EFFECTS OF CLIMATE CHANGE ON THE SOCIAL & ENVIRONMENTAL DETERMINANTS OF HEALTH IN AFRICA:

What can communities do to strengthen their climate resilience?
THE DIRECT AND INDIRECT IMPACTS
OF CLIMATE CHANGE & HEALTH

DIRECT IMPACTS
- Extreme weather events

INDIRECT IMPACTS
- Disease vectors
- Supply of clean water
- Increased pollution
- Decreased food security

POOR PEOPLE ARE MOST EFFECTED
- Precarious social and economic conditions
- Geographical location
- Reliance on ecosystem goods and poor health coverage
70% of the population of Africa relies on drinking water sources such as boreholes or improved wells. These sources are vulnerable to climate stress.

319 million people in sub-Saharan Africa are still using unimproved drinking water sources.

7 in 10 of the 159 million people depending on rivers, lakes and other surface water live in sub-Saharan Africa.
CLIMATE CHANGE & AIR QUALITY

Air quality is dependent on weather...

…and is therefore sensitive to climate change. Studies demonstrate climate change will increase summertime surface ozone and particulate matter.

Annual deaths from air pollution

- Household (indoor): 4.3m
- Ambient (outdoor): 3.7m
Climate change can affect food production and security…

…through changes in rainfall patterns, temperature, sea level rise and flooding of coastal lands, seasonality and drought.

CROP YIELDS IN SUB-SAHARAN AFRICA COULD BE REDUCED BY UP TO 50% BY 2020

Leading to decreased food security

With increased risks from mycotoxins in unusually warm years
CLIMATE CHANGE & DISEASE VECTORS

Vector-borne diseases are affected by:

The distribution and intensity of vector-borne diseases are also heavily affected by climate.

For example, climate change may affect:

- Water Storage
- Land use & irrigation practices
- Population movement

These factors affect vector ecology and human exposure to infection.
ENVIRONMENTAL FOOTPRINT OF COMMUNITY DEVELOPMENT

Though new technologies have substantially boosted overall productivity to satisfy the growing consumer demand associated with exponential population growth, this can have both direct and indirect negative impacts on population health and well-being.

How community development impacts health

- Housing
- Food production & consumption
- Transport
- Energy & heating
- Drinking water
- Air pollution
- Nutrition
- Disease vectors

**COMMUNITY DEVELOPMENT** → **HEALTH IMPACTS**

- Health impacts
ADAPTATION & MITIGATION
IN THE AFRICAN REGION

Until today...
...the focus of African governments has been on top-down approaches and interventions that are the responsibility of national and state public health agencies.
Community at the centre
The new C-HAP process puts communities at the centre of the response to climate change and health
ELEMENTS OF COMMUNITY-BASED HEALTH INTERVENTIONS

Simple, affordable, acceptable, and environmentally friendly community-based interventions tools are available.

EXAMPLES OF COMMUNITY-BASED HEALTH INTERVENTIONS

1. Pest management integration such as Farmer Fields Schools (FFS)
2. Housing improvements
3. Community based water management
4. Behaviour change strategies such as community-led total sanitation
5. Community sensitisation
6. Promote use of public transport, cycling and walking
7. Promotion of clean household energy
8. Five keys to safer food
EXAMPLES OF SUCCESSFULLY IMPLEMENTED COMMUNITY RESILIENCE STRATEGIES

**Ethiopia**
Combined delivery of prevention interventions by the Health Extension Workers had a demonstrable impact on health outcomes.

**West Africa**
Cereal banks: an effective mechanism of cyclical food crisis management at community level.

**The DelAgua Health’s Rwanda Programme**
This is a good example of engaging communities to become actors in developing their own resilience. This project distributed 600,000 advanced water filters and cookstoves, targeting about three million people.
C-HAP FRAMEWORK

The development of community-based health and adaptation plans (C-HAPs) will encompass:

1. IDENTIFYING HEALTH PROBLEMS
2. ASSESSING RISK FACTORS
3. ANALYSING COMMUNITY SYSTEMS
4. MAPPING INTERVENTIONS
5. PACKAGING INTERVENTIONS
6. PREPARING PLANS
7. MOBILISING RESOURCES
8. IMPLEMENTING PLANS
The role of national and international agencies is to create an enabling environment for the preparation and implementation of the c-Haps. This includes:

- Health education and technology transfer such as promoting resilient technologies, adapting or updating technical norms and regulations and enhancing management of services.
- Predicting (modelling) additional risks associated with climate change to be factored into community plans.
- Mobilizing the additional financial resources needed.
- The development of early warning systems that combine climate sciences and epidemiology with integrated community communication.
- Support operational research, monitoring and evaluation.
COMMUNITY DEVELOPMENT ACTIVITIES: Water resources management

Community development activities

WATER RESOURCES MANAGEMENT
- Unimproved water sources
- Water storage for domestic use

Effects on social & environmental determinants

Water Pollution
- Organic and chemical pollution of unprotected wells and surface waters (water-borne diseases)

Vector and vector-borne disease control
- Creation of vector breeding sites (malaria, dengue, lymphatic filariasis)

Food contamination
- Cleaning and cooking food with unsafe water (food borne diseases)

Potential roles & responsibilities

- Household Water Treatment and Safe Storage (HWTS)
- Health education and training on maintenance of water pumps
- Larval Source Management (LSM)
- Scale up of the use of the five keys to safer foods

Relevant strategies

Adaptation
COMMUNITY DEVELOPMENT ACTIVITIES: Unplanned urbanization

<table>
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<th>Community development activities</th>
<th>Effects on social &amp; environmental determinants</th>
<th>Potential roles &amp; responsibilities</th>
<th>Relevant strategies</th>
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<td>Unplanned urbanization</td>
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|                                 | Food safety & nutrition                         | - Food contamination (improper use of wastewaters, pesticides and fertilizers) | - Scale up of the use of the five keys to safer  
|                                 |                                                  |                                  | - Hand washing |
|                                 | Air pollution                                   | - Indoor and outdoor air pollution |                     |

- Adaptation and Mitigation (co-benefit)
COMMUNITY DEVELOPMENT ACTIVITIES:

Agricultural practices

Community development activities

**AGRICULTURAL PRACTICES**

• Deforestation/deforestation
• Open fires/slash and burn agriculture
• Irrigation
• Use of pesticides
• Cattle (methane production)

Effects on social & environmental determinants

**Vector & vector-borne disease control**

• Creation of vector breeding sites (malaria, dengue, lymphatic filariasis)
• Development and spread of vector resistance

**Air pollution**

• Outdoor air pollution through increased emission of Short-Lived Climate Pollutants (methane, black carbon, tropospheric ozone)

**Water pollution**

• Organic pollution (erosion)
• Chemical pollution (pesticides and fertilizers)

**Food safety & nutrition**

• Food contamination (improper use of wastewater, pesticides and fertilizers)

Potential roles & responsibilities

• Mainstreaming vector control in rural development programmes (Farmers’ Field Schools)
• Larval source management (LSM) and other community-based interventions, distribution of LLINs, MDA

• Health education on Household Water Treatment and safe Storage (HWTS)
• Domestic waste management
• Cleaning campaigns

• Combining education in the five keys to safer food stock handling
• Training
• Education on community-centred food production and distribution (cereal banks)

Relevant strategies

Adaptation and Mitigation (co-benefit)
COMMUNITY DEVELOPMENT ACTIVITIES:
Housing/Household energy

Community development activities

HOUSING/HOUSEHOLD ENERGY
- Brick production for construction
- Deforestation/desertification
- Use of biomass

Effects on social & environmental determinants

Vector & vector-borne disease control
- Creation of vector breeding sites
- Increased human-vector contact due to poor housing

Air pollution
- Indoor air pollution (poor ventilation associated with the use of solid fuel as source of energy)

Potential roles & responsibilities

- Improvement of housing (features that reduce the entry of mosquitoes indoors, such as closed eaves, ceilings, screened doors and windows)
- Promotion of use of cleaner household energy sources such as liquefied petroleum gas, biogas, improve cookstoves

Relevant strategies

Adaptation and Mitigation (co-benefit)
COMMUNITY DEVELOPMENT ACTIVITIES: Land transportation

**Community development activities**
- Urban transport

**Effects on social & environmental determinants**
- Outdoor air pollution (PM and SLCPs)
- Indoor air pollution

**Potential roles & responsibilities**
- Promote use of public transport, walking, cycling

**Relevant strategies**
- Adaptation and Mitigation (co-benefit)
CONCLUSION

• Health benefits associated with climate change adaptation and mitigation can be achieved locally and in relatively short time frames.

• It requires reinforcement of local community systems to own and scale up proven, simple, affordable and cost effective interventions.

• This requires committed community leadership and good governance in order to foster community participation.

• Going forwards, we need renewed efforts and partnerships between traditional leaders, civil society, research and academic institutions, and international development partners, including WHO and other UN partners.

• WHO stands ready to assist.