



Highly Commended

Science Writing
Year 9-10
Ben Holds

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School**



Food for the future: Securing a supply for the coming generations

World hunger is one of the most pressing issues the world is facing today, and in no region in the world is this issue more prominent than Africa. Africa is home to some of the poorest, most underdeveloped, and uneducated countries in the world and has been bearing the forefront of hunger for decades. Many wealthier countries have come at this issue head on, supplying rations of food to the struggling populations. While this a good short-term solution it poses many issues financially and logistically which makes it not a very good option for fixing the issue over long term. So just how can we ensure a consistent supply of food to the struggling populations of Africa and world?

What many people don't know about the African continent is the fact that the land isn't unproductive. The land is incredibly nutrient rich and has a very high agricultural potential, yet the one fifth of the African population are under nourished ^[1]. One of the main causes of this issue is the fact that much of the land in Africa is owned by countries abroad. In Sierra Leone for example land is being snatched up by foreign investors, up to 24.8% of the country's total land mass ^[2], and the government is only charging them a lease of around \$5 an acre ^[3]. The government of such countries organise these deals with little to no regard of the people who have built their livelihoods off that land. This leaves 78% of the country's population food insecure ^[4]. To ensure this doesn't happen it falls upon the more developed countries to place restrictions or regulations on how much a country is allowed to sell their land. Australian farmers are able to produce 1.5 tonnes ^[5] of food per hectare on average, that mean with the right technology Sierra Leone can produce an extra 2.55 million tonnes from a country with a land mass of around 71,800 kilometres squared ^[6].

Another one of the biggest talking points in today's society is climate change and there is no doubt around the affects it's having on the landscape and food production. While initially crops may benefit from increased temperatures and CO₂ levels, there is a certain point where yields will start to suffer. As global populations increase so will greenhouse gas emissions which makes the threat of crop failure much more imminent. It's predicted that, through current policies, that the average temperature worldwide will increase by 2.8 to 3.1°C ^[7] by 2100, wheat crops start to suffer from the heat at 27.8°C^[8]. NASA also predicts the production of maize to decrease by 24% due to the unpredictable rain patterns, increase in CO₂ levels and increases in temperature ^[9]. In a world with the population growth growing momentum every day the last thing you want is dramatic decreases in food production. Many countries have made pledges to lower their use of fossil fuels, even if they honour those pledges, it will only reduce the projected increase to around 2.1°C. In Africa, where the average temperature is already at 28°C ^[10], it is not nearly enough. This relies on more developed countries switching their own main power supplies to more sustainable options like solar, wind and nuclear, as well as supplying the resources for less developed countries to do something similar. No, it won't be cheap, but it is necessary to ensure food for generations to come.

Another massive threat that often goes unnoticed by most people is soil erosion and Land degradation. Soil is the most important part of agriculture, it's where crops grow, where the grass that feeds animals grows and also has the ability to store carbon. Yet soil all over the world is under

threat. There are many natural causes for soil erosion (Some relating to climate change) but modern cultivation and sowing methods have had an obvious affect on the rate of erosion. Soil is precious as the earth only generates 2 to 3 centimetres of topsoil per 1,000 years ^[11], but we lose topsoil at rate off about 1.9 mm per year ^[12]. Estimates say that there are less than 60 years until the complete loss of topsoil ^[13], that's less than 60 harvests. If topsoil is lost completely, the soil will not be able the hold moisture as easily and will become inhospitable for a vast majority of plants. This is something that is being showcased over in northern Africa, as temperatures increase the tropical latitudes move towards the poles, making the Sahara Desert expand. It's already expanded to become 10% larger than it was around 100 years ago ^[14]. Attempts to stop the expansion, like Africa's Green Wall, have yet to prove if useful. If we want to secure food production, it is a must that we protect the soils that feed us.

I don't believe that the feeding the future relies on abstract new plants or growing plants in pillars in big sheds. If we secure the proper agricultural potential of the Earth, we could feed millions, even billions, more people. We just need to implement these new strategies and technologies, it won't be cheap, and it certainly won't be easy, but it is something that must be done. Along with the benefits of increased food production, it could also bring economic prosperity to underdeveloped countries and reduced emissions. It will take every country in the world, but if we do it will make the world a better place now and for generations to come.

(917 words)

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