in health impact due to climate change.

As illustrated in ***Figure 5.5***, the number of countries that did not have any national plans or programs to estimate the projected change in the health impacts at long range future timeframes increases to 12 (34.9%) when compared to those that had not made any climate change projections. This finding is critical as it suggests that these national governments may be unaware of the need to implement plans to identify the long range health risks for their population posed by the changing climate.

Failing to recognise the long range health impacts associated with climate change projections will not only compromise the ability of national governments to deal with the health impacts, but a lack of preparedness also risks making their population more vulnerable to the potential health impacts. This finding emphasises the urgent need for national governments to urgently increase the focus on understanding the long range health impacts associated with their projected climate change.

5.2.4 Assessing national government's progress in identifying and adapting to climate change related health impact.

This question (Q.7) consisted of three parts to assess the national governments progress in identifying vulnerable populations and infrastructure; development of public health adaptation responses; and assessment of knowledge gaps related to coping capacity, and adaptation and mitigation responses.

1. ***Identification of current vulnerable populations and key infrastructure or systems that may impact health e.g. loss of electrical power, risks to water quality or security from extreme events.***

Five countries had a comprehensive programs compared to seven countries (20%) that had not undertaken any identification of vulnerable population or risks from key infrastructure on health (see ***Figure 5.6***). A further 23 countries (65.7%) had made progress but with little monitoring. This finding indicates that greater efforts are needed to ensure that all the countries are supported to develop plans and programs to identify and monitor vulnerabilities that may impact on health.

2. ***Identification and development of public health adaptation responses.***

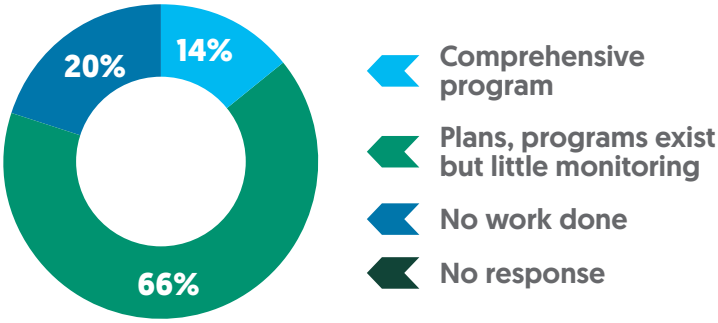

Figure 5.6 Percentage of national governments' progress in identification of vulnerable populations and infrastructure.

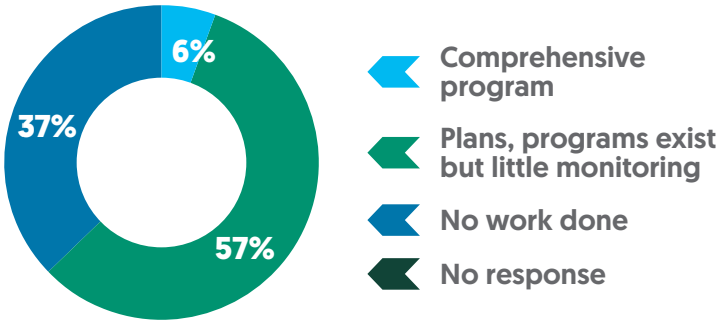

Figure 5.7 Percentage of national governments' progress in identifying and developing public health adaptation responses.

While seven countries (14.3%) appeared not to have developed any national plans and programs to identify population and infrastructure vulnerability (see ***Figure 5.6***), 13 (37.1%) countries had not identified or developed any plans or programs for public health adaptation (see ***Figure 5.7***). Only 5.7% (n=2) of respondents had made comprehensive progress. This indicates that more national governments have developed plans and programs to identify their population and infrastructure vulnerabilities, but they have a lack of focus on identifying and developing public health adaptation responses. The factors that influence a national government's focus on public health adaptation were not investigated in this initial survey. However, it is interesting to note that both developing (eight) and developed (five) countries were seen as not making progress on public health adaptation. A benefit of this preliminary assessment may be to establish a platform for countries to share knowledge. For instance, identifying countries which have developed plans and programs for addressing climate change related public health threats may provide both incentive and examples of such plans for countries that need to address their public health adaptation.

3. *Identification of gaps in current knowledge needed for assessment of coping capacity and/or development of adaptation or mitigation responses*

Nearly one third of countries (31.4%, n=11) had not made progress in identifying their gaps in knowledge to assess their capacity to cope with climate change related health impacts and develop adaptation and mitigation responses. This finding emphasises the need for more in-depth assessment of countries' progress when dealing with public health adaptation to climate change. It also highlights the need for more comprehensive national policy responses to mitigate and adapt to the health impacts of climate change, as well as assessment of the progress of a broader cohort of countries on this issue.

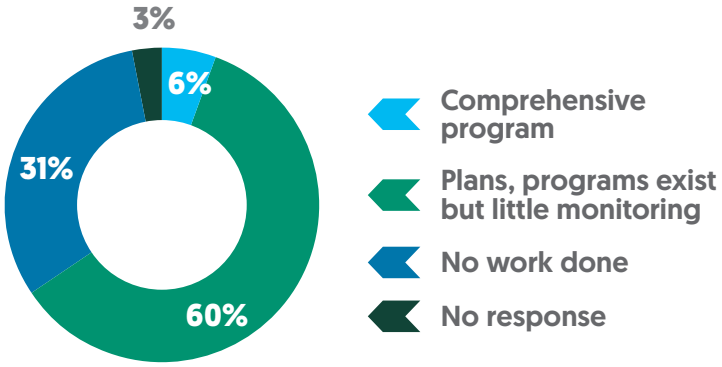

Figure 5.8 Percentage of national governments' progress in identifying knowledge gaps in relation to coping capacity, and / or developing adaptation or mitigation responses.

5.2.5 Assessment of the progress of national governments in mitigation efforts to reduce emissions in four sectors: energy, transport, building and agriculture.

This question related to question eight (Q. 8) of the survey and the data analysed across the four sectors is presented in *Figure 5.9*.

The number of countries that had comprehensive plans or had made progress across all four sectors is encouraging. However, approximately one in five of respondents had made no progress. More in-depth analysis is needed to further investigate the factors that influence the level of focus on mitigation efforts across these sectors. In this study, the mitigation and adaptation activities in the health sector were not investigated, however, this would be an important aspect of future research.

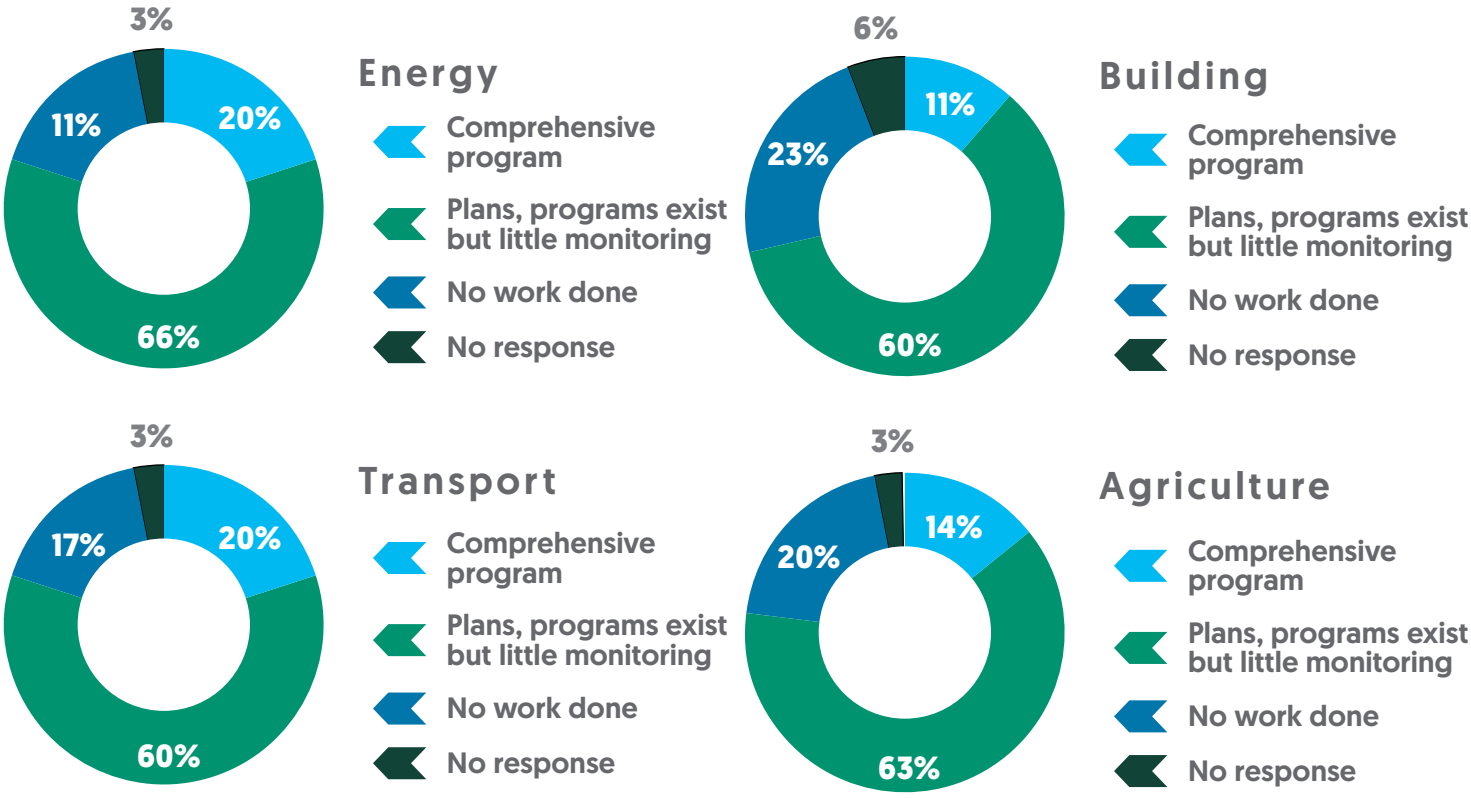

Figure 5.9 Percentage of national government's Climate change mitigation progress across four sectors.

5.2.6 Assessment of the progress of national governments to deal with climate change in the health sector

This question (Q.9 of the survey) required assessing the national governments' progress across four domains in the health sector: health surveillance, early warning systems for extreme weather, active involvement of health sector in climate mitigation and support for health sector research.

1. *Development of systems of health surveillance regarding climate risks.*

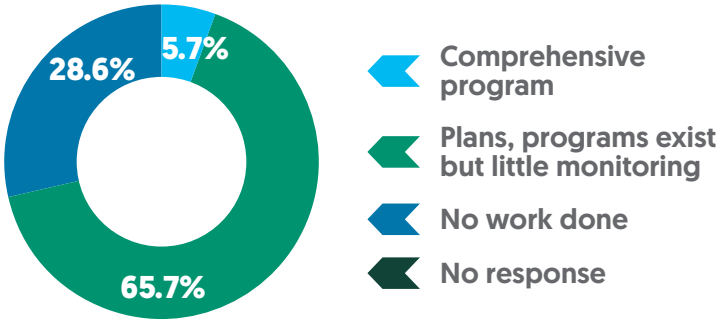

Figure 5.10 Percentage of national governments' progress in developing health surveillance systems.

While 18 countries (65.7%) had some plans and programs developed for health surveillance; only two countries (5.7%) had comprehensive plans and ten countries (28.6%) did not have any plans or programs for health surveillance (see ***Figure 5.10***). This finding clearly demonstrates the need for development and implementation of more comprehensive national plans and programs, including initiatives for surveillance of health impacts of climate change.

2. *Establishment of early warning systems for health risks from extreme weather events.*

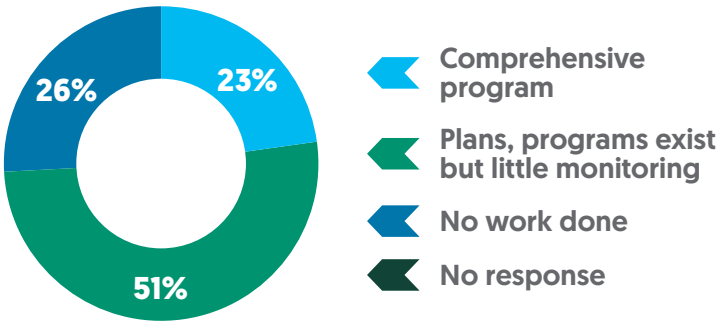

Figure 5.11 Percentage of national governments with early warning systems for health risks from extreme weather events.

While 25.7% (n=9) of countries had comprehensive plans for health surveillance systems, 22.9% (n=8) had no plans and 51.4% (n=18) had only made partial progress in establishing early warning systems for health risks from extreme weather events (see ***Figure 5.11***). This finding indicates a possible gap in knowledge for public health adaptation to climate change at the national level. Despite improvement and technological advancements in early warning systems, the recent increasing incidences of extreme weather events and their associated impacts, such as the August 2015 Pakistan floods causing 151 deaths and affecting 800,000 people, point to the ongoing need to have comprehensive systems for early warning to help reduce the serious health impacts: injuries, illnesses and deaths associated with these extreme events.

3. Active involvement of health sector in climate mitigation within their sector.

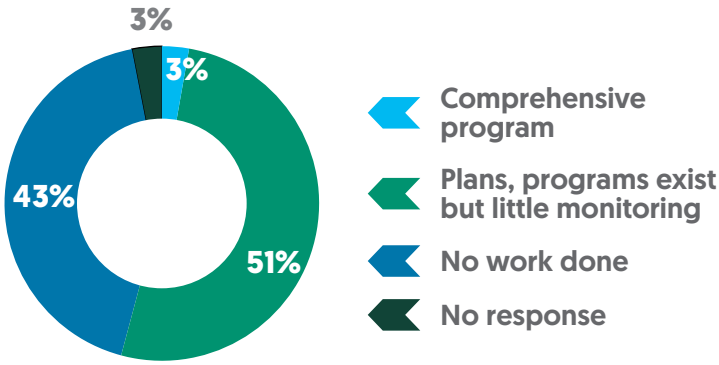

Figure 5.12 Percentage of national governments' progress in involving health sector in climate mitigation within their sector.

4. Please assess your national government's progress in supporting research by health sector on effects of climate change.

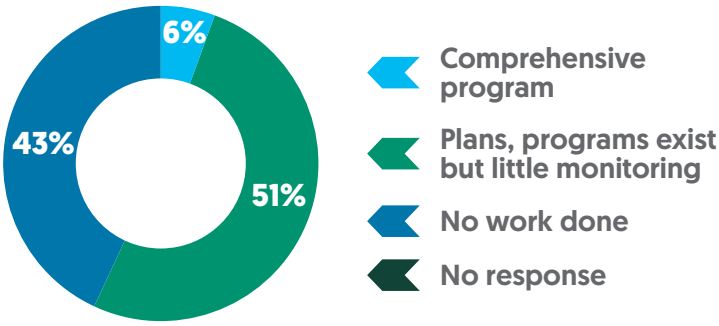

Figure 5.13 Percentage of national governments' progress in supporting research by health sector.

Only one country (2.9%) reported having a comprehensive plan compared to 18 (51.4%) countries that had some plans and programs with little monitoring and 15 (42.9%) that did not have policies and plans at a national level. This finding is important as it demonstrates that despite strong evidence of increasing health risks from climate change and the opportunities to improve health from climate change mitigation, as noted earlier in this report, the health sector involvement in climate adaptation may not have been by more than 40% of these national governments. Failure to involve health sector stakeholders in the national planning and the opportunities to improve health from climate change mitigation may compromise climate mitigation and adaptation efforts leading to a failure to develop policy reflecting the health risks and opportunities.

While 18 (51.4%) countries had some plans and programs with little monitoring, only two countries (5.7%) had a comprehensive approach and 14 (42.9%) had no policies and plans for health sector research.

When examined across the four domains it would appear that there is a lack of a sense of urgency in addressing the increasing public health vulnerabilities posed by climate change. These findings emphasise the need to involve the health sector and support ongoing health research, innovation and development of initiatives and products to assess and minimise the potential climate change health risks at the national level.

5.3 Case studies

Two countries, one developing and one developed, were identified as cases for further reporting on their overall performance. The criteria for the selection of these cases we based on their performance in policy development to address climate change and health interactions. These two countries are the United States of America and South Korea.

5.3.1 United States of America

The United States of America (USA) is vulnerable to the direct and indirect impacts of climate change on health. Extreme weather events such as floods, heatwaves and wildfires pose health risks, and can lead to loss of human lives, injure and kill other species and cause massive losses to infrastructure and in the agricultural sector.[44]

In June 2013, the USA released the President's Climate Action Plan. The plan involves mitigation and adaptation strategies as well as a plan to lead the global community to act on climate change. As part of the climate change mitigation strategies, the government aims to cut emissions and grow the clean energy sector.[45] The adaptation plan includes 'Building Stronger and Safer Communities and Infrastructure' by supporting the population as they prepare for climate change impacts. The health sector is part of the adaptation plan, where they aim to create a more sustainable and resilient health system as well as prepare the health sector to deal with climate change impacts on health.[45]

A number of initiatives in the US directly address the health impacts of climate change. The Centers for Disease Control and Prevention (CDC) developed a Climate and Public Health Framework in 2006 and formally established a Climate and Health Program in 2009. The Climate and Health Program was established to:

- translate climate science to inform states, local health departments and communities;
- create decision support tools to build capacity to prepare for climate change; and
- serve as a credible leader in planning for the public health impacts of climate change.

The Climate and Health Program's flagship initiative is the Climate-Ready States and Cities Initiative. Through the Climate-Ready States and Cities Initiative the CDC is partnering with 16 states and two cities to pilot methodologies to identify and project climate-health impacts and to prepare tailored responses. These methodologies, integrated through a five step process called the Building Resilience Against Climate Effects (BRACE) framework, enable health leaders to make evidence-informed decisions about the most suitable strategies and programs to anticipate and limit the adverse health effects of climate change.

US President Obama has assumed a key role in tackling climate change and health, with the White House having convened a Climate and Health Summit and announced a Climate and Health Data initiative to inform scientists and communities about the health impacts of climate change. Other federal initiatives in the US to tackle climate change impacts on health, include: a healthcare facilities toolkit to enhance climate resilience; a program to increase the number of medical, public health and nursing students being trained to address the health impacts of climate change; and a national Climate and Health Assessment, led by the US Global Change Research Program. The Clean Power Plan aims to reduce greenhouse gas emissions along with harmful air pollution to reduce risks to people's health. These initiatives and programs provide insights for countries that have not yet addressed public health impacts of climate change.

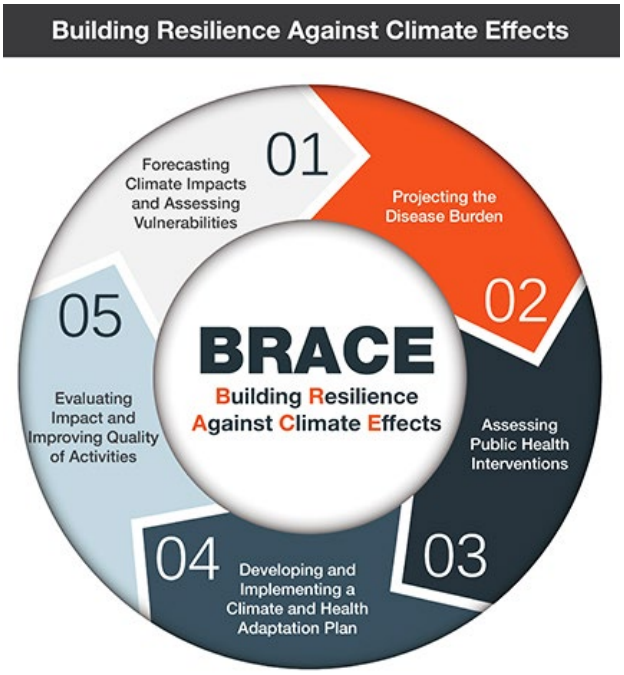

Figure 5.14 Building Resilience against Climate Effects.

5.3.2 South Korea

South Korea is going to be deeply affected by climate change. The Korean Peninsula has been showing a warming trend faster than the global one. The Peninsula temperature rose by 1.8°C degrees in the past hundred years, which is 1°C degree higher than the global average.

South Korea is also vulnerable to rising ocean levels and extreme weather events, such as heat waves and torrential rains. They developed their first "Comprehensive Plan on Climate Change Adaptation" in 1999. While there are some good examples of climate preparedness in policy and programs for adaptation to climate-health risks in South Korea, a comprehensive plan for mitigation is yet to be developed.

These include projects such as "Framework Act on Low Carbon, Green Growth" launched in 2010. Apart from the Climate Change Action Plan, The Ministry of Environment also has policies regarding environmental health that aim for a reduction of chemical emissions as well as environment-related health issues. In 2011, the country launched a nine year Environmental Health Master Plan. A series of research projects undertaken since 2003 have sought to assess the health impacts of climate change in Korea, in order to develop effective policy focusing on the most vulnerable communities. These include studies on developing a long term strategy for environmental health due to climate change; an action plan on public health impacts due to climate change; developing response plans and health management plans

for heatwaves; undertaking health impact assessments related to air pollution and climate change; climate change adaptation strategies for infectious diseases; and evaluating the national burden of disease due to climate change.[44]

A Health Impact Assessment Adaptation Technology Development Research Center has been established, with the aim of developing a climate change – health impact policy support system known as the Climate Change Adaptation and Mitigation Program (C-CHAMP) (see ***Figure 5.15***).

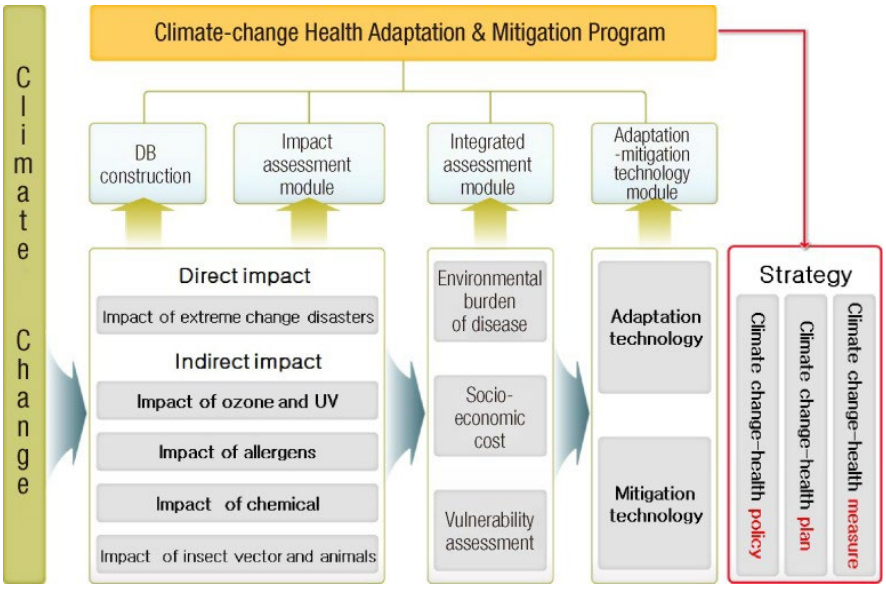

Figure 5.15 South Korean National Climate Change Adaptation and Mitigation Plan, Health Impact Assessment and Response Technologies, Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3524451/

In 2013 the Climate Change Adaptation Plan (CCAP) was revised according to the performance of the previous years, and as a result 65 tasks were delegated across nine different areas. Of these 65 tasks, 5 are in the Health sector (see ***Table 5.4***). It includes tailored measures to assist the most vulnerable populations and prevent health hazards. The budget associated with health measures is around (US) $170 million.

The health sector adaptation tasks involve: monitoring and mitigating the impacts of meteorological disasters; strengthening management and monitoring of infectious diseases; assessing vulnerability to, and mitigating air pollution; and preventing and managing allergens due to climate change.

Table 5.4 Climate Change Adaptation Performance (2011-2012) and Plans (2013-2015) by sector. Source: South Korea Ministry of Environment, (2015).[45] [Unit for budgets: Hundreds of millions of Won]

Sector	2011-12 Performance		2013-15 Plan	
	No. of Tasks	Budget	No. of Tasks	Budget
Health	5	370	5	1,901
Agriculture and fisheries	17	52,804	17	103,219
Water management	8	57,865	7	90,067
Disasters	6	22,207	5	45,878
Forests and ecosystems	14	14,105	14	27,644
National land and coasts	5	2,570	5	7,472
Industries	3	2,896	3	10,549
Infrastructure and international cooperation	2	148	2	448
Monitoring and prediction	7	513	7	3,310
Total	67	153,478	65	290,508

Health sector CCAP assigned tasks are mostly shared between the Ministry of Environment and Ministry of Health and Welfare. Each sector self-evaluates the progress of the Adaptation Plan's measures. To also ensure credibility of the plan, an independent committee evaluates the Ministries' actions.

5.4 Implications of the survey findings at the global scale

This survey provides an important insight into a sample of countries' CCAPs and the extent to which health is considered within these. With the aim of a binding international agreement to be negotiated at COP21, it is vital that the global community recognise the health impacts of climate change and translate this recognition into considered and meaningful policy commitments within national and global climate change policy. The time for complacency and obfuscation has passed. Whilst some nations have made efforts towards developing CCAPs and incorporating climate change adaptation and mitigation into national policy, this survey reveals few countries

have comprehensive policies that recognise and address multiple complex serious risks to human health. What remains unknown is the extent of any efforts in countries for which there were no respondents. The authors hypothesise that respondents in those countries making some efforts to tackle climate change were more likely to respond, and the broader picture globally may well reveal shortcomings in incorporating health into national climate policy are much more widespread than these results suggest.

We note that 20% of countries did not have a CCAP, and of those who did, 31% did not include health. Further, a majority of respondents identified that their governments needed further work and improved monitoring in domains related to climate change and health. These areas included identification of vulnerable populations, key infrastructure related to health, and appropriate adaptation and mitigation strategies for public health. A global commitment to protecting health at COP21 and beyond will require these countries (and the larger group for which the survey has no data) to develop and implement national climate change and health plans that are comprehensive, are specifically designed to advantage health, and are implemented and evaluated appropriately.

One third of participants identified that CCAPs failed to include long-range climate change and health projections, and over 40% had no health sector involvement in mitigation planning or support for health sector research. The involvement of the health sector in governmental responses to climate change is vital – both because of the sector itself is a significant source of greenhouse gas emissions and because health professionals are trusted and respected messengers in the wider community about the risks to health from climate change. As advocates for population health, the health sector has the potential to provide essential, non-replicable advice and insight into how national level climate change policies and programs may influence and/or enhance the health and wellbeing of their communities. Governments should consider the vital role the health sector has to play in program development and incorporate their involvement at all stages. Additionally, the health sector should seek involvement in their role as advocates for public health in all aspects of climate change policy, at all levels.

The sustainable Development Goals (SDGs) adopted by the UN in 2015 also offer a framework for action on climate change and health. This framework will build on the global efforts undertaken in pursuit of the former Millennium Development Goals. Two of the 17 SDGs adopted by 193 member countries include climate action and health.

Moving forward, there is a need for action on the part of governments to define and implement CCAPs. Governments should strengthen plans and work together to share knowledge and experiences. International climate agreements should mandate the development of national climate change action plans that recognise and respond to risks to health to ensure the health and wellbeing of people is protected and promoted at every opportunity. Additionally, governments should be supported by the international community to recognise the status of their own CCAPs and to build on current foundations.

6 Conclusion

The purpose of this study was to assess the degree to which national governments have addressed the public health threats of climate change in their climate change mitigation and adaptation plans, policies and programs. This preliminary survey suggests that half of the national governments surveyed do not have appropriate tools, plans and policies to adequately address climate change induced public health challenges. Despite most of the respondent national governments (n=28, 80%) having developed national climate change action plans, only 17 (48.6%) considered the public health impacts of climate change in their plans. The reasons why public health was not considered in the countries' climate plans and the factors that influenced how national governments developed their climate action plans were not investigated. This work emphasises the need to further investigate the issues from each individual country that hinder efforts towards including public health in climate change action plans. Better understanding of the challenges each country faces, along with a comprehensive assessment of their gaps in knowledge, will allow the development of appropriate public health advocacy tools and protection policies at global scale.

This initial preliminary study further emphasises the need for a common global platform to facilitate the sharing and exchange of knowledge to assist nations in their work to address climate change. This would be best supported through a global mandate in the UN global climate change agreements for each nation to develop a national Climate Change Action Plan that recognised, evaluated and responded to the health risks from climate change for their population with a national strategy on climate change and health.

When completed these national plans will undoubtedly highlight the disproportionate health impact of climate change on the poorest nations least able to cope, and the requirement of international support for these plans. This global process will take time – of which we have little – with respect to projected climate change and associated health impacts. The world's governments must start now to reduce the health impacts of climate change.

7 Recommendations

The findings from this survey strongly indicate that there is a need to strengthen the planning efforts and programs of national governments to focus on public health threats related to climate change. The majority of survey respondents were from countries where there was some efforts to develop national climate change action plans, and the number of responding countries represents less than one quarter of the total number of nations that are members of the United Nations. It is therefore possible that a more comprehensive assessment may reveal an even more disturbing global picture, where there are few countries with any comprehensive policies to limit the adverse health impact of climate change on their own or the global population.

The following recommendations were identified from these conclusions:

- That an international climate agreement be established to mandate the development of national Climate Change Action Plans that recognise and respond to climate change health risks by ensuring the health and wellbeing of people is protected and promoted at every opportunity;
- That all nations recognise and respond to climate change health risks through the development of national climate and health strategies as a core element of their national Climate Change Action Plans, addressing both the need for adaptation and mitigation.
- That all national Climate Change Action Plans include strategies for mitigation with emissions reductions in the energy, transport, buildings, agriculture and health sectors, with a particular emphasis on a transition away from the use of fossil fuels; as well as adaptive strategies that also benefit health (e.g., energy efficiency, emergency preparedness).
- That WFPHA members and other health and medical professional associations around the world continue to make it a priority to raise the awareness of all national governments as to the multiple potential risks, and vulnerabilities for health and wellbeing from climate change, the opportunities for health co-benefits associated with climate change mitigation and adaptation, and the need to prioritise public health within their mitigation and adaptation policy, planning and programs.
- That a common/virtual platform for knowledge sharing be established among nations about the risks to human health from climate change and evidence-based public policy solutions to reduce those risks. This should provide all nations access to the most recent information as well as facilitate a collaborative approach to use the knowledge and experience from the leading countries in the development of national public health related mitigation and adaptation strategies;
- That a decision support tool be developed to support national governments: to assess their progress, to identify the gaps in national programs, to provide information on appropriate mitigation and adaptation options and to inform them of potential partner countries who may be willing to offer support and guidance.

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9 Appendix

WFPHA Climate Change and Health Impacts Assessment Survey

*** 1. Please identify your Public Health Association or National Medical Association**

*** 2. Does your national government have a Climate Change Action Plan?**

Comment

*** 3. Does your national government's Climate Change Action Plan cover climate change mitigation?**

Comment

*** 4. Does your national government's Climate Change Action Plan cover climate change adaptation?**

Comment

*** 5. Does your national government's Climate Change Action Plan adequately address the health impacts of climate change?**

Comment

*** 6. Please assess your national government's progress in the following domains related to climate change and health**

	No work done	Plans, programs or initiatives exist but there is little monitoring or evaluation	Comprehensive program has been implemented and evaluated with details available as a public document
Analysis and understanding of climate change projections for your country	○	○	○
Identification of potential health impacts associated with the climate change projections for your country	○	○	○
Estimate of the projected change in health impacts at long range future timeframes (multi-decadal), either qualitative or quantitative	○	○	○

Comment

*** 7. Please assess your national government's progress in the following domains**

related to climate change and health

	No work done	Plans, programs or initiatives exist but there is little monitoring or evaluation	Comprehensive program has been implemented and evaluated with details available as a public document
Identification of current vulnerable populations and key infrastructure or systems that may impact health e.g. loss of electrical power, risks to water quality or security from extreme events	○	○	○
Identification and development of public health adaptation responses	○	○	○
Identification of gaps in current knowledge needed for assessment of coping capacity and/or development of adaptation or mitigation responses	○	○	○

Comment

*** 8. Please assess your national government's progress in mitigation efforts to reduce emissions in relation to:**

	Comprehensive program

	No work done	Plans, programs or initiatives exist but there is little monitoring or evaluation	has been implemented and evaluated with details available as a public document
Energy sector	○	○	○
Transport	○	○	○
Buildings	○	○	○
Agriculture	○	○	○

Comment

*** 9. Please assess your national government's progress in the following domains related to climate change and health**

	No work done	Plans, programs or initiatives exist but there is little monitoring or evaluation	Comprehensive program has been implemented and evaluated with details available as a public document
Development of systems of health surveillance regarding climate risks	○	○	○
Establishment of early warning systems for health risks from extreme weather events	○	○	○
Active involvement of health sector in climate change mitigation within their sector	○	○	○
Support for research by the health sector on effects of climate change	○	○	○

change

Comment

10. If your national government has a publicly available Climate Change Action Plan available to you please include below as a link

Done