

SESSION 1: THEME 1 - UPSCALING FOOD BIO-FORTIFICATION IN AFRICA WITH REFERENCE TO THE DECLARATION ON FOOD FORTIFICATION AND BIO-FORTIFICATION

**Mainstreaming biofortification into micronutrient malnutrition management programs in Africa**

*Monday 25<sup>th</sup> November 2022*

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**Ladies and gentlemen, colleagues and representatives of the African Union, regional institutions, governments, technical and financial partners, embassies and cooperation agencies, and all protocol observed,**

It is an honour to take the floor today on the side-lines of the 18<sup>th</sup> CAADP event and to make a contribution towards this year's theme "Nutrition Sensitive Agriculture: A pathway to strengthening resilience of agro-food systems on the continent." A pivotal thematic, which we hope can make strides in shaping Africa's future.

Today I will be speaking about *Mainstreaming biofortification into micronutrient malnutrition management programs in Africa*. But first, let us remind ourselves of the context in which these discussions are embedded.

**Ladies and Gentlemen,**

Poor nutrition remains a grave and universal problem, with some form of malnutrition affecting one in three people on the planet today. As we have heard numerous times today, Africa is not on track to meeting the Malabo declaration goal of reducing stunting to 10% by 2025 nor is it on track to meeting Sustainable Development Goal (SDG) 2 of achieving zero hunger.

- Today, nearly one in three people worldwide suffers from at least one form of malnutrition – wasting, stunting, micronutrient (vitamin and mineral) deficiencies, or overweight, obesity and diet-related non-communicable diseases.<sup>1</sup>
- In 2020, 149 million children under 5 were estimated to be stunted (too short for age) – amongst which more than 52.7 million lived in Africa.<sup>2</sup> – 45 million were estimated to be wasted (too thin for height), and 38.9 million were overweight or obese. Malnutrition in all its forms is a serious public health issue, not only for Africa, but globally.
- While the numbers show persistent regional disparities, Africa bears the heaviest burden, having the highest prevalence of undernutrition. In 2021, more than one in five people in Africa faced hunger - more than double the proportion of hungry people in any other region— and about 282 million of Africa's population were undernourished.

However, addressing it is more than just an issue of food access and availability. Particularly in low and middle income countries (LMICs), one of the forms of malnutrition plaguing populations is that of micronutrient deficiencies which can also be referred to as a 'hidden hunger' – a chronic lack of micronutrients (essential vitamins and minerals) in the diet, such as iron, zinc, and Vitamin A. This is primarily caused by inadequate consumption of nutrient dense foods as well as the loss of nutrients due to poor diets.

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<sup>1</sup> UN Decade of Action on Nutrition 2016-2025

<sup>2</sup> UNICEF-WHO-The World Bank: Joint child malnutrition estimates — levels and trends – 2020 edition, [UNICEF-WHO-The World Bank: Joint child malnutrition estimates — levels and trends – 2020 edition - UNICEF DATA](#)

- **1.6 billion** women of reproductive age and young children have micronutrient deficiencies worldwide, while **1 in 2** preschool-age children and **2 in 3** women of reproductive age worldwide have micronutrient deficiencies.
- Micronutrient deficiencies are widespread globally however, however the highest prevalence are in **Sub-Saharan Africa and South Asia**—with **9 in 10 women** have one or more micronutrient deficiencies<sup>3</sup>
- In Africa, in particular **52% of women of reproductive age and 70% of children in Western Africa are anemic**<sup>4</sup>, and not a single country in the Western Africa subregion is on course to meet its anemia targets<sup>5</sup>.
- Sub-Saharan Africa has the highest prevalence of Vitamin A deficiency.<sup>6</sup> Young children are often worst affected by micronutrient malnutrition and in **Sub-Saharan Africa alone, more than 40% of children under five years old suffer from vitamin A deficiency**<sup>7</sup>
- **60% suffer from anemia**, often caused by iron deficiency; and **25% are deficient in zinc**.<sup>8</sup>

Deficiencies of the essential micronutrients such as iron, zinc, and Vitamin A can have devastating health consequences, affecting the physical and cognitive capacity and could lead to life-threatening disorders. ~~In small rural villages in Uganda, Rwanda and the Democratic Republic of Congo the beans that traditionally constitute a major staple are low in nutrients. These places are home to countless boys and girls who are small for their age and schoolchildren who have gone blind due to vitamin A deficiency. A varied diet of nutrient-rich food would remedy the majority of these health issues, but this is often simply out of reach—both geographically and financially.~~ Not only does micronutrient deficiencies hampered human capital development, but these adverse effects go hand in hand with low productivity and net economic losses<sup>9</sup> with research having shown that micronutrient deficiencies can contribute to a loss of up to 5% Gross Domestic Product (GDP)<sup>10</sup>. Access by all to adequate, safe, diverse and nutritious food throughout the year is essential to ensuring quality human capital and socio-economic development.

As part of the long-term vision set out in Agenda 2063, the Assembly of Heads of States and the Government of the African Union have adopted common African aspirations, drawing on the potential of its human capital - to build a healthy and well-nourished population, with particular emphasis on women, adolescents and children. Human capital is key for development as it leads to improved lives for individuals, higher earnings and improved incomes for countries.

Africa *can* do better, and biofortification allows that opportunity. Biofortification is the process of breeding crops to increase their nutritional value and more specifically increasing the micronutrient content of food crops, a method of enriching staple foods. For example, more than 250 million people on the African continent consume cassava daily as the main part of their diet, yet it provides less than 30% of daily protein requirements and only 10 - 20% of the iron, zinc and vitamin A<sup>11</sup>. However, the Biofortification, which is now being utilized across the Africa to meet acute challenge, old enormous potential to change the continent's nutrition narrative. Biofortification has been identified by the African Union (AU) and its member states at the United Nations Food Systems Summit as one of the strategies to meet the challenges of micronutrient malnutrition, especially for

<sup>3</sup> Stevens et al.,(2022) Lancet Global Health

<sup>4</sup> WHO [Global Health Observatory](#), accessed September 2021.

<sup>5</sup> Global Nutrition Report [Country Profiles](#), accessed September 2021

<sup>6</sup> [MICRONUTRIENT DEFICIENCIES IN AFRICAN ADULTS \(nestlenutrition-institute.org\)](#)

<sup>7</sup> [Development and delivery of orange sweet potato in Sub-Saharan Africa | ENN \(enonline.net\)](#)

<sup>8</sup> [https://au.int/sites/default/files/documents/41149-doc-Roadmap\\_-\\_Upscaling\\_Biofortification\\_in\\_Africa\\_-\\_Final\\_-\\_Eng.pdf](https://au.int/sites/default/files/documents/41149-doc-Roadmap_-_Upscaling_Biofortification_in_Africa_-_Final_-_Eng.pdf)

<sup>9</sup> Scaling up Rice Fortification in West Africa. Sight & Life. December 2018

<sup>10</sup>[https://docs.wfp.org/api/documents/WFP-0000139908/download/?\\_ga=2.16997552.828772666.1662116556-969123912.1661870462](https://docs.wfp.org/api/documents/WFP-0000139908/download/?_ga=2.16997552.828772666.1662116556-969123912.1661870462)

<sup>11</sup> [BIOFORTIFICATION - Biofortification: the answer to malnutrition? - Free Online Library \(thefreelibrary.com\)](#)

rural populations who tend to depend on low-micronutrient staples. Moreover, the Scaling Up Nutrition (SUN) recognizes biofortification as a key linkage between agriculture and nutrition, as it offers a sustainable, long-term, and cost-effective investment – in comparison to the one-time investment of commercial fortification, conventional plant-breeding produces micronutrient-rich yields to keep growing for years<sup>12</sup>.

**What does the evidence show?** Looking at some case studies from the last 10 years, biofortification has revolutionized nutrition-sensitive agriculture, by creating quality, nutritious, affordable and accessible food for populations across the continent.

- In **Rwanda**, biofortified iron beans significantly increased iron levels in women and females aged (18-27) who participated in a study, and experienced improved memory, attention, and physical energy to undertake everyday physical tasks. The adoption of this iron variety led to 20 - 49% yield gains and resulted in an estimated USD 57-78 additional profit per hectare. Not only did it support physical and cognitive development, but from a food and nutrition security perspective the iron beans made positive impacts on households, including their health and livelihood.<sup>13</sup>
- In **Zambia**, a study showed that children who consumed maize biofortified with Vitamin A and were Vitamin A deficient during the baseline, experienced an increase and improvements in their visual abilities when looking in low light conditions. Overall Vitamin A has a multitude of benefits for health and nutrition, namely the potential to protect from malnutrition-induced blindness.
- In **Uganda and Mozambique**, the introduction of orange sweet potatoes drastically increased levels of Vitamin A within households who were deficient to begin with prior to the study. Consumption after several growing seasons led to reduction in child morbidity and reduced experience of diarrhea amongst children.
- In **Nigeria** biofortified cassava and orange sweet potatoes has been very successful. Already in 2014, then Minister of Agriculture H.E Akinwumi Adesina, wanted Nigeria to become Africa's lead producer of biofortified foods. Under its agriculture-for-health programme, Africa's most populous country wants to develop vitamin A-enriched cassava varieties to address micronutrient malnutrition.

**Mainstreaming biofortification:** While these examples showcase the potential of biofortification in solutioning micronutrient malnutrition, the scale of interventions has been limited – so what does it take to scale-up these practices, and to mainstream them so they are core to nutrition programmes?

There needs to be in place an ecosystem of actors and systems in place – an array of stakeholders from the private sector, to governmental and non-governmental institutions to multilateral institutions must need to play an enabling role and create a conducive environment; national regulatory structures and agencies must be in place; farmers and consumers must be sensitized both to create the supply and the demand; and with these various moving pieces, biofortification becomes woven into national development plans, policies, and nutrition programmes.<sup>14</sup> For the mainstreaming of biofortification to be successful:

1. **The Private Sector is a key partner** for any fortification programmes and linkages with private sector is essential for biofortification to be sustainable and scalable. This is because the private sector makes up the actors which actually fortify the food or provide the seeds

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<sup>12</sup> [An overview of biofortification in Africa | ENN \(enonline.net\)](#)

<sup>13</sup> [https://www.harvestplus.org/wp-content/uploads/2021/12/Biofortification\\_The-Evidence.pdf](https://www.harvestplus.org/wp-content/uploads/2021/12/Biofortification_The-Evidence.pdf)

<sup>14</sup> [Improving nutrition through biofortification: A review of evidence from HarvestPlus, 2003 through 2016 - ScienceDirect](#)

and equipment, and bring “valuable expertise in distribution, creating consumer demand through innovative marketing and production infrastructure, which can help develop sustainable markets and efficient supply chains for biofortified crops to reach the most vulnerable consumers”<sup>15</sup>. It is important to: engage them early; expose them to the evidence of the impacts of food fortification; position food fortification as a global best practice, and where possible work with existing industry organizations.

2. While private sector involvement is crucial if creating markets for biofortified seeds, foods, and equipment, **operational partnerships such as those with NGO’s** are also important to maintain presence on the ground and providing support in delivering and driving the implementation of nutrition programmes, those of which can include biofortification interventions.
3. **Strategic involvement of the big players:** international financial institutions like the World Bank and the African Development Bank (AfDB) which disburse innovative financing for nutrition initiatives, and like multi-laterals such the the World Food Programme (WFP) and the World Health Organization (WHO) also have their own activities, are pivotal to the upscaling of biofortification. For example there is a huge scope for introducing biofortified foods in the food baskets of WFP’s activities (like P4P/ support to small-holder farmers) because smallholders have challenges in micronutrient-deficient staple and low yields, while school children within the school feeding programmes can also benefit from micronutrient-rich foods.<sup>16</sup> Above all, their power of influence Governments and national policies, to convene the various governmental, non-governmental , policy and operational actors, and to facilitate the implementation of actions at all levels, are key. For example, the World Bank, through platforms such as the Global Donor Platform for Rural Development promotes nutrition-sensitive agricultural approaches, including biofortification.
4. **Must meet or be integrated in global regulatory standards and guidelines:** There are various governance legal and regulatory frameworks for food control which are required to ensure an effective food control system which outline the governments or global requirements are abided by all food operators along the food value chain. Attempts to integrate Biofortification within global standards such as Codex Alimentarius with clear definitions and standards is underway, and once adopted, will facilitate uptake, increase cross-border trade, marketing, etc.
5. **Sensitization/ SBCC for consumer acceptance:** There is a clear lack of knowledge amongst the general population about micronutrient malnutrition and its implications on health, and all other aspects of daily life. Sensitizing and providing awareness to the public on micronutrient deficiencies, its impacts, and how biofortified foods can provide better and inexpensive nutrition outcomes<sup>17</sup>.
6. Finally, **multi-stakeholder platforms** are crucial to scaling up biofortification initiatives, and provides a space for national actors, private sector, NGO’s, civil society and other actors to discuss shared goals, limiting factors, and design collective initiatives. As shared by Dr Olorunnibe Mamora, Nigeria’s Minister of Health at last year’s High-Level Consultation on Fortification convened by CERFAM and the Africa Union, about Nigeria’s experience in iodizing salt. He explained that some persistent challenges experienced are poor compliance by manufacturers to the norms and standards and smuggling of foods across borders. To confront these challenges, the government has put in place a platform that facilitates strong engagement with the highest levels of government, private sector and civil society groups to

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<sup>15</sup> <https://www.harvestplus.org/private-sector-partnerships-in-south-asia-spur-growth-in-biofortified-crops-and-foods/>

<sup>16</sup> [Biofortification offers hope for Africa’s malnourished | Africa Renewal \(un.org\)](#)

<sup>17</sup> [BIOFORTIFICATION - Biofortification: the answer to malnutrition? - Free Online Library \(thefreelibrary.com\)](#)

ensure compliance to quality and standards. It is also working towards institutionalization of monitoring and enforcement of national food standards and expanding advocacy activities to improve consumer awareness and appreciation of fortified foods.

**Ladies and Gentlemen,**

Good Nutrition plays a pivotal role in our lives – it is a basic life force which touches every person on our planet today. It is what provides us with the necessary nutrients and energy to grow, to think, to learn, to do, and to be. Good nutrition is also the base of all sustainable development goals.

Africa bears large and growing cohort of young people, with 70% of the continent’s population being below the age of 30 years. This can be what drives change and innovation to African economies and society, or, if continually affected by ongoing micronutrient deficiencies, risk losing this window of opportunity as it impairs ones physical and cognitive growth and development.

Biofortified crops provides hope and supports African countries ensure both food and nutrition security to its most vulnerable populations. But we need to begin working together and acting now. I hope that my short intervention provided insight on the importance how Governments can mainstream biofortification within micronutrient malnutrition management programs in Africa.

Thank you.