World Health Organization

Technical Webinar Series Climate Change and Health

Integrating health in NDCs

18 September 2024

9:30 – 11:00 CEST

15:00 – 16:30 CEST

WHO Technical Webinar Series

https://www.who.int/teams/environment-climate-change-and-health/climate-change-and-health/country-support/webinars

Date & time (CEST)	Topic*
24th April 2024	Getting started: climate change and health vulnerability & adaptation assessments
30th April 2024	WHO as an Accredited Implementing Entity of the Adaptation Fund; Accessing AF funding for Climate Change and Health
15th May 2024	WHO Operational Framework for building climate resilient and low carbon health systems
12th June 2024	Developing a Health National Adaptation Plan: Introduction
19th June 2024	GIS and risk mapping in climate change and health vulnerability & adaptation assessments
10th July 2024	Climate resilient and environmentally sustainable health care facilities
17th July 2024	Quantitative approaches for Vulnerability & Adaptation assessments: sensitivity analyses and projecting future health risks of climate change
18th Sept 2024	Integrating health in NDCs
25th Sept 2024	Developing a Health National Adaptation Plan: Quality criteria for HNAPs
16th Oct 2024	Gender, climate change, and health

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Interpretation

AM session: English, French and Arabic
PM session: English, French and Spanish

To activate interpretations (in English):

1. Click on the interpretation icon.
2. Select ”English”
3. **Optional :** mute original audio

Pour activer les interprétations (en français):

1. Cliquez sur l'icône d'interpretation
2. Sélectionnez ”Français”
3. **Facultatif :** couper le son d'origine

Para activar interpretación (en español)

1. Haga clic en el icono de interpretación.
2. Seleccionar ”Español”
3. **Opcional:** silenciar el audio original

لتفعيل التفاسير باللغة العربية

1. اضغط على أيقونة التفسير.
2. اختر "العربية"
3. اختياري: كتم الصوت الأصلي

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AM Session

Agenda

Time	Agenda item	Speaker
9:30 – 9:35	Welcome and Housekeeping	**Elena Villalobos Prats**, Lead Capacity Building and Country Support, Climate Change and Health Unit, WHO
9:35 – 9:50	Opening remarks	**Dr Alice Bell,** Head of Policy, Wellcome Trust **Sarah Thomsen, PhD**, Lead Policy Specialist Health and SRHR, Swedish International Development Cooperation Agency (Sida)
9:50 – 10:00	UNDP Climate Promise	**Luciana Mermet,** Manager, Global Fund Partnership and Health Systems Team, UNDP **Ian Milimo**, Project Manager: Sustainable Healthcare, UNDP
10:00 – 10:15	Healthy NDCs: Introduction to integrating health in NDCs	**Dr Diarmid Campbell-Lendrum,** Head, Climate Change and Health Unit, WHO
10:15 – 10:25	Air quality targets and health co-benefits in NDCs	**Heather Adair-Rohani**, Acting Head, Air Quality, Energy & Health, WHO
10:25 – 10:35	Country experience: Health benefits of raising ambition in Pakistan's nationally determined contribution	**Dr Zafar Fatmi,** Professor and Section Head, Environmental, Occupational Health and Climate Change, Aga Khan University, Pakistan
10:35 – 10:45 (10 minutes)	Country experience: Adaptation planning for Lao PDR's NDC	**Dr Viengkhan,** Deputy Director, Department of Hygiene and Health Promotion, Ministry of Health, Lao PDR **Dr Oyuntogos Lkhasuren,** WHO Country Office, Lao PDR
10:45 – 10:55	Discussion/Q&A	Facilitated by **Elena Villalobos Prats**
10:55 – 11:00	Close webinar	**Luciana Mermet,** UNDP **Dr Diarmid Campbell-Lendrum,** WHO

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PM Session

Agenda

Time	Agenda item	Speaker
15:00 – 15:05	Welcome	**Elena Villalobos Prats**, Lead Capacity Building and Country Support, Climate Change and Health Unit, WHO
15:05 – 15:20	Opening remarks	**Dr Maria Neira,** Director, Environment, Climate Change and Health Department, WHO **Dr Alice Bell,** Head of Policy, Wellcome Trust **Sarah Thomsen, PhD**, Lead Policy Specialist Health and SRHR, Swedish International Development Cooperation Agency (Sida)
15:20 – 15:30	UNDP Climate Promise	**Natalia Linou**, Deputy Director, HIV and Health Group, UNDP **Suvi Huikuri**, Policy Specialist - Health and Environment, UNDP
15:30 – 15:45	Healthy NDCs: Introduction to integrating health in NDCs	**Dr Diarmid Campbell-Lendrum,** Head, Climate Change and Health Unit, WHO
15:45 – 15:55	Air quality targets and health co-benefits in NDCs	**Pierpaolo Mudu**, Regional Technical Officer (Environment and Health), WHO Regional Office for Europe
15:55 – 16:05	Country experience: Integrating health in Brazil's NDC process	**Dr. Agnes Soares da Silva,** Director of Environmental Health Surveillance and Worker Health (DSAST/SVSA), Ministry of Health Brazil
16:05 – 16:15	Country experience: Integrating health in Ethiopia's NDC	**Misganaw Tewachew,** Climate Change and Health Focal Point, Ministry of Health Ethiopia
16:15 – 16:25	Discussion/Q&A	Facilitated by **Elena Villalobos Prats**
16:25 – 16:30	Close webinar	**Natalia Linou**, UNDP **Dr Diarmid Campbell-Lendrum**, WHO

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Climate Promise 2025

Goal: Support developing countries to align the 3rd generation of NDCs to the 1.5° C goal and SDGs, strengthen quality and investability, and accelerate implementation to drive sustainable development.

Approach: Systematic and coordinated roll out of support from across UN System

- Stocktaking of NDC implementation
- Targeted in-country support on NDC revision and implementation
- Working with members of the NDC Partnership

Key areas of UN joint support:

In-country targeted support

Framed around three pillars of the framework, crowding in offers from across the UN System

Ambition

- Assessment of NDC progress, align with Net Zero and SDGs
- Build political will and societal ownership
- Strengthen targets, policies, and measures (sectoral)
- Align with existing frameworks – NAP, NBSAP, energy compacts, etc.
- Assess costs and investment opportunities

Acceleration

- Drive finance to deliver targets
  - Int'l public: align VF, multilat and bilat
  - Nat'l public: INFFs, bonds, CPEIRs
  - Private: Carbon Markets (HICM offer), private sector coalition
- Integrated technical support on priority areas: Adaptation, Energy, L&D, Nature

Inclusivity

- Recognize and promote a human rights-based approach
- Advance gender equality and women's empowerment
- Enhance intergenerational equity
- Strengthen effective participation and leadership
- Increase capacities and knowledge to drive implementation
- Strengthen access to and control over resources, e,g. finance, information, and technology

Key areas of UN joint support:

Global and Regional

ANALYSIS, TOOLS, AND GUIDANCE

- **NDC 3.0 Navigator** tool consolidating all resources on NDCs for countries - developed by NDC Partnership Support Unit with UNFCCC and UNDP will be the key consolidated resource for countries
- Application of resources supported through UNDP's Climate Promise infrastructure and other existing mechanisms (NDCP processes) and part of coordinated in-country support

ADVOCACY AND OUTREACH

- Common narrative to support political push for strengthening efforts to deliver the Paris Agreement and reinforce multilateralism
- Coordinated messages informed and utilized by all UN Agencies for milestones on the road to COP30 (COP29, G20, G7, SIDS4, LLDC3, etc.)

Key dates

UN Coordination

- **August – Sept** – National mappings on UN offers; coordinated offer defined and discussed with Govt **September 10** – UN General Assembly, outreach with Parties
- **August- October** – Various regional NDC 3.0 forum
- **November 11** – COP 29, high-level event to showcase UN Offer and take stock of NDC processes

UNFCCC Process

- **November 11** – COP 29
- **February** – Official deadline for submission of NDC 3.0 and inclusion in NDC Synthesis report
- **September** – Likely deadline for updated NDC Synthesis report
- **November 2025** – COP 30 and 10th Anniversary of the Paris Agreement

Health Entry points for engagement

1. **POLITICAL ENGAGEMENT**
   a. *Goal:* Governments take the political decision to invite health sector stakeholders to co-shape actions, strategies, decisions and outcomes of the NDC process and align with SDGs and LT-LEDS
   b. *Result:* A health narrative is used to raise ambition and build political support for action.

2. **CAPACITY BUILDING AND TRAINING**
   a. *Goal:* Improve the quality of health sector's participation in both the formulation and implementation of NDCs, including target setting (this is a ***key role for WHO).***
   b. *Result:* Better quality NDCs – with health data helping to support evidence-based decision making and set indicators to measure progress.

3. **INCLUSIVENESS AND ACCOUNTABILITY**
   a. *Goal:* Active and meaningful participation of health civil society and people most directly impacted by climate change in NDC consultations as well as in oversight and accountability processes.
   b. *Result:* Unique insights inform the quality of NDCs and greater transparency, accountability, and ownership.

4. **COSTING, ALIGNMENT, AND SUSTAINABILITY**
   a. *Goal:* Alignment of public, private, international, and national finance towards NDCs, including through appropriate costing of interventions and identifying financing mechanisms.
   b. *Result:* Climate and health activities are appropriately funded and are therefore sustainable.

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Climate Change and Health Planning

Integrating health in Nationally Determined Contributions (NDCs)

Amy Savage, Hyunju Lee, Diarmid Campbell-Lendrum
CCH Unit, WHO HQ

What does the Paris Agreement aim for?

- A long-term goal of limiting global warming to 1.5 - 2°C above pre-industrial levels
- 195 Parties which are requested to:
  - prepare, communicate, and maintain successive **nationally determined contributions (NDCs)** outlining ambition and progress in climate actions
  - submit mid-century, **long-term low greenhouse gas (GHG) emissions development strategies (LT-LEDS)**

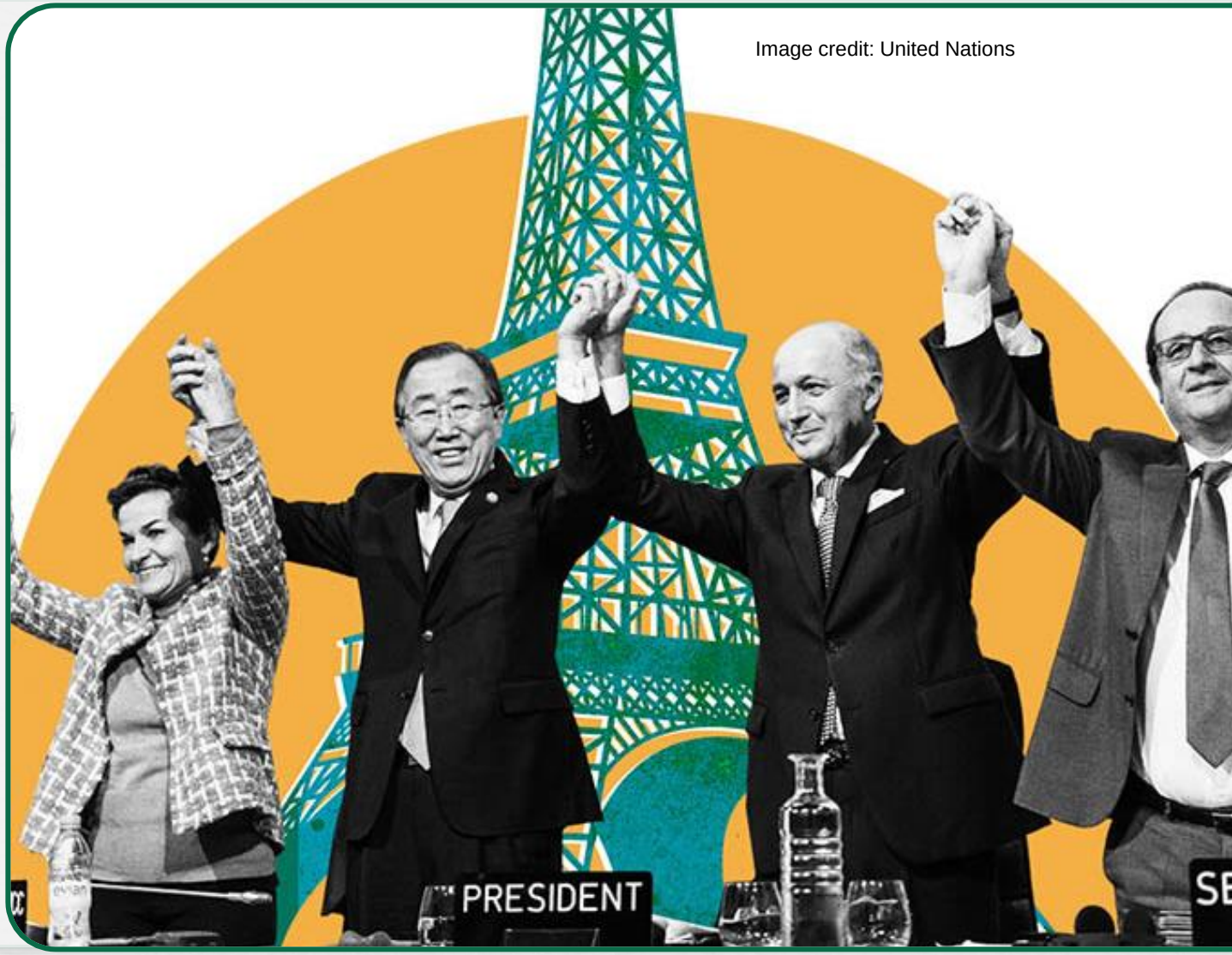

Image credit: United Nations

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Image credit: United Nations

What are Nationally Determined Contributions?

- The heart of the Paris Agreement: NDCs outline specific **actions and targets** to limit global warming to **1.5 - 2°C above pre-industrial levels**
- Embody **efforts by each country** for reducing greenhouse gas emissions and building resilience to climate change
- Based on national circumstances, capabilities and priorities

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NDCs Ambition Cycle

Parties can **modify their existing NDCs** submitted to the UNFCCC secretariat at **any time** to **enhance their ambition**.

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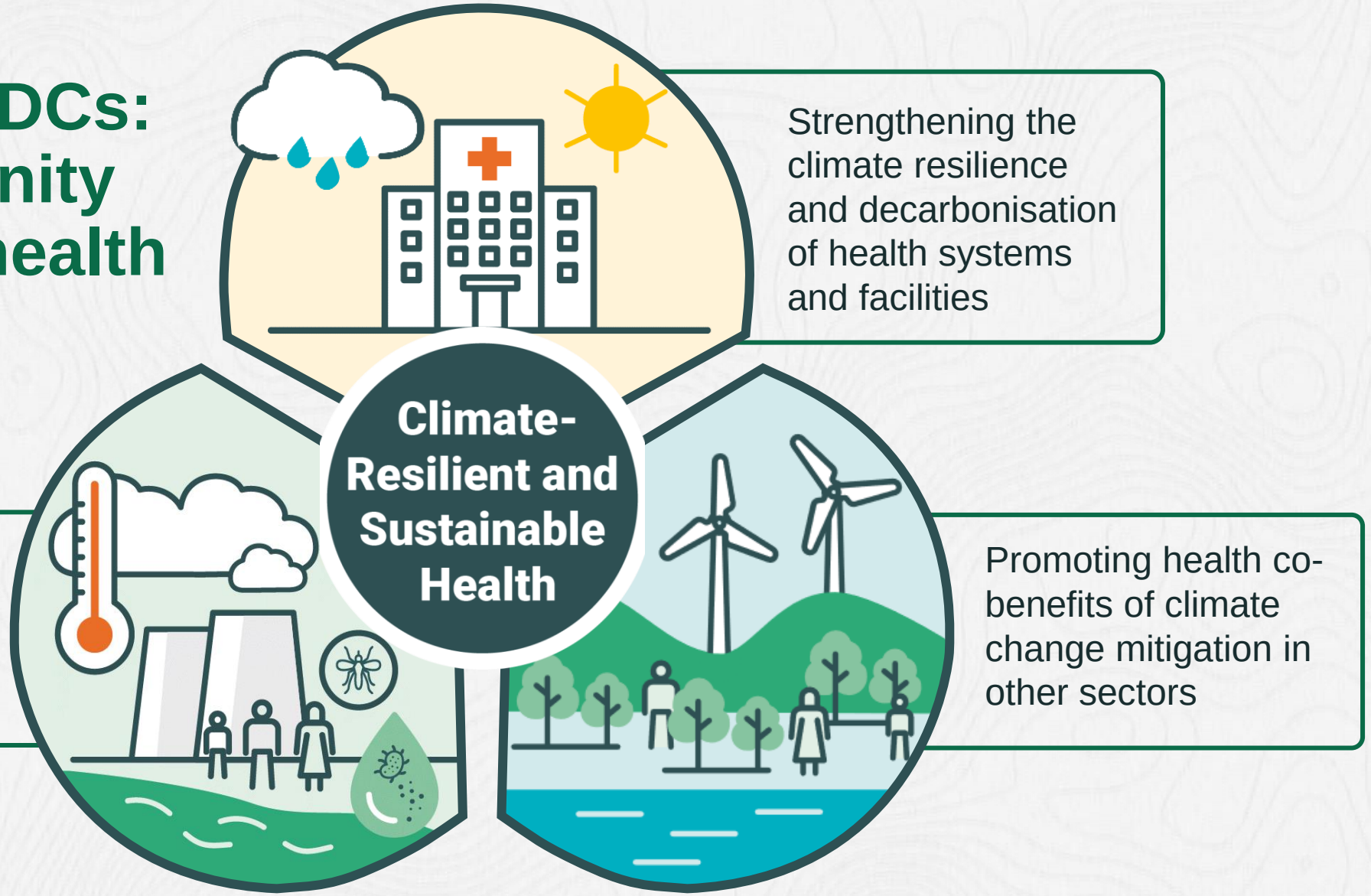
Health in NDCs: an opportunity for public health



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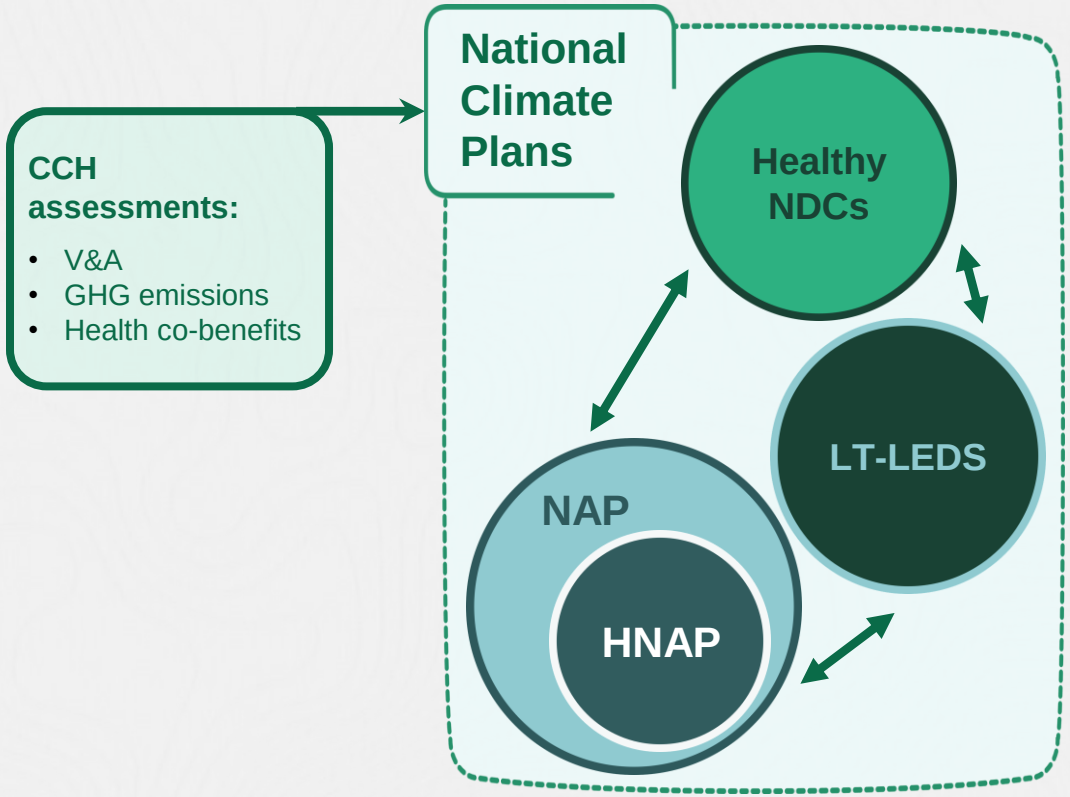
Health in UNFCCC processes



Findings from the latest WHO review of health in the NDCs & LT-LEDS

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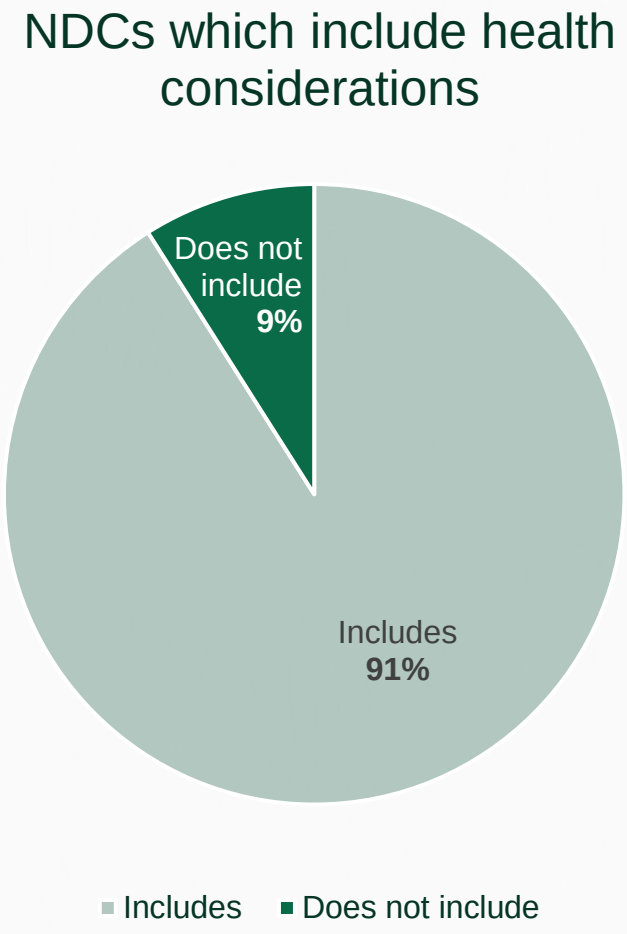
Findings: Health in the NDCs & LT-LEDS

- 91% of **NDCs** include health considerations
- This increased (since 2019) across all action areas: health co-benefits of mitigation, health adaptation and resilience, and climate finance.



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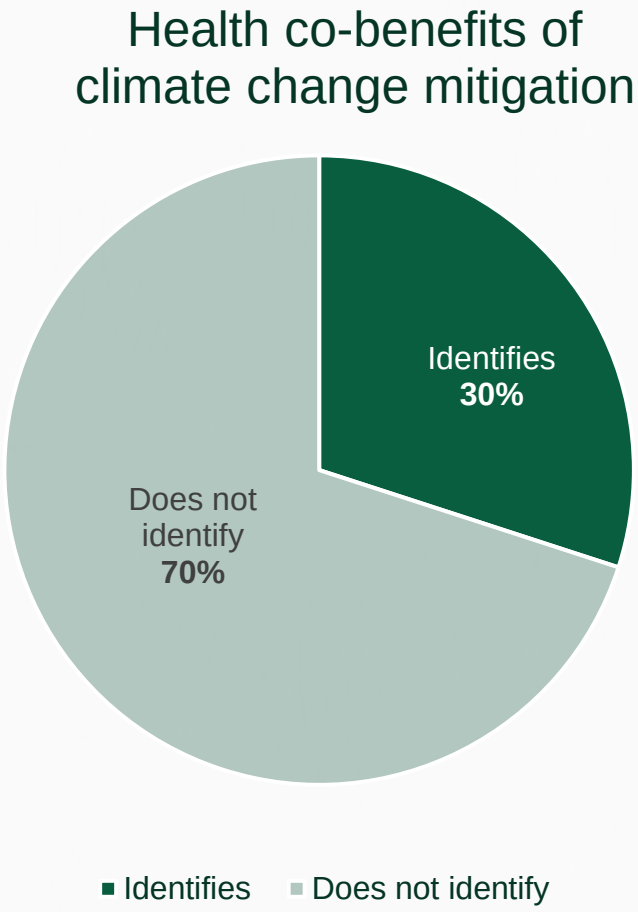
Findings: Health in the NDCs & LT-LEDS

- 30% of NDCs identify health co-benefits of mitigation actions
- 10% quantify and/or monitor these benefits
- Across various sectors: food, agriculture and land use; transport; and household energy



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Pakistan

An increase in ambition from the current ambition to the higher ambition scenario results in almost a **doubling** of lives saved.

By implementing the seven energy policy interventions, the Government of Pakistan could achieve in 2030

27.5%

ambitious GHG emissions reductions

eliminating up to

568Mt of GHGs

cumulatively

preventing more than

65,000 annual deaths

from air pollution

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Colombia

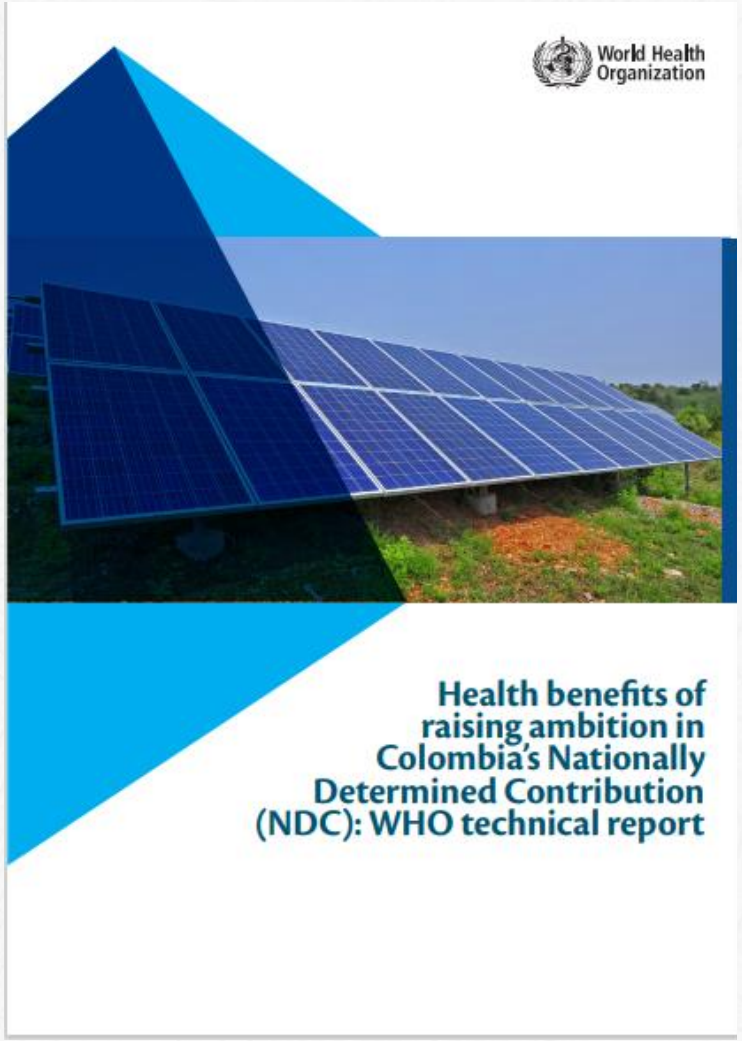
These GHG emissions reductions would be accompanied by significant air quality improvements that could:

Prevent more than

3800 premature deaths

annually from ambient air pollutions in 2030, which is equivalent to an annual cost of

US $ 1.9 billion



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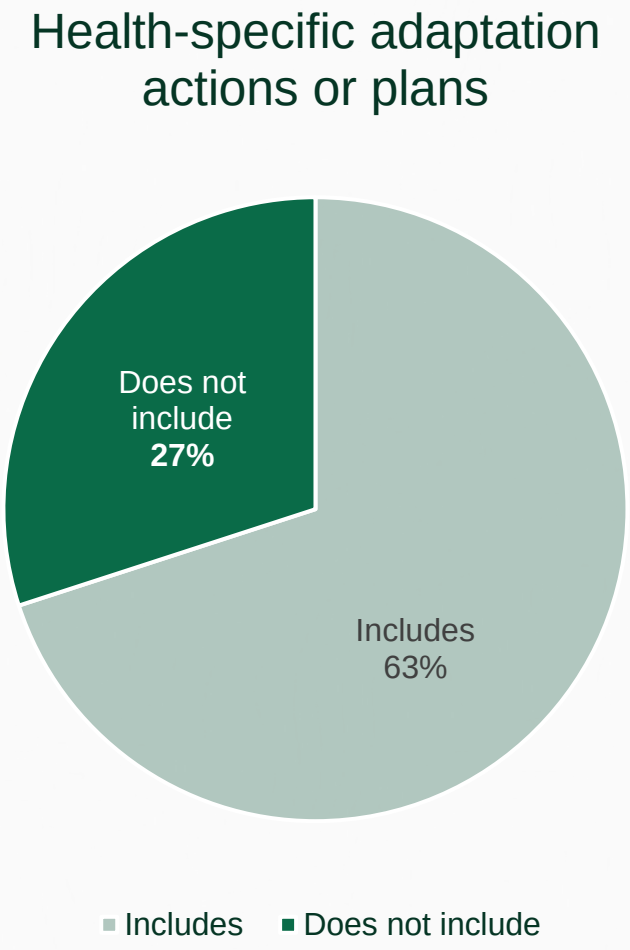
Findings: Health in the NDCs & LT-LEDS

- 63% of NDCs have set health adaptation priorities



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Upcoming publication: **Healthy NDCs: WHO Quality Criteria for integrating health into Nationally Determined Contributions**

A **practical** guide on '*what*' and '*how*' to integrate health in NDCs.

The document broadly aims to:

01 Enhance the understanding of the national and international climate plan processes and terminology, including the differences and synergies between some key national climate plans (i.e., NDCs, LT-LEDS, and HNAPs/NAPs) in the health sector;

02 Highlight areas within NDCs, and concrete recommendations for good practice, to integrate and promote health and the resilience and sustainability of health systems;

03 Strengthen health sector engagement in the development and negotiations of national climate plans across sectors.

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General NDC/LT-LEDS structure*

Quality criteria for integrating health in NDCs

1 Leadership and enabling environment

2 National circumstances and policy priorities

1.1 National circumstances and policy priorities

3 Mitigation

2.1 Health co-benefits of climate change mitigation

2.2 Air quality targets

2.3 Health sector mitigation

4 Adaptation

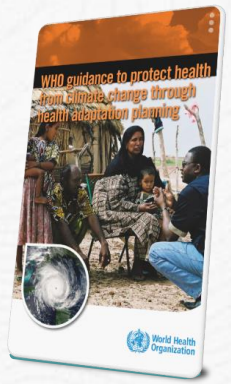
3.1 Health adaptation and resilience

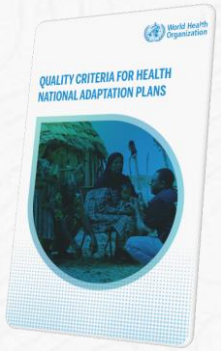
5 Loss and damage

4.1 Loss and damage to health

6 Finance

5.1 Finance for health





7 Implementation

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Upcoming publication:

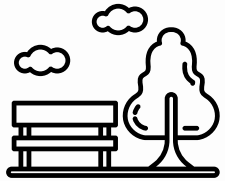
All for Health, Health for All Investment case 2025-2028 Methods Report

This table presents the estimated numbers of lives saved by intervention package and for all intervention packages combined. Global scale-up of the five intervention packages combined is estimated to save 1.9 million lives per year and 7.6 million lives over the 4-year investment period of 2024–2027.

Table: Number of lives saved by intervention package and for all five intervention packages combined over the respective study period and on average per year

Intervention package (study period, study years)	**Number of lives saved**	
	Over study period	Per year
Heat-health warning system (52 years, 2024-2075)	5,112,344	98,314
Electrification of primary healthcare facilities (27 years, 2024-2050)	7,844,498	290,537
WASH for climate change adaptation (52 years, 2024-2075)	8,988,922	172,864
Cleaner household energy sources (31 years, 2024-2054)	4,125,944	133,095
Fiscal policies to efficiently price fossil fuels (20 years, 2024-2043)	24,046,880	1,202,344
Total	-	**1,897,154**

WHO Tools to assess health co-benefits from climate mitigation



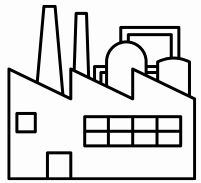
Green Urban Space

GreenUr

Urban Land Transport

Health Economic Assessment Tool (HEAT; walking and cycling)

The Integrated Sustainable Transport and Health Assessment Tool (iSThAT)



Ambient air quality

Climaq-H
AirQ+

CaRBonH
GSI-IF Model
Green Economy Model

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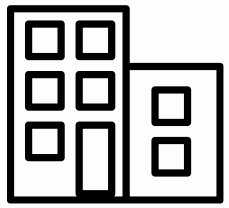
WHO Tools to assess health co-benefits from climate mitigation



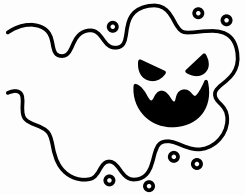
Indoor air quality

Indoor Air Quality (IAQ) RiskCalculator

Household energy and air quality

Clean Household Energy Solutions Toolkit (CHEST)

- BAR-HAP
- PT Model
- HOMES Model
- HEART Templates



And so on

Health Impact Assessment (HIA) tools

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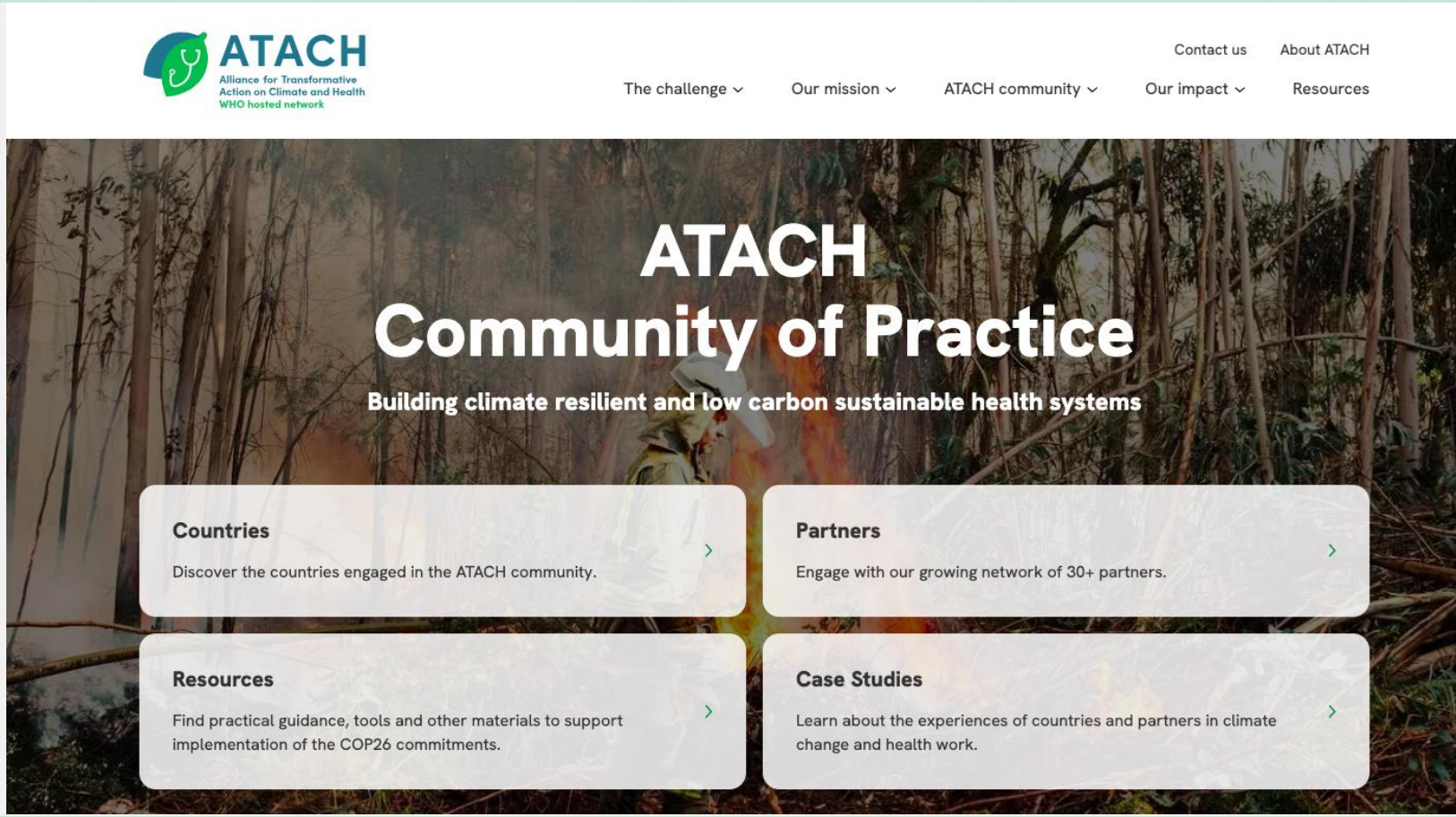
Further resources

Initiatives such as the **Alliance of Transformative Action on Climate Change and Health (ATACH)** play an important role in increasing the uptake of best practices to transform health systems to become climate-resilient and low-carbon.



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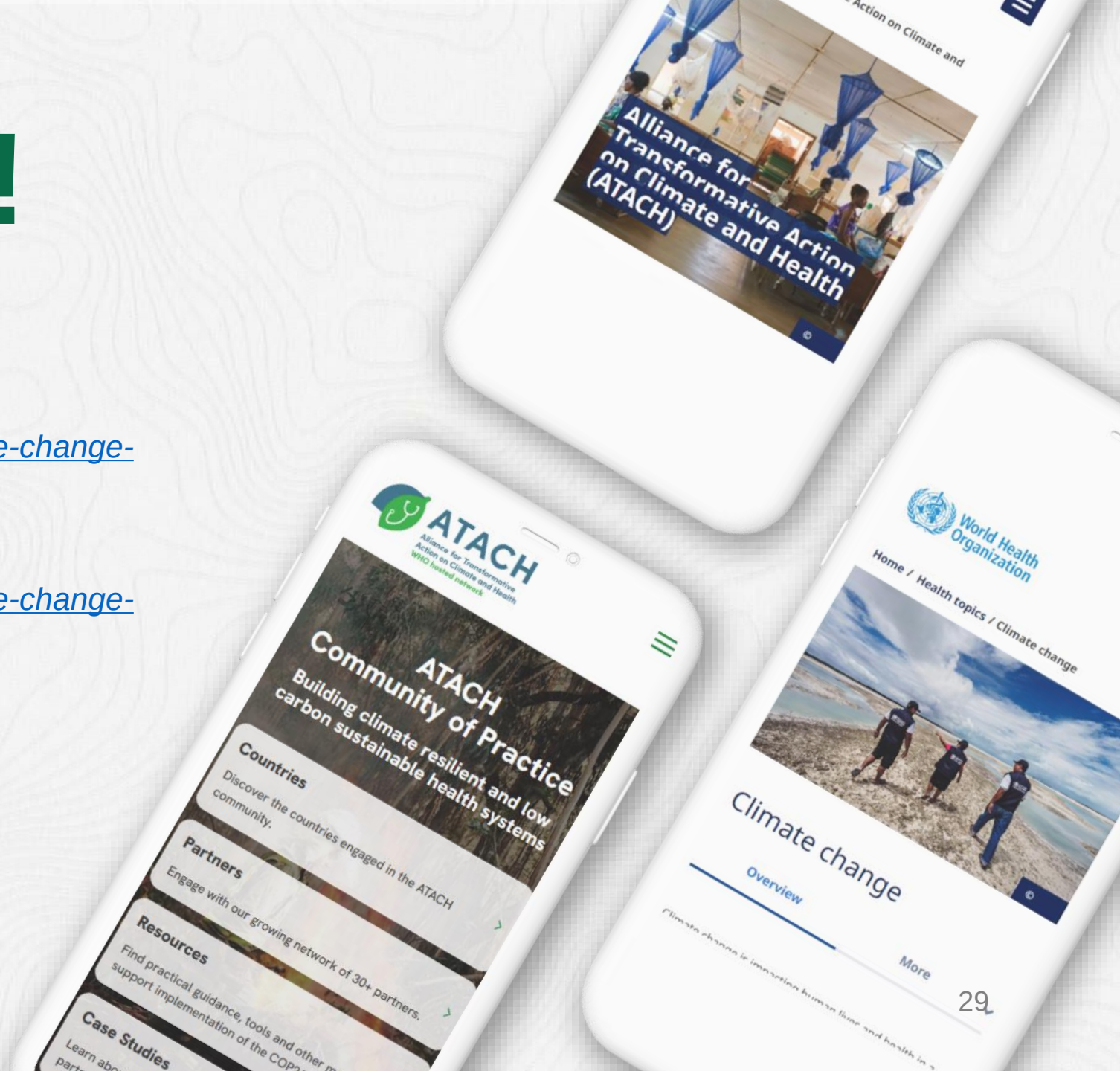
Thank You!

ATACH Community
https://www.atachcommunity.com/

Environment, Climate Change and Health
https://www.who.int/teams/environment-climate-change-and-health

Climate Change
https://www.who.int/teams/environment-climate-change-and-health/climate-change-and-health

Email: **healthclimate@who.int**



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WHO CCH Technical WEBINAR SERIES: Session outline

Integrating Health in NDCs

Air quality targets and health co-benefits in NDCs

18 September 2024

Author:
Pierpaolo Mudu
Presenters:
Heather Adair-Rohani - Pierpaolo Mudu - WHO

Introduction

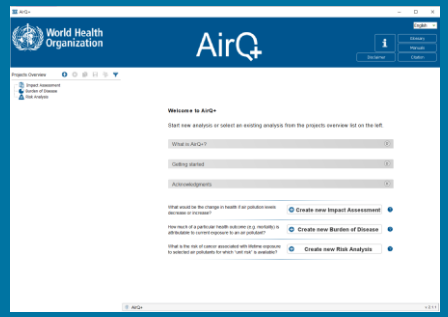
- Which tools are available for modelling the health impacts of environment and health?

- Description of a WHO tool (CLIMAQ-H) available on climate change mitigation policies.

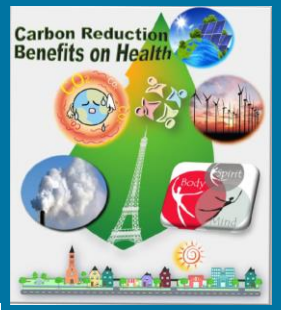
Tools available or under development

WHO is producing and testing various tools:

- **AirQ+**: impacts on health of air pollution



- **CaRBonH** (Carbon Reduction Benefits on Health)



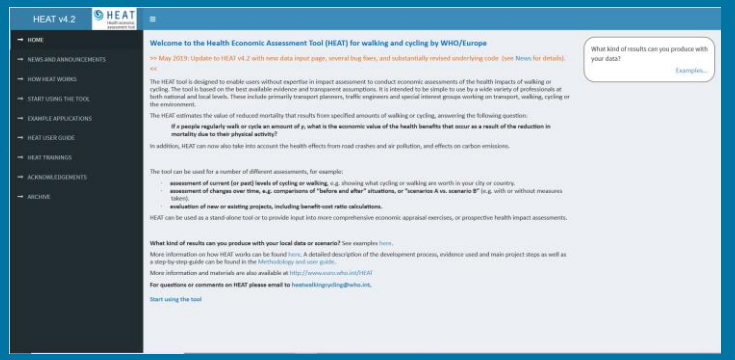
- **GreenUr** (Green Urban spaces and health)

CLIMAQ-H

Climate Mitigation, Air Quality and Health

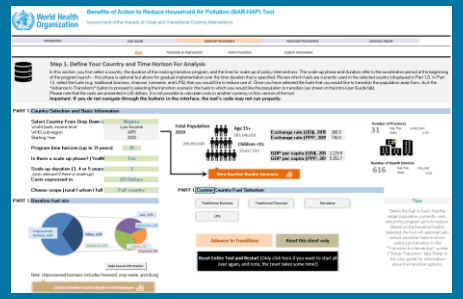
- **HEAT** (Health Economic Assessment Tool):

online tool that conducts an economic assessment of the health benefits of walking or cycling



- **BAR-HAP** (Benefits of Action to Reduce Household Air Pollution):

It is a planning tool for assessing the costs and benefits of different interventions that aim to reduce cooking-related household air pollution.



Modelling air pollutants related to NDCs

Calculation steps

Define scenario targets

Projected emission of major pollutants

Calculate changes in concentration and exposure

Evaluate change in health risk

Calculate economic co-benefit of scenario

Major air pollutant emission reductions expected from GHG interventions in NDCs

(total, or sector-specific values to be supplied by countries according to national action plans)

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Source–receptor matrices

(calculate changes in downstream ambient air concentrations associated with reductions in national emissions of PM, NO_2, SO_2 and NH_3)

National and regional changes in air pollution

Population at risk

PM2.5 population-weighted exposure

Concentration–response functions

Mortality and morbidity

Health statistics

Background mortality and morbidity rates

Health impacts

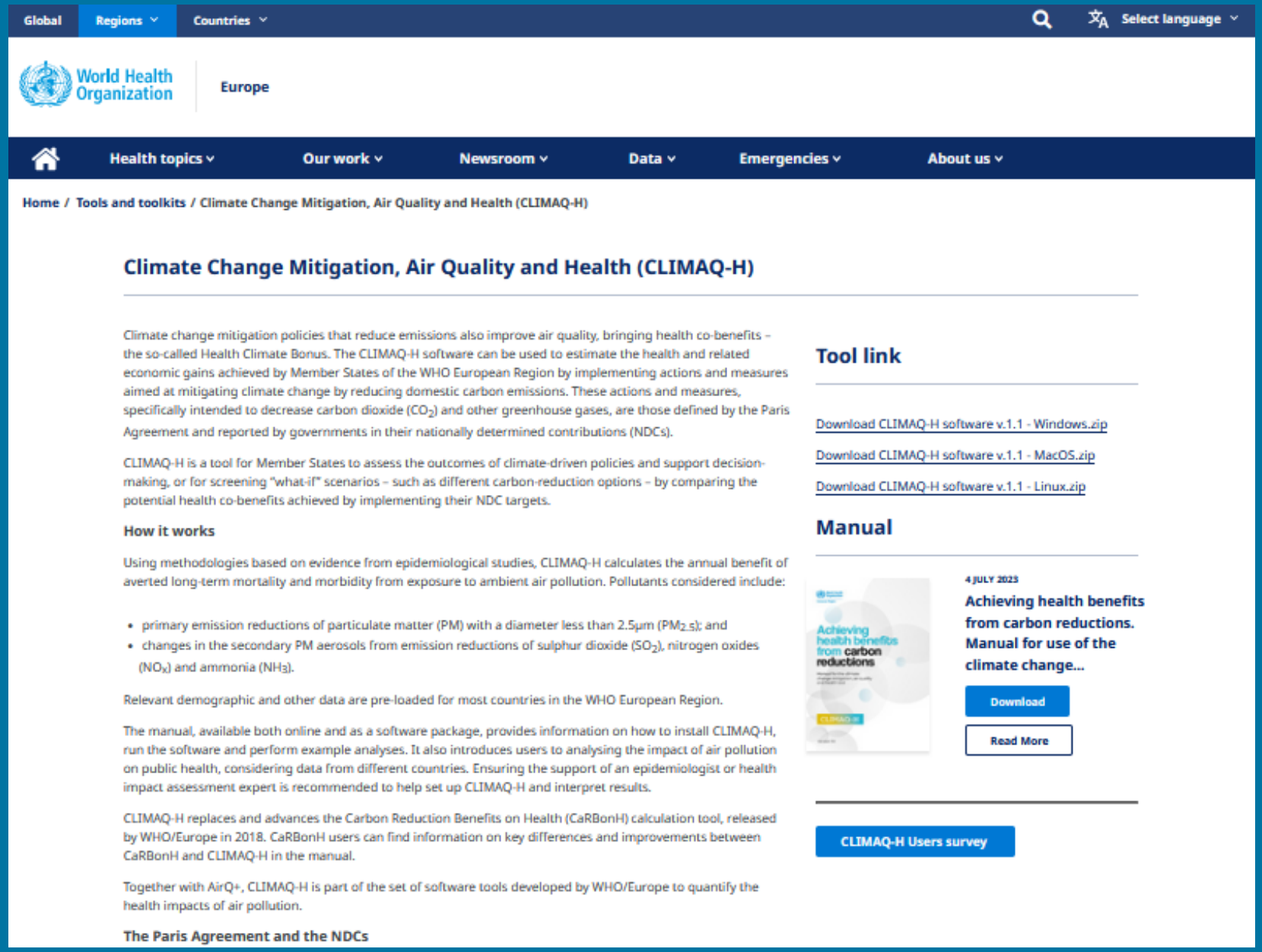
Economic assessment

Health co-benefits of GHG reductions

The CarbonH project

The CarbonH software was available between 2017 and 2023 and it was replaced by CLIMAQ-H in 2023.

The CLIMAQ-H project: the website



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Home / Tools and toolkits / Climate Change Mitigation, Air Quality and Health (CLIMAQ-H)

Climate Change Mitigation, Air Quality and Health (CLIMAQ-H)

Climate change mitigation policies that reduce emissions also improve air quality, bringing health co-benefits – the so-called Health Climate Bonus. The CLIMAQ-H software can be used to estimate the health and related economic gains achieved by Member States of the WHO European Region by implementing actions and measures aimed at mitigating climate change by reducing domestic carbon emissions. These actions and measures, specifically intended to decrease carbon dioxide (CO_2) and other greenhouse gases, are those defined by the Paris Agreement and reported by governments in their nationally determined contributions (NDCs).

CLIMAQ-H is a tool for Member States to assess the outcomes of climate-driven policies and support decision-making, or for screening "what-if" scenarios – such as different carbon-reduction options – by comparing the potential health co-benefits achieved by implementing their NDC targets.

How it works

Using methodologies based on evidence from epidemiological studies, CLIMAQ-H calculates the annual benefit of averted long-term mortality and morbidity from exposure to ambient air pollution. Pollutants considered include:

- primary emission reductions of particulate matter (PM) with a diameter less than 2.5μm ($PM_{2.5}$); and
- changes in the secondary PM aerosols from emission reductions of sulphur dioxide (SO_2), nitrogen oxides (NO_x) and ammonia (NH_3).

Relevant demographic and other data are pre-loaded for most countries in the WHO European Region.

The manual, available both online and as a software package, provides information on how to install CLIMAQ-H, run the software and perform example analyses. It also introduces users to analysing the impact of air pollution on public health, considering data from different countries. Ensuring the support of an epidemiologist or health impact assessment expert is recommended to help set up CLIMAQ-H and interpret results.

CLIMAQ-H replaces and advances the Carbon Reduction Benefits on Health (CaRBonH) calculation tool, released by WHO/Europe in 2018. CaRBonH users can find information on key differences and improvements between CaRBonH and CLIMAQ-H in the manual.

Together with AirQ+, CLIMAQ-H is part of the set of software tools developed by WHO/Europe to quantify the health impacts of air pollution.

The Paris Agreement and the NDCs

Tool link

Download CLIMAQ-H software v.1.1 - Windows.zip

Download CLIMAQ-H software v.1.1 - MacOS.zip

Download CLIMAQ-H software v.1.1 - Linux.zip

Manual

4 JULY 2023

Achieving health benefits from carbon reductions. Manual for use of the climate change...

Download

Read More

CLIMAQ-H Users survey

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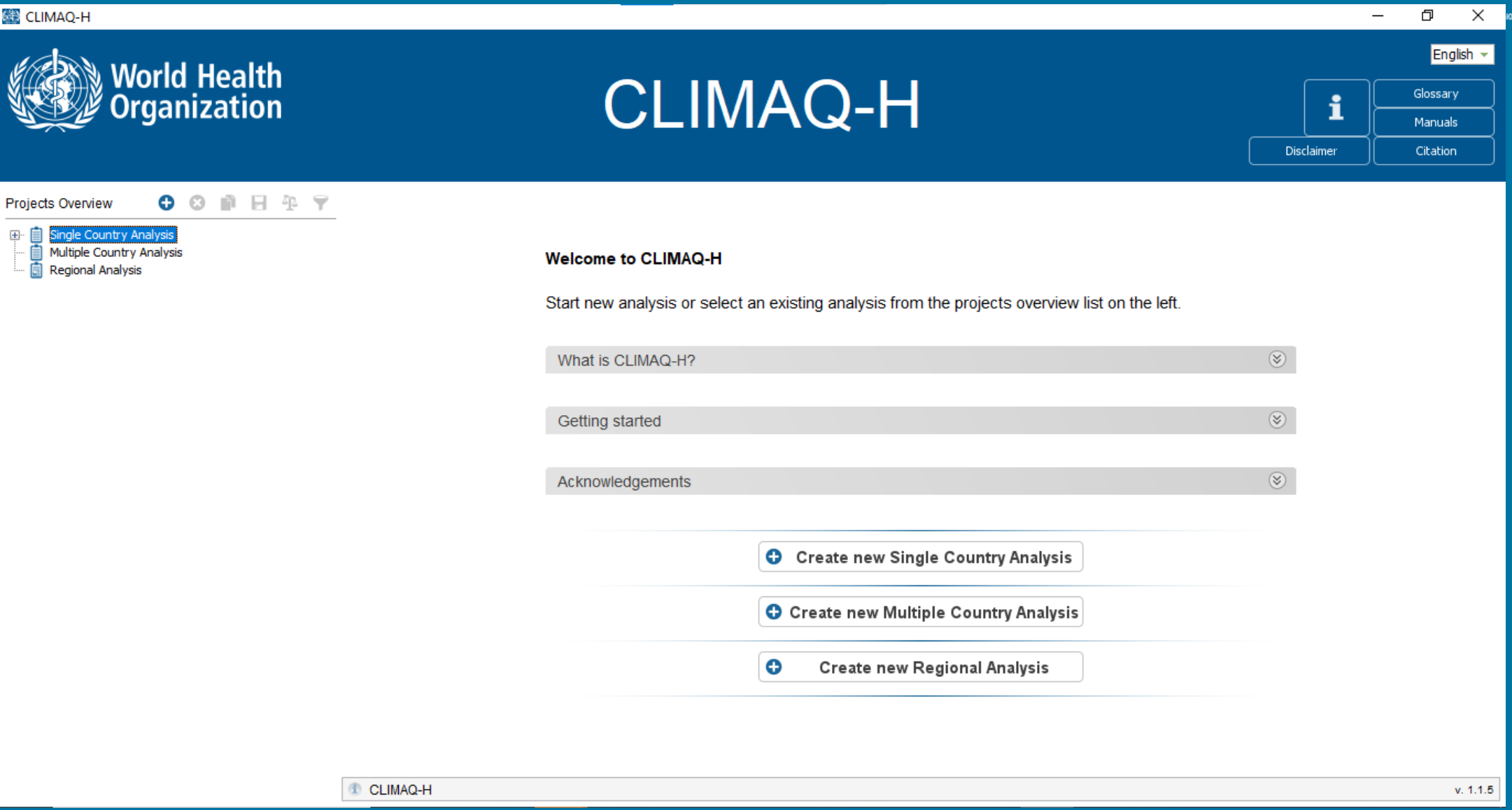
The Climate Change Mitigation, Air Quality and Health (CLIMAQ-H) calculation tool allows quantification of the physical and economic consequences for human health achieved through improvements in country-level air quality from domestic carbon reductions, specifically policy mitigation actions and measures as reported in the NDCs submitted by the Conference of the Parties to the UNFCCC in support of the objectives as set out in Article 2 of the Convention.

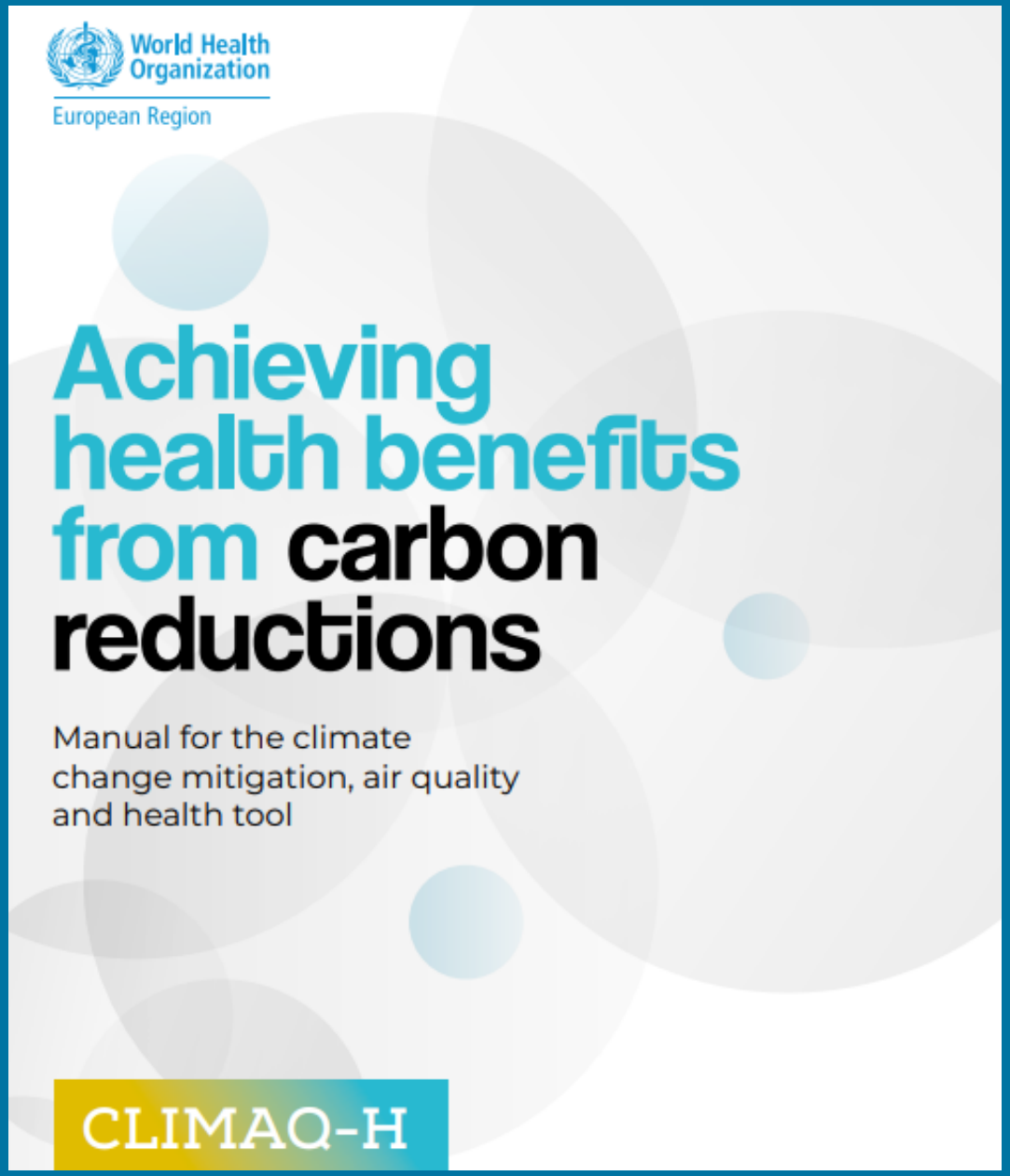
https://www.who.int/europe/tools-and-toolkits/climate-change-mitigation--air-quality-and-health-(climaq-h)

The CLIMAQ-H project: the software



The questions addressed by CLIMAQ-H are: • How are the air pollution and health co-benefits affected by the domestic carbon reduction strategies specified in a country's NDC plan? • What is the economic benefit of the health gains achieved through implementation of the NDC?

CLIMAQ-H: example of calculations



- In the manual you can find an analysis of the health and economic co-benefits of climate policies in Colombia based on real data. Also examples are presented for North Macedonia, the Netherlands and Norway.

Conclusions

- Air pollution has a large impact on human health
- The reduction of anthropogenic source of air pollution can be pursued through several interventions, and tools are available to estimates their health impacts
- Reducing air pollution means also protecting the climate
- Estimate health impacts of policies are important to orient decision-making in particular at the urban, regional, national and international level
- Health Risk Assessment provides an important process to understand the impacts of air pollution
- The health sector is empowered with tools that allow collaboration with other sectors
- WHO provides tools such as CLIMAQ-H that are simple to use to estimates adverse health risks and impacts of air pollution.

Thank you – Merci – Danke – Спасибо

World Health Organization
REGIONAL OFFICE FOR Europe

Contacts

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Thanks to:

Joe Spadaro

Ingu Kim

Health Benefits of Raising Ambition in Pakistan's Nationally Determined Contributions (NDCs) for Climate Change

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Department of Community Health Sciences
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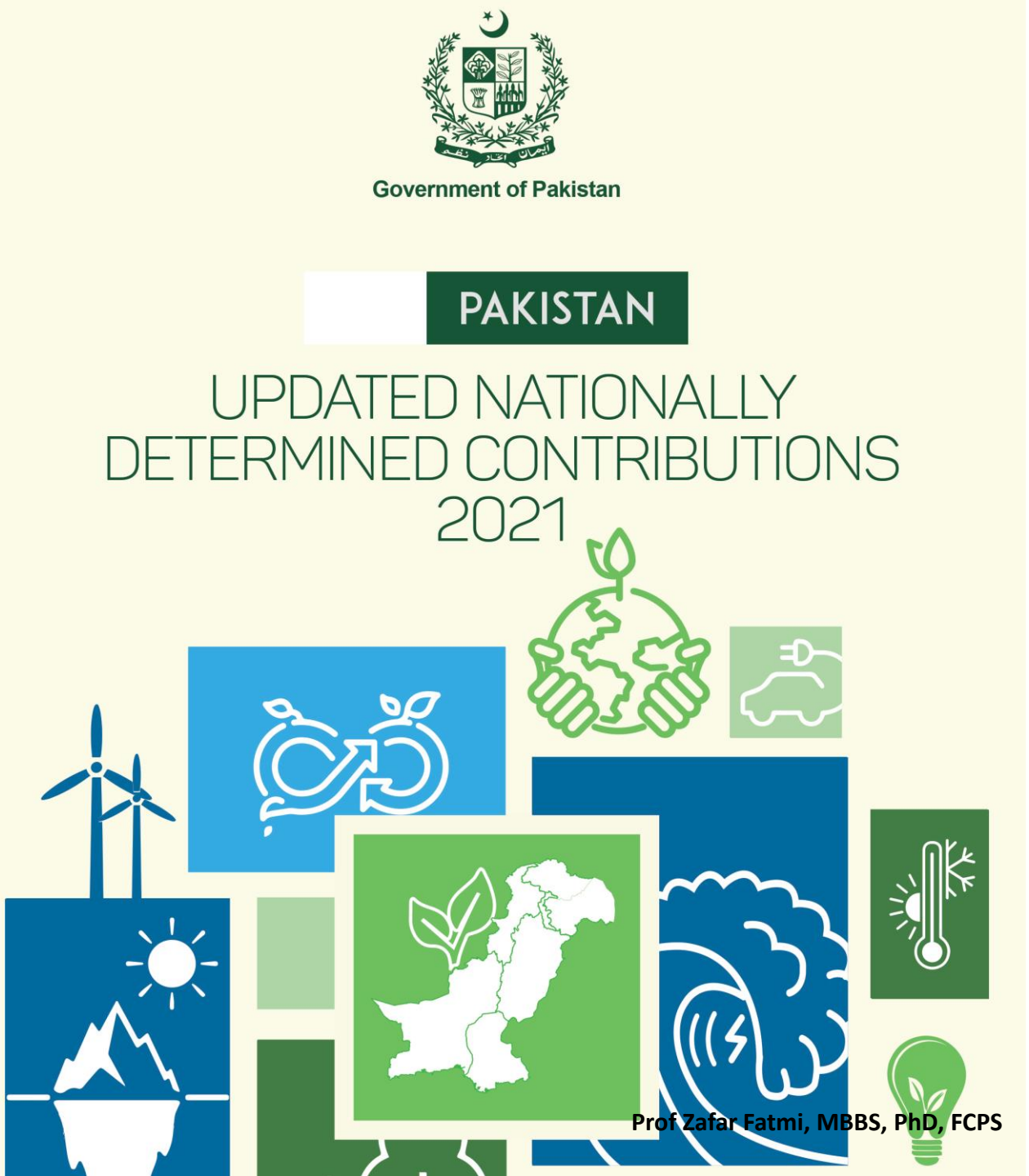
Study Team and Collaborators

- **Project coordination:** Tara Neville, WHO, Geneva
- **Modelling/analytical expertise:** Andrea Bassi, Georg Pallaske, Joseph V. Spadaro
- **Technical and policy expertise:**
  - ***National consultants:*** Zafar Fatmi (Aga Khan University), Irfan Yousuf
  - ***International Institute for Sustainable Development (IISD):*** Lourdes Sanchez, Avet Khachatryan, Estan Beedell
  - ***Ministry of Climate Change:*** Syeda Hadika Jamshaid, Saima Shafique, Muhammad Irfan Tariq
  - ***Ministry of National Health Services, Regulations and Coordination:*** Razia Safdar
  - ***World Health Organization:*** Palitha Gunarathna Mahipala, Noureen Aleem Nishtar, Mazen Malkawi, Saleh Rababa, Heather Adair-Rohani, Diarmid Campbell-Lendrum, Pierpaulo Mudu
- **Financial support:** Wellcome Trust and the International Health Grants Programme of Health Canada.

- Climate-resilient economy policy
- **Nature-based Solutions** (NbS) and **technology-based interventions**.
- Policy actions for **high emission sectors** like **<u>energy</u> and industry**



High Priority Actions

Mitigation

Renewable Energy **60%** by 2030

Electric Vehicles **30%** by 2030

Moratorium on new coal power plants
No generation of power through imported coal

Continued investments in NbS

Adaptation

Indus Basin- flood risk mitigation and enhanced water recharge

Enhancing PROTECTED AREAS cover from **12%** to **15%** by 2023

Rationale for the study

- Energy policies need to be aligned with Health, Climate and Social priorities.

- Fossil fuel subsidies
  - Encourage overconsumption beyond social optimum (SEI et al., 2020)
  - Burden of government finances, high opportunity cost for other priorities like public health
  - Lock-in effect, limiting deployment of clean energy

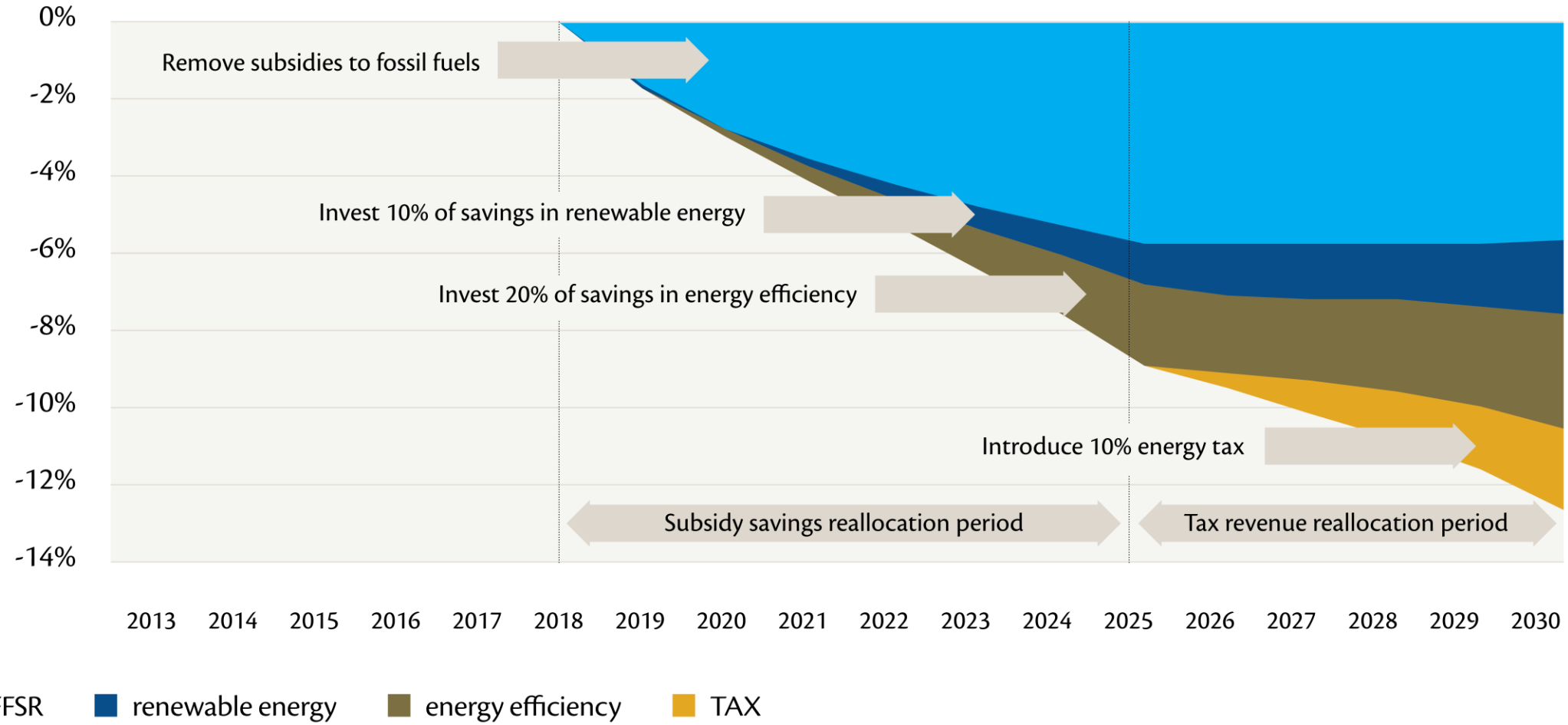
Rationale (cont.)

- Fossil fuel is primary source of CO_2 (and air pollution)
- ***Lower GHGs also lowers air pollution***

- Evidence: removing fossil fuel subsidies led to:
  - COVID-19 economic recovery in India (Varadhan & Ahmed, 2020)
  - Increase funding for ministries to spend on human and economic development programmes in Indonesia (Beaton et al., 2016)
  - Reduce poverty (Beaton et al., 2016)

Average percentage of CO_2e emissions reductions modelled across 26 countries

(SOURCE: GSI, 2019)



Current Fossil fuel subsidies in Pakistan

- US$ 3.2 billion (IMF, 2018)

- US$ 13.1 billion in costs of climate, health and other externalities (not including foregone government revenue)

Objectives

Estimate the health benefits of removal of fossil subsidies under different ambitions scenarios and compared it with NDC reference case of 2020 in Pakistan.

Also determine the health benefits of reallocating the saved subsidies and health and social welfare in Pakistan.

Methods/Models Used in the Study

Global Subsidies Initiative – Integrated Fiscal (GSI-IF) Model

Estimates the impact on national GHG emissions of fossil fuel subsidy reform and carbon tax, as well as the impacts of increased investment on renewable energy and energy efficiency resulting from the savings from subsidy reform and additional funds from fossil fuel taxation.

Green Economy Model (GEM)

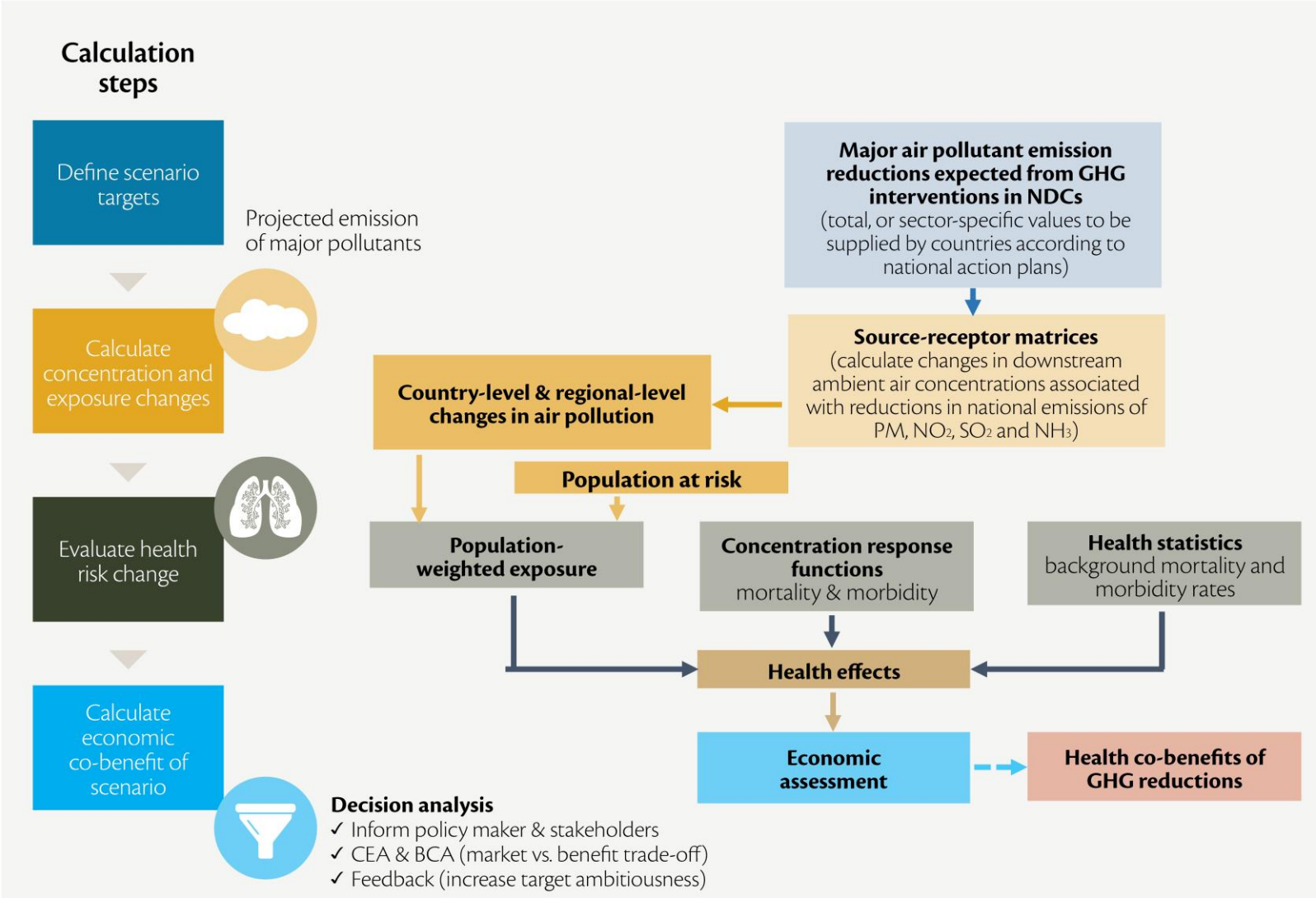
Estimates the emissions of 11 air pollutants from final domestic energy consumption and from power generation. Air pollutants considered in GEM are: CO_2; CO; SO_2; NO_2; NMVOC; CH_4; PM_{10}; $PM_{2.5}$; Black carbon; Organic Carbon; and Ammonia (NH_3).

CaRBonH Model

Quantifies the physical and economic consequences for human health using data on emission reductions of key air pollutants that could be achieved by future climate policies. Air pollutants considered are primary particulate matter (PM_{10}), SO_2, NO_x and NH_3.

Prof Zafar Fatmi, MBBS, PhD, FCPS

CaRBonH modelling framework



Summary of scenario assumptions

Intervention	NDC reference case	BAU	Current ambition	High ambition
Renewable energy	Same as today	55% by 2030	65% by 2030	75% by 2030
Energy efficiency	No change	+0.5%/year	+1.5%/year	+3%/year
Share of new electric vehicle sales	No change	2030: 10% 2040: 10%	2030: 30% 2040: 90%	2030: 40% 2040: 100%
Fuel switching from biomass to electricity (households)	No change	2.5% by 2030, 7.5% by 2050	5% by 2030, 15% by 2050	10% by 2030, 30% by 2050
Fuel grade	EURO2	EURO5	EURO5, upgrade vehicle fleet to EURO6 by 2030	
Fossil fuel subsidy phase out	N/A		100% by 2025	
Fossil fuel tax	N/A			10%, implemented between 2025 and 2030

Health and economic co-benefits of alternative mitigation scenarios compared to the NDC reference case scenario for Pakistan in 2030

Scenario	Avoided premature deaths			Economic benefits			Totals		
	Adults (GEMM)	Infants	Pregnancy loss	Adults	Infants	Pregnancy loss	Deaths	DALYs ('000)	Valuation ($ m)
BAU	9900	6100	2300	1130	1090	410	18 300	777	2630
IQR	6300–12 500	2800–7900	900–2900	520–1490	340–1410	110–520	10 000–23 300	382–997	980–3420
Current ambition	23 400	13 900	5200	2660	2470	950	42 500	1792	6100
IQR	14 700–29 400	6400–18 000	2100–6700	1210–3500	790–3220	260–1200	23 200–54 100	886–2305	2270–7940
High ambition	**41 700**	**23 700**	**9100**	**4740**	**4220**	**1650**	**74 500**	**3110**	**10 650**
IQR	26 100–52 300	11 100–30 900	3700–11 700	2150–6230	1380–5520	460–2090	40 900–95 000	1553–4005	4000–13 890

(Notes: IQR = interquartile range. DALY = disability adjusted life years, the sum of years of life gained and years lived without disability (thousands) due to reduced $PM_{2.5}$ ambient air concentrations. Economic benefits expressed in millions of USD, 2019 nominal prices, for a 6% discount rate. Numbers may not add up due to rounding.)

Seven Policy Recommendations

GoP could reduce 27.5% of GHG emissions by 2030 (eliminating 568 Mt of GHGs cumulatively)
-Preventing 65000 annual deaths from air pollution in 2030

1. Increase renewable energy generation up to 75% by 2030
2. Increase energy efficiency with combined sectoral targets to achieve a total of 3% annual improvement
3. Transition from biomass to electricity in 30% of households by 2050
4. Increase share of electrical vehicle up to 100% of all new vehicles by 2040
5. Fully phase out fossil fuel subsidies by 2025
6. Introduce a 10% fossil fuel tax by 2025
7. Reinvest revenues in health

Four Health Recommendations

- Put health at the Centre of Pakistan's NDC
- Adopt a Health in All Policies (HiAP) approach to energy policy
- Establish mechanisms to facilitate collaboration between health and energy professionals
- Continue to obtain reliable data on health co-benefits of climate ambition in Pakistan to inform policies in various sectors

Lessons Learned from the Study

- Creating multidisciplinary teams can help tackle the complex interrelations between different aspects of climate and health.
- Focusing on multiple co-benefits of ambitious climate policies, including environmental, health and economic benefits, can highlight the advantages of such policies to policymakers and the public.
- Using international examples to inform the analysis can be useful in helping audiences understand the successes of climate and energy policies, gaps in those policies, and related opportunities for their own country.

Health benefits of raising ambition in Pakistan's nationally determined contribution: WHO technical report

Prof Zafar Fatmi, MBBS, PhD, FCPS

Lao PDR case study: Nationally Determined Commitment gives priority to Health Adaptation

NDC for climate resilient low carbon sustainable society

- **The 2021 NDC is aligned with the country's Sustainable Development Goals set out in the 9th five-year National Socio-Economic Development Plan (2021-2025), with a focus on combating climate change and its impacts.**

Mitigation objectives		Adaptation
• an unconditional mitigation scenario to 2030,	• more ambitious conditional mitigation scenario to 2030 towards net zero GHG emissions by 2050	• The 2020 NDC also sets forth objectives • short-term objectives for CC adaptation towards a strengthened measurements, reporting and verification system

National strategic level integration: NDC (2021) gives priority to CR health and WASH

Climate adaptation actions 4 sectors prioritized

key sectors: Agriculture, forestry, water, water resources and human health

Climate Resilient health service and infrastructure: implement CCH Strategy and HNAP

Climate resilient WASH services (Upscaling CR WASH Services)

Climate mitigation actions
8 sectors prioritized

Key achievements: NDC developed an inclusive stakeholder consultation process

NDC development process

Participatory approach

Stakeholders' consultation

Participated in review and update/Interview

Health sector leadership roles

Technical support

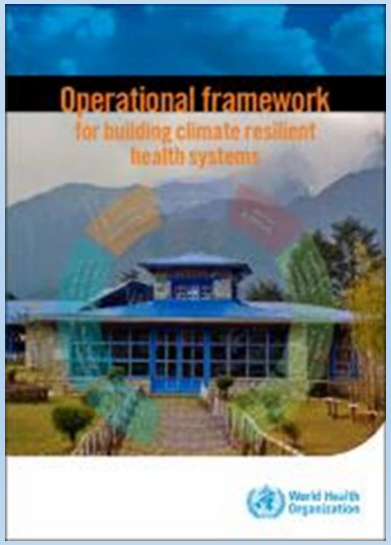
WHO and other DPs support

Stakeholders, MoH and health partners

- ✓ Ministries, academic research institutions, civil organizations, provincial governments, the private sector, and international development partners.
- ✓ Health partners and MoH representatives participated in consultation
- ✓ Climate change and health impact highlighted by MOH, WHO and other development partners

Key achievements: Operational level support: for building CR health system

VA/Stock taking 2020 → HNAP consultation, draft 2022 → HNAP advocacy awareness raising, 2023 → HNAP implementation, monitoring and review 2023-2024



- WHO operational framework
- systematic stepwise approach.
- HNAP development process started with consultation with health environment water stakeholders
- Helps to assess and address the V&A and inequity
- Same vulnerable areas targeted by NDC, HNAP
- Enhancing intersectoral collaboration and coordination

Coordination and implementation support: Environment and Health Sector coordination

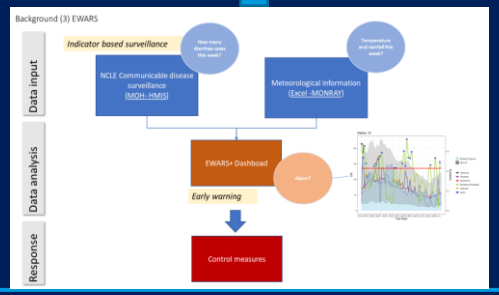
- MONRE: oversee the implementation of the NDC.
  - developing and maintaining data and information systems on climate change
  - coordination with other relevant ministries and local authorities.
- MoH and other Ministries to ensure mainstreaming of climate change into their activities, including through conducting studies, research and promoting the use of environmentally friendly technologies that mitigate greenhouse gas emission and/or increase resilience to climate chang
- Intersectoral coordination and collaboration
  - High level officials from MoH participated in COP 28, 29
  - COP 28, Climate Health Declaration signed

Goal

NDA/MONRE provided the support to MoH in increasing the adaptive capacity of health actors, to respond to and manage long-term climate-sensitive health risks

Outcomes

Capacity building



Strategic frameworks

Knowledge sharing and learning

Outputs

Early warning system

- Climate/weather data and health data sharing
- SOPs for data integration for DHIS2
- Pilot use and reporting
- Training on the use of SOPs

Co-health benefit analysis

- Systematic review and selection of tools in coordination with stakeholders
- Assessment of co-health benefit
- Guideline for climate adaptation technology on health resilience is developed

Guidance& training and learning

- Review and compile the best practices of existing health adaptation actions
- Training on the best practice of the health adaptation plans/actions
- Dissemination plans and sharing all reports with stakeholders/partners

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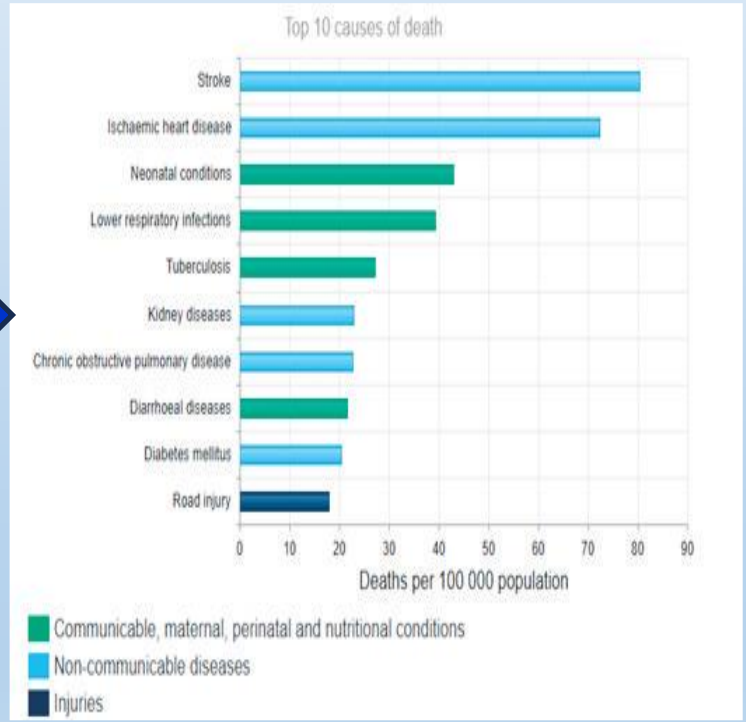
Monitoring: Health co-benefit assessment for NDC

National climate target, strategy (NDC) and mitigation plans:

Across all sectors committed to reduce greenhouse gas emissions and implement climate change mitigation strategies

Health benefit assessment and advocacy
- WS is accountable for 12% of ambient AP

- Globally, open burning accounts for 29% of emissions of PM 2.5



The top 10 causes of death in Lao PDR, all have established links to poor solid waste management.

Recommendations:

- **maximize the benefits for the climate, society and health.**
- **use the available evidence for co-benefits**
- **to promote the implementation of existing strategies of climate mitigation (NDC).**

World Health Organization

Monitoring of adaptation plans

- The NAP foster cross-sectoral coordination on data reporting and data sharing,
- capacity building for adaptation monitoring and evaluation, and
- climate finance monitoring for improved tracking of adaptation projects in the country.
- NDA Annex:
- Quantitative indicators for meas
  reporting on increasing of public
  infrastructure and water supply
  climate change

Health Adaptation Strategy – Summary of components and indicators

Component	Key indicators
Component I: Leadership Status and Governance	• The Committee and the Adaptation Team of the Public Health Sector will be established • Completion of the coordinated co-operation mechanism • At least 03 workshops/seminars conducted • At least 02 projects/year developed Health Impact Assessment Reports • At least 03 MoUs signed with the relevant stakeholders
Component 2: Organizational and Staff Capacities	• 100 people/year had attended the workshop (50% of women) • At least 8 hours teaching on climate change and health at the National University and the University of Medical Science. • At least 5 recommendations regarding the diagnosis, investigation, control,
Component 3: Vulnerability, Capacity and Adaptation Assessment	• The 100 most disadvantaged communities to the weather fluctuation condition and climate change have been identified. • At least 3 meetings/year have been conducted on integrating health impact assessments into all development projects. • At least 4 projects and adaptation plan have been established • There is a list of health sensitive areas • At least 100 sensitive communities have built adaptive measures activity • There is a disadvantageous community map that adapts to the climate change
Component 4: Integration of Risk Monitoring	• 1 time/month information analysis on climate change and diseases • 1 time/month reporting on climate change sensitive disease • 1 time/week monitoring report and control activities/insecticide report
Component 7: Environmental Determinants Health Management	• At least 5 meetings with ministry departments related to the review and revision of regulations on air quality, water quality, food quality, safety shelter, waste disposal and urban development. • Health Impact Assessment Report for 2 projects/year
Component 8: Climate Informed Health Programs	• Monitoring at least 04 times/year • 20 sensitive communities informed on water, sanitation, hygiene, dengue control, nutrition, women health, reproductive and children health • 10 sensitive communities informed on noncommunicable disease • 10 sensitive communities informed on mental illness
Component 9: Emergencies Preparation and Management	• There are plans and steps to be prepared for response to emergencies • At least 50 officers participate during climate related disaster • Disaster management team deployed after severe weather event including to assess loss
Component 10: Health Financing and Climate Change	• Number of proposals on public health adaptation from climate change submitted to international organizations

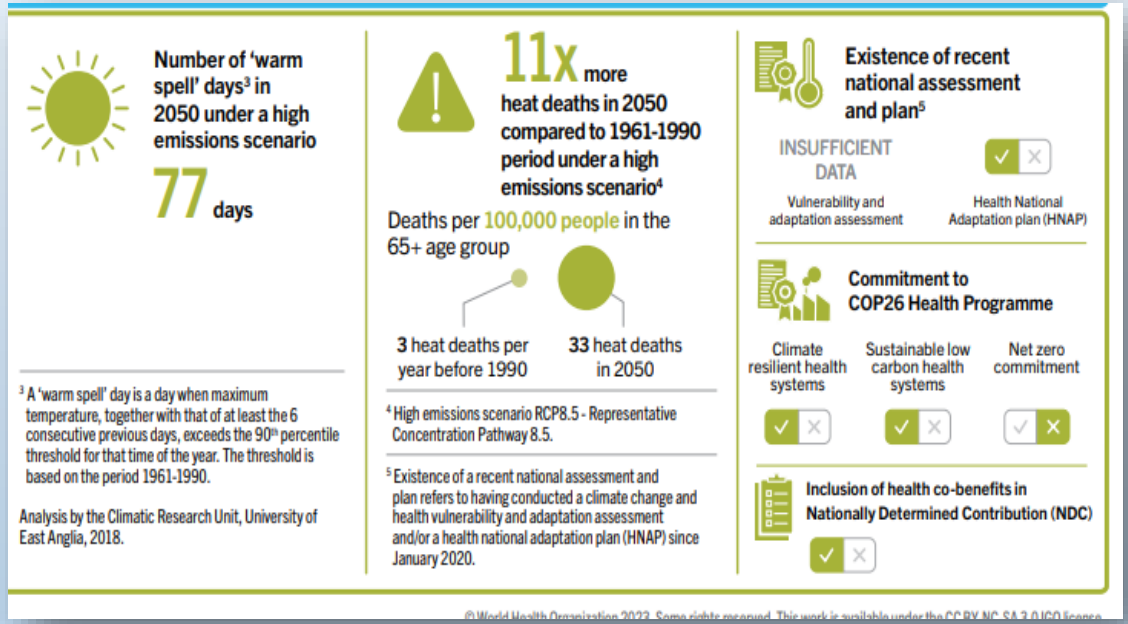
Mid-term review

The NDC MTR report highlighted

- Health sector is only sector developed the HNAP
- Health adaptation planning is systematic approach
- NDC HNAP coordination and integration starts from development process
- Strategic and operational level coordination is key for effective implementation

Summary: Lao MOH is advancing climate adaptation measures, as priority of the NDC

- Health adaptation is key priority of the NDC
- Health sector is one of priority sector for climate resilience
- Long-term and short term objectives and targets included
- Adaptation integrated with high level development plans and sectoral strategy and action plans
- Inter-sectoral coordination, high level commitment, short-and long-term targets and resource mobilization key for successful implementation



Reference: The environment and health scorecards for quick snapshot on managing six major environmental threats to health and identify priorities https://www.who.int/teams/environment-climate-change-and-health/monitoring/scorecards

Integrating Health in National Determined Contributions (NDCs)

Misganaw Tewachew (BSc, MPH)
Public health professional specialist
Climate Change and Health Focal

Ministry of Health
September, 2024
Addis Ababa

Outline

- Introduction
- Activities Complete To Date by MOH
- NDCs
- Climate and health key interventions priorities
- Challenges

Introduction

- Ethiopia is prone to natural and human-made hazards like drought, flood, landslide and conflict.
- **Malaria, cholera, diarrhea, dengue, yellow fever, and chikungunya** outbreaks are present, and the transmission is heightened by climatic factors.

- Weak and fragile socio-economic and natural systems in Ethiopia impact by climate variability and Change

- Significant proportions of the HCFS in Ethiopia are inaccessible to the national electric grid

- Some of the wastes collected in HCFs burned in incinerators which emit greenhouse gases mainly CO2 and trace amounts of N2O, NH4+ and S6O.

- Hence, the country has developed various climate policies and strategies in response to the impacts of climate change in different sectors such as CRGE, NAP, NDC, HNAP.

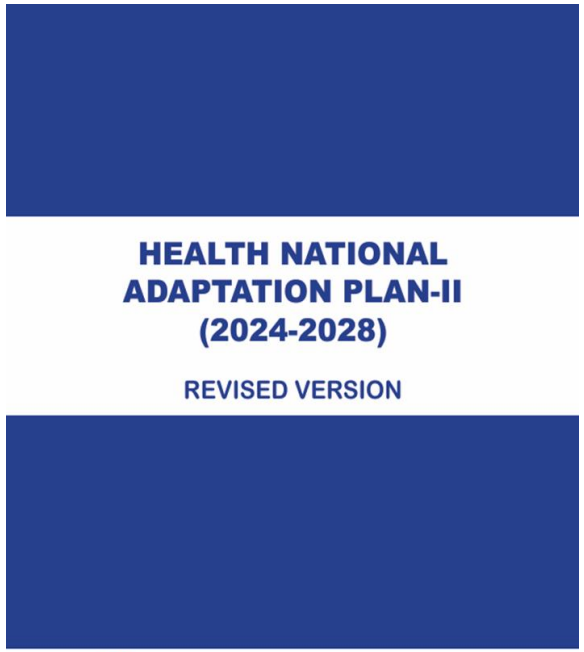
Activities Complete To Date by MOH

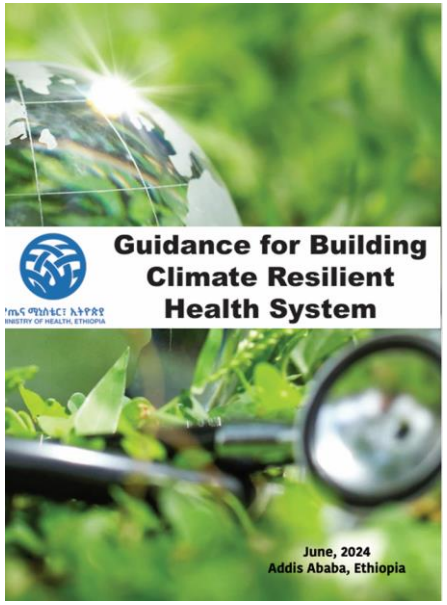
Federal Democratic Republic of Ethiopia
Ministry of Health

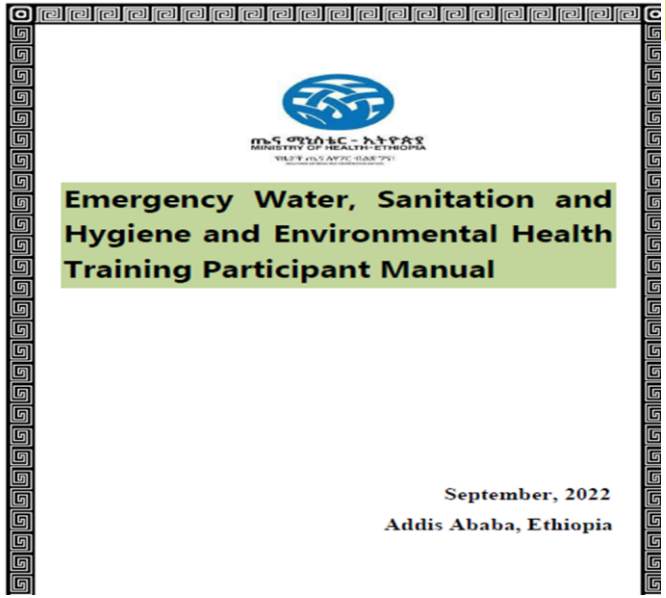
Vulnerability and Adaptation Assessment of Health to Climate Change in Ethiopia

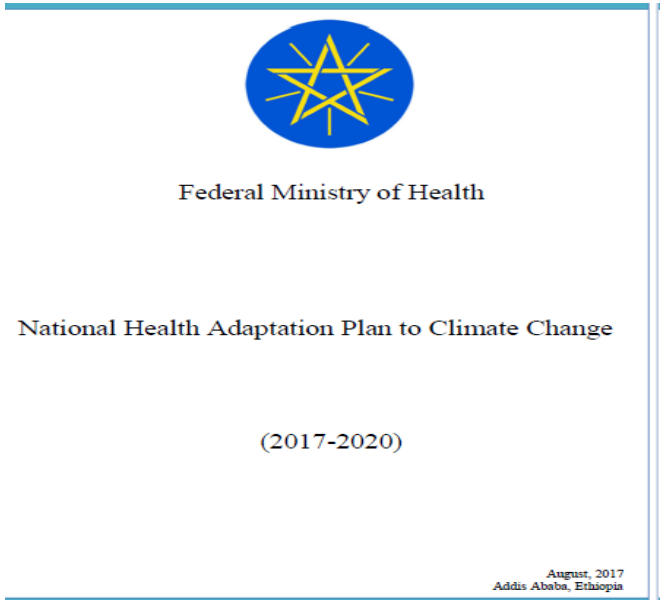
Final Report

September 2015
Addis Ababa, Ethiopia







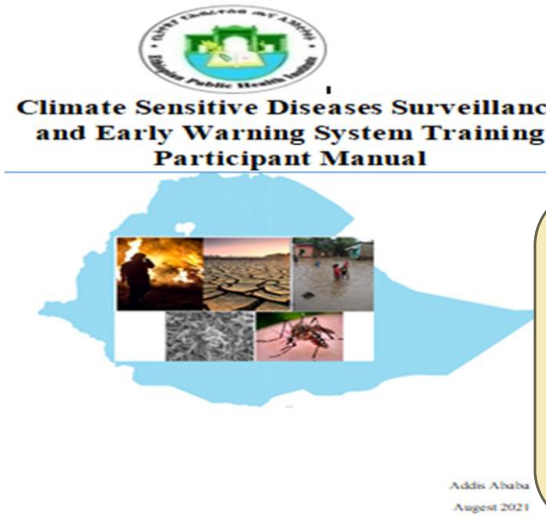


Federal Ministry of Health

National Health Adaptation Plan to Climate Change

(2017-2020)

August, 2017
Addis Ababa, Ethiopia



Implementation of EWARS+ 14 sentinel sites

NDCs

- The Ethiopia NDC covers actions for health and other sector include land use change and forestry, livestock, energy, waste, industry, water, transport, urban settlements and disaster risk reduction.

- The MOH has identified different adaptation and mitigation interventions to build the climate resilient health system in the Health National Adaptation Plan (HNAP).

- The MOH is also a part of the NDC process via various platforms.

NDCs cont'd…

- The NDCs identified 40 adaptation interventions. As part of the NDC, the MOH identified 6 (15%) adaptation interventions indicators

SECTOR: HEALTH			
Reduce Malaria case incidence	Percentage reduction of Malaria case incidence	26/1,000 in 2020	8/1,000
Reduce cholera case incidence	Percentage reduction in Cholera case incidence	Baseline in 2020	0
Increase proportion of households with improved toilet	Percentage of households with improved toilets	20% in 2020	60%
Increase proportion of households with safe water supply	Proportion of households with safe water supply	70% in 2020	100%
Increase proportion of health care facilities safely managing health care waste	Percentage of health care facilities with safe waste management	16% in 2020	50%
Increase proportion of health facilities with safe energy sources (electricity, solar)	Proportion of health facilities with safe energy sources	76% in 2020	100%

HNAP 2024-2028 Climate and health key interventions priorities

- Strengthen leadership and multisectoral collaboration for better climate change and health
- Developing Health workforce for climate change and health
- Strengthening Climate Risk Monitoring and Surveillance System through EWARS + tool
- Sub-national Vulnerability & Adaptation Assessment
- Strengthening Health and Climate Research

HNAP 2024-2028 Climate and health key interventions priorities …

- Enhance Climate Resilience of Health Emergency Management
- Promote management of environmental determinants of health
- Initiate Climate resilient and sustainable technologies and infrastructure
- Strengthening climate-informed health programmes
- Strengthening health promotion, education and community engagement
- Strengthen financing for climate and health

Challenges

- Weak coordination and collaboration for CC&H programs
- Low Level of awareness on impact of weather variability & CC among decision makers, health workforce, other expertise & partners
- Health sector response to extreme weather events are reactive
- Integration and utilization of climate service into health/EWS/ is at infant stage
- Lack of finance for climate and health

THANK YOU

World Health Organization