

Speech Delivered by Dr. Akinwumi Adesina, Honourable Minister of Agriculture of Nigeria at the High Policy Dialogue on “Research to Feed Africa”, September 1, 2014, Sheraton Hotel, Addis Ababa, Ethiopia

Excellencies, Distinguished ladies and gentlemen, Good morning!

I wish to thank the President of IDRC, Jean Lebel for inviting me to give this key note address, and Pascal Sanginga, my former brilliant PhD student, for organizing this session. I thank you both for your strong support for the Africa Green Revolution Forum (AGRF) when I approached you for the inaugural Forum in 2009. Here we are, years after and AGRF is going strong!

IDRC has been a key supporter of the green revolution in Africa, with globally renowned leadership and support for decades on research, human capacity development, especially to ensure that benefits of research reach farmers, including women, and those in marginal areas. Your work at IDRC, and those of other development partners and national governments and research centers present today, are more crucial than ever before.

The population of Africa is estimated to reach 2.4 billion by 2050. With rising population, demand for food will increase. The challenge will be how to raise agricultural productivity, feed this population, while not degrading the environment. The challenge is enormous: Sub-Saharan Africa will need to increase crop production by 260% in order to feed this projected population. This cannot be achieved unless there are significantly higher levels of investment in agricultural research, science and technology. That is why this policy dialogue organized by the International Development Research Center (IDRC) is timely.

I will be sharing with you my perspectives on some of what is needed, as a researcher and policy maker, drawing on my personal experiences of over 25 years in the drive to ensure that Africa feeds itself and contributes to feeding the world.

Africa has enormous agricultural potential. About 65% of the arable lands left to feed the 9 billion people in the world by 2050 are in Africa. We must unlock this potential. To do so, we must make a fundamental shift in how we see agriculture. Agriculture must not be seen as a development program. Agriculture is a business. And agricultural research must take this business perspective. Policy makers too must change and develop policies to take technologies to scale for farmers.

A great part of what I do today as Minister of Agriculture, in feeding the most populous African nation, draws from my research experience and practical lessons learnt in the field. Early in my career at the International Crops Research Institute for the Semi Arid Tropics (ICRISAT) in the early 1990s, I was part of a team of scientists

charged with promoting high yielding short statured varieties of sorghum to farmers. Convinced we had a solution for farmers, we went to Southern Mali to promote the new high yielding varieties. The head of the village took us on a tour around the village and opened one granary after the other and behold they were filled to the brim with sorghum. To him the problem was not additional production but how to get market for the sorghum, as he asked whether ICRISAT buys sorghum. It was a lesson that changed my perspective on how to achieve impacts with research. What mattered here was not the supply driven technical change but the development of markets for sorghum.

Our focus must be on the imperative of creating markets for farmers, taking a whole value chain, and investing in new product development to add value to crops. Unless this is given priority farmers will take up new technologies and price for their farm products will decline. From that experience, as researchers we worked on how to use sorghum for different products to expand markets. Today in Nigeria, Uganda and Kenya sorghum is used to replace malt in the brewery industry, for animal feed, as well as for production of ethanol

I recall my time as a scientist in the mid-1990s at the West Africa Rice Development Association in Cote d'Ivoire, when the New Rice for Africa (NERICA) was being developed. The new varieties were adapted to conditions of smallholder farmers and gave very good yields. The challenge was how to ensure their adoption by farmers at scale. This requires public policies that will increase access of farmers to seeds; fertilizers and irrigation support to ensure the optimal yield performance of the new crop varieties, as well as improved seed systems that will provide quality seeds to farmers.

As Minister of Agriculture in Nigeria, with my previous research work and knowledge of the potential of the improved rice varieties, we immediately set the target for Nigeria to become self sufficient in rice. This was important, as Nigeria had become the second largest importer of rice in the world after China. We immediately encouraged private seed companies to produce foundation and commercial seeds, removed the monopoly of the government over foundation seeds, and unlocked the power of seed companies to work directly with plant breeders to develop their own foundation seeds. Farmers were provided with subsidized farm inputs for seeds and fertilizers via electronic vouchers on their mobile phones. We launched dry season rice production to complement wet season rice production.

The impact was massive. Between 2012 and 2014, 6 million rice farmers were reached with the improved rice varieties. Total cumulative cultivated rice area rose by 2 million hectares. National paddy rice production rose by an additional 7 million MT, while net farm incomes of farmers rose by \$2.5 billion, unleashing a wave of prosperity for farmers and the rural areas. Men and women, and the youth all launched into rice production. We had turned the corner and reached close to 80% of

our national paddy rice need, all within three years. This points to the need to have supportive policies to drive impacts of science and technology. Our new rice policy has attracted \$1.6 billion of private sector investments, and we expect that Nigeria will become a net exporter of rice, just like Thailand or India, within the next four years. Such is the power of science and technology when matched with supportive policy instruments to drive impacts at scale.

The same could be said of cassava. Africa is the largest producer of cassava in the world but is surpassed by Thailand in terms of global value added to cassava. Nigeria has made huge leaps in cassava production, with a total annual production of over 44 million MT, from the research work of the International Institute for Tropical Agriculture and the National Root Crop Research Institute in Nigeria. Varieties that are tolerant to cassava mosaic virus and cassava mealy bug have been released with high rates of returns from the biological control programs that led to their development. But farmers always faced a glut as market for cassava was limited to use for local foods such as gari and fufu.

As Minister, we launched a major effort to develop derivatives from cassava, with a cassava sector policy to support the use of cassava for high quality cassava flour to replace some of the wheat used for bread and confectioneries for which Nigeria spends over \$ 5 billion annually. In partnership with the International Institute for Tropical Agriculture and the Federal Institute for Industrial Research, scientists and food technologists and nutritionists were supported to develop and standardize recipes for making bread from composite flour from wheat and cassava. Today, over 35 bakeries in the country have shifted to production of cassava-wheat flour composite bread, including the two largest foreign owned supermarkets, Shop Rite and Park and Shop. With the establishment of a \$60 million cassava bread fund by President Jonathan, work started to train thousands of small master bakers across the country to shift to the new composite cassava-wheat flour, including support for new equipment. SMEs producing cassava flour are being supported with funds to upgrade their facilities to produce cassava flour, while about 30,000 farmers are being provided support to establish 6,000 ha of mechanized cassava farms to produce cassava and lower cost for flour millers.

Government has also initiated with the private sector flour millers the process to establish large-scale high quality cassava flour plants across the country to ensure regular supply of the cassava flour. The inclusion of 20% of cassava flour in bread and confectionaries at the industry level will save over \$ 1 billion annually in wheat imports and create jobs and markets for cassava farmers. Cassava then becomes a wealth-generating crop. The impact of research would have reached millions of farmers and benefited the entire cassava value chain and consumers, as the composite bread is cheaper than whole wheat bread.

There is no doubt that investing in agricultural research pays. The challenge is always how to ensure that poor farmers benefit from technical change. This is where I believe that public policies are needed to reduce adoption costs faced by farmers. While developed countries support their farmers with massive subsidies, African farmers, who are poor, are barely supported. Lacking access to technologies and with limited financial resources many do not take advantage of the benefits that new technologies can offer. While there is always debate on subsidies, my position is that they are needed, especially in the early phases of agricultural transformations to ensure that the poor, especially women, and smallholders benefit from technical change. What is important is to develop ways of targeting support to reach farmers, while ensuring that the private sector, not the government, delivers farm inputs to farmers. This is what we did in Nigeria.

When I took office as Minister of Agriculture in 2011, I met a system where the government for decades had been directly involved in procuring and distributing fertilizers to farmers. The system was corrupt and benefited rent seekers, not smallholder farmers. We ended four decades of fertilizer sector corruption within 90 days and with it the era of government buying and distributing seeds, and replaced it with a private sector-driven system. The role of government shifted to providing targeted farm support to farmers for seeds and fertilizers via electronic coupons on mobile phones or “e-wallets”.

Between 2012 and 2014, a total of 14 million farmers received their subsidized farm inputs using electronic vouchers on their mobile phones to directly pay private sector input retailers. Dignity was returned to farmers. As farmers expressed their demand, the number of seed companies increased from 5 to 80 within three years. The financial markets took note and for the first time ever banks began to lend to seed companies and agrodealers. Bank lending to seed companies and agrodealers rose from \$10 million in 2012 to \$53 million by 2013, while bank lending to fertilizer companies rose from \$100 million in 2012 to \$500 million in 2013. Private sector input supply companies began to build their supply chains to reach farmers directly instead of supplying to the government, stimulating economic activity and creating jobs all across the seed and fertilizer sector value chains.

At the Rockefeller Foundation where I worked for a decade, we supported research scientists in Uganda to develop new high yielding banana varieties, using tissue culture techniques. Yields rose from 10 tons per hectare to over 30 tons per hectare. But there was a problem: farmers could not afford the high cost of the tissue culture plantlets at over \$ 1 dollar per plantlet. There was no financing system to support farmers. If we could get the banks to lend to these small farmers, they would adopt the new technology and reap high benefits. The Rockefeller Foundation supported us to innovate with a risk sharing facility to reduce the risk of lending to farmers by the Centenary Rural Development Bank of Uganda. With \$500,000 seed fund to be used to cover losses from lending to farmers, the Bank started to lend, first from the fund

of the Foundation, and later from its own funds. After four years, the bank found it had lost only \$4,500. We had proved a point: that lending to small farmers is not as risky as Banks think in Africa. The Bank eventually lent \$20 million of its own money to farmers and built up a portfolio of investments to support the banana value chain in Uganda.

As Vice President at the Alliance for a Green Revolution in Africa, I led a team of my colleagues to use innovative financing instruments to leverage banks in Kenya, Tanzania, Uganda, Ghana and Mozambique to lend over \$100 million to small farmers and input retailers. In Nigeria, we designed the risk sharing facility for the Central Bank of Nigeria, which leveraged \$3.5 billion of lending from the balance sheets of banks to agriculture value chains. In all these cases, the default rates by farmers and agribusinesses has been less than 2-3%, and in the case of Nigeria it has been 0% for the past three years.

The lesson is clear: greater focus should be put into the use of innovative finance instruments to reduce the risks financial institutions face in lending to agriculture. Solving this financial imperative will help drive the uptake of products of agricultural research, raise returns to agricultural research investments and drive sustainable growth of the agriculture sector. Science and technologies alone are not enough. We must also fix financial markets to make science work for the poor.

All across Africa, many gains are being made in the use of improved agricultural technologies, from high yielding bean varieties in Rwanda, sorghum and millet hybrids in Niger and Mali, drought and striga tolerant maize in Ethiopia, Kenya, Tanzania and Zambia. The green revolution is ramping up farm production. But a significant share of the expanding farm harvest is lost due to poor post harvest systems, and estimates show that this can be as high as 30-40% depending on the crop. The total annual post-harvest grain losses in Sub-Saharan Africa have been estimated at \$ 4 billion. Reducing these losses will boost agricultural output and food security. There is need now for greater research investments to improve product handling, storage, and post-harvest processing and food safety so that the benefits of research reach consumers.

No challenge is greater for research in Africa today than how to support farmers to adapt to climate change. Climate change will substantially reduce yields of crops, livestock and fisheries, and lead to decline in farm output, farm incomes and worsen poverty and vulnerabilities. There is need to develop heat, drought and flood tolerant crops, forages that can cope with heat stress, animals with high stress tolerance levels, while policies should focus on improving adaptation for farmers. Improved land and water management will become even more important, as well as the use of agro-ecological approaches. It is imperative for governments, researchers and the wider development community to build resilience into agricultural value chains. Public policies should support farmers to take up crop and livestock insurance, as these are

beyond the reach of many poor farmers. We must not abandon farmers in the face of climate change.

Despite all the gains being made, malnutrition remains a perennial problem. Eighty percent of the world's stunted children live in just 14 countries, of which eight are in Africa. Today there exist bio-fortified crops such as pro-vitamin A cassava, orange flesh sweet potato, high iron beans, which are being grown by farmers in Nigeria, Rwanda, Kenya and Mozambique. Of the 1.5 million farming households now growing bio-fortified food crops, 1.4 million are in Africa. So, the challenge is no longer the science of bio-fortification. We know it works. Our challenge as policy makers now is to build up demand and scale up bio-fortified crops to reach millions of households. To achieve this, we must address supply and demand side issues, including policy, institutional, regulatory and financing of nutrition.

The future of Africa depends on what we do with our kids today. A hungry child cannot learn and a malnourished kid will become brain impaired, with low-income earnings in the future. The greatest contributor to economic growth is not physical infrastructure but brainpower or "grey matter infrastructure". We must ensure that no child in Africa goes hungry.

Africa has come a long way with successes in the transformation of its agriculture sector through agricultural research. The seeds of change are everywhere all across the continent. With the remarkable political support of the Africa Union, restated commitments of African Presidents during the Malabo Summit to give priority to agriculture, dynamism of the Forum for Agricultural Research in Africa, and commitment of the CGIAR and our national agricultural research systems, Africa will feed itself. National governments, development finance institutions and donors should significantly increase support for agricultural research. And we must build partnerships with farmers – especially women and youth. We must support agriculture – it pays!

As we build greater farm harvests and raise incomes of farmers, Africa's rural economies will boom. Millions of people will be lifted out of poverty into wealth. Then you will hear Africa's children singing: "better at last, better at last, thank God Almighty our lives are better at last". Together, we can make this happen.

Thank you and God bless you all.