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2017 SIR JOHN CRAWFORD MEMORIAL ADDRESS

A new narrative for ending hunger

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Thank you very much, Honourable John Anderson. I'm wearing a bright coat but I suppose one thing that you could not tell and remains a secret until I say so, is that part of my umbilical cord is buried in a log in a rural village in Zimbabwe, just at the doorstep of my grandmother's thatched hut, which has got cow-dung polish. And one of the most exciting debates I've had with my three teenage children recently was that they are better citizens than me because of my rural roots. And being their

mother, I managed to win the debate by telling them that parts of their umbilical cords are probably swimming in sewage because they were born in the city, yet I remain connected to agriculture.

My connection with the family smallholding farm and my admiration for my grandmother continue to inspire me in my daily work 37 years after her passing-on at the majestic age of 110 years. She remains my hero.

On her one hectare holding which was carefully divided into the residential part (one acre) and the remaining one acre totally dedicated to farming, she was able to plant a colourful diversity of crops. They turned out into rainbow colours of maize, yellow millet, sweet sorghum, a vegetable patch with red, yellow and green vegetables, and an orchard with large mango trees interspaced with smaller oranges, lemon trees and guavas which we could eat *ad lib*. At the far back end of the homestead there was a kraal which kept our goats that were our source of meat, our two dairy cows for milk and four oxen that provided draught power for our planting seasons.

The chickens were free-ranging, providing eggs for the family. Only rarely, when my dad visited, did we have the luxury of enjoying chicken soup when most of the meat was for him. The commonly eaten meat was goat meat. One slaughter per month was enough to suffice for the whole family, because we dried the meat and just on the first day we would enjoy fresh meat; the rest was dried and it was strictly one small piece each per day.

Grandmother's farm was a source of food but also our pharmacy.

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She made sure that all her 20 grandchildren worked on the farm. Three times a year we would come from the city for school holidays in the back of a truck, all 20 of us, to provide free labour and enjoy learning and working with my grandmother. The January school holidays was an exciting time, because that would be the time for weeding. Every one of us with our hand hoes would be following behind grandmother, one line at a time, making sure that we carefully weeded and removed all the weeds from the farm. March holidays was an exciting time because that would be the time for top-dressing fertiliser application, just before the harvest. We would walk with a bag of fertiliser, a teaspoon in hand, and apply one teaspoonful at the side of each plant, with grandma watching to make sure there was no wastage. Finally, harvest time, August, the school holidays. We were excited because as we harvested the maize cobs you got a chance to put one in the pocket for an after-hours roast. So that was the agriculture I experienced in Zimbabwe in the '70s.

It was also exciting that when we left the village and went back to the city, grandmother made sure that we took back enough supplies to carry us through the whole of the school term. Unfortunately the reverse is true now. We have to buy food to support our kin in the rural areas.

We were a big family of aunties, uncles, cousins, brothers and sisters, all resident in the same farming homestead. All 20 of us would participate in both the growing of the food and the preparation of the food during meal time. Dinner was the main meal, and always served by my grandmother. The serving portions were carefully measured to avoid waste. They provided sufficient for each age group. There was always one piece of meat per person. My dad of course got more and we know that. My grandmother would say, "Eat just enough so that you leave room for your stomach to breathe". When food was ready we all sat on the cow-dung-polished floor facing her in a half-moon fashion, in a designated group: girls alone, boys on their own, the younger children. The nursing mothers would sit closest to grandmother, with their children on their laps so that she would supervise the feeding and make sure that the children were well fed. It's no surprise therefore that most of my generation that were raised by grandmothers came out to be big Zulu girls and boys, bright students at school and with a well-balanced livelihood. We were well nourished.

I went to college in the '80s to study agriculture. I was lucky to benefit from post-independence benevolent governments that gave Zimbabwe scholarships for us to go and study. Since I'd always wanted to be an airhostess, when I saw my name in the newspaper that I had been awarded the scholarship I didn't think twice: I left the country to go and study. When I got to Egypt, I was given a choice between dentistry and agriculture. I didn't waste a second to think: I followed my passion, mostly because that was the year my grandmother had passed on. So I felt, in respect and in memory of her, this was the right thing to do, much to the surprise, maybe disgust, of my family and my friends, who thought, "Who on earth goes to study farming?". Up to this day I am still asked, "So what is different from the agriculture you learned at school and what your uneducated grandmother used to do?".

Unfortunately and sadly I have very little to show for my continent. What I learnt in college was totally different from what I had seen practised by my grandmother. I learnt that back in the '60s and '70s there was a Green Revolution in Asia. This Green Revolution was able to avert disaster, mass starvation. Unfortunately Africa had not benefited from this Green Revolution. The continent had not benefited from the great technology breakthroughs of the '60s and '70s.

The African continent was left behind for several reasons. The high yielding crops focused on irrigated cereals which were not very suited for our agricultural conditions where there was, and still is, only 10% irrigation coverage. There were failures in infrastructure then and there still are at the moment. And policy challenges made it such that markets were not functional – and they still aren't.

So what else did I learn? I also learnt that through the United Nations Food and Agriculture Organization (FAO) some 30 of the 53 African countries are producing less food per head of the population than they did in the '60s – and it's still a challenge now.

I also learnt the concept of 'food security', which according to the FAO originated in the mid '70s in the discussions of international food problems at a time of the global food crisis. The initial focus then was primarily on food-supply problems – on assuring the availability and, to some degree, the price stability of basic food stuffs at the international and national levels. Food security was defined then through the World Food Summit of 1974 as:

Availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices.

By 1993 when I graduated with a PhD in agriculture there were up to 200 definitions of food security, which to me was a clear demonstration that there are differing views and there is a problem. However, the definition that acquired the broadest acceptance was the FAO definition of the World Food Summit of 1996, and it defined food security as follows:

Food security exists when all people at all times have physical, social and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

I underline active and healthy life.

When I graduated with a PhD in Animal Science, I was so sure that the Matabele goats that were dished out by my grandmother at one piece per day would increase in productivity, and I, for one, would afford my family lots of meat every day and it wouldn't be rationed.

When I got home to Zimbabwe, my nephew Moses had taken over the family farm and indeed was practising the FAO agriculture-revolution thinking, of 'more, more, more'. He had cleared the entire farm; he got rid of everything that was not giving him money; the whole one-hectare farm was dedicated to corn. There was no space for produce with no commercial value such as fruits, the vegetables, the millet and the sorghum; they were all gone. The goats had been sold off, one by one, to meet household cash needs and pay school fees

and hospital bills. Income from farming was used to purchase hybrid seed and fertiliser and, most important, to push him up the ‘development ladder’. To Moses and many more in the village, development was about getting off the cow-dung-polished floor and buying a bed and a dining room table. It was about buying a television set so that they could enjoy the entertainment in the evenings.

What was strange for me, though, was that the yields of maize that Moses was getting from the farm were dwindling and were close to half of what my grandmother had been getting. In a bid to supplement his income, Moses left the farm to his wife and his two children and he went off to the city to get a job. Three years later he still couldn’t get a job and he decided to move from Zimbabwe to South Africa and look for greener pastures. He never got a job.

Now Moses’s wife Peggy is left in the village – just like my grandmother who gave us everything she produced, all the food that came from her farm. Moses’s family is dependent on the maize that is produced: three times a day they have a meal of corn, and the consistency gets thicker as the day advances. Thin mealie-meal porridge for breakfast, thicker porridge for lunch and even thicker porridge for dinner. And what goes with it? If they’re lucky enough to buy cabbage, that’s what goes with it. If it’s the wet season, it’s the natural-growing amaranth vegetable that they harvest. But most of the time it’s maize, maize, maize and maize. This is true not just for Moses’s family but many others. The low yields made Moses abandon the farm, but what’s more important is that his wife and kids now have had to remain on the farm because that’s the only profession that they have ever known.

Unfortunately, to this day, Moses’s wife remains on the farm with his two children, who are now school dropouts. They continue to farm under rain-fed conditions using recycled seed and no fertiliser. The obvious reason for dropping out of school is lack of school fees, but when I visited the family farm recently, armed with a better understanding of hidden hunger, I asked to see the baby-clinic cards, and much to my horror I discovered that both children are stunted. Their birth weights were under the normal median curve, and their growth rates never pushed them beyond what was expected. But sadly no one ever explained this to Moses’s wife because the children were round, they were fat and, according to any naked eye, they were thriving.

The effects of malnutrition in most of the villages are only diagnosed when a child is taken to hospital because of diarrhoea, dehydration or respiratory diseases, and only then do the nurses eventually say, “What exactly are you feeding your children on?”.

Stunting and obesity

Unfortunately, Moses’s children are not the only stunted children in Africa. The reality is horrific: nearly one in three children’s deaths in sub-Saharan Africa occurs in the first month of life, and 64% occur within the first year. Up to 35% of the deaths among newborns and young children have malnutrition as the underlying cause. Sub-Saharan Africa is the only region where the number of stunted children is growing.

Immediate causes of stunting are poor maternal nutrition and poor health during pregnancy, and poor feeding practices for infants and young children after that. Research evidence shows that malnutrition is more severe at the level of poor rural households and smallholder farm families. The very people who are supposed to be producing food, not just for their families but for the whole country, are the ones suffering from malnutrition. Recent estimates of the prevalence of stunting and micronutrient deficiencies rank Africa as having among the highest rates in the world.

The largely irreversible damage of infant child undernutrition and poor growth and low cognitive functions impairs human productivity, and could lead to a reduction of at least 8% in a nation's economic development.

My recent experience in Tanzania and Ethiopia demonstrates that there are no special weaning foods for babies in the rural areas; they eat the same food as the adults. In a class of first- and second-grade children, up to half of the children I spoke to had come to school without having breakfast, the reason being the parents leave at the break of dawn to go to the farm fields and there's no one to make a fire and prepare food. Another one-third had had food but this was leftover food from the dinner. This would be just plain rice or plain maize corn, or teff in Ethiopia, mostly with no protein, just cereal and water – empty calories.

To make matters worse I've now learnt that the life-long sentence is not just stunting for these children; new evidence now suggests that the stunted children are likely to become obese as they grow up to be adults. As food, in most cases the wrong type of food, becomes available they compensate by eating more and becoming obese.

On obesity, the statistics are just as harrowing: worldwide obesity has more than doubled since 1980. The worldwide prevalence of obesity more than doubled between 1980 and 2014. Surely there is something that we are doing wrong, particularly those tasked with producing food. The cost of obesity and overweight-related non-communicable diseases was estimated to be \$1.4 trillion in 2010. In 2014 an estimated 41 million children under the age of five years were overweight or obese. In Africa the number of children who are overweight or obese has doubled from 5 million in 1990 to 10.6 million in 2014. All this, we say, is a sign of development and affluence – as people become rounder and fat it shows they're well-fed! This we need to reverse.

Nearly half of the children under five who were overweight or obese in 2014 lived in Africa. And in 2014 more than 1.9 billion adults 18 years and older were overweight, and 600 million of these were obese. Thirty-nine per cent of adults aged 18 years and over were overweight in 2014 and 13% were obese. Most of the world's population lives in countries where overweight and obesity kills more people than just being underweight – there's no one country that is different. We are in it together. In 2015 approximately 795 million people did not have enough food, whilst 1.9 billion were consuming too much, manifesting in micronutrient deficiency, macronutrient deficiency, and overweight and obesity, the triple burden of malnutrition.

Need for nutrition-sensitive agriculture

There are several questions we need to answer. What is agriculture doing for nutrition? In our commitment to help the planet as enshrined in the 2015 Paris Agreement we may also ask the question: What are we doing for our planet?

I'll speak for myself and be the first to confess that after 25 years of development research work in agriculture it is only in the last three years, whilst working on the Agriculture to Nutrition Project, that I've come to understand what food security – nutrition security – truly means to the individual, and that we certainly need nutrition-sensitive agriculture. It is only now that I have broken out of the silo that I understand the perspective of the World Health Organization when it comes to food security. Unfortunately, as an agriculturalist, I'm embarrassed to say they've done better on nutrition than us who produce the food. According to the WHO, food security means that:

- all people, at all times, have both physical and economic access to enough food for an active, healthy life;
- the ways in which food is produced and distributed are respectful of the natural processes of the Earth and thus sustainable;
- both the consumption and production of food are governed by social values that are just and equitable, as well as moral and ethical.

They talk about ensuring the ability to acquire food; that food itself should be nutritionally adequate and personally and culturally acceptable; and that food must be obtained in a manner that upholds human dignity.

Surely we need to redefine what we mean by food security and nutrition security. The challenge that we face is really about knowledge, perspectives, and our siloed approach to development.

What is missing in agriculture

I spent my whole PhD years working on the productivity of small ruminants, the indigenous Matabele goats, focusing on how best I could feed the nanny goats during pregnancy and lactation to make sure that I reduced mortality, got high birth weights and made sure that we have more goats.

Little did I know that the more meat and the more milk were hardly ever consumed by the right people in the households. That 'last mile' is where most of us in agriculture rarely go: into the household to understand what happens to the food we produce. We have left this to social scientists and there are too few of them who understand the dynamics at household level.

Agriculture must have the 'culture' of giving dignity to the individuals that we aim to feed. And in addition to healthy people, there is a component that both the FAO and WHO definitions don't address, which is the issue of the environment.

We have not been able to address the components of a healthy diet holistically, and this then means there is something in agriculture that we are not doing right. That 'last mile' is the road that we need to push into, when we talk about research for development in agriculture, in environment, in health and in food systems.

A ‘food-systems’ approach prepares and creates those opportunities. How best then can agriculture deliver these positive nutrition outcomes? We’ve shied away from talking and engaging with behaviour scientists who make us do the right thing. We have actually let the health sector promote nutrition-specific interventions to deal with diseases that are created by agriculture. We’ve allowed the ‘breast is best’ message as pushed by the World Health Organization to be the one that’s well known, rather than ‘food is our medicine’.

We have not taken lessons in saying what it is that our agriculture can do. We have not thought about those mothers and the families that cannot purchase the vitamins that are promoted.

Surely, just as my grandmother’s farm was her pharmacy, all farm families can produce nutritious food and healthy foods. It starts with healthy soils, fortified seeds, blended fertilisers, appropriate harvesting and storage technologies, nutrient-enhancing processing, fortification, cooking, preservation and – most important – the right policies that should be in place.

I’m excited to have had the opportunity to learn from the best, working through the Bill and Melinda Gates Foundation on nutrition projects at FANRPAN (Food, Agriculture and Natural Resources Policy Analysis Network). I have learnt how agriculture programs can be designed to be nutrition-sensitive and deliver positive health outcomes. Through working with the EAT-Lancet Commission under the guidance of Dr Gunhild Stordalen, Professor Johan Rockström and Professor Walter Willett, I have learnt that indeed we can have healthy diets and a healthy planet if we acknowledge what to do and are prepared to change behaviours and have a policy environment that penalises the bad and rewards the good.

The new narrative therefore should be ‘Agriculture for healthy diets; agriculture for a healthy planet’. A farmer I met in Tanzania expressed it very well, in a phrase that translates to ‘Eat for health and not for hunger’ (*kula kwa afya – si kwa njaa*). Africa needs an agriculture transformation that embraces lessons from the Asian Green Revolution and crafts its own uniquely African Green Revolution. This one will be different: it’s got to be smallholder-driven; it’s got to be climate-smart; it’s got to be nutrition-sensitive.

Steps towards an African Green Revolution

Let me share with you what I believe is needed.

First, we need to restore the dignity of the smallholder farmer: farming must be a profession of choice and not for the poor and uneducated. I’m happy to say a lot of effort is being put in now by strong farmer organisations that are going into electronic tagging to identify the *bona fide* farmers in the rural areas, looking at their asset base and making ways to retool through innovative finance and insurance packages.

Number two, we need robust market-led development-orientated institutions that can holistically drive the development agenda and promote the upscaling of what works. The era of pilots and small projects is gone. Let’s take what we know works and put it to scale.

Number three, we need technologies that are packaged and promoted through advisory services.

Number four, we need a private sector that drives functional markets.

Five, and most important, we need functional accountable governments with good policy and regulatory services that will leave space for the private sector to thrive, but at the same time be true and accountable to serving the people. All of this is what Australia does very well.

There could be no better time to make things happen now worldwide. Under the Paris Agreement of 2015 we collectively committed to a better and climate-smart agriculture. This speaks to conservation agriculture, where you in Australia are the champions. It speaks to water harvesting and conservation techniques, where you are the champions. This speaks to precision farming and drought mitigation, where you have left an indelible mark.

Also, the Sustainable Development Goals speak to partnerships, and there can be no one institution, no one country, that can make it alone. We are in it together and no-one should be left behind.

Finally, it's the decade on nutrition; the UN has declared 2016–2025 as the Decade for Action on Nutrition. There is no excuse and no room for agriculture that does not deliver positive nutrition outcomes.

Making Africa 'work'

The time is *now* for Africa, according to my predecessor at AGRA (the Alliance for a Green Revolution in Africa) Dr Akinwumi Adesina, who is now the President of the African Development Bank.

- Africa has 65% of the uncultivated arable land left in the world to feed the 9 billion by 2050. So what does Africa have to do about its agriculture to make sure we have a food-secure world?
- Africa is the continent that by 2050 will have the same population as China and India have today.
- Africa is the continent that will be the most youthful continent in the world by 2050.

It makes sense therefore that I, together with everybody else, put our efforts into making sure Africa 'works'.

We need to industrialise our agricultural sector to unlock wealth. We need to achieve this through, not just the staple crops but all the diverse crops in our gene banks that we have not invested in enough, to make sure there's diversity in our diets.

We need to attract private business and agribusiness and get them to locate in rural areas. We need to create a market-pull for produce of farmers and reduce the high post-harvest losses in the supply chains. In so doing we're going to turn the rural areas from zones of economic misery to zones of economic prosperity. Africa already has some formidable institutions.

- The Pan African Farmers Organisation under the leadership of Dr Theo de Jager, a South African farmer, has been doing sterling work in organising farmers across the continent.

- The Forum for Agricultural Research in Africa (FARA) is driving strategic science partnerships designed to respond to emerging opportunities.
- Under the Comprehensive Africa Agriculture Development Programme (CAADP), led by the African Union, there are new declarations and commitments to make agriculture the benchmark for African economies.
- On the policy front there is FANRPAN, the multi-stakeholder platform that is bringing governments and civil society to design evidence-based policies, and ‘Grow-Africa’ which has brought 200 private sector companies into 12 African countries to make formal commitments on respective country investments in agriculture.
- And AGRA, designed to be an alliance, has attracted the largest collection of agricultural technical experts on the continent with areas of specialisation that include the full value-chain, from developing seed varieties that are adapted, fertiliser blends and agronomic best practices, to connecting farmers to markets, all in an effort to make sure that African agriculture is transformed.

It can be done. It’s been done under the leadership of Dr Agnes Kalibata who left an indelible mark in Rwanda as the Minister of Agriculture. AGRA is well positioned by having government support, technology and private sector involvement to make sure that the African Green Revolution does not remain a dream, but is a reality.

All I can say is that Africa is more than ready for win–win partnerships. The new narrative for nutrition-sensitive and climate-smart agriculture is forging new partnerships of learning together and sharing experiences for healthy people and a healthy planet.

We owe it to ourselves, because the stunted children of today are the leaders of tomorrow, with whom you will have to sit around the table to negotiate deals. We cannot afford that. They may be the immigrants of today, but tomorrow they may be the citizens that can bring hope to their own countries as dignified economic migrants.

As we enjoy our dinner tonight, think of Moses and his corn porridge and cabbage, just to fill his tummy, and also his two children, now 17 and 15, physically small for their age just like many other children in the village. But sadly you and I know that they are stunted for life, their cognitive capacity is compromised. Worse still, their mother Mrs Moses is obese and has recently been diagnosed with diabetes. That, ladies and gentlemen, is a lifelong sentence that has been caused by bad agriculture.

We need a new narrative to end hunger, one that speaks to quantity *and* quality; a narrative that breaks the old way of thinking; a narrative that ensures healthy people and a healthy planet. The agriculture I learnt at college spoke to quantity, on the assumption that once there’s more, then people will have income to buy the right food. The agriculture that my grandmother taught me was about quality.

We need to end hidden hunger. We need to increase yields – yes, I agree. We need to promote diverse diets. We need to empower women and make sure

women are getting into pregnancy healthy, they're staying healthy during pregnancy, and they're staying even healthier as they breastfeed up to the second birthday of their children. This is the first thousand days that is promoted by the health sector – and we pushed back on the agriculture side, not knowing it's talking about the food we produce.

We need a new definition of food and nutrition security that relates to individuals. It is the nutritional status of the individual household member that should be the ultimate focus, and the risk of that inadequate attention is something we cannot afford.

Let's make food our medicine, and reduce the ballooning health bill fuelled by bad agriculture.

I believe we can end hunger, particularly in my continent which is lagging behind, if we do what we know is right, if we forge responsible partnerships, both in government and in the private sector. This is the sweet spot that will open the way for an agriculture that is impactful and can lead to a new narrative for a uniquely African Green Revolution, and end not just hunger but eradicate poverty. We owe it to ourselves.

I am sure my grandmother – if our ancestors do smile wherever they go – Gogo Mahembe would be smiling if we all commit to nutrition-sensitive agriculture. But better still, Sir John Crawford would also be smiling. I thank you.

Lindiwe Majele Sibanda is Vice President for Country Support, Policy, and Delivery of the Alliance for a Green Revolution in Africa (AGRA). Globally, Lindiwe is a recognised leader and has served as trustee and adviser to numerous international food security-related initiatives. Prior to joining AGRA, Lindiwe was the CEO and Head of Mission of the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN), responsible for coordinating policy research and advocacy programs across 17 countries aimed at making Africa a food and nutrition-secure region. She is a serving member of the SDG Target by 2030 Champions 12.3; a Commissioner for the EAT-Lancet Commission on Sustainable Healthy Food Systems; the United Nations (UN) Committee for Policy Development (CDP); and the African Union Commission (AUC) Leadership Council. She has served as a university professor in agriculture, animal sciences and veterinary sciences, and she is a regular guest lecturer at several universities. She is a recipient of numerous awards for her contribution towards agriculture and food security in Africa, including: the Science Diplomacy Award by the Government of South Africa (2015); FARA Award for Exemplary Leadership (2014); and Yara 2013 Prize Laureate (2013). She is a trained animal scientist, an authoritative leader in agriculture, climate change and nutrition. She holds a BSc (University of Alexandria, Egypt), and MSc and PhD from the University of Reading, UK. Lindiwe was recently appointed a member of the ACIAR Policy Advisory Council.