Food security a myth for many

The writer of this article, Colin Cargill, is a specialist in animal production, health and welfare. He has spent significant time working in Asia and the Pacific helping farmers to diversify their food production and move from subsistence to small commercial production. This article is one in a series submitted by the Uniting Church SA Environment Action Group.

Concerns over food security existed long before the term climate change came into being. In the ancient history of China and Egypt the stable supply of food was a major issue. However, it was not until 1974 that the term "food security" was defined with the emphasis on supply. Later definitions also recognised demand and access issues. Importantly, the right to food was included in the 1948 Declaration of Human Rights, and is considered as vital for the enjoyment of all other rights.

From a justice perspective, food security "exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (definition agreed to at the 1996 World Food Summit).

Many factors can put food security at risk, including droughts, floods, wars, and economic instability. Achieving the goal of food security is still a long way off.

In 2011-2013, an estimated 842 million people in the developing world were still experiencing shortage in food supply. In many parts of the world, over 60% of children are malnourished, especially due to low protein diets. The combination of a lack of animal source protein and early pregnancy is also causing major health issues in young women and their babies in eastern Africa. Rapidly increasing populations, especially in less developed regions, further jeopardises food security in these communities.

When we add climate change to the mix, there is a real threat to achieving, or even maintaining, food security for large sections of the world's population.

The complexity of the effects of climate change on food production makes it difficult to predict outcomes for specific regions – even predicting the effect of temperature increases on different crops is difficult. Individual plant species each have an optimal temperature range for growth,

and as the temperature rises within that range, the plant grows faster. However, for grain crops this faster growth will

reduce yields, as the plant has less time to fill out the grain. Once the temperature moves above the optimal range, yields for all crops will fall.

Significantly, one of the most important effects of climate change is that wet areas tend to get wetter and dry areas drier. Extreme events – notably heat waves, droughts, storms and flooding – are predicted to increase in frequency and intensity. These departures from the norm will have a substantial impact on global food security through reduced crop yields and forced changes in land use. For example, global wheat production is estimated to fall by 6% for every 1°C rise in temperature, and become more variable over space and time. While agronomists have a good track record in developing new strains of crops that are higher yielding and resistant to pests or drought, neutralising the negative effects of temperature changes on food production will require huge investments in research. Even then the reduction in yield may outpace any improvements that science makes. Unfortunately, many of the regions most threatened by climate change, such as tropical and subtropical Africa and Asia, are areas where food security is already vulnerable. Hence, already marginalised smallholder farmers and their families will be the first affected.

In a world where the food security of many is problematic even now, climate change adds an extra burden to making "the right to eat wholesome healthy diets" a reality for everyone. Burning fossils fuels may provide electricity for more people in India, but it also threatens livelihoods and food supplies. As an eminent scientist stated at a conference in Yogyakarta in 2014, "You cannot eat light bulbs".

An environmental symposium will be held at Playford Uniting Church (Curtis Road, Davoren Park) on Saturday 17 October. The symposium will focus on environmental issues from theological and scientific perspectives, and features several high profile keynote speakers. More information will be available in the next edition of New Times.

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