

# NASAC Findings From IAP Project

FAO Side Event, 2022

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# The challenges and opportunities related to food and nutrition security in Africa and STI capacity

- The food availability situation in Africa
- Effect of population growth and urbanisation on food availability
- Effect of agricultural, labour and land productivity trends on food availability
- Food access and affordability
- Stability and resilience about food security- availability, access and utilisation (nutrition)
- The strengths and weaknesses of STI in Africa

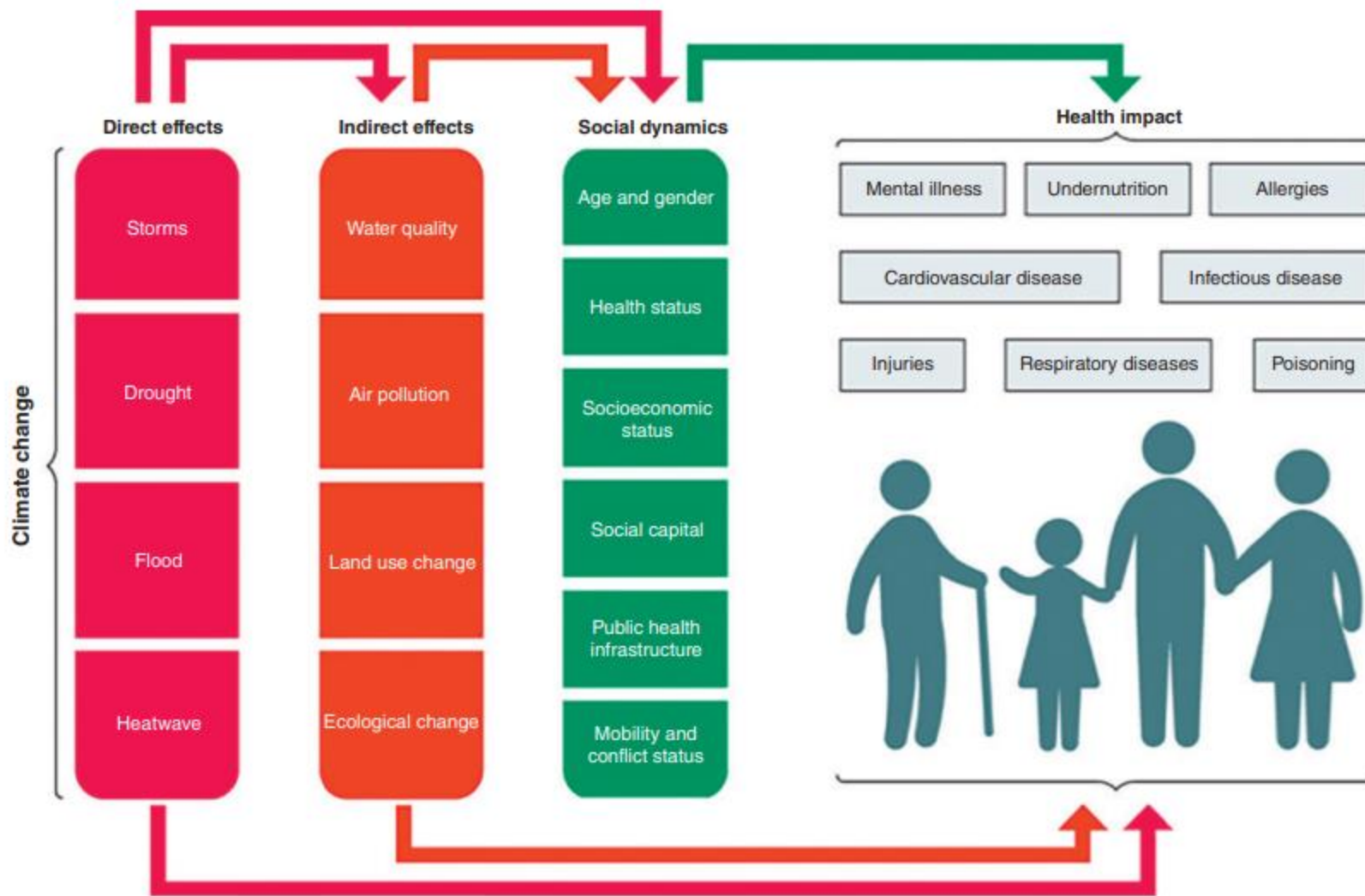


Figure 3.2 Exposure pathways and health effects of climate change<sup>1</sup>.

# Health Impacts of Climate Change Food Insecurity

## **Malnutrition:**

**Increase in malnutrition rates, stunted growth and impaired cognitive development has been projected to occur among young children by 2050.**

Warming of 1.2–1.7 °C by 2050, the proportion of the population that is undernourished will increase by 25–90%

Proportion of severely stunted children, which was estimated at 12–20% in 2010, is projected to decrease by 40% without climate change and by only 10% with climate

**Prone to infectious diseases including cholera and measles**



# Health Impacts of Climate Change and Food Insecurity

## Malnutrition: Obesity and non-communicable diseases

- Population is forced to resort either to imported energy-dense (bio-crops such as maize) food or to locally produced unhealthy diets
- Increased risk of non-communicable diseases.
- Change in dietary patterns may put some **118 million Africans at risk of non-communicable diseases (NCDs) and cardiovascular disease** including stroke, which is particularly fatal under rising heat conditions

# General framing for addressing the issues

- Agricultural growth is a driver of broader development. A developmental approach is needed
- Food security requires a transdisciplinary approach
- Agricultural transformation is essential if Africa is to achieve the continental and SDG targets related not only to food security and nutrition but also the SDGs in general
- STI offers many promising opportunities for supporting and advancing this transformation.
- Modern science can unlock the potential and protect the heritage of Africa's nutritious food sources and ensure sustainable and diverse diets

# Priority areas for action

- Strong political commitment informed by scientific evidence
- Agriculture and food system efficiency
- Farming system resilience
- Food system efficiency, human health and well-being
- Food safety and waste reduction
- Human capacity

# Strong political commitment informed by scientific evidence

- **Governments should take responsibility for directing this transformation**
- Achieving Africa's ambitious growth and development agenda as set out in Agenda 2063 and the Malabo Declarations
- **Well informed policies and action plans, the appropriate institutional arrangements, capacity at all levels and the requisite funding**
- **Strong investment** from African governments and their funding partners, active partnership of the private sector and international research centres.
- Provide opportunities for the closer engagement of researchers and policymakers for mutual learning and benefit
- Strategic cooperation in the form of research alliances and partnerships
- Establishment of multi-sectoral and multi-institutional STI platforms as part of national food and nutrition systems
- **Multisectoral platforms can address low investment**, braindrain, brain-wastage, fragmented and expensive duplication of efforts
- Monitoring land use change and its impacts on food security at different levels leads to inclusive economic growth and viable employment opportunities—especially for women and youth.
- **Advancing ICT to support multi-sectoral “big data” platforms with the necessary capacity critical**
- ICT needed for monitoring and evaluation of policies and programmes as well as the efficiency of the agriculture and food systems



# Agriculture and food system efficiency

- Ensure quality and sustainable supply of seed and vegetative propagation materials of indigenous and underutilised foods and increase production of these foods
- National research systems must support these actions
- More investment is necessary to collect and categorise orphan crops and wild populations
- Modern molecular breeding technologies needed to preserve these resources and increase their availability
- Improved efficiency of livestock, aquaculture rearing and feed quality is important
- Advances in appropriate modern technologies, biotechnology and biosciences can provide timely and efficient management of biotic and abiotic factors that limit agricultural productivity and nutrition
- Applying modern breeding technologies could improve and enhance the diversity and utilisation of indigenous and underutilised foods in Africa.
- Find solutions that reduce the drudgery in Africa's largely unmechanised farming and food systems can improve equality, frees up women's time in particular.

# Farming system resilience

- Improving mixed farming systems could improve food productivity and improve prospects for smallholder livelihoods and environmental protection
- Stakeholders (including farmers) to work together to improve the resilience of farm systems through climate-smart agriculture approaches
- Supportive public policies and context appropriate programmes
- Supportive research and development
- Qualified extension staff, knowledge and technology transfer on a large scale
- Monitoring changes in the environment through soil and water mapping can support agricultural production decisions at all levels
- Getting this information into the hands of African farmers through ICT applications to support decision making is essential

# Food system efficiency, human health and well-being

STI research can promote product diversification with nutritious foods;

- Processing to extend shelf life and make healthy foods easier to prepare, improved storage and preservation to retain nutritional value; ensure food safety
- Extend seasonal availability and reduce post-harvest losses (including aflatoxin) and food waste
- Need to consider current changes in demand, predict future demand changes and shape the future of the African food system in ways that will provide nutritious food for all
- Develop processing and packaging technologies for safe, healthy alternative foods and extend the shelf life o
- Address limitations of water and power supplies need to be considered in developing these technologies.
- Increased funding for more research into the fortification, biofortification and enrichment of foods can increase the nutritional value of commonly consumed foods,
- Improve the bioavailability of nutrients for absorption and metabolism, or decrease the concentration of antinutrient compounds that inhibit the absorption of nutrients (for example phytates and oxalates).
- Harnessing the inherent properties of indigenous knowledge and foods is needed.

# Food safety and waste reduction

- Develop technologies to overcome the shortage of cold storage and refrigeration in Africa
- Innovation in processing and packaging to ensure stable, safe foods, particularly in areas where electrification levels are low explore use of solar energy
- Strengthening and enforcing agriculture and food regulations and standards
- Build the requisite capacity (human, tech and infrastructure), will ensure food safety and ensure access to export markets
- Research and training can reduce the risks and hazards associated with the over-use of agricultural chemicals.
- Alternative approaches and techniques can reduce the need for chemicals that are harmful to environment, human health
- Empowering farmers to monitor and control the spread of diseases and pests, enhance the capacity of farmers with information on digitised soil, weather, cropping and disease information systems to take vital decisions and actions at the farm-level.
- Conducting epidemiological research to establish patterns of contamination and health effects of mycotoxins in Africa can inform better management and containment of these risks
- Complement with building more capacity to test and certify products, developing innovative and cheaper testing methods (including rapid digital assessments)
- Step up the enforcement of minimum quality standards in food products through innovative cost-sharing practices

# Human capacity

- Strengthen the human and infrastructural capacity for agricultural research, innovation and technology will support transformation
- African academic institutions must work to develop food security and nutrition capacity at all levels of society and across traditional disciplines.
- Increased effort is required to ensure a well-trained extension service that is constantly updated
- Providing support and incentives for stakeholders in the agricultural sector to mentor youth involved in value-addition within the context of economic growth, food security and poverty alleviation will assist in addressing unemployment and bringing young people into the sector
- Empowering the youth with appropriate skills and mainstreaming gender considerations in food and nutrition security programmes

**THANK YOU**

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ASSAf Research Repository

<http://research.assaf.org.za/>

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B. Academy of Science of South Africa (ASSAf) Events

I. Other

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2022

# Impact of climate change on food systems: Using transdisciplinary science to drive mitigation and adaptation solutions to protect and promote health

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Academy of Science of South Africa (ASSAf), InterAcademy Partnership (IAP) and Network of African Science Academies (NASAC) (2022) Impact of climate change on food systems: Using transdisciplinary science to drive mitigation and adaptation solutions to protect and promote health. Available at: <http://hdl.handle.net/20.500.11911/257>

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