World Vision

Investing in building the resilience of smallholder farmers to climate change

Key recommendations:

With the right political, economic, social, and environmental conditions, smallholder male and female farmers can be at the forefront of a sustainable transformation in world agriculture. World Vision believes that national government's systems, structures and policies to build a hunger and poverty-free future must:

- **Ensure sufficient budget allocations to climate change adaptation and mitigation action in agriculture and ensure alignment with national adaptation planning processes.**
- **Enhance integrated approaches to climate change adaptation and mitigation actions in agriculture.**
- **Integrate social protection measures into programmes that support smallholder farmers to adapt to climate change.**
- **Improve service delivery mechanisms for environmental protection and agro-forestry.**
- **Strengthen the enabling policy environment to mainstream climate change adaptation and mitigation in agriculture.**

Scale of the problem

Worldwide, 795 million people do not have access to enough nutritious food each day to lead active and productive lives.[1] More than 1.2 billion people live in extreme poverty – a third of these are children under the age of 18.[2] In low-income countries, more than 50 per cent of all children live in extreme poverty. Poor nutrition causes 45 per cent[3] of the 5.9 million[4] preventable deaths in children under age 5 – approximately 2.8 million children each year. In 2015, 159 million children were stunted and 50 million suffered from wasting;[5] most live in Asia and Sub-Saharan Africa.[6] Additionally, 2 billion people are micronutrient deficient,[7] meanwhile another 2 billion are overweight or obese.[8] If the current trends in consumption patterns and food waste continue, it is estimated we will require 60 per cent more food production by 2050,[9] a goal severely threatened by climate change impacts. Climate change is expected to reduce yields from rain-fed crops in parts of Sub-Saharan Africa by 50 per cent as early as 2020, resulting in an additional 24 million undernourished children and putting between 40 and 170 million more people at risk of hunger worldwide.[10]

> *Climate change is 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.'*
>
> ***United Nations Framework Convention on Climate Change (UNFCCC)***

Climate change disproportionately impacts those that already face chronic poverty and hunger.[11] Seventy-five per cent of food insecure people are smallholder farmers in developing countries that depend on agriculture as a main source of food and income. Smallholder agriculture is a natural resource-based economic activity and is increasingly challenged by drought, saline intrusion, flooding, land degradation and desertification.[12] However, due to poverty and lack of support, smallholder farmers are amongst the least able to adapt to the challenges posed by climate change. As smallholder farmers produce 70 per cent of food consumed globally, the severe risks to lives and livelihoods posed by climate change extend from the individual smallholder farming household to society as a whole.

Key gaps in support for smallholder farmers to adapt to and mitigate climate change

Investment in the agricultural sector is one of the most powerful ways to affect climate change adaptation. These improvements do not just benefit smallholder farmers but contribute to wider development goals such as poverty reduction, functioning environmental services and cutting carbon emissions.

IFAD (2014). The Adaptation Advantage: The economic benefits of preparing small-scale farmers for climate

Limited integration of social protection measures into long term objectives to advance climate smart agriculture

Female and male smallholder farmers require support to adapt to threats, hazards and vulnerabilities posed by climate change. Social protection programmes offer a wide range of instruments (e.g. social safety nets, insurance products, pensions and employment guarantee programmes) that can support households particularly vulnerable to chronic and acute impacts of climate change.[13] Social safety nets help meet immediate needs following disasters, but can also be leveraged to support vulnerable smallholder farming households to adopt climate smart agriculture and other approaches that promote sustainable natural resource management to support long term resilience, food security and economic empowerment. This approach would entail far greater allocations to participatory technology development, upgrading and or establishing national or community food reserves; identifying key staple crops in vulnerable areas and establishing emergency seed systems.

Poor access to quality services

Smallholder farmers require ongoing access to new knowledge, science and appropriate technologies to sustainably increase agricultural production without undermining the ecosystems on which they depend. However, poor smallholders, particularly women and other marginalised groups, often have limited access to quality agriculture extension services.[14]

Land access and tenure security influence smallholders' ability to make investments in sustainable land management or adopt new technologies and promising innovations. Improving tenure security, particularly for women and other marginalised groups, is a key policy lever which can support smallholders to adopt climate smart agricultural technologies and systems. Furthermore, greater tenure security for pastoralists can help them adopt more sustainable livestock intensification practices, including those that require better integration between livestock and crop production systems.[15]

*While **mitigation** focuses on the causes of climate change by decreasing greenhouse gases in the atmosphere or enhancing the sinks of greenhouse gases, **adaptation** addresses the impacts of climate change through an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects.*

Inadequate financing for adaptation and mitigation activities of smallholder farmers

Financial support for smallholder farmers to implement adaptation and mitigation activities has been too little and too slow. It's estimated that the total cost of climate change adaptation could range from $140 - $300 billion by 2030, and by as much as $500 billion by 2050.[16] This is an amount 6-13 times greater than the current international public financing available.

Weak capacities and incentives to support coordinated and integrated climate change adaptation and mitigation in agriculture

More productive and resilient agriculture requires a major shift towards robust risk reduction measures, including sector-specific climate change adaptation and mitigation technologies and practices such as multiple cropping, agroforestry and mulching, local genetic diversity, conservation

agriculture as well as improved pasture, grazing, soil and water management. The practice of multiple cropping systems enables smallholder farmers to achieve several production, conservation and adaptation objectives simultaneously. Agroforestry – the practice of integrating trees into crop and livestock production systems – creates a more conducive microclimate for agricultural production by reducing ambient temperature, wind velocity, surface water evaporation and protecting soil surfaces and crops from direct exposure to sunlight, hail and rain. Through agroforestry, mixed cropping and/or integrated pest management, farmers' crops avoid disease onset by reducing the spread of disease-carrying spores or modifying environmental conditions to be less favourable to particular pathogens. Making these shifts requires considerable changes in national and local policy, plans, capacities and budgets.

Progress on global and regional commitments

2015 was a remarkable year for global commitments to reduce the impacts of climate change on the world's most vulnerable children, women and men. The *Paris Agreement on Climate Change*[17] aligns all nations to the common cause to limit global warming to less than 2°C, while strengthening the ability of countries to adapt to the negative impacts of climate change. The *2030 Agenda for Sustainable Development* commits governments to 'leave no-one behind' in their pledge to end global poverty and hunger. Included in the *2030 Agenda* is a commitment to 'take urgent action to combat climate change and its impacts' (Goal 13) as well as to 'End hunger, achieve food security and improved nutrition, and promote sustainable agriculture' (Goal 2).[18] Under the *Sendai Framework for Disaster Risk Reduction*, governments agreed to increase their investments in disaster risk management, preparedness and mitigation. *Sendai* calls for appropriate investments in agriculture, including small-scale farmers and herders who will play an important role in improving disaster risk management and building resilient rural livelihoods.

The *Paris Agreement* builds on previous recognition of the links between agriculture, food security and climate change.[19] Under the *Paris Agreement*, each party to the UNFCCC must prepare and maintain a Nationally Determined Contribution (NDC), which must be renewed every five years and made publically available. A NDC is meant to guide country-level climate action and include targets and strategies for addressing the drivers of climate change and responding to its effects. A recent FAO analysis showed that climate-related actions in agriculture-related sectors was a prominent feature in national government contributions in the lead up to the Paris talks.[20] More than 90 per cent of countries included agriculture-related sectors in their contributions, with the least-developed countries emphasising agriculture sectors for both mitigation and adaptation.

However, the NDC's are general commitments - not action plans. To ensure meaningful action at the country-level, priority must be placed on developing and implementing national climate action plans that are embedded into national development planning and budgeting processes**.** With the Paris Agreement's recognition of the 'fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change,' it is critical that the adaptation needs of smallholder female and male farmers are integrated into national climate action plans, and conversely, that national agriculture policies, strategies and programmes integrate support to smallholder farmers to adapt to climate change.

FAO found that agriculture suffered 22 per cent of the economic impacts from significant natural hazards and disasters in developing countries, between 1994 and 2013.[21] In total, 78 disasters caused $30 billion damage on the agriculture sector. The *Sendai Framework for Disaster Risk Reduction (2015-2030)* recognizes agriculture as a sector affected by natural disasters and hazards. Yet, the agriculture sector receives less than five per cent of post-disaster aid. Disaster risk reduction in agriculture is particularly effective in securing development gains for the poorest and most vulnerable, as they are more likely to be reliant on agriculture and suffer the greatest economic losses from natural disasters.

At the regional-level, in 2003, African Heads of State issued the historic *Maputo Declaration*, committing national governments to allocate 10 per cent of national budgets to agriculture within 5

years, and to attain a 6 per cent GDP growth in the sector by 2015. Yet, more than ten years on and only 11 countries (20 per cent) have ever surpassed the agricultural spending target and the continent's average has never met the target.[22] Building on the *Maputo Declaration*, 2014's *Malabo Declaration* broadened government commitments beyond spending and production to include actions to create opportunities for youth in agriculture, reduce post-harvest losses and support climate smart agriculture, ensuring that at 'least 30 per cent of farm, pastoral and fisher households will be resilient to climate and weather related risks by 2025'.

The African Union's New Partnership for African Development also formed the Africa Climate Smart Agriculture Alliance (ACSAA) as a commitment to the Comprehensive African Agriculture Development Programme (CAADP).[23] Through CAADP, the African Union prioritised agriculture development as a key driver for broad-based economic growth and inclusive development, with environment and ecosystems resilience as integral components.

The 2030 Agenda for Sustainable Development: Scaling up what works

World Vision's addresses climate change impacts, environmental degradation and development in an integrated manner, using a holistic approach to community development and child well-being. The approach focuses on building resilience through environmental restoration and protection, supporting sustainable livelihoods, adopting climate-smart agriculture practices, integrating disaster risk reduction and climate change adaptation approaches into development and humanitarian programming and empowering communities to advocate for change. Some examples from World Vision's work include:

> *Climate Smart Agriculture are 'agricultural practices, approaches and systems that sustainably and reliably increase food production and the ability of farmers to earn a living, while protecting or restoring the environment.'*
> Africa Climate Smart Agriculture Alliance

- **Alliance for Climate Smart Agriculture in Africa (ACSAA).** World Vision has been heavily involved in creating and leading the ACSSA, which operates under a Steering Committee comprised of representatives from eleven organisations.[24] The ACSAA aims to significantly and sustainably impact food and nutrition security and rural poverty through collaborative effort to scale-up the adoption of climate smart agriculture across Africa – an approach which is strategically important to the African Union's priorities.

- **Leveraging social protection measures to support poor smallholder farmers to adapt to climate change.**[25] World Vision, in partnership with the UN World Food Programme and the Government of Kenya's National Drought Management Authority introduced a Cash and Food for Assets programme. It was designed to address immediate food needs, while supporting vulnerable smallholder farmers to build productive assets in order to build their resilience to future droughts. More than 700,000 people participated in the programme, which built irrigation schemes, earth pans,various rain water harvesting structures and planted over 190, 000 trees.

- **Farmer Managed Natural Regeneration (FMNR).** In Humbo, Ethiopia, World Vision has implemented FMNR since 2005. FMNR is a low-cost agro-forestry technique that is easily replicable by farmers with resources at hand and that restores lost forest cover by re-establishing native, biodiverse species. Through this one programme, 13 water points (springs) were rehabilitated and water began to flow in areas that hadn't for over 40 years. Smallholder agricultural productivity increased by more than three-fold. A recent analysis shows that high soil moisture reserves in the FMNR project areas have mitigated the impacts of the recent El Niño-induced drought, with agricultural production in project areas largely unaffected.[26] Since 2010, carbon sequestration from this programme has meant poor communities were able to collect Ethiopia Birr 9,940,000 (USD $473,224) from the global carbon market.[27]

- **Improving climate change adaptation/mitigation services for smallholder farmers.** World Vision employed its Citizen Voice and Action (CVA)[28] approach to work with local

communities and government authorities to improve delivery of agricultural extension services on agro-forestry. Through CVA, World Vision facilitated community dialogues on environmental degradation issues and developed a set of recommendations for decision-makers in Nakuru and Baringo counties, which led to the integration of FMNR approaches into some county strategies.

In 2012, World Vision, with other members of the Africa Climate Change Resilience Alliance (ACCRA) partnered with the Uganda National Meteorology Authority (UNMA)[29] to create a model that delivers booklets to farming communities containing simplified, easily understandable seasonal weather forecast in local languages. These booklets provides a snapshot of the seasonal weather forecast process and the key steps that UNMA and ACCRA have taken to ultimately increase farmers resilience and adaptive capacity to climate change-related impacts and disasters and strengthen early warning systems.

- **Securing Land Rights/Management of Conflicts through Community Based Land Use Management.**[30] World Vision worked with the Government of Tanzania to develop communal land use management plans for Mbuyuni District in accordance with the *Village Land Act and the Land Use Planning Act (2007),* which empowers village councils to prepare, approve and implement village land use plans. The strategy was to help reconcile emerging conflicts over land and natural resource use through providing local communities with secure tenure rights. To date, over 56 villagers have received land certificates.

- **Children in a Changing Climate Coalition (CCCC**). CCCC is a partnership of five leading child-centered development and humanitarian organisations: ChildFund Alliance, Plan International, Save the Children, UNICEF and World Vision International. As a longstanding coalition partner, World Vision advocates for and with children for child-centered disaster risk reduction and climate change adaptation policy, strategies and programmes.

World Vision calls on governments to:

With the right political, economic, social, and environmental conditions, smallholder male and female farmers can be at the forefront of a sustainable transformation in world agriculture to meet the future challenges of climate change. World Vision believes that national government's systems, structures and policies to build a hunger and poverty-free future in the face of climate change must:

Ensure sufficient budget allocations to climate change adaptation and mitigation action in agriculture and ensure alignment with national adaptation planning processes.

- Adaptation and mitigation actions must be country-driven, inclusive and transparent and articulated in national climate action plans with financing from national budgets and international commitments aligned to these national plans.
- Ensure national and global climate change financing investments are new and additional commitments and strike a fair balance between supporting mitigation and adaption actions.
- Increase funding for environmental protection and enhancement, such as soil and water conservation.

Enhance integrated approaches to climate change adaptation and mitigation actions in agriculture.

- Improve natural resource conservation technologies and management, paying special attention to smallholder farming systems in agro-climatically fragile areas.
- Conduct research on and use of sustainable cropping patterns and systems adapted to local conditions and on drought resistant pasture and forage for animals in pastoral areas.
- Promote technologies for integrated pest management.
- Undertake participatory research projects that include vulnerable farmers in the development of climate adapted cropping and livestock systems.
- Provide capacity building support to agriculture-related sectorial ministries to enable them to provide appropriate technical expertise; define clear roles and responsibilities; allocate appropriate budget levels; and deliver effective extension services to smallholder farmers.

- Provide appropriate financing options for female and male smallholders farmers and livestock producers (such as compensation for carbon credits and provision of climate finance) to facilitate adoption of new sustainable and climate sensitive practices.

Integrate social protection measures into programmes that support smallholder farmers to adapt to climate change.

Social protection programmes can help reduce disaster and climate-change related impacts on the most vulnerable, protect the poor from total destitution, and enhance ability of the poor & vulnerable to reduce existing disaster impact risks and adapt to new/increased risks as a

- Include social protection measures in national multi-hazard disaster preparedness plans for agriculture and food security related sectors.
- Improve infrastructure for national and community food reserves.
- Establish emergency seed systems for key staple crops, paying particular attention to preserving and supporting indigenous seed systems.
- Improve smallholder farmer's access to crop and livestock disaster insurance products.

Strengthen service delivery mechanisms for environmental protection and agro-forestry.

- Strengthen national and local-level early warning systems to collect, monitor and share data on key hazards and vulnerabilities in agriculture, food and nutrition; ensure communities have timely access to this information.
- Strengthen the capacity of governments and communities to act on timely early warning information.
- Invest in gender-sensitive participatory approaches (e.g. farmer field schools) to agricultural extension that are sensitive to the agro-ecological conditions in which smallholders operate.
- Protect communal land ownership of smallholder farmers through development of gender-sensitive communal land use management plans and issuing of land titles/certificates.

Strengthen the enabling policy environment to mainstream climate change adaptation and mitigation in agriculture.

- Ensure agriculture sector policies and plans mainstream climate change mitigation and adaptation, in alignment with national climate action plans.
- Integrate climate risk analysis and participatory disaster risk reduction approaches into mitigation and adaptation strategies for all agricultural sector policy and programming.
- Apply prevention and adaptation measures to reduce risks to food security and nutrition at all administrate levels, with a focus on the particular health, nutrition and protection needs of children.
- Integrate climate change adaptation and mitigation in agriculture school curricula in a way that empowers children as active citizens, equips them with the relevant skills and knowledge to manage their environment and adapt to a changing climate.
- Provide incentives for conservation, such as access to carbon markets or provision of land tenure security.

Endnotes

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[16] UNEP (2016). *The adaptation gap: finance report.* http://web.unep.org/adaptationgapreport/sites/unep.org.adaptationgapreport/files/documents/agr2016.pdf
[17] The 2015 Paris Agreement on Climate Change was agreed under the auspices of the 1992 United Nations Framework Convention on Climate Change and will come into force in 2020, replacing the 2005 Kyoto Protocol.
[18] Specifically, Target 2.4 calls on member states to 'ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters, and that progressively improve land and soil quality by 2030.'
[19] The UNFCCC references agriculture as a sector impacted by climate change (Article 4 (c)) and the Kyoto Protocol recognises that investments in agriculture can serve both mitigation and adaptation objectives.
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[21] FAO (2015). *The Impact of Natural Hazards and Disasters on Agriculture and Food Security and Nutrition—a call for action to build resilient livelihoods*. http://www.fao.org/3/a-i4434e.pdf
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