



tearfund

DIGGING DEEPER

Climate-smart Agriculture



Photo: Ian McInnes

Introduction

It's a paradox: the better we've become at development, the worse we've become at sustainability. How do our partners adapt?

Global hunger has been trending down since 2015. Unfortunately, a World Food Programme report in 2020 shows that tens of millions have joined the ranks of the chronically undernourished around the world and countries are struggling with multiple forms of malnutrition. This was prior to the Covid-19 pandemic disrupting the production and distribution of food and triggering an economic crisis in many countries.¹

Additionally, the effects of climate change are starting to take an urgent toll on production around the world. Climate change drives deforestation, the loss of productive land, and the loss of soil carbon, which in turn threaten to increase rates of food and water insecurity around the world. Considering that agriculture is often the primary source of income for many of the world's most vulnerable people, this issue threatens not only the food that we eat but the livelihoods of these people.

Food insecurity is not caused by a lack of food so much as a lack of economic and political power that allows citizens to demand food in our global market. - Amartya Sen

Researchers see a collision ahead between a growing world population that wants to eat more meat and dairy, and the impacts of climate change that are threatening harvests in many areas.

1. www.wfp.org/publications/2020-global-report-food-crises

There are many steps that need to be taken to address global hunger, including challenging the distribution system that allows nearly a third of the food we produce to be wasted. But we must also encourage the proliferation of new (or old!) ways of growing food that minimise the damage we do to our environment while maximising efficiency.²

What does Climate-smart Agriculture (CSA) look like?

In a world where temperatures are rising, the land is receding, and extreme weather events are increasing, how can we change to grow enough for all of our people? It is challenging to minimise our environmental impact while we try to produce more food for an ever-growing population.

CSA attempts to address this problem and has three main goals:

- 1) **To sustainably increase** agricultural productivity
- 2) **To build** resistance to climate change
- 3) **To reduce** greenhouse gas emissions and other environmental damage.

A CSA project might involve increasing water retention through irrigation systems or water tanks, or it might involve breeding seeds to grow in increasingly hot lands.

Interestingly, many of the world's indigenous peoples have been producing food in environmentally sustainable ways for many centuries. Take the Maya people of Latin America who grow corn, beans and squash together. While the corn provides a structure for the beans to climb, the beans replenish the soil with nitrogen for the other plants to use, and the squash spreads across the ground to prevent the growth of weeds and maintain moisture. Rather than sapping the soil of nutrients as many modern methods do, this traditional technique ensures that the soil is replenished and cared

for. In addition to developing new and improved ways of growing foods, the Maya people remind us that sometimes it's best to go back to basics!

The Biblical Perspective

The story of scripture begins with God creating all things. We need to understand the context of this writing to understand the nature of the relationship between God, humanity, and creation, and therefore our responsibilities within the natural world.

The Genesis creation stories follow imagery familiar to ancient near eastern cultures, particularly relating to temple worship. Temples were the central connection between humanity and the gods, and therefore the temple was something to be revered and cared for. Usually, a physical image of the god the temple was dedicated to was front and centre. That image would be made from stone or wood.

The creation narratives of Genesis follow a similar pattern, but there is a crucial and fascinating difference. Here, the whole of creation is the temple and humanity is made to be the physical image of God inside the temple. In this understanding we are co-creators with God, representing the divine within the temple. We engage in innovation and work as part of our very being, but that work and innovation are always to be grounded in the understanding that the temple, the whole of creation, is sacred in the same way that those neighbour cultures viewed their temples as sacred.

If the natural world is a sacred gift acting like a temple, then we are to tend and care for it, cherish it, and to challenge anything that damages it. We have a responsibility to engage in innovation and work in a way that enhances the natural world, rather than depleting and destroying it.

2. <https://lovefoodhatewaste.co.nz/food-waste/the-global-issue/>

Our Approach

Tearfund does a lot of work to protect against climate change in Asia-Pacific. We work with local partners to prepare for disasters and ensure that food producers can get back on their feet quickly after a disaster.

In addition, we work to promote CSA production methods that minimise the environmental impact of production and maximise efficiency.

Case Study – Mongolia

A great example of the type of activity Tearfund and our partner do in this space can be seen through our work in community gardens in Mongolia. Traditionally, Mongolian people have been nomadic herders who rely on their livestock for an income. Winter in Mongolia is brutal in a normal year with temperatures regularly hitting minus 40 degrees Celsius. Every now and then an extra bad winter, known locally as a dzud, hits. This is a very cold winter that follows a dry summer making it difficult for the livestock to feed. These winters are hard and many livestock die which causes financial difficulty for the herders.

Unfortunately, climate change means that dzud has been occurring more frequently in recent years and is even more severe than in the past. This is making it financially impossible for herders to maintain their nomadic way of life. The herders needed a reliable source of year-round income that was resilient to natural shocks. Tearfund and our partner at the time started working with herders in 2011 to figure out a solution that would provide financial security to them during the extreme winters where stock died. The solution was soon found: community gardens!

Starting community gardens in a climate where winter lows are -40 degrees may seem crazy, and it certainly took some convincing to get the herders on board with a completely new skill and way of life. The community gardens were designed for cold-climate vegetable growing. Tunnel houses with rammed earth sides keep heat in and

allow vegetables such as tomatoes and cucumbers to be grown and root crops stored during even the coldest months.

The community gardens provided both a source of income and food security to the herders with the additional health benefit of increased vegetable consumption in their diets. Demand quickly grew at local markets and herders formed cooperatives for learning and improving vegetable quality.

The project wasn't without setbacks. Across the first eight years of the project the herders had to deal with plagues of locusts, mice, root aphids, drought, flooding and hail. But, despite the setbacks the project has grown and there are now 12 community cooperatives with 560 members successfully market gardening. The cooperatives have an average annual production of 2365kg per herder. The herders have been successful against the odds and have gone on a journey of changes from tradition herders to innovative growers.