To **PREDICT, PREVENT** and **MANAGE** acute public health effects of climate change in Africa.
Undernutrition kills 3.5 million
Diarrhoea kills 2.2 million
Malaria kills 900 000
Extreme weather events kill 60 000

In total climate change causes >140 000 additional deaths each year.
The environmental burden of diseases in Africa

- Diarrhoea: 60%
- Lower resp. infections: 4%
- Other unintentional inj.: 3%
- Malaria: 5%
- Road Traffic injuries: 4%
- COPD: 2%
- Perinatal conditions: 1%
- Ischaemic heart dis.: 0%
- Childhood cluster: 0%
- Lead-caused MMR: 0%
- Drownings: 0%
- HIV/AIDS: 0%

Make up 60% of total environmental burden.

28% of the total disease burden in Africa is attributable to the environment.

Of which 1.3 million are avoidable child deaths.
How climate change impacts health

- Direct exposures
- Indirect exposures
- Via economical and social disruption

Health impacts
Climate change

Direct exposures

- Flood damage
- Storm vulnerability
- Heat stress

Health impacts

Direct exposures

- Flood damage
- Storm vulnerability
- Heat stress
Climate change

Direct exposures

Health impacts

Algeria and Morocco
In November 2008, the worst floods in a century caused severe infrastructure damage.

Eastern Africa
In 2003 there was extensive flooding in Kenya, southern Ethiopia and Somalia. Some areas experienced the wettest conditions in more than 70 years.

Western Africa
Benin experienced its worst flooding on record in the summer of 2010.

Southern Africa
Between February and April 2001 heavy rainfall and flooding befell several southern African countries.
Mediated through natural systems, for example:

- Allergens
- Disease vectors
- Water-borne diseases
- Increased water or air pollution
Indirect exposures: malaria mortality in Africa

Estimates of the percentage of mortality in children under 5 years of age related to malaria cases in 2010.
Indirect exposures: cholera in Africa

Cholera shows a seasonal trend and often coincides with the rainy season. This model could help in the development of a warning system that reduces the impact of presumed epidemics.
Mediated through human systems, for example:

- Food production or distribution
- Occupational impacts
- Mental stress

Via economical and social disruption

Climate change

Health impacts
In the Sahel, a drought in 2012 led to widespread food insecurity. The UN estimated that 18 million people were at risk.
Local environmental conditions influence how the exposure pathways manifest in particular populations. These include:

- Geography
- Baseline weather
- Soil or dust
- Vegetation
- Baseline air or water quality
Environmental conditions: temperature and malaria transmission

- Climate change
- Environmental conditions
  - Direct exposures
  - Indirect exposures
  - Via economical and social disruption
- Health impacts

Temperature suitability for transmission of *Plasmodium falciparum* (malaria parasite)
The translation of exposure pathways into actual health impacts can be moderated by factors including:

- Warning systems
- Socioeconomic status
- Health and nutrition status
- Primary health care
The WHO Global Malaria Programme in southern African countries uses climate forecasts to predict epidemics. These forecasts have aided in the development of the Malaria Early Warning System, which gives health ministries longer lead times on epidemics.
It is a collaborative force that supports the development and operationalisation of public health early warning and early response systems.
To contribute to the implementation of:

- The Libreville Declaration on Health and Environment in Africa
- The Luanda Commitment for the implementation of the Libreville Declaration
- The African Union Strategy for Climate Change and Health
The International Network for Climate and Health for Africa, with 14 founding institutions:

- African Centre of Meteorological Applications for Development (ACMAD)
- Biotechnology Centre, University of Yaoundé I, Cameroon
- Kenya Medical Research Institute (KEMRI), Kenya
- International Network for the Demographic Evaluation of Populations and Their Health (INDEPTH)
- International Research Institute for Climate and Society (IRI), Columbia University, USA
- Malaria Research and Training Centre (MRTC), University of Bamako, Mali
- Medical Research Council (MRC), South Africa
- National Institute for Medical Research (NIMR), Tanzania
- Noguchi Memorial Institute for Medical Research, Accra, Ghana
- National Aeronautics and Space Administration (NASA), USA
- National Oceanic and Atmospheric Administration (NOAA), USA
- United Nations Environment Programme (UNEP)
- World Health Organization (WHO)
- World Meteorological Organization (WMO)

...and other institutions that formally express interest in membership and are endorsed by the Clim-HEALTH Africa Scientific Advisory Committee (SAC).
The goal

To move from the current reactive mode to a proactive approach.

To improve health outcomes by strengthening the resilience of African countries through improved management of the effects of climate variability and change.
To develop and test climate-informed planning and forecasting data methods and tools in national decision-making.

To use evidence-based, climate-informed planning and forecasting information to support environmental and public health interventions.

To roll out the use of climate-informed planning tools including early warning and early response systems in order to prevent and mitigate public health impacts of climate variability and change in Africa.
The guiding principles

- Public health priorities related to climate
- Research for development
- Rational and cost-effective decision-making
- Equity, gender sensitivity and sustainability
to serve as a virtual hub...

where expertise is shared...

in order to develop the capacity of African health and climate communities, institutions, practitioners and negotiators...

to understand and integrate climate change challenges into policy, socio-economics, planning and programming.
Specific aims

To develop mechanisms and institutional capacity for implementation of climate-based public health early warning and response systems in Africa.

To utilise early warning and response systems to provide timely responses to climate-sensitive diseases and conditions.

To develop and implement a climate change and health communication strategy.

To provide African countries priority support on urgent public health issues related to climate change.
To create national and international multisectoral and multidisciplinary teams of climate and health scientists and practitioners.

To train teams and other relevant personnel to understand and use climate information for decision-making in public health.

To create technical and scientific support for country operational teams in the use of early warning and response systems.

To build operational, technical and institutional capacity for the modelling and application of scientific models for forecasting public health effects of climate variability.

To facilitate the use of harmonised and standardised methodologies, protocols and tools in research and development in climate and health.
Some Key functions

To develop research on climate and health.

To develop national and international research capacities in the area of climate and health.

To advocate and communicate for increased consideration of health issues within the international climate change process.

To promote the dissemination and exchange of information on climate and health.

To mobilise resources for increased funding to African countries for the sound management of the health effects of climate change.
Strengthening research capacity in Africa and elsewhere through specific research and training programmes at Master and Doctoral levels.

Strengthening operational capacities of public health programmes for surveillance, early detection and response to climate-sensitive health conditions.

Integration of protocols, guidelines and operational systems with existing planning processes.

Improvement of timeliness and preparedness for cost-effective responses to the effects of extreme weather events.

Specific outputs and plans:

Databases, historical epidemiological data, community maps, tested and validated models.
Specific outputs and plans

- Establishment of links with existing initiatives, engagement of stakeholders and use of recommendations to prioritise actions

- Strengthening national epidemiological and climate data-collection infrastructure

- Strengthening national capacity for climate data analysis and use in public health decision-making

- Mapping geographic areas that are most at-risk of climate-sensitive epidemics or outbreaks due to climate variability

- Creating new models and improving existing models used to predict epidemics or outbreaks of climate-sensitive diseases
Scientific Advisory Committee:
The advisory and decision-making body

Provides scientific and technical oversight and coordination of activities in support of the Libreville Declaration

Will be composed of experts from the founding members of the Network (chair, secretary and members)

WHO (through AFRO/PHE):
Provides coordination and day-to-day management
Connect with Clim-HEALTH

WHY?
To PREDICT, PREVENT and MANAGE acute public health effects of climate change in Africa.

www.climhealthafrica.org

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