



World Vision

The Impact of Climate Change on Nutrition

A Policy Brief

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Summary

Climate change leads to more extreme weather events and has caused a surge in natural hazards over the past 50 years, disproportionately affecting poorer countries.ⁱ

These climate-related disasters, – including floods, droughts and storms – often result in widespread displacement and are greatly impacting food security worldwide.ⁱⁱ In 2023, almost 282 million people around the world suffered from acute food insecurity, with Africa, the Middle East and South Asia experiencing the greatest impact.ⁱⁱⁱ

Climate change affects all forms of malnutrition, linking directly or indirectly to all three underlying causes of malnutrition: insufficient household food security, inadequate maternal and child care, and insufficient health services and an unhealthy environment.^{iv} Good nutrition is an essential foundation for the health and development of children, yet malnutrition continues the single-biggest underlying contributor to child mortality and poor diet is the leading risk factor for deaths.^v

This brief explores how climate change has exacerbated the underlying causes of food insecurity and malnutrition in children using evidence from health and nutrition programmes in Sierra Leone, Mauritania, Uganda and Tanzania. The brief also examines approaches World Vision has taken to enable community responses and adaptations to the changing climate as well as key solutions and policy initiatives to tackle climate change and food and nutrition insecurity. Examples include the recently launched World Vision Environmental Sustainability and Climate Action (ESCA) [Strategic Roadmap](#), which provides a holistic framework for addressing risks from climate change, environmental degradation and unsustainable farming practices. World Vision also advocates for systems transformation through ENOUGH, an organisation-wide campaign dedicated to combating child hunger and malnutrition. The ENOUGH campaign positions World Vision uniquely to confront the adverse effects of the climate crisis on food security and nutrition.

Finally, this brief provides key recommendations on how organisations can adapt health and nutrition programmes to our changing climate and call on governments and donors to take action to protect the world’s most vulnerable children.

South Sudan's women are the faces of resilience in the fight against hunger and disasters. Ateny Mathiang, an expectant mother is amazed at the harvest and smiles. She is joyful because her family will not depend on wild fruits anymore.

The impact of climate change on food security and nutrition

When examining the impact of climate change, it is important to note the significant link between poverty and climate change. According to the University of Notre Dame Global Adaptation Initiative, (GAIN), sub-Saharan African regions are the most vulnerable to climate variability and change, along with parts of South Asia and the Pacific.^{vi} These regions also tend to have the highest levels of poverty.^{vii}



Limited financial buffers, low levels of education and lack of health care access hinder people's ability to adapt to the shocks of the changing climate, leaving them increasingly vulnerableⁱⁱⁱ Climate change often accelerates existing drivers of poverty, such as economic slowdowns, conflict or land degradation. Without action, the climate crisis could drive more than 100 million people into extreme poverty by 2030.^{viii}

Climate change affects all types of malnutrition. The particular causes of malnutrition depend on the context, and the relationships to climate change can be wide-ranging. According to UNICEF,^{iv} the immediate causes of malnutrition are inadequate dietary intake and disease, and the three related underlying causes are insufficient household food security, including nutrition; inadequate maternal and child care; and an unhealthy environment and lack of health services.

1

Household food and nutrition security

For smallholder farmers reliant on rain-fed agriculture, droughts, floods and unseasonal weather patterns lead to lower yields or different choices of crops and more reliance on staple crops. Pests and diseases can worsen, affecting yield and quality of produce. Soil degradation, another effect of climate change, can also affect production and quality of foods. Access to markets can be disrupted by flooding and storms, hindering the ability to buy and sell produce. Additionally, food prices tend to increase when food availability is poor.^{ix} Livestock and fisheries are also vulnerable due to poor grazing, lack of water, and pests and diseases. Impacts in pastoral systems such as in Africa include lower pasture and animal productivity, damaged reproductive function, and biodiversity loss.^x The nutritional quality of crops is also affected by climate change due to increases in ambient carbon dioxide levels.^{xi}

2

Maternal and child care

There is a clear link between the effects of climate change and women's work and time constraints. For example, responsibilities for collecting wood and water and carrying out livelihood activities can all be affected by climate change and in turn affect caring capacity for young children. In addition, extreme heat affects the ability to work and causes stresses in pregnancy.^{vii} The impact of the changing climate on food production and ecosystems can result in families limiting their food intake and in a reduction in the quality of food consumed. This can lead to an increase in chronic undernutrition or stunting in children. Poor nutritional outcomes for infants are being shaped even before birth as a result of 'poor maternal nutrition, poor feeding practices, poor food or water quality, and frequent infections.'^{vi}

3

Healthy environment and health services

Water availability and climate change are also clearly linked, relating to both agricultural productivity and waterborne diseases via hygiene practices. In addition, disruption to health services can occur as a result of floods, storms and other unpredictable weather events. Food-borne pathogens and aflatoxins increase with rising temperatures, and food spoilage before consumption or sale can cause both economic and health problems.^{vii}

4

Gender equality and social inclusion

Gender and equity can be linked to all underlying causes of malnutrition. Food security and climate change have strong gender and equity dimensions because women play a key role in food security. Climate change impacts vary among diverse social groups depending on age, ethnicity, gender, wealth, and class.

Children playing in the waters risk getting affected with waterborne diseases in Uganda.

The effects of climate change

on World Vision's programmes

Evidence is now emerging that climate change is impacting many of the communities where World Vision works and threatens to undo a lot of the good development work done in sectors like health; livelihoods; and water, sanitation and hygiene (WASH). This threat is highlighted in the case study below.

The effects of climate change on World Vision's programmes

Case study: Access Infant and Maternal (AIM) Health programme

Since 2011, World Vision has been implementing the Access Infant and Maternal (AIM) Health programme in four countries: Sierra Leone, Mauritania, Uganda and Tanzania. Each country is varied in terms of its climate change risks and socioeconomic conditions. Despite the overall success of the programme, the food security situation and factors outside the scope of the programme, such as climate change, are having an impact on the nutritional status of children and their caregivers.



All four AIM Health country programmes were reviewed to assess the impact of the climate crisis on the causes of malnutrition and to map the adaptations to climate change. This included a literature review (published and grey) to understand both the range of challenges to nutrition caused by climate change globally and in different bioregions as well as the specific nutrition and food security problems and approaches taken in programmes areas. Interviews and focus group discussions were conducted with World Vision staff, local partners and community members to assess the experiences of communities. To understand the relationship between nutrition and climate change, it was necessary to understand how both are experienced by communities. For example, how are diets affected by climate change? How is health affected by climate change? How are caring practices affected by climate change?



The effects of climate change on World Vision's programmes


The communities targeted in the AIM Health Plus programme have the following characteristics:

- **Dodoma region, Tanzania:** Communities are subsistence crop farmers and pastoralist cattle keepers and have high levels of poverty and food insecurity.
- **Busia District, Uganda:** This is a densely populated area which benefits from cross-border trade with Kenya.
- **M'Bagne and Guerrou, Mauritania:** M'Bagne is home to multiple people groups whose main livelihoods are agriculture and fishing. Guerrou is in the semi-arid Assaba region and has a rapidly growing low-income population. The main economic activities are agriculture and livestock rearing.
- **Imperi and Sherbro Island in Bonthe District, Sierra Leone:** Populations in these programme areas engage in subsistence agriculture and fishing.



KEY FINDINGS

- Climate change has disrupted food systems in all four countries, exacerbating all the underlying causes of malnutrition, i.e., household food insecurity, inadequate maternal and child care, unhealthy environment and insufficient health services.
- All four countries were affected by stresses on livelihoods related to agricultural production where there was drought or unseasonal weather patterns such as excess rainfall or storms. The quality of food, access to markets and the price of food in the markets were identified in relationship to loss of livelihoods.
- In all countries, women's workload was increased by climate change – whether it was fetching water or fuel, farming, or other livelihood activities. This increased workload is having a negative impact on caring practices for young children. Women's work related to animal husbandry also increased, for example, where they were responsible for fetching water for animals.
- The damaging effects of climate change on livelihoods, agriculture and post-harvest have resulted in extremely stressed household food security. Household diets have become severely affected in both quality and quantity, with all countries reporting diet stresses. For infant and young child feeding practices, exclusive breastfeeding is difficult with the increased workload of women and a mother's own malnutrition, which also affects her well-being and quality of caregiving.
- Water shortages and flooding have reduced the availability of clean water and inevitably worsened hygiene and sanitation problems in the programme areas. The reported increases in waterborne diseases such as diarrhoea, cholera and skin diseases are related to unhealthy environments.



Sifras Sendeu,
Community Health
Worker, in Mundemu,
Tanzania

Local strategies to adapt to climate change and improve food security and nutrition

Activities to mitigate the effects of climate change across food systems

Seven categories of response have been identified by Fanzo et al. (2018^{xii}) regarding recommendations for adapting to climate change across food systems. Using these seven categories as a framework, the following table highlights examples of World Vision's approaches and activities.

Activities to mitigate the effects of climate change across food systems

FOOD SYSTEMS RECOMMENDATIONS

WORLD VISION APPROACHES/ACTIVITIES

1. Food supply-chain inputs	World Vision approaches/activities
Use agricultural extension programmes to improve access to information and training about seed varieties and livestock breeds that are diverse and resilient to variable weather conditions (heat and drought), pests, and diseases.	All countries work with agriculture extension services, including government, private sector, or farmer-to-farmer, as key partners to train and roll out innovations.
Improve soil quality through the use of cover crops, crop rotation, balanced use of fertilisers, and manure.	Sustainable agroecological approaches relevant to smallholder farmers – such as climate-smart agriculture, conservation agriculture, land restoration practices, farmer managed natural regeneration (FMNR), agroforestry and improved drought-tolerant seeds – are being developed and applied.
2. Food (agriculture) production	World Vision approaches/activities
Invest in and provide education on integrated land-use policies and mixed crop and livestock systems.	Contextually relevant and integrated processes that support land restoration and sustainable management are embedded in World Vision's new Regreening Communities project model, along with the scale-up of FMNR as a low-cost and rapid land regeneration system.
Expand access to services and financing to support farmers, including farmer risk-management tools, insurance, and loans.	'Farming as a business' training, and Savings and Transformation (S4T) training are applied in all countries. Partnership with VisionFund, World Vision's microfinance facility, further extends linkage of households to financial tools and services, including insurance and loan products. World Vision's Building Secure Livelihoods fosters a more market-oriented mindset, supporting smallholders to pool resources into groups and cooperatives to access credit and profitable markets.
3. Post-harvest storage and processing	World Vision approaches/activities
Provide training on safe storage and processing techniques, such as drying, to limit food loss and food waste.	Training is provided by local partners on post-harvest handling and storage and safe food processing in all countries.
4. Distribution, marketing and retail	World Vision approaches/activities
Create networks of food producers to increase market access and help limit food waste.	Farmers groups are formed for improved market access and pricing in all countries.
5. Food consumption and utilisation	World Vision approaches/activities
Increase consumption of animal-source foods in low- and middle-income countries, while educating the public about the health risks associated with overconsumption of these foods.	Small livestock and poultry rearing using improved breeds, attending to animals' housing and diets, and veterinary support are encouraged in many countries as an income and food source. Behaviour change communication activities to promote nutritious diets using local foods are implemented in all countries.
Increase access to health care for vulnerable populations, especially the rural poor, by increasing health-care facilities and staff.	Increase access to health care in all countries and support local community health workers.
6. Early warning systems	World Vision approaches/activities
Provide training to producers on how to protect crops, store food and otherwise prepare for extreme weather events.	Several countries facilitate use of digital apps linked to seasonal forecasts and early warning systems as an adaptive measure for climate change. Climate-smart agriculture approaches, such as FMNR, agroforestry and conservation agriculture, build climate adaptation, making producers more resilient to extreme weather.
7. Evidence for and inclusion of nutrition in climate research	World Vision approaches/activities
Conduct research and collect and analyse data on how climate change affects the food system and how to maximise nutrition amidst these effects.	This has not been done systematically, as research was not initially included in the project scope.



Minimising health impacts from climate change

Globally, World Vision programme activities are strengthening public health systems and building the capacity of community health workers. The AIM Health programmes in **Tanzania** and **Sierra Leone** utilise disease surveillance systems, and early warning systems from the health sector are in place in **Tanzania**. In **all four AIM** Health programme countries, WASH activities are taking place to address known environmental risk factors and water-related diseases. Nutrition and hygiene education is available in the programme areas through care groups, women's groups and community health workers.



Safeguarding the nutritional value of food from climate change impacts

Nutrition-sensitive agriculture (NSA), an approach that creates opportunities to incorporate nutrition outcomes into food systems and agricultural development programming,^{xiii} is being applied in diverse contexts by World Vision. Agriculture contributes towards nutrition in various ways, and NSA seeks to maximise these linkages by providing a nutrition lens to programme design and implementation. A 2024 meta-analysis by World Vision Australia^{xiv} found that NSA was effective in improving food security – a result of improvements in production and income – and associated with a general rise in dietary diversity. Integration with nutrition-specific interventions improved results, while success also improved where local collaboration, cultural contextualisation and gender-sensitive actions were incorporated.



Working with partners

Working with partners is a key approach in World Vision's programmes. Partnering increases localisation and addresses particular challenges – in this case, food security and nutrition – and is key to being able to respond to a changing environment in a timely way. For example, in **Sierra Leone**, veterinary support is provided by the Ministry of Agriculture, and local partners have been working closely with community health workers and women's groups to support the delivery of nutrition messaging. In **Timor Leste**, World Vision worked with local caregivers and farmer groups to reduce undernutrition by improving the utilisation and demand for nutritionally diverse foods and enhancing year-round access to protein and iron-rich foods. In **Papua New Guinea**, in coordination with the National Department of Health, World Vision strengthened the capacity of village health volunteers to conduct community awareness sessions on key health topics such as family planning, malaria prevention, antenatal care, immunisation, infant and complementary feeding, exclusive breastfeeding practices, acute respiratory infections, and diarrhoea.



World Vision Environmental Sustainability and Climate Action Strategic Roadmap

World Vision's new **Environmental Sustainability and Climate Action Strategic Roadmap** Framework, takes a holistic systems approach to addressing risks from climate change, environmental degradation, and unsustainable farming practices in both rural and urban communities. The core of the framework has four focus areas:

1. FMNR scale-up: restoration of ecosystem services for children and communities
2. building sustainable agri-food systems for food and nutrition security
3. strengthening community resilience to climate-related disaster risks
4. integrating environmental stewardship and climate action across our operations and programmes.

Taken together, these four focus areas aim to create a healthy environment for children to thrive in, including improving children's food security and nutritional outcomes.

ENOUGH



World Vision ENOUGH campaign

World Vision advocates for systems transformation through ENOUGH, an organisation-wide initiative dedicated to combating child hunger and malnutrition. With a focused effort on addressing these critical issues, the ENOUGH campaign uniquely positions World Vision to confront the adverse effects of the climate crisis on child hunger and malnutrition around the world. Climate change is a significant driver of poverty, hunger and malnutrition. According to the 2024 Global Report on Food Crises, more than 38 million people, including 19 million children, are on the brink of starvation.^{xv} This alarming statistic highlights the urgent need for action to address the growing food insecurity crisis worldwide. 372 million children under the age of 5 suffer from micronutrient deficiencies,^{xvi} 148 million are stunted, 45 million are wasted, and 37 million are overweight or obese.^{xvii} Without urgent climate action, droughts and land degradation will exacerbate, further deepening the global hunger and malnutrition crisis.

Charity getting lunch ready in Uganda. Tomatoes, onions, cumin, and pepper are some of the spices bought from the market. After over an hour of cooking, the peas are ready. These are fried, mashed to make a thick sauce. The family is having Dura (mingle sorghum) for lunch.

Recommendations for adapting health and nutrition programmes to climate change

It is impossible to address the drivers and effects of climate change by working at the local level only. Climate change is a global issue and often originates outside of the countries that are most affected. However, there are many approaches that will help communities adapt while also addressing the causes of malnutrition.

Given the far-reaching consequences of climate change on nutrition, **well integrated and flexible programmes** are required. To be comprehensive, activities need to cover all the underlying and basic causes of malnutrition and span different sectors – such as livelihoods and agriculture, health, gender, disaster risk reduction, among others. Building resilience in each sector is essential.

- a. A **theory of change** for each programme related to climate change and nutrition is necessary to ensure a coherent strategy is designed. For example, within programmes, utilise agroecological approaches, such as agroforestry, conservation agriculture, nutrition-sensitive and climate-smart agriculture, permaculture, and organic agriculture to build climate resilience in agriculture systems.
- b. **Gender mainstreaming and transformative approaches** are essential because gender inequalities underpin much of the burden of additional work for women and girls as a result of climate change.

01

02

A **flexible strategy for climate change and nutrition** that draws on a set of core project models and a mechanism to diagnose and adapt according to the context is needed. Flexibility can be achieved in several ways. Where possible, build on the mechanisms that are already in place for flexibility of programmes. Identify and leverage existing programming approaches that can be adapted to address climate change.

- a. **Working with local partners** is important as it increases context-specific flexibility and can draw on indigenous knowledge. Work with local agriculture research stations to understand what new and/or underutilised plant varieties are adapted to the changing climate conditions to strengthen local food and nutrition security.

Capacity building for climate change adaptation **at all levels** of the organisation is necessary. Creating guidelines using in-house and global resources with a full list of possible measures to take is advised – for example, how to make agriculture more climate resilient, how to respond to health challenges, how to introduce surveillance. Ensure training and capacity building on these measures is available.

03

04

Strong community resilience is essential to adapt to climate change, and this can be nurtured to help communities cooperate, adapt, advocate and innovate in the face of the challenges. Communities and local partners can learn problem-solving skills and gain confidence in making suggestions and innovating.

- a. **Behaviour change communication** activities are needed to help communities adapt to changing scenarios in the local contexts. For example, as the availability of food changes, it is necessary to work with the communities to explore and demonstrate the types of healthy foods that can support nutritional needs.

A **systematic monitoring system** designed around the underlying causes of malnutrition is important for organisations to share their experiences and build evidence about challenges and effective strategies. This should include quantitative and qualitative data, including local perspectives.

05

Along with the recommendations for adapting health and nutrition programmes to climate change, World Vision is also advocating for systems-level change and globally calling for:

1

governments to develop and expand integrated programmes that address the underlying causes of hunger, malnutrition, and climate vulnerability in the agri-food, water, social protection and health systems

2

governments to prioritise programmes and projects that use sustainable agricultural practices – such as agroforestry, conservation agriculture and climate-smart agriculture – to increase the resilience of the food system and improve food security and nutritional outcomes

3

governments to implement programmes to educate communities about the effects of climate change on children's health, food and nutrition

4

governments to implement communication strategies to promote adaptive behaviours and healthy nutritional practices in response to changing environmental conditions

5

donors to prioritise integrated projects on climate change, biodiversity and sustainable practices that address climate vulnerability, the agri-food sector, water, social protection, health, hunger, and malnutrition

6

governments to strengthen early warning systems to improve preparedness and interventions to address child hunger and malnutrition issues.

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This brief was developed by World Vision Ireland with contributions from the World Vision Environmental Sustainability and Climate Action (ESCA) working group members and with funding from Irish Aid.

World Vision is a Christian relief, development, and advocacy organisation dedicated to working with children, families and communities to overcome poverty and injustice. Inspired by our Christian values, we are dedicated to working with the world's most vulnerable people. We serve all people regardless of religion, race, ethnicity or gender.

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