

Climate-Seed-Knowledge (CSK) in Northern Ghana



Canadian Coalition on
Climate Change
& Development



Smallholder farmers and elders of rural communities possess the knowledge and skills that can enhance farmer productivity and mitigate the negative impacts of climate change on rural agricultural systems and livelihoods. Over the years, local farmers have relied on traditional methods of seed production, preservation and multiplication that have ensured their access to highly adaptable varieties of seeds. However, indigenous seed varieties are on the verge of extinction in Ghana, in part because of the persistence of false policy assumptions that indigenous knowledge is retrogressive. The Climate-Seed-Knowledge (CSK) project sought to develop in-country strategies to enhance climate resilience through the revival of traditional seed diversity and knowledge in the Zoosali community of Ghana's Northern Region. The project resulted in promising gains in awareness of the impacts of climate change, as well as improved biodiversity, food security and resilience.



Farmers in the Zoosali Community in Ghana's Northern Region.

Country Context

Ghana is predominantly an agrarian economy. The agricultural sector, comprising primarily small-scale subsistence farming, contributes 38 per cent of gross domestic product (GDP) and absorbs 55.8 per cent of the adult labour force (Bank of Ghana, 2008). About 1.2 million people, five percent of the population, are considered food insecure. However, this national average hides stark regional differences. Thirty-four percent of the population in Ghana's Upper West Region is food insecure, as is 15 percent in the Upper East Region.

In these northern regions, food production is limited to barely four months a year because of the historically uneven allocation of resources coupled with a variable climate and marginal environmental conditions. A heavy reliance on

rain-fed agriculture, combined with deteriorating soil fertility, declining farm sizes due to population pressure, high climate variability and rudimentary technology, has culminated in high rates of poverty and food insecurity amongst food crop producers in these regions.

Climate models and projections demonstrate clear signs that confirm Ghana's vulnerability to climate change. The mean annual temperature is projected to increase by 1.0°C to 3.0°C by the 2060s, and by 1.5°C to 5.2°C by the 2090s. The projected rate of warming is most rapid in the northern inland regions. At the same time, annual mean rainfall levels are likely to decrease between 1.1 and 3.1 per cent across all zones by 2020. These projections have increased concerns that climate variability and change will exacerbate the current food insecurity situation for an estimated 20 to 30 percent of households in the already vulnerable northern regions.

¹ UNDP Climate Change Country Profiles, Ghana, <http://country-profiles.geog.ox.ac.uk>

² Ghana's Second National Communication to the UNFCCC, September 2011, p.104.

The Problem

Food insecurity and non-sustainable land use are major challenges for the people of northern Ghana. There, poverty is endemic and desertification and climate change represent serious threats to livelihoods. Recent declines in agricultural productivity and an increase in poverty have been attributed to misuse of natural resources through deforestation, bush burning, and unsustainable farming practices. Widespread poverty hinders the capabilities of the poor, particularly women, to adapt and increases their vulnerability to the impacts of climate change.

Nationally, food crop farmers are the most food insecure people in Ghana. They represent one-quarter of the population, yet 40 per cent of those are food insecure³ and a further 34 per cent are at risk of becoming food insecure. This situation has in turn affected the human capital of the country and its entire development agenda.

In the Zoosali community, farmers are well aware of changing weather and rainfall patterns and the impact that this has on their agricultural production. Traditional weather observation and forecasting systems have identified key indicators of seasonal change, including the disappearance of certain wild birds and animals and the

appearance of particular wild fruits or plant species. The community has observed that their main source of water dries up earlier than previously and that soil fertility is decreasing.

The increasing variability of rainfall also increases the risks for farmers. Total rainfall amounts are projected to decrease or become more variable, impacting crop production and livelihoods. Rising temperatures and frequent droughts increase bush fires, desertification and environmental degradation.

To make matters worse, the food security of many rural communities is being further degraded as their long-tested, traditional knowledge of seed technology and practices is undervalued or lost by the mass promotion of monocropping, exotic seed use and other unsustainable agricultural practices. This has troubling implications for protecting biodiversity and securing sustainable livelihoods.

The revival of indigenous seed and related traditional knowledge is thus vital to build resilience to the effects of climate change for both rural communities and the ecosystems on which they depend. Women especially play a critical role in seed selection and in household food security. Although they often bear the brunt of adverse climate change effects, they also hold the key to building resilience.

3 Comprehensive Food Security and Vulnerability Analysis (CFSV) Ghana, 2009



Women and men smallholder farmers at sample farms in the Zoosali Community

The Project

The CSK project's overarching objective is to improve the food security of smallholder farmers in Northern Ghana, strengthening their capacity to improve their livelihoods within their own communities and minimizing their dependence on external supplies. The project is built on the hypothesis that local seed varieties have a greater potential to adapt to climate change. The first phase of this project in 2006-07 involved building the climate-resilience capacity of 40 selected women through the revival of indigenous, locally-adapted seeds and traditional knowledge in the Zoosali community.

On the Ground

Local staff of the Regional Advisory Information and Network Systems (RAINS), a long-time partner of Canadian Feed The Children, worked with community elders in Zoosali to identify indigenous seed varieties that were on the verge of extinction. At the local level, 40 women farmers were selected to cultivate their farms using indigenous seed varieties, traditional knowledge and farming techniques. The project provided access to farmland to a pilot group of women who were selected through a transparent and collaborative process involving community leadership and members. At the national level, RAINS took on post-project advocacy activities targeting Ghana's national Ministry of Food and Agriculture (MoFA) to promote the value of using indigenous seeds.



Farmers working in Zoosali Community



Fuseina Mohammed, farmer at Zoosali

PROJECT PARTNERS

The **Regional Advisory Information and Network Systems** (RAINS, <http://www.rainsgha.org/>) is a long-term partner of Canadian Feed The Children (CFTC) working in Northern Ghana.

The first phase of this project was primarily funded by the **African Biodiversity Network** (ABN, <http://www.africanbiodiversity.org/>) with a small contribution from CFTC.

CFTC is increasing its commitment and support as part of an extension of this project beginning in January 2013.

Project Results

The CSK project has made a difference in the lives of women, men, girls and boys in the Zoosali community in several ways. First, the project succeeded in raising community members' awareness of climate change and its impact on rural livelihoods. Building on this awareness, community members have shifted their focus to indigenous seeds and knowledge in their farming practices. One clear demonstration of this was the diversification of crops to counter the negative effects of drought and floods, which has strengthened the community's capacity to manage climate variability more effectively.

Second, the project successfully revived a number of indigenous seed varieties that were on the verge of extinction, including *bambara beans*, *cowpea*, *sanze*, *bungu*, *agusi*, *neri*, *late millet* and *sesame*. These varieties were identified by community elders as having traits such as drought tolerance, fast maturation and higher yields, making them more resilient to rainfall variability. The women farmers were able to exchange and multiply indigenous seed varieties, thereby improving access and diversifying their diets.

"All along, I have been wondering whether we are not endangering our own survival by abandoning these indigenous seed varieties. They are nutritious, and demand fewer external inputs, which only go to destroy soils and farmlands. Again and again, we are getting less and less from shea nut harvests. I am happy that we have been offered opportunities to diversify our livelihood sources."

– Fuseina Mohammed, farmer at Zoosali

Third, the project increased the farmers' food security. Monitoring and end-of-project evaluation revealed higher yields from project demonstration farms that employed indigenous seed and farming practices compared to farms that used hybrid seeds and conventional farming practices.

Community groups have also recognized the value of supporting women-led farming activities like land cultivation in preparation for planting. This support, along with ready access to locally available seed and indigenous farming practices, has provided a strong platform for women to launch farming initiatives at an affordable cost. It has empowered women and enhanced their status within their community, especially among youth, as custodians of indigenous seed and knowledge.

LESSONS LEARNED

Local communities hold the key to tried-and-tested indigenous knowledge systems and as such are vital actors in climate change adaptation initiatives. They possess tremendous capacity for enhancing climate change resilience. Zoosali community members embraced the idea of revitalizing their indigenous seeds based on their local knowledge systems and willingly contributed to the revival of a number of nearly extinct seed varieties. On the other hand, the government's counter-promotion of hybrid seed and conventional farming practices in the same community created doubts in the minds of community members about the value of indigenous seeds and knowledge. Initially, this created challenges for the project in engaging farmers. However, after the first farming season, when clear benefits associated with the use of indigenous seed and knowledge were identified, these doubts subsided.

Contrary to government strategy for improving food security through mass promotion of hybrid seed and conventional agronomic packages, local seed and farming practices tend to be more beneficial and sustainable in the midst of climate variability and need to be promoted alongside conventional methods, especially among smallholder farmers in rural communities. In spite of this, and contrary to the evidence emerging from the CSK project, government ministries continue to promote the use of hybrid seeds and non-indigenous farming practices in this community and across the north of Ghana. As such, ongoing advocacy work is in progress for a strong policy position that will promote indigenous seed use in Ghana.

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