

**Public Hearing in the Committee for Economic Cooperation and Development of the German Bundestag on: “Securing the global food supply through innovative methods
Wednesday, 30 November 2022, 10.30am – 1pm**

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The goal of this public hearing is noble. To get expert opinion on the courses of action needed to achieve zero hunger by 2030, and to focus on the innovative solutions that can help us get there. Indeed, to achieve zero hunger we need to think outside the box.

But the framing is wrong. You present our choices as black and white. You ask us to choose between one way or the other. Industrial agriculture versus agro-ecology. Large-scale versus small-scale farming. Conventional seeds versus genetically modified seeds. Synthetic fertilizers versus organic fertilizers.

These are not real choices. These are not the right questions.

When we talk about needing more diversity, more resilience, and more sustainability in the global food supply in order to achieve zero hunger, what this requires is more options, not less. You ask what changes are needed to reduce dependency on food, seed and fertilizer imports in Africa? But, the problem is not that Africa imports these things. The problem is that there are too few companies, and too few countries, where these imports are coming from. Africa needs more options to source its food, seed and fertilizer needs. This will be very country and context specific. For some African countries this will involve boosting national production, for others it will require more trade with their neighbours, and for still others, it will include more options for sourcing their needs on world markets. In reality most countries will need a mix of all three.

If we live in closed borders, we will be more vulnerable, more at risk of creating a crisis in the face of a climate or economic shock, less resilient. When we are faced with droughts, floods, cyclones, or war and we cannot produce within our own borders, we need to be able to meet our needs from somewhere else. Malawi experienced this reality very seriously during the 2005/6 droughts where the maize production was wiped out and they had very little options outside their borders for sourcing more food. Millions of Malawians were put into hunger as a result.

The solutions to world hunger are to be found in increasing the toolbox available to us, not making us choose one or the other. There are some diseases that are wiping out staple crops year after year, decade after decade, and we have not yet been able to find a cure. Like in East Africa, for example, there is a virus that has been destroying the

cassava crop since the 1930's, worsening the hunger situation each time the crop fails. Through genetic engineering some scientists in East Africa with the help of international scientists are finding ways to engineer virus-resistant crops. If traditional or conventional methods have not found a way to eradicate this virus, why wouldn't we use modern science, including bio-technology, to eradicate crop diseases that are making hunger worse?

I want to share with you three ideas of innovations that I think can help secure food supply to achieve zero hunger and at the same time combat climate change. Three ideas to put in the toolkit of innovations to solve the problems causing hunger.

Innovation one. Africa still faces a huge productivity gap in agriculture, and I am not just talking about the yields, I am talking about economic productivity. How much money can a farmer make from each hectare of her land or from each of her dairy cows? A cow in Africa, for example, produces 20 times less milk than a cow in Europe. In Europe, our cows are very productive, the problem is that we eat too much of their meat and their milk. In Africa, the cows could be producing up to 20 times more milk. So what is the innovation? Well, I was part of a three-year research project, Ceres2030: Sustainable Solutions to End Hunger, and we found that there are very simple, and cheap solutions that are being overlooked and understudied, like using the residues left over after crops are harvested, as feed for cows to raise their milk production. This could help both to reduce the greenhouse gas emissions per litre of milk, and improve nutrition through better diets.

Innovation two. The wasting of food, both at the harvest level because of poor storage, and at the consumption level because of poor refrigeration and handling practices. Between a quarter and a third of food around the world is lost or wasted. And this is not just waste in Europe and the US. In Nigeria, for example, more than 500 grams of food is lost post-harvest per person per day, and more than 600 grams of food is wasted per person per day. This is tragic in a country where 14% of people, or close to 30 million people, go to bed hungry every day. Tonnes of fruits and vegetables in Nigeria perish because of inadequate storage infrastructure. An inspiring Nigerian entrepreneur, Nnaemeka Ikegwonu, has invented a decentralized cold storage unit that is powered by renewable energy. His company is called ColdHubs, and he is trying to raise USD 5 million in capital to build cold storage units powered by renewable energy in fresh food markets across Nigeria. This innovation helps to both improve food security and nutrition by making nutritious food last longer, while at the same time reducing GHG emissions because he uses renewable energy to power the cold storage units. BMZ should be finding ways to invest in these types of innovations by Small and Medium Enterprises (SMEs).

Innovation three. Climate change, deforestation, and land degradation are now driving hunger. To end hunger, we need to solve these environmental problems. We need to take land out of production and restore it back to nature to reduce emissions, improve biodiversity and reduce pollution. The writer, George Monbiot, just wrote an editorial in the UK newspaper, the Guardian, about a new technology that might just save the planet. The innovation is called “precision fermentation” and it is basically about brewing microbes which feed on hydrogen and methanol to produce flour. It is a method that has been used a lot in the drug industry and food additives sector. The innovation is mindblowing. The brewers are able to produce a flour that is 60% protein, uses almost no land, almost no fertilizer, small amounts of water, and can be produced with renewable energy. Imagine solving the hunger, nutrition, climate change, biodiversity, land and water problems in 1 brewery? Some early estimates suggest this approach used 1700 times less land than soy and 138, 000 times less land than meat. Imagine every town in the world with a local microbial brewery making cheap, protein-rich foods tailed to local markets. We’re not there yet. The costs are still far too onerous and the barriers great, but this is the kind of innovation we should be looking to for the future. BMZ should invest in this type of innovation through the Green Innovation Hubs.

While I am excited about these technology options, I also know that technology does not operate in a vacuum. There are economic and political realities to confront, and unequal power relations that fuel hunger in the first place. Technology tends to be biased in favour of capital and skilled labour and is therefore unevenly distributed between rich and poor, and often exacerbate inequalities. This is a big risk of new, expensive technologies like precision fermentation. How, where and by whom these technologies will be used will determine if they can truly help in the fight against hunger and climate change.

Thank you.