The Federal Republic of Nigeria

Agricultural Sector Food Security and Nutrition Strategy

2016 – 2025

Federal Ministry of Agriculture and Rural Development

Food and Agriculture Organization of the United Nations

gain Global Alliance for Improved Nutrition

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Agricultural Sector Food Security and Nutrition Strategy

2016 – 2025

(Nutrition Component of Agricultural Policy;

Agricultural Sector Component of National Policy on Food and Nutrition)

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ACRONYMS

ACF	Action Contre la Faim (Action Against Hunger)
ADP	Agriculture Development Programme
AFEX	Africa Exchange Holdings
AFSNS	Agricultural Sector Food Security and Nutrition Strategy
ARCN	Agricultural Research Council of Nigeria
ATA	Agriculture Transformation Agenda
BMGF	Bill and Melinda Gates Foundation
BOA	Bank of Agriculture
CBOs	Community Based Organizations
CFSVA	Comprehensive Food Security and Vulnerability Analysis
CIP	International Potato Center
CPC	Consumer Protection Council
CRS	Catholic relief Services
CSOs	Civil Society Organizations
DFID	Department of International Development
DHS	Demographic and Health Survey
EA	Extension agents
ECOWAS	Economic Community of West African States
FADAMA III	Third National Fadama Development Project in Nigeria
FAO	Food and Agriculture Organization of the United Nations
FBOs	Faith Based Organizations
FCT	Federal Capital Territory
FDA	Federal Department of Agriculture of the FMARD
FEWSNET	Famine Early Warning Systems Network
FIIRO	Federal Institute of Industrial Research, Oshodi
FISS	Farm Input Support Services
FMARD	Federal Ministry of Agriculture and Rural Development
FME	Federal Ministry of Education
FMF	Federal Ministry of Finance
FMI	Federal Ministry of Information and Culture
FMITI	Federal Ministry of Industry, Trade and Investment
FMOH	Federal Ministry of Health
FMST	Federal Ministry of Science and Technology
FMWA	Federal Ministry of Women Affairs
FMWR	Federal Ministry of Water Recourses
FSR	Food and Strategic Reserves
GAIN	Global Alliance for Improved Nutrition
GDP	Gross Domestic Product
GES	Growth Enhancement Scheme
GHI	Global Health Index
HKI	Helen Keller International
IANWG	Interministerial Agriculture Nutrition Working Group
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDPs	Internally Displaced People
IFAD	International Fund for Agriculture Development
IFDC	International Fertilizer Development Centre
IFPRI	International Food Policy Research Institute

IITA	International Institute of Tropical Agriculture
IYCF	Infant and Young Child Feeding
KAP	Knowledge Attitude and Practices
LGAs	Local Government Areas
LGCFN	Local Government Committee on Food and Nutrition
M&E	Monitoring and Evaluation
MB&NP	Ministry of Budget and National Planning
MDAs	Ministries, Departments, and Agencies
MDD-W	Minimum Dietary Diversity for Women of reproductive age
MRLs	Maximum Residues Levels
NAERLS	National Agricultural Extension and Research Liaison Services
NAFDAC	National Agency for Food and Drug Administration and Control
NAIC	Nigerian Agricultural Insurance Corporation
NAQS	Nigerian Agriculture Quarantine Service
NARIs	National Agriculture Research Institutes
NASC	National Agriculture Seed Council
NASSI	Nigerian Association of Small Scale Industrialists
NBS	National Bureau of Statistics
NCC	National Codex Committee
NCFN	National Committee on Food and Nutrition
NCRP	Nationally Coordinated Research Projects
NDHS	Nigerian Demographic Health Survey
NFCNS	National Food Consumption and Nutrition Surveys
NGOs	Non-Governmental Organizations
NIFST	Nigerian Institute of Food Science and Technology
NIHORT	National Horticultural Research Institute
NIRSAL	Nigeria Incentive-Based Risk Sharing System for Agricultural Lending
NNHS	National Nutrition and Health Survey
NPFS	National Programme for Food Security
NUC	National University Commission
PACA	Partnership for Aflatoxin Control in Africa
PCD	Partnership for Child Development
PPC	Planning Policy and Coordination Department of FMARD
PTA	Parent-Teacher Association
RF	Results Framework
RUFIN	Rural Finance Institution Building Programme
RUWASA	Rural Water Supply & Sanitation Agency
SCFN	State Committee on Food and Nutrition
SCI	Save the Children International
SHESTCO	Sheda Science and Technology Complex
SMEs	Small and Medium Enterprises
SON	Standards Organization of Nigeria
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VAM	Vulnerability Analysis and Mapping
WDI	World Development Indicators
WEAI	Women Empowerment in Agriculture Index
WFP	World Food Programme

FOREWORD

Malnutrition in all its forms – undernutrition, micronutrient deficiencies and overnutrition – remain a significant development challenge in Nigeria. Recognizing nutrition as a multisectoral issue that must be simultaneously addressed by multiple sectors, the agricultural sector is in particular very crucial for the attainment of key national, regional and global nutrition objectives. As evidenced by the Comprehensive African Agriculture Development Programme (CAADP), the Malabo Declaration, and the Sustainable Development Goals (SDGs), among other frameworks, there is an increasing call at various levels – national, regional and global – for agricultural actions that systematically address nutrition. This Nigeria Agricultural Sector Food Security and Nutrition Strategy 2016 – 2025 is a response to that call.

The Strategy acknowledges the recommendations for making agriculture nutrition-sensitive and incorporates these principles into current and planned programming in the Nigerian agricultural sector. In recognition that agricultural production is just one part of a complex food system, the Strategy integrates nutrition into actions spanning the entire food system and aims to improve diets and health.

The Strategy specifies eight priority areas. Four of these priority areas – enhanced food value chains; diversified food production targeting women; improved food safety along value chains; and resilience and social protection nets for vulnerable groups – incorporate nutrition into hard investments in the agricultural sector and food system. The other four priority areas – nutrition research and information systems; improved institutional capacity and human resources; nutrition education, behavior change communication and advocacy; and monitoring and evaluation – focus on creating an enabling environment for planning and implementing nutrition-sensitive actions. This Strategy therefore operationalizes one of the key pillars of the national Agricultural Promotion Policy or the Green Alternative, and the Economic Growth and Recovery Plan of the Federal Government of Nigeria. It further operationalizes the agriculture and food security component of the National Policy for Food and Nutrition.

The development of this Strategy means that the expected impact of agricultural development on nutrition in Nigeria can no longer be left to chance. With this Strategy, agriculture and food systems in Nigeria are being deliberately and strategically harnessed to bear on nutrition. It is expected that the successful implementation of this Strategy will translate to a sustainable reduction of malnutrition in Nigeria in all its forms, thus unlocking the immense potentials of generations of Nigerians to advance our national economic growth and development.

Chief Audu I. Ogbeh, OFR
Honourable Minister of Agriculture and Rural Development
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Dr. Bukar Hassan
Permanent Secretary
Federal Ministry of Agriculture and Rural Development

LIST OF CONTRIBUTORS

FMARD	Adeyinka Onabolu
	Zainab Towobola
	M.O. Adewoye
	Nuhu A. Kilishi
	M. A. Adeleke
	Oyetunji Ajani
	Mosunmola Umoru
	Kehinde Akindele
	Tundun Adedun
	Ariyo Maiye
	Adeyinka Akinbinu
	Salisu Gusau Ahmed
	B.N. Odunze
	Kingsley Onigwe
	Emeka Okpala
	Olalekan Babalola
	Maryam Nimzing
	Unwana Oliver
	Ayo Adelabu
	J. Abdussalam
	O. M. Ayodele
MB&NP	Roselyn Gabriel
SON	Margaret Eshiett
BMGF	Victor Ajieroh
FAO	Florence Conteh
	Giorgia Nicolo
	Sophia Lyamouri
	Olutayo Adeyemi
GAIN	Francis Aminu
	Augustine Okoruwa
Private Sector	Olawale Adetoyi

EXECUTIVE SUMMARY

Substantial and sustainable reduction in malnutrition in Nigeria will remain a significant challenge without the effective engagement of the agricultural sector. With at least 5% of the global burden of undernutrition in Nigeria, and more than 14 million malnourished children, the Government recognizes that addressing malnutrition is indispensable for economic and social development. While nutrition-specific interventions – such as micronutrient supplementation, breastfeeding, immunization, which address the immediate causes of malnutrition (inadequate dietary intake and diseases) – are necessary, they are not sufficient for achieving adequate nutrition. In fact, implementing the ten most effective nutrition-specific interventions at 90% coverage will only reduce stunting by 20%. Other interventions are therefore crucial for achieving additional reduction. In particular, nutrition-sensitive interventions in areas such as agriculture, social protection, and education are required.

Nutrition-sensitive interventions address the underlying causes of malnutrition including poverty, food insecurity, inadequate health services and caregiving, and poor sanitation and hygiene. These interventions are implemented at scale and can reach the poor who are most at risk of malnutrition; and can be used to increase the effectiveness and coverage of nutrition-specific interventions. The agricultural sector especially has a unique role to play because it is the source of food; it affects the incomes of the majority of the population; it influences food prices; and it influences women's control over resources and the time they have available for optimal childcare and feeding practices.

Consequently, ongoing efforts to transform the agricultural sector in Nigeria especially prioritize improved food security and nutrition as a fundamental outcome. This Nigerian Agricultural Sector Food Security and Nutrition Strategy 2016 – 2025 (AFSNS) has been developed to guide the activities of the Federal Ministry of Agriculture and Rural Development (FMARD) and the wider agricultural sector in Nigeria for improved nutrition. It is expected that the Strategy will ensure effective advocacy for mobilizing necessary human, material, and financial resources; and encourage sustained commitment to agricultural development for improved nutrition. The Strategy has eight interrelated priority areas:

1. **Enhance value chains for improved nutrition:** Value chains can improve nutrition by increasing nutrient content, preventing the loss of nutrients, decreasing anti-nutrients, increasing ease of preparation, and/or improving food safety; while educating actors along the chain about the nutrition benefits of added value. This priority area links the nutrition problems of target populations with possible constraints in the supply and demand of specific foods that are then addressed by interventions, whilst also expanding market access.
2. **Diversify household food production and consumption, especially targeting women, and increase access to micronutrient rich foods:** Diversifying crop production of farming households can increase their access to nutritious foods and the stability of food supply. Increased access to fruits and vegetables is one of the most sustainable ways to reduce and prevent micronutrient deficiencies in resource poor communities. The priority area focuses on increasing the production of fruits and vegetables, and research will be undertaken to increase their shelf life and marketing and distribution. This focus has implications for the reduction of both undernutrition and overweight and obesity and the incidence of diet related non communicable diseases. Targeting women will increase their control over resources and decision-making, with attendant benefits for nutrition.
3. **Improve food safety along the value chain:** Unsafe foods reduce the quantity and quality of agricultural production, thereby reducing food availability and reducing food access for households whose incomes depend on their sale. Moreover, when contaminated food is eaten, the utilization is poor and there is an increased risk of malnutrition and illness. This priority area focuses on actions that promote the safety of foods for consumption and eligibility for trade.

4. **Build resilience and social protection nets through food and nutrition systems for vulnerable groups:** Households without resilience to shocks periodically lack access to food and do not have stability of food supply. Such households are also likely to deplete their assets, which further increases their vulnerability. This priority area aims to help households vulnerable to recurrent shocks to maintain their supply of nutritious foods so as to conserve their assets, increase resilience, improve nutrition and facilitate inclusive growth.
5. **Promote nutrition research and information systems:** This priority area focuses on promoting and advancing a wide range of policy, operations, scientific, and adapted research that support the maximization of the potential of agriculture to influence and lead to positive nutrition outcomes.
6. **Improve the agricultural sector capacity to address food security and nutrition problems:** Without appropriately skilled people who are part of a broader, goal-oriented institutional structure, policy statements and action plans to sharply reduce malnutrition will continue to be unfulfilled. Consequently, capacity building in managerial and technical ability, multi-stakeholder processes, mobilizing strategic collaboration, partnerships and innovative financing; and focused trainings on linking agriculture with nutrition is a necessary component of the agricultural sector's efforts to improve nutrition in Nigeria.
7. **Nutrition education, social marketing, behaviour change communication, and advocacy:** The various nutrition-sensitive agriculture initiatives require concerted and consistent information dissemination and social dialogue, and provide a platform for nutrition education and behaviour change. This priority area will ensure successful and sustained nutrition education and behaviour change by combining educational and communication strategies delivered through multiple channels; and accompanied by environmental support designed to facilitate the voluntary adoption of healthy food choices and other food and nutrition-related behaviours conducive to health and well-being.
8. **Nutrition surveillance and monitoring and evaluation:** A surveillance and monitoring and evaluation (M&E) system will be necessary to provide accurate, reliable, and timely information on the progress of Strategy implementation. This priority area focuses on establishing an agriculture-based food and nutrition information system, including predefined indicators, to meet the data needs required for surveillance and M&E. The priority area further supports the creation of a database to keep accurate and relevant information, and the introduction of a feedback mechanism to enable sharing of data.

The Strategy especially targets women of child bearing age, children 6 – 59 months old, school-aged children, and internally displaced persons. The Strategy recognizes that malnutrition is generally high in Nigeria across all the geopolitical zones but disproportionately higher in the North West and North East zones. In the principle of leaving no one behind, the Strategy adopts a national approach in addressing the diverse challenges of malnutrition, in ways that prioritize high prevalence areas across the zones. Thus, the Strategy works towards virtual elimination of malnutrition in zones where considerable progress has been made, and significant reduction in zones where prevalence levels remain disproportionately high. It supports the implementation of actions and initiatives that recognize the interconnectedness of all zones from a food systems perspective, the diversity of the nutrition challenge, and how public and private sector stakeholders operate and are distributed across the various zones in Nigeria.

Pending the establishment of a full directorate of nutrition in the Federal Ministry of Agriculture and Rural Development, the Federal Department of Agriculture through the Nutrition and Food Safety Division will be primarily accountable for the implementation of this Strategy. The inaugurated Inter-ministerial Agriculture and Nutrition Working Group with its secretariat at the Nutrition and Food Safety Division will provide strategic influence, policy, and programmatic support for the implementation of this Strategy; to ensure consistency, coherence, and synergy with other sectoral and related policies and initiatives.

INTRODUCTION

Malnutrition in its many forms does not result just from a lack of food. There are many contributing factors, including health, care practices and education. However, food choices determine diet quality which is crucial to good nutrition. These food choices are framed by the local context of food availability, accessibility, affordability, and appeal.

There is a re-awakening of interest in addressing nutrition by the Nigerian government, as there is the recognition that without adequate investments in nutrition, the quest for further economic and social development will not be realized within the framework of national development goals and the broader post 2015 development agenda. Consequently, several recent efforts to improve economic and living standards in Nigeria include aims of improving food security and nutrition. Specifically, accelerating progress in ensuring nutrition and food security for vulnerable households in Nigeria by mainstreaming nutrition into agriculture, and maximizing the resultant positive nutrition outcomes, is a key focus of current agricultural development initiatives of the Nigerian agricultural sector. These initiatives seek to unlock Nigeria's agricultural potential and to improve availability and access to diverse foods, create jobs, and contribute to economic development through the building of food commodity value chains and related institutions.

Over the decades, there have been a number of governmental agricultural development initiatives, including the Agricultural Policy in 1946 which had a goal to move from forestry exploitation to agricultural production. The Nigerian Cooperatives Ordinance formulated in 1935 led to the establishment of Commodity Marketing Boards from 1947 to 1986, as well as the creation of a Department of Cooperatives in 1974. From 1964, there was the establishment of Agricultural Research Institutes, while a National Accelerated Food Production Project was instituted in the 1970s. The Nigerian Agricultural Cooperative Bank began in 1973, and the Agricultural Development Projects (ADPs) which are now present in all states of the Federation including Abuja FCT, commenced in 1975. Other initiatives include the River Basin Development Authorities (from 1977 to date); Operation Feed the Nation (1976 – 1979); Green Revolution (1979 – 1983); Directorate of Foods and Roads and Rural Infrastructure (1986 – 1993); National Agricultural Land Development Authority (1991 – 1999); and Presidential Initiatives on cocoa, cassava, cocoa, rice, livestock, fisheries, vegetables (1999 – 2007). To varying extents, all of these initiatives aimed at increasing the supply of agricultural inputs and mechanization; developing key commodities; increasing credit access; and generally supporting actions that could increase the income of farmers; create jobs; and provide industrial raw materials.

Although it would appear that these objectives are the same as those of current agricultural development initiatives alluded to earlier, there are major differences. Beginning with the National Programme for Food Security (2008 till date) and continued by the Agricultural Transformation Agenda (from 2011), nutrition began to be a key and explicit impact domain of agricultural development initiatives. The focus of agricultural initiatives also began to shift from mere development into the creation of transformative agricultural businesses with meaningful participation of the private sector. The paradigm shift is anchored by the recent Agriculture Promotion Policy (2016 – 2020), and it is this Policy, in addition to the National Policy on Food and Nutrition and other frameworks, that provide fundamental guidance for the establishment of priority strategic directions to improve nutrition through agriculture in Nigeria. Indeed, the Nigerian Agricultural Sector Food Security and Nutrition Strategy (AFSNS) is primarily an elaboration to guide the implementation of the food and nutrition component of the Agriculture Policy; as well as an elucidation of the role of the agriculture sector in achieving the objectives of the National Policy on Food and Nutrition. The priority strategic directions provided by these policies recognize that agricultural production is just

one domain in a complex food system that integrates production with market and trade systems, consumer purchasing power, and food transformation and consumer demand.[1]

The rationale of the Nigerian Agricultural Sector Food Security and Nutrition Strategy (AFSNS) is to have a standing written document as a point of reference and a navigation tool to guide the Federal and State Ministries of Agriculture and Rural Development (FMARD and SMARDs), and the wider agricultural sector in Nigeria, in all current and future interventions linking agriculture to nutrition in Nigeria. The AFSNS maximizes the potential of the agriculture sector to provide sustainable food security and nutrition by mainstreaming nutrition into agricultural policies, programmes and value chains. The Strategy comes as a timely response to the nutrition situation in the country where only little improvement has been made in the nutrition landscape over several decades. The Strategy will support effective advocacy to mobilize and guide the allocation of the human, material and financial resources required for the realization of FMARD and SMARDs nutrition interventions.

In addition to the Agriculture Policy and National Policy on Food and Nutrition already mentioned, implementation of the Strategy will also support the objectives of several other national policies, including the National Policy on Infant and Young Child Feeding, and the National Social Protection Policy. The Strategy further contributes to the achievement of regional and international frameworks that Nigeria has committed to, such as the CAADP Framework, ECOWAS Zero Hunger Initiative, Malabo Declaration, International Conference on Nutrition (ICN2) Commitments, and the Sustainable Development Goals (SDGs).

This Strategy document continues with a situational analysis that presents the Nigerian context within which the Strategy will be implemented. The contextual section is followed by a brief description of the relationship between agriculture, food security and nutrition; after which the guiding principles, priority areas, and theory of change of the Strategy is discussed. The concluding sections present the coordination and institutional arrangements for the Strategy, and highlight the monitoring and evaluation system as well as costing of the Strategy.

[1] Global Panel for Agriculture and Food Systems for Nutrition (2014) Retrieved from http://www.glopan.org/sites/default/files/pictures/GlobalPanelLeaflet_July15_updated.pdf

SITUATIONAL ANALYSIS

Country Background

Physical Geography

Nigeria is the most populous country in Africa and the seventh most populous in the world, with an estimated 173 million people in 2013. The population continues to grow at an annual rate of 3.2% as a result of a high fertility rate (5.38 children per woman). Rising population pressure is leading to overcrowding with an estimated population density of 174 people per square kilometre in 2010. The pressure on land and other resources in rural areas is contributing to rapid urban migration, and Nigeria has one of the highest urban growth rates in the world at 4.1%.

As at 2015, Nigeria was the world's 20th largest economy, worth more than $500 billion and $1 trillion in terms of nominal GDP and purchasing power parity (PPP) respectively. It overtook South Africa to become Africa's largest economy in 2014. Also, the debt-to-GDP ratio is only 11 percent, which is 8 percent below the 2012 ratio. Nigeria is considered to be an emerging market by the World Bank and has been identified as a regional power on the African continent. Nigeria is considered to be a middle power in the world, and has also been identified as an emerging power; it is a member of the MINT[2] group of countries, which are widely seen as the globe's next "BRIC-like" economies. It is also listed among the "Next Eleven" economies set to become among the biggest in the world. Nigeria is a member of the Commonwealth of Nations, the African Union, OPEC, and the United Nations among other international organizations.

Yet, it is estimated that 61% of the population live on less than a dollar a day and 69% live below the relative poverty line, which is set slightly higher at 1.25 dollars per day (66,802 NGN per year). The proportion of Nigerians living below the relative poverty line has increased significantly from just 27% of the population in 1980. Poverty is not equally distributed, with the highest proportion of poor in the North East and North West zones. Poverty is also higher in rural areas than urban. The degree of inequity among the population, measured using the Gini coefficient, is also increasing. In 2010 the Gini coefficient was 0.447, which represents an increase of 4.1% in the degree of inequity from 2004, and is close to the sub-Saharan African regional average of 0.46.

Nigeria is made up of over 300 ethnic/linguistic groups. Historically, most of the ethno linguistic groups that constitute the present-day Nigeria existed as autonomous political entities prior to colonization. The country presently operates a federal system consisting of 36 states plus the Federal Capital Territory (FCT) of Abuja. The 36 states are grouped into six distinct geo-political zones — North Central, North East, North West, South East, South South, and South West — which to a great extent reflect ethnic affinity. The states are also divided into 774 local government areas serving as administrative units and a third tier of government.

Agriculture Sector Description[3]

Despite the economic dominance of the oil industry in Nigeria, it is still by significant measure an agricultural based economy with two-thirds of population dependent on the agriculture sector for employment. However production levels have fallen within the last 20 years with the value-added per capita rising less than 1% annually. There have also been significant losses in Nigeria's export power of key commodities such as groundnut, palm oil, cocoa, and cotton, attributable to several factors.

[2] **MINT** is an acronym referring to the economies of Mexico, Indonesia, Nigeria, and Turkey
[3] FMARD (2011). Agricultural Transformation Agenda Blueprint. Abuja, Nigeria: FMARD

Domestic food crop production has not kept pace with population growth, resulting in rising food imports and declining national food self-sufficiency. While Nigeria is the world's largest producer of cassava, yam, cowpea, and food sorghum, it has been a food-deficit nation and a net importer of food and major importer of wheat, rice, sugar and fish. The importation of these four commodities amounted to over one trillion naira in foreign exchange every year from 2005 until recently. Nigeria's food imports are growing at an unsustainable rate of 11% per annum; yet relying on the importation of expensive food from the global market fuels domestic inflation. In this context, Nigeria is essentially importing what it can produce domestically. This import dependency is hurting Nigerian farmers by displacing local production and creating rising unemployment.

Additional challenges faced by the sector are based on organizational and governance constraints; the absence of policy clarity at all three levels of government; resource market failure; limited access to improved technologies, technological constraints, poor research and extension services as well as weak linkages with farmers for the uptake of innovations in areas such as seeds and pest and disease control. Furthermore, there are infrastructure inadequacies such as poor road network particularly feeder roads, inadequate markets and storage/processing facilities; as well as inadequate irrigation facilities which limit agricultural production to only the wet season in many parts of the country. This current status is neither guaranteeing food security and nutrition nor solving the challenges of malnutrition in the country.

Food Security (Food Availability, Access, Utilization, and Stability)

Food insecurity remains a challenge in Nigeria. Although there was some improvement in the Global Hunger Index Scores (GHI): from 47.7 in 1990 to 32.8 in 2015[4], the GHI score of 32.8 still represents a serious level of hunger. Indeed, Nigeria has a 38kcal/person/day food energy deficit, and there is a critical shortage of nutrient-rich foods. Dietary availability of iron from animal sources is 1mg/person/day compared to 2.9mg globally, and the consumption of quality protein is 35g/person/day compared to 68.6g globally. Food Consumption Score is unacceptable in 29% of the poorest households and 15% of the richest households. Moreover, available foods are not very affordable. Food comprises 58% of household expenditures nationally, and more than 80% of households in the lowest wealth quintile spend more than 75% of their resources on food. Recent changes in climate that have led many states to experience delayed rains and/or flooding have hampered agricultural activities, limiting household food stability. Poor processing, storage and preservation techniques also mean that food prices fluctuate depending on the crop, season, and geographic location in the country. The volatility of global food prices have similarly led to increases in the prices of imported foods. Paradoxically, agricultural households have among the highest levels of food insecurity. Indeed, more than 50% of foods consumed in households, including agricultural households, are purchased. With Nigeria's population increasing at an alarming rate of 3.2% per annum, food availability, accessibility, stability and utilization must constantly be increased to prevent food insecurity.[5,6,7]

Crisis-related acute food insecurity is further a challenge in some states as conflict impacts access to food. As a result of the conflict and insurgency in parts of the country, households experience well

[4] 2015 Global Hunger Index: Armed conflict and the challenge of hunger. Washington, DC: International Food Policy Research Institute; 2015

[5] Bill & Melinda Gates Foundation (2014). Nigeria factbase for FMARD

[6] Global Food Security Index (2014). Accessed 19 November, 2014 from The Economist Intelligence Unit website: http://foodsecurityindex.eiu.com/Country/Details#Nigeria

[7] Atehnkeng, J., Augusto, J., Senghor, L., Bonkoungou, S., Diedhiou, P., Akande, A., Akello, J., Mutegi, C., Cotty, P., and Bandyopadhyay, R. (2015). Farmers' guide to management of aflatoxins in maize and groundnuts in West Africa. Ibadan, Nigeria: IITA

below-average harvests and have limited access to income-earning activities and markets. Households in these areas also experience limited participation in off-season activities due to security concerns.

Food Safety

Nigeria has alarmingly poor levels of food safety. From food production, to preparation and storage, food in Nigeria is exposed to a variety of hazards. During production, indiscriminate use of agricultural inputs such as fertilizers, herbicides, pesticides, and veterinary medicines, often leads to contamination of food with chemical hazards. Inadequate agricultural practices also lead to biological contamination of food with moulds, viruses, parasites, prions, or bacteria; some of which organisms produce toxins like cancer causing aflatoxins. During food processing, contamination further occurs, especially for unpackaged foods. A lot of foods in Nigeria are processed by drying. This drying is usually done on bare ground by the sides of major roads. The food items are thus exposed to dust, lead from car exhaust, and contamination by pests. There have also been cases of factory processed foods being mixed with unwholesome ingredients and even non-food contaminants. The result is that the food security, health, and wealth of Nigerians are being significantly impaired by poor food safety. For instance, aflatoxin contaminates up to 25% of groundnuts and maize crops, limiting food availability, accessibility, and utilization. Furthermore, it is estimated that each year, about 7,761 cases of liver cancer and 100,965 disability adjusted life years result from aflatoxin exposure alone; which translates to an annual loss of about $380 million to $3,174 million (0.2% – 1.6% of Nigeria's GDP). These figures do not account for economic losses due to foregone trade, which also run into millions of dollars.[8,9]

Nutrition Context

According to the 2013 Nigeria Demographic and Health survey, 37% of children under-five are stunted; with 21% severely stunted. This indicates chronic, long-standing malnutrition. The highest levels of severe and moderate stunting are found in children between 18 and 23 months, with approximately half of the children in this age category stunted. Among infants less than6 months of age the rates of stunting are also relatively high, with 1 in 5 children affected. Furthermore, 18% of children under the age of five years are wasted (too thin for height), with 12% severely wasted, which is a sign of acute malnutrition. In addition, 29% of Nigerian children are underweight or too thin for their age.[10]

While malnutrition is in itself a problem, it creates additional problems because it reduces health, educational attainment, and economic productivity. It is also a leading cause of child death. Indeed, one reason why the prevalence of stunting reduces among children older than 24 months of age is that by this time, a lot of the children have died, and are therefore no longer included in the calculation of stunting prevalence. Given the high rates of child deaths in Nigeria (Nigeria contributed 13% of global child deaths in 2013[11]), it is imperative that something is done to address malnutrition; especially in northern Nigeria where the burden of both malnutrition and child deaths is much higher than the national average.

Not only is malnutrition high among young children, malnutrition is also very prevalent among other groups in the population. For instance, among women 15 to 49 years old, 11% are underweight, while 25% are overweight or obese.

[8] Abt Associates Inc. Country assessment for aflatoxin contamination and control in Nigeria. 2013; 1-63
[9] WB. Costed plans for Scaling Up Nutrition: Nigeria. Washington, DC: World Bank; 2014
[10] National Population Commission (NPC) [Nigeria] and ICF International. 2014. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International (NDHS 2013)
[11] UN. Levels and trends in child mortality: Report of the United Nations Inter-agency Group for Child Mortality Estimation New York, NY: UNICEF; 2013

Micronutrient Deficiencies

Micronutrient deficiencies are considered to be an aspect of undernutrition, and the most common micronutrient insufficiencies are of iron, iodine, vitamin A and zinc. These deficiencies can contribute to growth retardation, reduced resistance to infection, increased risk of morbidity and mortality, brain damage, reduced cognitive development in children and reduced productivity in adults. Deficiencies in folic acid and niacin are also of concern. Micronutrient deficiencies can be associated with metabolic problems, but are often linked with non-diversified food intake patterns that prevent adequate intake of one or many micronutrients. Children and women of reproductive age are especially vulnerable because they have particularly high micronutrient requirements.[12,13] In Nigeria, around 47% of non-pregnant women of reproductive age are anaemic and 31% are iodine deficient. Children's anaemia is very high at 71% for children 6-59 months old, and there is a 29.5% deficiency of vitamin A among these children. Neural tube defects (risk of which is considerably increased with folic acid deficiency) occurs in about 9,500 births annually; and 21% of the population are at risk of inadequate zinc intake

The government of Nigeria has taken key policy initiatives over the years to address micronutrient deficiencies. A notable effort is the mandatory fortification of key staples with major micronutrients; such as vitamin A for wheat flour, maize flour, sugar and vegetable oils; iron in wheat and maize flour; and iodine in salt. The Government of Nigeria has also identified biofortification as one of the priority initiatives in its efforts to improve micronutrient status. Biofortification is a process through which the nutrient content of foods is increased during plant growth, rather than during food processing as is done in conventional fortification. Biofortification is hence an important method of mainstreaming nutrition into agriculture, and is covered in the revised National Policy on Food and Nutrition.

Diet Related Non-Communicable Diseases (NCDs)

In addition to high rates of malnutrition, Nigeria is also witnessing a significant rise in the incidence of Diet Related Non-Communicable Diseases (NCDs). With NCDs, the most important risks include high blood pressure, high concentrations of fat in the blood, high blood glucose levels, and overweight or obesity. These risk factors are closely related to diet and physical activity. NCDs and their risk factors were initially mostly limited to economically successful groups in low- and middle-income countries. However, recent evidence shows that, over time, patterns of unhealthy behaviour and the NCDs associated with them cluster among poor communities and contribute to social and economic inequalities. In Nigeria, diet related NCDs such as obesity, diabetes mellitus, and cardiovascular diseases are increasing public health concerns. In 2012, it was projected that about 5 million Nigerians would die of NCDs by the year 2015, and diabetes alone was projected to cause about 52% of the mortality in 2015. At present, about 8 million Nigerians suffer from hypertension and 4 million have diabetes. [14]

Agriculture can play a big role in the prevention and management of NCDs by ensuring increased availability and access to fruits, vegetables, and other nutrient dense foods that promote health. Indeed, increasing access (including affordability) to fruits, vegetables, and legumes will simultaneously address both micronutrient deficiencies and NCDs. Agricultural interventions can also

[12] Black RE, Allen LH, Bhutta ZA, et al. (2008). Maternal and child undernutrition: global and regional exposures and health consequences. *The Lancet* 371(9608): 243-60

[13] MI (2009). Investing in the Future: A United Call to Action on Vitamin and Mineral Deficiencies. Ontario, Canada: Micronutrient Initiative (MI)

[14] Ekpenyong, C. E., Udokang, N.E., Akpan, E.E. and Samson, T.K. (2012). Double burden, non-communicable diseases and risk factors evaluation in sub-Saharan Africa: The Nigerian experience. *European Journal of Sustainable Development* 1(2): 249-270

be harnessed to prevent the excessive consumption of fats, oils, and sugars, which are major contributors to obesity and high blood pressure.[15]

The Major Causes of Malnutrition

The immediate causes of malnutrition are inadequate dietary intake and disease, underlying which are three particular issues: poor maternal and child care, inadequate access to health, and food insecurity. Addressing each of these underlying issues is necessary, but not sufficient to address malnutrition – All three factors are indispensable. In Nigeria, the availability and access to the three factors are quite inadequate.

Poor Maternal and Child Care (including Suboptimal Infant and Young Child Feeding Practices)

Optimal infant and young child feeding (IYCF) practices include early initiation of breastfeeding (within one hour of birth), exclusive breastfeeding for six months, appropriate introduction of water and complementary foods from 6 months, and continued breastfeeding up to 24 months. In Nigeria, early initiation of breastfeeding occurs at a rate of 38%. A mere 17% of infants are exclusively breastfed during the first six months of life. However, 97% of infants less than 2 years of age are breastfed at some point, with a median duration of 18 months. The median length of exclusive breastfeeding is less than one month. Although 91% of children 6–23 months of age were fed with complementary food, only 10% were fed a minimally acceptable diet, in accordance with established Infant and Young Child Feeding (IYCF) practices. Children's diets are especially lacking in the key micronutrients. For instance, only 52% and 35% of children 6–23 months old consumed foods rich in vitamin A and iron respectively in the 24 hours preceding the 2013 NDHS.[16]

The role and care of women holds a key relevance in nutrition. In Nigeria, women and female-headed households are frequently the most chronically poor within rural communities. Although women in Nigeria play important roles as producers of food, as managers of natural resources, in income generation, and as providers of care for their families, they continue to have limited access to land, education, credit, information, technology, and decision making bodies. The control of land confers on the owner access to credit, and access to inputs such as agricultural extension service, seeds, modern irrigation systems, fertilizers, pesticides, and membership of cooperative societies. Without land, many women have no security and have to depend on landowners for employment.[17] The nutritional status of a woman at conception and throughout pregnancy determines the nutritional level of her child to a meaningful extent. It has been found that stunting often begins *in utero*, and around 15% of children in Nigeria are born with low birth weight. Women, and the time available to them, also play a great role in appropriate IYCF practices. When women spend a lot of time away from home and/or are encumbered with too many chores while at home, it limits the time they have available for childcare. In fact, women are the key to food security and nutrition for young children and indeed, all household members.[18] Improved nutrition will only be achieved when education opportunities are improved for women and they are better integrated into the socioeconomic life of Nigeria. [19]

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[15] WCRF (2014).The link between food, nutrition, diet and non-communicable diseases. London: World Cancer Research Fund International (WCRF).
http://www.wcrf.org/sites/default/files/PPA_NCD_Alliance_Nutrition.pdf

[16] NDHS 2013

[17] Ukeje, E. (2003). Modernizing small holder agriculture to ensure food security and gender empowerment: Issues and policy. Retrieved from http://g24.org/wp-content/uploads/2014/03/Session-2_216.pdf

[18] Quisumbing, A. R., Brown, L. R., Feldstein, H. S., Haddad, L. J., & Peña, C. (1995). Women: The key to food security. Washington, DC: International Food Policy Research Institute (IFPRI)

[19] IFAD (2003). Women as agents for change. Rome: International Fund for Agricultural Development (IFAD)

Access to health

Access to health services is quite poor. For instance, from 2008 to 2013, only 38% of deliveries were attended by a skilled birth attendant, and only 25% of children 12 to 23 months old were fully vaccinated[20]. Unsanitary environments also hinder health. Poor water, sanitation, and hygiene can increase the risk of diarrhoea, malaria, and other illnesses that increase the nutritional needs and/or cause loss of nutrients from the body. Environmental contaminants such as aflatoxins have significant effects on health, in addition to agriculture and food security, amongst other developmental indices. Aflatoxins in the body can cause cell death, restrictions in DNA and RNA synthesis, reductions in protein synthesis, and/or membrane instability and cell damage; and have been associated with stunted growth.[21] Another environment related factor, tropical enteropathy, compromises the integrity of the gut, impairs intestinal absorption, and is associated with growth faltering and undernutrition. Food-and/or water-borne parasites and faecal bacteria from unsanitary and unhygienic environments are key contributors to tropical enteropathy.[22]

Food Insecurity:

In addition to the food security situation earlier discussed, it has previously been noted that the prevalence of minimum acceptable diets is low. While this may be partly due to insufficient knowledge about what constitutes an adequate diet, families that receive education surrounding appropriate IYCF practices often lack access to affordable foods with sufficient quantities of micro- and macronutrients required for growing children. Indeed, a majority of households consume monotonous staple-based diets and lack access to nutrient-dense foods. Limited availability of nutritious foods, economic constraints, lack of knowledge and information, and related lack of demand for nutritious foods are critical factors that limit poor people's access to such foods.[23]

Another and emerging cause of malnutrition in Nigeria is conflict. Some parts of Nigeria have been affected by conflict between armed groups and governmental forces, especially in the three North East states of Yobe, Adamawa and Borno. As a result, more than 2.1 million people are internally displaced. Many of these internally displaced persons (IDPs) have precarious living conditions, with little or no assistance provided. The conflict is thus exacerbating Nigeria's food and nutrition challenges, with agriculture and trade being significantly disrupted. In addition many health facilities have shut down, not only leaving thousands of malnourished children lacking the treatment needed to survive, but also restricting access to other health services and essential nutrition actions.

[20] NDHS 2013
[21] Abt Associates Inc. Country assessment for aflatoxin contamination and control in Nigeria. 2013; 1-63.
[22] Lin, A., Arnold, B. F., Afreen, S., Goto, R., Huda, T. M. N., Haque, R. and Luby, S. P. (2013). Household environmental conditions are associated with enteropathy and impaired growth in rural Bangladesh. The American journal of tropical medicine and hygiene, 89(1), 130-137
[23] Kuku-Shittu, O., Mathiassen, A., Wadhwa, A., Myles, L., & Akeem, A. (2013). Comprehensive Food Security and Vulnerability Analysis Nigeria. Washington, DC: International Food Policy Research Institute (CFSVA, 2011)

THE AGRICULTURAL SECTOR, FOOD SECURITY, AND NUTRITION

Agriculture provides several unique opportunities for improving nutrition. The agricultural sector can help address malnutrition by developing nutrition-sensitive agricultural livelihoods and interventions with income generating activities for at-risk groups, and by making nutritious foods more accessible (available and affordable), more nutrient-dense, and acceptable culturally.

In general, nutrition-sensitive agricultural livelihoods and interventions address nutrition in multidimensional ways. These livelihoods and interventions address the underlying causes of malnutrition – food security, health services, and caregiving – by: boosting agricultural production, lowering prices, increasing incomes, increasing dietary diversity and access to quality diets, empowering women, improving the effectiveness and coverage of nutrition-specific interventions, amongst other activities. Nutrition-specific interventions are those interventions that address the immediate causes of malnutrition – dietary intake and disease. Such interventions include micronutrient supplementation, promotion of exclusive breastfeeding and optimal complementary feeding, food supplementation, fortification, treatment of severe acute malnutrition, immunization, and water, sanitation, and hygiene (WASH) interventions.[24]

While these nutrition-specific interventions are crucial to addressing malnutrition, they are not sufficient. For instance, evidence shows that if the most effective nutrition-specific interventions are implemented at 90% coverage, the prevalence of stunting will only reduce by about 20%.[25] Other reports indicate that a 10% increase in per capita gross domestic product (GDP) can reduce child stunting, underweight and anaemia by about 5.9%, 7.0% and 2.4% respectively. A 10% increase in per capita GDP can also reduce maternal underweight and anaemia by 4.0% and 1.8% respectively.[22] It is clear therefore that nutrition-sensitive interventions are indispensable for substantial reductions in malnutrition. Nutrition-sensitive agricultural interventions are especially important for several reasons. First, nutrients come from food, and agriculture is the source of food for all humanity. Second, agriculture is the major occupation of people living in rural areas, and malnutrition is concentrated in rural areas. Third, agriculture is a major source of income for a significant proportion of the population and adequate income increases access not just to food, but also to health, care, and other factors necessary for adequate nutrition. Moreover, agriculture influences food prices, thereby affecting the purchasing power of both net sellers and net buyers of food. Fifth, agriculture influences women's empowerment, time, and health, with attendant effects on nutrition. As previously noted women's participation in agriculture can enhance their access to and control over resources and/or resource allocation. Agriculture can also affect the time women have available for childcare, as well as increase their exposure to/risk of diseases. [26,27]

Notwithstanding, creating nutrition-sensitive agricultural livelihoods and interventions does not automatically occur even with increased agricultural development. For instance, market forces can prioritize production of only a few foods, without consideration of whether these foods include the variety necessary to sustain nutrition and health. Social and cultural constraints can further limit the range of foods people are willing to produce and consume. Agriculture must therefore be deliberately harnessed to reduce malnutrition.

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[24] Ruel MT, Alderman H. Nutrition-sensitive interventions and programmes: How can they help to accelerate progress in improving maternal and child nutrition? *The Lancet*. 2013; published online June 6. http://dx.doi.org/10.1016/S0140-6736(13)60843-0

[25] Bhutta ZA, Das JK, Rizvi A, Gaffey MF, Walker N, Horton S, Webb P, Lartey A, Black RE. Maternal and Child Nutrition 2 – Evidence-based interventions for improvement of maternal and child nutrition: What can be done and at what cost? The Lancet 2013; 382(9890): 452-477

[26] Meeker and Haddad (2013)

[27] UNSCN (2014). Findings from a review of country level programming in nutrition-sensitive agriculture. Geneva, Switzerland: United Nations Standing Committee on Nutrition (UNSCN)

FOOD SECURITY AND NUTRITION STRATEGY

Overall objective

To improve the food and nutrition security of all Nigerians while empowering women and promoting resilience of the most vulnerable through sustainable agricultural livelihoods.

Specific objectives

1. To improve food security at the national, community, and household levels;
2. To significantly reduce undernutrition, including micronutrient deficiency disorders, among infants, children, adolescents, and women of reproductive age;
3. To prevent chronic nutrition-related non-communicable diseases;
4. To increase the knowledge of nutrition among the populace and integrate nutrition education into agricultural formal and informal trainings;
5. To strengthen systems that build resilience for improved food and nutrition situation; and
6. To incorporate food and nutrition considerations into the Federal, State and Local Government agricultural sector development plans.

Ultimate Impact Targets

Impact targets for the AFSNS have been set based on global and regional food security and nutrition targets and the expected contributions of sectors other than the agricultural sector.

1. 50% reduction in the Global Hunger Index (from baseline of 2015 GHI figure: 32.8)
2. 40% reduction in the prevalence of stunting (from baseline of 2013 NDHS figure: 37%)
3. 50% reduction in anaemia in women 15 to 49 years old (from baseline of 2011 World Development Indicators (WDI) figure for non-pregnant women: 47%)
4. 30% reduction of low birth weight (from baseline of WDI 2011 figure: 15%)
5. 0% increase in obesity in women 15 to 49 years old (from baseline of 2013 NDHS figure: 8%)
6. 0% increase in prevalence of childhood overweight (from baseline of 2013 NDHS figure: 4%)
7. 75% reduction in wasting (from baseline of 2013 NDHS figure: 18%)
8. 100% increase in children 6 – 23 months old who consume minimum dietary diversity (from baseline of 2013 NDHS figure: 19%)
9. 20% increase in the percentage of poorest households with acceptable Food Consumption Score (from baseline of 2011 CFSVA: 71%)
10. At least, 100% increase in percentage of national agriculture budget allocated to nutrition (from baseline of 2014[28]: 0.62%)

[28] Study commissioned in 2015 by FMARD – Mainstreaming nutrition into agriculture in Nigeria: Situation analysis and evidence building

Key Recommendations for Nutrition-Sensitive Agriculture

There are several international principles and recommendations that underpin the concept of nutrition-sensitive agricultural livelihoods and interventions. The major recommendations are[29,30]

1. Incorporate explicit nutrition objectives and indicators into the design and implementation of such livelihoods and interventions
2. Conduct an assessment of the local context to ensure that activities appropriately address the major nutrition challenges and their causes
3. Target vulnerable groups and increase equity
4. Collaborate and coordinate with other sectors
5. Maintain or improve the natural resource base (e.g. water, soil, biodiversity)
6. Invest in and empower women
7. Diversify production and livelihoods, with increased production of nutrient-dense foods
8. Improve food processing, storage, and preservation
9. Expand markets and market access for vulnerable groups
10. Incorporate nutrition education into activities

These international recommendations provide the basis for the guiding principles, priority areas, choice of target beneficiaries, and geographic focus for the Nigerian Agricultural Sector Food Security and Nutrition Strategy (AFSNS). The guiding principles underscore key issues that will be integrated into all AFSNS activities, while the priority areas highlight the particular activities that would be emphasized.

Guiding Principles of the AFSNS

Conceptual Framework for Food Security, Livelihoods and Nutrition (FAO-FIVIMS) – Guiding Principle #1

In 2000, the Food and Agricultural Organization developed a framework for the analysis of food security and nutrition for the Food Insecurity and Vulnerability Information Mapping System.[31] This framework (Figure 1) facilitates the contextual assessment of local nutrition situations, and aids the design of livelihoods and interventions that address nutrition. It especially specifies ways in which the food component of the underlying causes of malnutrition is influenced.

The AFSNS will support the availability, accessibility, use, and stability of resources (capital, knowledge, and other) for vulnerable groups; to promote improved food consumption, care practices, and access to health services. Ongoing agricultural initiatives aim to significantly increase food availability and food stability, as well as boost incomes. The AFSNS will ensure that the increases in food and income translate into meaningful improvements in food security and nutrition by facilitating the inclusion of smallholder farmers in the sector's activities. Also, the AFSNS will support activities to increase market and food access for currently marginalized groups. Moreover, other resources such as the nutrition knowledge and social and institutional support required for appropriate food consumption and utilization will be provided through the Strategy.

[29] Herforth A, Jones A, Pinstrup-Andersen P. (2012). Prioritizing nutrition in agriculture and rural development: Guiding principles for operational investments. Health, Nutrition, and Population Discussion paper. Washington, DC: World Bank

[30] FAO (2015). Key recommendations for improving nutrition through agriculture and food systems. Rome: Food and Agriculture Organization. Available at http://www.fao.org/3/a-i4922e.pdf

[31] Food and Agriculture Organization (2000). Food Insecurity and Vulnerability Information and Mapping Systems (FIVIMS) Framework of Food Security

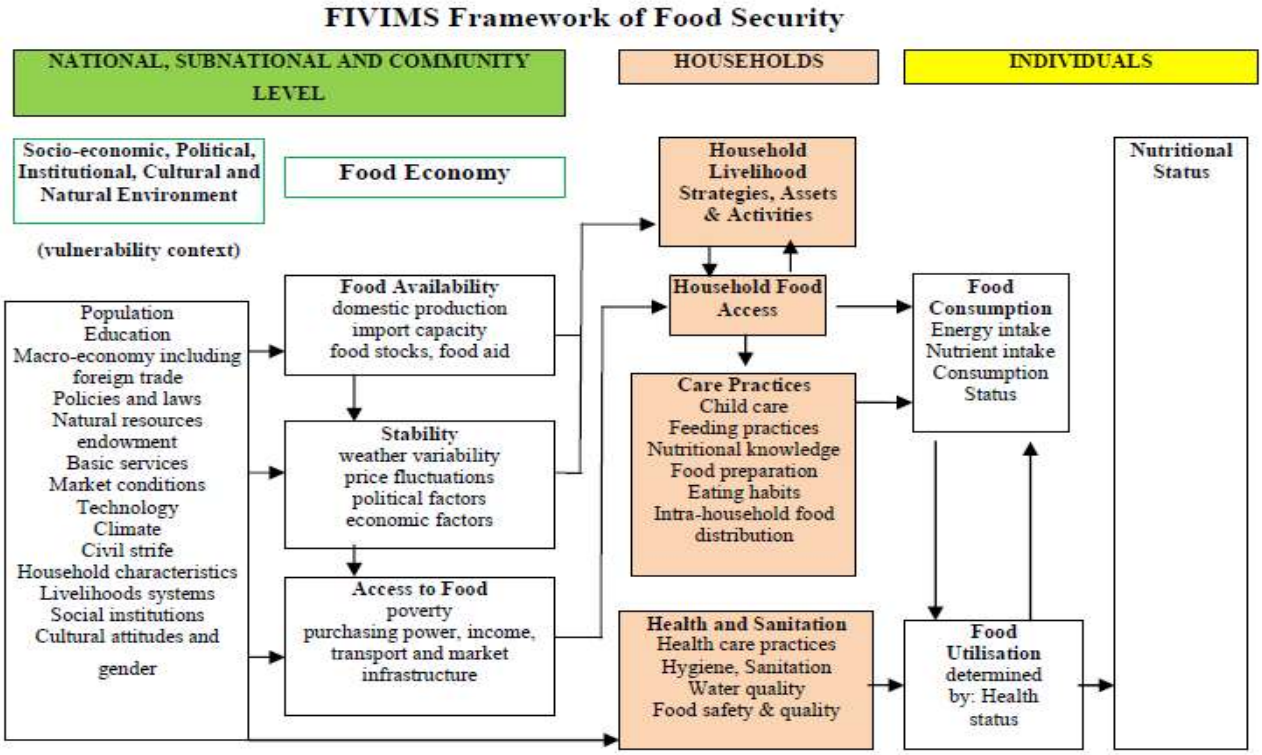


Figure 1: Food Insecurity and Vulnerability Information Mapping System

Integrating Nutrition into Agricultural Value Chains – Guiding Principle #2

Value chains that improve nutrition (nutrition-sensitive value chains) are those that increase nutrient content, prevent the loss of nutrients, decrease anti-nutrients, increase ease of preparation, and/or improve food safety, while educating actors along the chain about the nutrition benefits of added value.[32] Nutritional opportunities may exist at multiple levels of the value chain, including production, processing/ preservation, market, and household level opportunities.

A key focus of the agricultural sector is to improve existing agricultural commodity value chains, including those for food, and create new value chains where necessary. The AFSNS will strongly promote nutrition-sensitive value chains, in addition to food-based strategies within its key priority areas. Attention will be given to food-based interventions that promote dietary diversity and the consumption of nutritionally rich foods. It will support efforts to accelerate the reduction of malnutrition by leveraging existing agricultural service delivery platforms to promote complementary nutrition-specific interventions. The Strategy will also take strong consideration of the role of local food consumption preferences and individual lifestyle factors.

Supporting Private Sector Roles for Sustainability, Scale and Impact: Guiding Principle #3

There is a growing understanding that sustainable improvements in food security and nutrition will remain challenging without a role for the private sector. Most goods and services that impact on food security and nutrition typically involve the private sector; and new partnership paradigms that put the private sector at the centre of driving for improved food security and nutrition are imperative. Thus, Nigeria's new agricultural initiatives are implemented from the orientation of doing agriculture as a business and promoting a government enabled, private sector led approach to transforming agriculture.

[32] IFPRI (2011) CGIAR Research Program 4: Agriculture for improved nutrition and health. Washington, DC: International Food Policy Research Institute (IFPRI)

The AFSNS will strongly support special incentives to ensure that the private sector prioritizes foods and products that the poor and vulnerable groups consume. This support includes research to identify current market access for the most vulnerable groups, challenges to production and expanded market access, and actions necessary to ensure adequate private sector participation and product coverage. The AFSNS will also support private sector regulation. Effective regulation means a positive relationship that promotes good business and nutritional outcomes, while conforming to the highest national and international standards expected from that business.

Addressing Food Security and Nutrition as a Human Right: Guiding Principle #4

A human rights approach entails focusing on those who are most vulnerable, understanding what causes this vulnerability or susceptibility to adverse outcomes, and changing conditions to improve their situation. Various countries of the world including Nigeria have committed to The Voluntary Guidelines to Support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security (VGRTF) Framework. Article 16 of the 1999 Nigeria Constitution expressly states that "The State shall direct its policy towards ensuring that suitable and adequate foods are provided for all citizens."

This AFSNS therefore recognizes that the right to adequate food and nutrition should be the main objective of food security and nutrition policies, programmes, strategies and legislation; that the human rights principles of participation, accountability, non-discrimination, transparency, human dignity, empowerment, and rule of law should guide activities designed to improve food security and nutrition; and that policies, programmes, strategies and legislation need to enhance the empowerment of rights-holders and the accountability of duty-bearers, thus reinforcing the notions of rights and obligations as opposed to charity and benevolence. Thus, the AFSNS will primarily target population groups in Nigeria with the highest burden of malnutrition.

Strategic Priorities of the AFSNS

Priority Area 1: Enhance Value Chains for Improved Nutrition

The "value chain for nutrition approach" can be defined as the process that addresses the established nutritional challenges of a country within specific value chains. This priority area is expected to improve food security through production, processing, storage and preservation at national levels, whilst also expanding market access. The following will be the key critical action points of entry:

a. *Postharvest loss reduction for improved nutrition*: This entry point will create a back to back business alliance to reduce postharvest losses. Proper cold storage, packaging and crating, and processing solutions will be developed to reduce produce perishability and damage along the value chain.
b. *Increasing production and processing of animal foods*. The entry point is to increase access to animal source foods, including the development and promotion of animal food value chains.
c. *Increasing production of food crops, especially fruits and vegetables:* The entry point will intensify efforts to de-risk agricultural value chains and increase incentives for participation. Actions will include zero tariffs for the importation of agricultural equipment; support for local production, repair, and maintenance of agricultural equipment; tax holidays for investors who set up processing plants in the government established Staple Crops Processing Zones (SCPZs); increased import levies and excise duties on commodities that can be locally produced; and improved credit facilities (including risk sharing, insurance and technical assistance) for agricultural value chain investments.
d. *Reviving prison farms and agro-allied prison industries*: The programme will use prison farms to significantly increase the local production of high import bill foods (such as rice, wheat, and fish), while at the same time building the capacity of inmates in agro-based skills and increasing their

ability to successfully re-engage into the society. The food produced through the programme will also be used to achieve food security for prisons across the country, thereby reducing the costs of maintaining these institutions. The food will further contribute to national food security.

e. *Increasing market access for agricultural produce*: This priority area will facilitate the establishment of aggregation centres and distribution channels that address the food gaps of the population. Commodity trading platforms and warehouse receipt systems will be developed.
f. *Implementing the Transformative Partnership for High Energy Foods (P4HNF)*: P4HNF is an initiative to improve the production, processing, distribution and consumption of high energy nutritious foods for Nigeria. It aims to promote the growth, transformation, as well as utilization of key crops such as sorghum, maize, soybeans, and peanuts; and fortify them with essential micronutrients to meet the demand for high energy nutritious foods in Nigeria for relief and institutional food procurement purposes. It is expected to operate through market-based mechanisms that are sustained by locally available food commodities and a collaborative partnership between key stakeholders in industry, government, international development partners, and academia.
g. *The expansion of bio-fortified staple foods in order to increase nationwide consumption and utilization*: Key bio-fortified staples that would be promoted include pro-vitamin A cassava, yellow maize, orange flesh sweet potato, iron sorghum, iron beans, zinc rice, and vitamin A plantain and bananas. Bio-fortified crops that have already been introduced into the Nigerian market – pro-vitamin A cassava, yellow maize, orange flesh sweet potato, and iron sorghum – will be scaled-up to reach more Nigerians, while other bio-fortified crops will be introduced.
h. *Facilitate the business-to-business fortification of food around the aggregation centres and in each SCPZ that drive transformation of staples and horticulture commodities*. The extension of existing legislation on fortification will be promoted to cover other important food staples not presently covered by existing policies and regulations. Furthermore, multisectoral efforts to strengthen the regulatory environment for food fortification and improve compliance will be supported.

Priority Area 2: Diversify Household Food Production and Consumption Especially Targeting Women and Increase Access to Micronutrient Rich Foods

Special attention will be paid to increasing production and consumption of fruits, vegetables, and animal foods at the household level. Consumption of vegetables, legumes, fruits, and animal foods is the most sustainable way of reducing and controlling micronutrient deficiencies in resource-poor communities[33]. Moreover, diversifying household food production increases household resilience, thereby supporting stability of food supply.[34] The following will be the key points of entry:

a. *Scaling up the production of vegetables and fruits by smallholder farmers*: Activities will facilitate access to inputs such as improved seeds, information, and irrigation, among other technological advances.
b. *Promoting homestead gardens*: The priority area seeks to improve production and diversification of fruits and vegetable around the homesteads. Where feasible, the production of indigenous vegetables will be encouraged.
c. *Management of natural resources*: Keyhole and raised bed garden activities, which produce food even in conditions of extreme heat and lack of rain, will be prioritized. Construction of roof water harvesting structures which not only provide water for the household but additional water for irrigation (multi-use water structures) will also be supported.

[33] FAO-AVRDC (2003). Increasing the consumption of micronutrient-rich foods through production and promotion of indigenous foods. Proceedings of international workshop, March 5–8, 2002, Arusha, Tanzania
[34] FAO (1997). Agriculture food and nutrition for Africa - A resource book for teachers of agriculture. Rome: FAO

d. Promotion of small animal husbandry: This entry point will increase access to animal foods. Priority area three will thus complement horticulture production.
e. Promoting school agriculture programmes: The entry point will focus on making available the services of agriculture extension staff to schools; providing support to the operation of young farmers clubs; and supplying improved farm inputs for crop and animal farming in schools

Priority Area 3: Improve Food Safety along the Value Chain

In keeping with national efforts to assure safe and wholesome foods, the following entry points will be prioritized to achieve food safety:

a. *Promoting good agricultural practices (GAP) among farmers*: This will ensure that the exposure of foods to biological and chemical hazards is reduced. GAPs include the use of improved seeds, appropriate use of inputs (fertilizers, pesticides, etc.), use of biological controls (e.g. Aflasafe), integrated pests management, and moisture regulation.
b. *Scaling up the use of modern drying and storage techniques and technologies*: Such techniques include precision drying of produce and hermetic storage which control for temperature, moisture, and insect attack.
c. *Irradiation of food products*: The entry point will use gamma irradiation for food preservation, especially fruits, vegetables, and meat/meat products
d. *Development of a National Aflatoxin Control Initiative*: The entry point will minimize aflatoxin contamination along the value chain. Necessary actions will be supported at pre-harvest, *harvest, in storage, during processing, in markets, and at consumer level.*
e. *Ensuring that agricultural practices and produce conform to Codex standards along the value chain*: This entry point will ensure that relevant technical departments within FMARD provide inputs into the setting of Codex standards, including standards for pesticide residues, metallic contaminants, contaminants, among others. The National Agricultural Technical Working Group for Codex will also be strengthened.
f. *Collaborating with food safety regulatory agencies to facilitate compliance with standards*: The entry point will ensure that export-oriented farmers are aware of international food standards and are able to meet these standards. To facilitate this action, a certification system will be developed with these agencies to endorse foods meeting specific standards.
g. *Ensuring greater support for actions that promote food safety*: The use of adequately equipped and functional storage technologies and techniques such as silos, warehouse receipt systems, and commodities exchange boards will be promoted.

Priority Area 4: Build Resilience and Social Protection Nets through Food Systems for Vulnerable Groups

Smallholder agricultural producing households are very vulnerable to shocks including droughts, floods, conflicts, and insecurity. Households often deploy a variety of coping strategies in response to these shocks. Irreversible coping strategies deplete assets, leave households even more susceptible to future shocks, and perpetuate poverty. This priority area focuses on objectives and actions that will ensure the ability of households and communities to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces acute and chronic vulnerability; and facilitates inclusive growth. The efforts will focus on people and places at the intersection of chronic poverty and exposure to shocks and stresses. The entry points to be prioritized will include:

a. *Supporting landless agrarian community households to establish small-scale agro-processing businesses*: Households will be supported with starter packs and trainings for threshing, milling, grinding or other processing activities.

b. *Supporting smallholder farmers to diversify livelihoods*: This entry point will provide inputs and training for smallholder farmers to increase the types and quality of crops and/or livestock produced.
c. *Ensuring that smallholder farmers are linked with institutional markets*: The entry point will create regulatory frameworks to ensure strategic procurement of food items from smallholder farmers, for school feeding programmes, and other institutional markets such as the Transformative Partnership on High Energy Nutritious Foods for Africa. Moreover, entry barriers for smallholder farmers to access the school feeding market (such as lack of information; inadequate capacity to meet the traditional tendering requirements; lack of capacity to supply, store, and transport commodities; and vulnerability to post-harvest losses) will be addressed.
d. *Facilitating access to credit for smallholder farmers*: The entry point will organize farmers into cooperatives and link these cooperatives to microcredit facilities
e. *Extending insurance* services to smallholder farmers: This entry point will be implemented by providing insurance access to produce cooperatives

Priority Area 5: Promote Nutrition Research and Information Systems

This priority will focus on promoting and advancing a wide range of policy, operations, scientific, and adapted research that will maximize the potential of agriculture to influence positive nutrition outcomes. Existing projects such as the Nationally Coordinated Research Projects (NCRP) and West African Agricultural Productivity Program (WAAPP) implemented by the Agricultural Research Council of Nigeria (ARCN) will be leveraged. The entry points for this priority area include:

a. Sponsoring the regular conduct of the National Food Consumption and Nutrition Survey
b. *Development of crop varieties with enhanced nutritional attributes*: The priority area will support research to produce crop varieties with increased nutrient content, decreased anti-nutrients, increased ease of preparation, and/or improved food safety.
c. *Development of food products with improved nutritional attributes*: Research supported under this entry point will identify improved processing techniques that can increase nutrient content, prevent the loss of nutrients, decrease anti-nutrients, increase ease of preparation, and/or improve food safety.
d. *Context assessment to guide implementation of entry points in the AFSNS*: The entry points in the AFSNS will not be universally applicable in communities and LGAs. Landscape analyses will be conducted to guide the selection of sites, the target beneficiaries, and the specific implementation modalities for each entry point of the Strategy.

Priority Area 6: Improve the Capacity to Address Food Security and Nutrition Problems within the Agricultural Sector

Building human resources and the relevant institutional capacities to deliver sustainable nutrition-sensitive interventions is not only critical but is the main thrust of this priority area. The AFSNS recognizes that there can be no scale-up in nutrition-sensitive agriculture actions without a scale-up in relevant capacities to act. This priority area focuses on the following key points of entry.

a. *Strengthening the planning and managerial capacity of federal, state, and LGA nutrition focal persons within the agricultural sector*: There will be training and re-training of these focal persons and other relevant service providers to improve their capacity for food and nutrition programme management within the agricultural sector.
b. *Capacity building for federal, state, and LGA agricultural extension personnel*: Nutrition education will be integrated into agricultural extension services, and intensive training will be conducted for extension agents/officers to provide sufficient technical knowledge about issues related to nutrition, food security and food safety; and behaviour change communication. The training will also establish referral systems for issues which the agents are unable to address. The

entry point will further promote the expansion and better resourcing of current extension services, to ensure that the populations most vulnerable to malnutrition are covered by these services.

c. *Upgrading the Nutrition and Food Safety Division of FMARD into a Directorate*: This will promote the management level visibility, authority, advocacy, and support necessary for nutrition-sensitive agriculture across FMARD.
d. *Facilitating integration of nutrition into the agricultural curriculum of tertiary institutions*: This entry point will institute a mechanism for periodic curriculum review and the identification of nutrition training gaps in existing agricultural curriculum.
e. *Training community artisans and masons to construct, maintain, and repair local technologies*: Activities within this entry point will include training on the construction of durable roof water harvesting structures; training for constructing modern drying and storage techniques, among other techniques and technologies.

Priority Area 7: Nutrition Education, Social Marketing, Behaviour Change Communication, and Advocacy

The various nutrition-sensitive agriculture initiatives require concerted and consistent information dissemination and social dialogue. These activities provide a platform for nutrition education and behaviour change. Such nutrition education will be delivered through multiple avenues, and involves activities at the individual, community, and policy levels. Firstly, there will be an awareness-raising element to focus attention on nutrition and increase the motivation to improve diets. Secondly, there will be an action component, where the goal is to facilitate people's ability to take action to improve their diets; and then, an environmental component where nutrition educators will work with policymakers at national and community levels to make healthy foods more accessible. Activities may include nutrition counselling for mothers, cooking demonstrations, health promotion, production and dissemination of dietary guidelines, as well as ensuring that schools and workplaces offer healthier meals. The following will be the key points of entry:

a. *Promoting the production and consumption of diverse diet*: This will include comprehensive nutrition education about the benefits of backyard gardens and school gardens and consumption of fortified food and products.
b. *Advocacy for the legislation and regulation of nutrition labelling on packaged food products*: The entry point will support social demand for nutritious foods. This will be achieved by working with the National Agency for Food and Drug Administration and Control (NAFDAC) as well as the Standards Organization of Nigeria (SON).
c. *Production and dissemination of food-based dietary guidelines*: Collaboration with the Ministries of Health, Education, Social Services, and Women's Affairs will be undertaken to revise/develop appropriate food based dietary guidelines for healthy living.
d. *Ensuring that schools and workplaces offer healthier meals*: Activities for this entry point will include providing recommendations for healthy school and workplace meals and advocacy to regulatory agencies to monitor compliance with recommendations
e. *Promoting positive attitudes and behavioural change*: This entry point will facilitate improved diet quality, adequate nutritional intake, and better dietary utilization.

Priority Area 8: Nutrition Surveillance and Monitoring and Evaluation

There is need for effective surveillance and monitoring/evaluation (M&E) systems. This is to generate and utilize data to build and track indicators for monitoring progress in achieving the targets of the Strategy. This will further provide accurate, reliable, and timely information on progress of Strategy implementation and regular reporting on the specific priorities, objectives, and programme-level outcome indicators. The information generated will be useful for future planning exercises, as well as

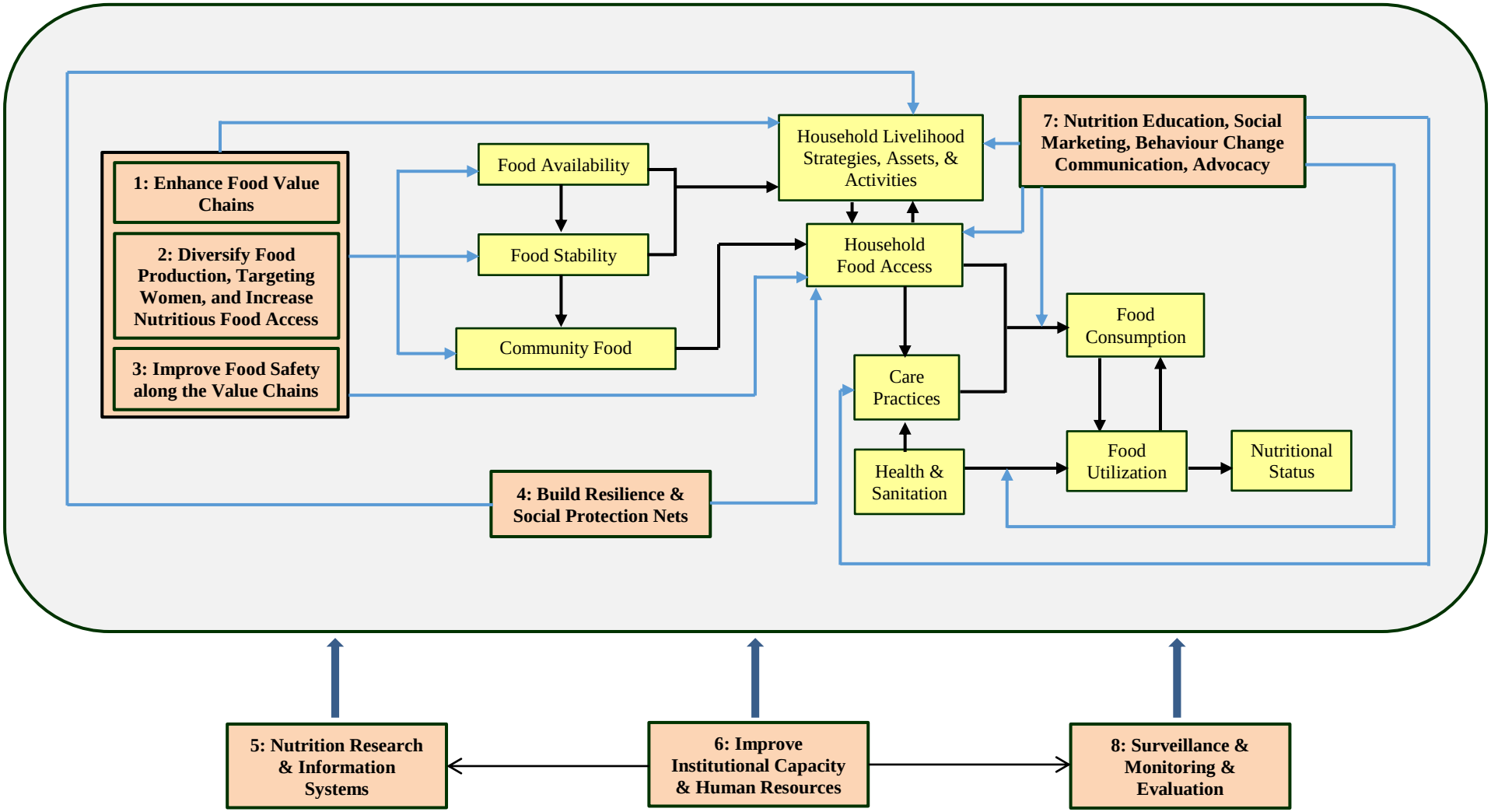
for overall monitoring and evaluation of the success of government's efforts in addressing the problem of malnutrition in Nigeria. The entry points will include the following:

a. *Develop a comprehensive monitoring and evaluation framework for the AFSNS*: This entry point will identify and compile the key performance indicators for the Strategy, and well as design a plan to monitor progress towards the achievement of these indicators.
b. *Conduct sample surveys*: The entry point will regularly obtain information (about the food and nutrition situation of different LGAs and states) that will be used to bring about improvement.
c. *Create an information database*: Accurate and relevant information will be compiled through vertical and horizontal collation of data from the LGAs, state, and federal levels; so that progress and changes are tracked and impact measured.

Theory of Change of the Food Security and Nutrition Strategy

The linkages through which the priority areas are expected to improve nutritional status are highlighted in Figure 2. This theory of change situates the priority areas within the FIVIMS Framework of Food Security while aligning with other conceptual frameworks on the causes of malnutrition. Priority areas 1, 2, and 3 which focus on increasing production, access, and safety, are expected to improve food availability, access, and stability; while at the same time improving household livelihoods, assets, and activities. Priority area 4 of building food security and nutrition safety nets for vulnerable groups is expected to directly impact household food access; while it is expected that priority area 7 will lead to improved care practices. Priority 7 is further expected to influence the foods that households choose to grow and purchase, and ensure that improved household food security and care practices translate into improved food consumption. Nutrition research, information systems, surveillance, and monitoring and evaluation – priority areas 5 and 8 – provide the necessary guidance to correctly implement and achieve results from priority areas 1, 2, 3, 4, and 7. Nevertheless, central to all of these 7 priority areas and their potential impact is priority area 6: institutional and human resource capacity development.

Figure 2: Simplified AFSNS Theory of Change



Target Beneficiaries of the Food Security and Nutrition Strategy

To have a sustained impact on reducing malnutrition, and breaking its intergenerational cycle, the AFSNS will adopt a life cycle approach. In particular, activities will focus on:

i. **Women of childbearing age (15–49 years):** From conception through six months is a vital period for a child's future development. In fact, the first 1,000 days of life (from conception to age of 2 years) is a window of opportunity during which adverse malnutrition outcomes can be reversed. Targeting women of childbearing age will help to increase future birth weight as well as support the mother during pregnancy and lactation. The AFSNS will seek to promote dietary diversity and improved nutrition among these women; while at the same time providing timesaving technologies for food production and processing to allow women more time for childcare as well as their own care. The AFSNS will further focus on ways to increase women's participation in agricultural markets, so as to increase their income and control over resources, thus further improving their access to food as well as health services.

ii. **Children 6-59 months:** This group faces an increased risk of morbidity, mortality and growth impairment due to a heightened vulnerability to infections and the development of severe acute undernutrition. The AFSNS will focus on how to improve complementary feeding for infants, improved access and consumption of diverse and nutritious foods for older children, and promote the local production of ready to use therapeutic foods in the context of high energy nutritious foods for treatment of severely acute malnourished children.

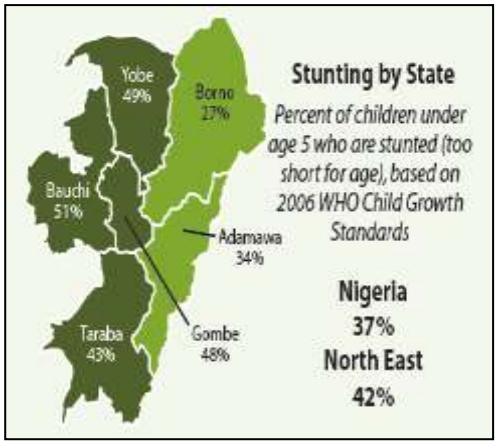
iii. **School-aged children.** Provision of adequate and diverse nutritious foods to address undernutrition, micronutrient deficiencies, and overweight/ obesity will be prioritized for this group. Interventions will include school based interventions that promote healthy diets and lifestyles and build household resilience, while boosting livelihoods and the local agricultural economy (e.g. school feeding linked to local agriculture). Nutrition education and behavioural change initiatives will further be promoted.

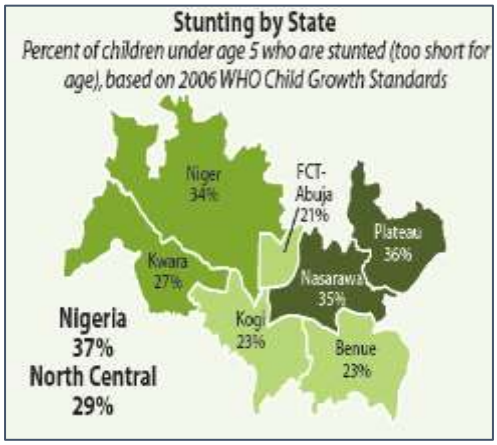
iv. **Internally Displaced People (IDPs):** This particular profile is new in Nigeria and given the adverse disruption of agriculture and trade activities, the food security and nutrition status of IDPs have been greatly compromised. Youth employment, school feeding linked to local procurement of food from small holder farmer associations and other direct and targeted food distribution and nutrition interventions are possible points of entry.

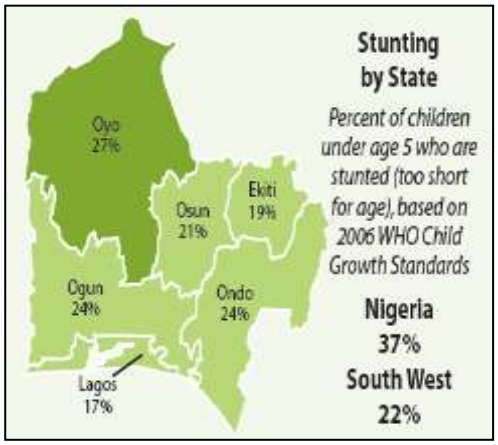
v. **Special circumstances vulnerable groups:** These include prisoners, children in orphanages, people living with disability, and people living with HIV/AIDS.

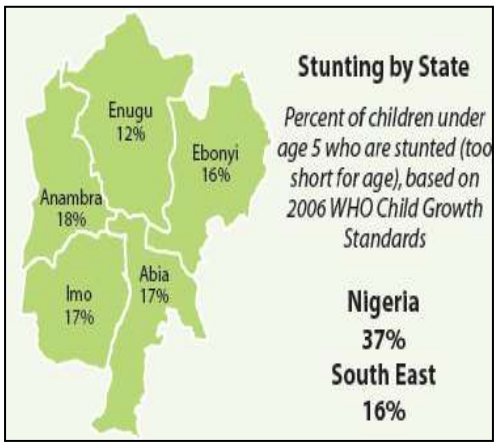
Geographic Focus

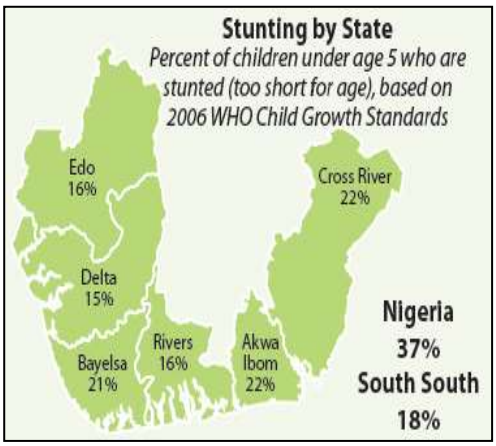
The maps below, showing the prevalence of stunting by state in 2013, indicate that the burden of undernutrition is by far higher in the North West and North East geopolitical zones that in any other zones. In the North Central zone, a few states also have high prevalence of stunting. All states in the southern zones have stunting prevalence rates that are at least 10% points lower than the national stunting prevalence.











Thus, the Strategy recognizes that malnutrition is generally high in Nigeria across all the geopolitical zones but disproportionately higher in the North West and North East zones. In the principle of leaving no one behind, the Strategy will adopt a national approach towards addressing the diverse challenges of malnutrition in ways that prioritize high prevalence areas across the zones. The Strategy works towards virtual elimination in zones where considerable progress has been made and significant reduction in zones where prevalence levels remain disproportionately high. It will support the implementation of actions and initiatives that recognize the interconnectedness of all zones from a food systems perspective. The diversity of the nutrition challenge and how public and private sector actors operate and are organized across the various zones in the country will also be taken into consideration.

COORDINATION AND INSTITUTIONAL FRAMEWORKS FOR THE AFSNS

Nigeria has two institutional avenues for the coordination of nutrition interventions. There is a national structure that coordinates cross-sectoral activities and there is a sectoral structure within FMARD.

National Structure

In 1990, the Federal Government of Nigeria established a National Committee on Food and Nutrition (NCFN) as an institutional arrangement to coordinate and provide comprehensive leadership and actions that could effectively reduce malnutrition in Nigeria. Membership of the Committee is drawn from relevant ministries, departments and agencies of government as well as representatives of tertiary institutions dealing with issues of food and nutrition. The NCFN is domiciled within the Ministry of Budget and National Planning (MBNP) and is responsible for the National Policy on Food and Nutrition (NPFN).

The NCFN ensures that the representatives of relevant sectors on the committee undertake effective implementation of their various policies and programmes, and further advises on the formulation of appropriate strategies for programme monitoring and evaluation.
In order to achieve the objectives of the NPFN and implement its programmes, there are State Committees on Food and Nutrition (SCFN) and Local Government Committees on Food and Nutrition (LGCFN)

Ministerial Structure within FMARD

The Federal Ministry of Agriculture and Rural Development inaugurated an Inter-ministerial Agriculture Nutrition Working Group to provide high profile advisory support to the new Nutrition and Food Safety Division of the Federal Ministry of Agriculture and Rural Development. The Inter Ministerial Agriculture Nutrition Working Group will also coordinate nutrition actions within the agricultural sector, through the Nutrition and Food Safety Division. The Working Group draws membership from different sectors to ensure that activities taken within the agricultural sector are implemented in a manner that will have the most impact on nutrition. In addition, the Working Group will also support representation of the agricultural sector on the NCFN through the Nutrition and Food Safety Division. Further details about the membership of the Working Group and the Terms of Reference of the Group are in the Annex.

The Strategy proposes the institutionalization of a Directorate level nutrition leadership position in the federal and state ministries of agriculture or a professionalized and specialized agency as may be deemed appropriate and feasible.

AFSNS MONITORING AND EVALUATION SYSTEM

The monitoring and evaluation (M&E) system is to support the Federal Ministry of Agriculture and Rural Development (FMARD), at both central and decentralised level, to give account towards key institutional stakeholders, donor organisations and most importantly Nigerian citizens on the implementation of the AFSNS for 2016 to 2025. The primary purpose of the M&E System is to assess the extent to which the Strategy is accomplishing its overall goal of improving the food and nutrition security of all Nigerians while empowering women and promoting resilience of the most vulnerable through sustainable agricultural livelihoods. A second important purpose is to understand the effectiveness and relevance of the Strategy in achieving the different identified specific objectives and how these objectives contribute to the overall goal. The M&E system will aim to assess and provide evidence on *if* and *how* each of the specific objectives contributes to the overall goal, *if* and *how* programmes and projects (clustered within the 6 specific objectives) are consistent with the overall goal (relevance) and *if* and *how* the expected outputs are achieved (effectiveness).

The AFSNS M&E system is underpinned by the Results Based Management (RBM) approach defined as *a broad management strategy aimed at achieving improved performance and demonstrable results*[35]. RBM emphasizes the importance of linking planning, monitoring and evaluation processes[36] for enhancing the effectiveness of policies, strategies, programmes and projects. The establishment of an effective M&E system supports the adoption of the RBM approach as M&E systems are basically aimed to ensure an effective interconnection of these 3 complementary processes of planning, monitoring and evaluation. In RBM, planning is the critical process through which policies, strategies, programmes and projects are developed and focused on the results that matter. M&E supports the learning process from successes and challenges, and informs decision making, so that current and future interventions are improved. Linking planning, monitoring and evaluation generates a continuous process of doing, learning, and improving, which is commonly referred to as the RBM life cycle.

Structure of the AFSNS M&E System

The AFSNS M&E System rests on the following 4 pillars:

1. AFSNS Results Framework (RF);
2. AFSNS Monitoring and Reporting Process;
3. AFSNS Independent Evaluation Process;
4. AFSNS Risk Management Process

The above 4 pillars and the respective processes are closely linked to each other. The AFSNS RF Matrix (Pillar 1) is the overarching reference for conducting M&E actions and linking all actions to their expected results and targets (Pillars 2, 3 and 4). The AFSNS Monitoring and Reporting Process (Pillar 2) focuses on RF planned (specific) objectives and verification criteria. The AFSNS Independent Evaluation Process (Pillar 3) complement monitoring findings by providing independent assessments of the results achieved (at different levels) and the relevance of the actions implemented.

[35] The United Nations Evaluation Group (UNEG), www.uneg.org.

[36] The UNEG defines Planning, Monitoring and Evaluation as the three interconnected processes of the Results Based Management (RBM) approach, where: a) Planning is the process through which stakeholders identify a shared vision of the future, goals and objectives to be achieved; b) Monitoring is the process through which regular feedback on the progress being made towards achieving the set goals and objectives is obtained; c) Evaluation is the rigorous and independent assessment to determine the relevance and the extent to which development initiatives achieve stated objectives.

By highlighting issues to be addressed and opportunities to be considered, both monitoring as well as evaluation generate information that supports periodic review of plans and the continuous Risk Management Process (Pillar 4).

AFSNS Results Framework (RF)

The Results Framework (RF) is the key AFSNS planning, monitoring and evaluation tool. It translates the AFSNS and its theory of change into a *results chain* and provides the criteria (indicators, targets and sources of verifications) to monitor and assess progress being made towards the expected outputs, outcomes and, ultimately, impact. The RF defines what the country wants to achieve through the AFSNS in terms of measurable food security and nutrition results, and how to achieve them through the required investments. The RF is a key tool for alignment and coordination of investments when, as proposed here, it is closely linked to operational activities and interventions. The RF development process was a top-down exercise which translated the actions already identified in the AFSNS and inputs from key stakeholders into a logical matrix.

The RF reflects the AFSNS and its scope, its overall goal and specific objectives and prioritized interventions. These have been translated in expected SMART results (Specific, Measurable, Achievable, Relevant and Time-bound). Following the 6 specific objectives areas identified by the AFSNS, expected impact and outcome statements are associated to a set of measurable indicators. For each of them: (i) baseline figures were extracted from relevant authoritative sources; (ii) targets to be achieved, within the timeframe of the AFSNS (2016-2025), have been agreed upon through consultations; (iii) the proposed sources and means of verification have also been identified and confirmed through consultations with relevant stakeholders. Draft risks and assumptions have been defined for the impact and outcomes levels. Expected outcomes reflect the intended improvements of people's wellbeing. The RF specifies intermediate and immediate outcomes. The intermediate outcomes are the Strategy's priority areas, are linked to the specific objectives, and are the Strategy's longer-term outcomes which achievement is expected to logically contribute to the achievement of the ultimate AFSNS overarching goal. The immediate outcomes are associated with the sub-components under each specific objective and are delivered through the expected outputs. The sub-components are the entry points of the priority areas of the AFSNS. The summary AFSNS RF is presented in Figure 3, and the RF is provided in its integral version in the Annex.

AFSNS Monitoring and Reporting Process

The second pillar of the AFSNS M&E system is the monitoring and reporting process through which the national, state and local level institutional and relevant non-institutional stakeholders will receive periodic feed-back on the AFSNS implementation performance towards the objectives defined in the RF. These stakeholders will, in their turn, be requested to provide the needed relevant information for the M&E system to work efficiently. AFSNS monitoring and reporting is both a *bottom-up* and *top-down* process. At decentralized (state/LGA) levels, each AFSNS implementing partner will be responsible to report on substantial progress made in the delivery of the outputs and on the financial execution of the investments under their responsibility. Decentralised FMARD M&E unit/focal points, which will be located in the state offices of FMARD, will receive the information, consolidate it and pass it to the national level for national reporting purposes. The central FMARD M&E Unit will analyse and collate the received information and share it back to the relevant stakeholders at decentralised level for aligning processes as well as for learning purposes. The information will also be shared with relevant institutional and non-institutional stakeholders at national level, including the National Committee on Food and Nutrition and relevant donors.

AFSNS Independent Evaluation Process

The third pillar of the AFSNS M&E system is the AFSNS evaluation process. Evaluations are expected to complement monitoring actions with independent assessments of the main results achieved. While monitoring activities focus mainly on the assessment of interventions and outputs delivery, external evaluations will be conducted on a regular basis and focus on each of the expected specific objective outcomes of the AFSNS. The purpose of AFSNS outcome evaluations is to identify the critical lessons to be learned from implementation, and to bring the learning to the institutional level so that positive change is enabled. AFSNS outcome evaluations are also intended to support in identifying factors (risks) with potential negative or positive impacts on the implementation of the AFSNS interventions. Periodic surveys to assess the extent to which AFSNS specific objectives immediate outcomes are achieved will be planned to complement the independent evaluations. One long-term ex-post impact evaluation can further be commissioned to look at the sustainability of the achieved impact. Two main areas of evaluation will be the relevance of the actions/initiatives as well as their effectiveness.

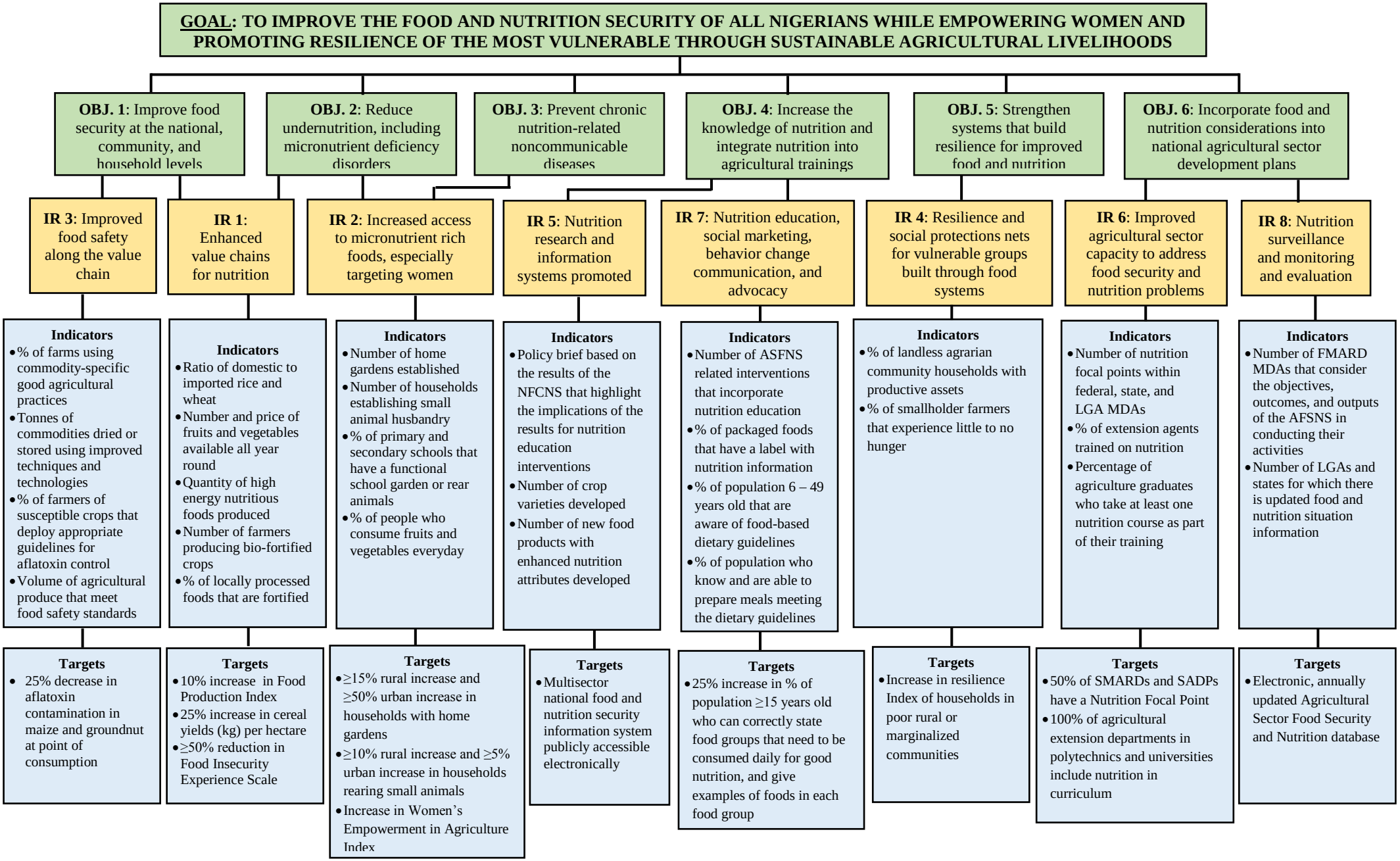
Relevance – Is the strategy (and its programmes and projects) doing the right things? Is the strategy responding to the situation needing improvement? Does it really deal with target group priorities? Why or why not? Is the Strategy focusing on the right areas of improvements? Why or why not? In which geographical areas do we have to work to implement the AFSNS in Nigeria both at national as well as a state level? What are the results we can reasonably expect from our efforts? These questions inform the formulation of the impact and outcomes statements.

Effectiveness – Is the strategy (and its programmes and projects) doing things right? Have the planned purpose and component purposes, outputs and activities been achieved? Why or why not? Is the intervention logic correct? Why or why not? Are the different components of the strategy proceeding at the same pace? Why or why not?

AFSNS Risk Management process

The fourth pillar of the M&E system is the risk management process, which is intended to support FMARD and other stakeholders in identifying factors with a potential negative or positive impact on the implementation of the strategy. Risk management will be firmly institutionalized and related provisions will be considered in the overall AFSNS M&E arrangements. The analysis of operational risks with potentially negative impact on output delivery performance will be complemented by the identification of opportunities that may positively impact the implementation of the Strategy. Follow-up on risks/opportunities will be periodically conducted and risk mitigation measures will be planned, budgeted and implemented. These risk mitigation measures will be incorporated into the AFSNS, and plans and interventions will be adjusted accordingly.

Figure 3: Summary Results Framework of the Agricultural Sector Food Security and Nutrition Strategy



KEY: Goal – Overall Objective of the FSN Strategy Obj. – Specific Objectives

IR – Intermediate Results, which are also the Priority Areas

AFSNS INVESTMENT PLAN, COSTING AND IMPLEMENTATION PHASING

The expected results and achievable targets identified through the results framework have been a key reference to guide the formulation of the AFSNS Investment Plan with its costing, and a first fundamental step towards the establishment of a strong financial tracking system for nutrition-sensitive agriculture. The Federal Ministry of Agriculture and Rural Development (FMARD) considered the costing of the AFSNS as a crucial step in moving from high level planning to a harmonized understanding of resource mobilization and implementation phases. In proceeding with the costing, the Investment Plan needed to be designed with a view to reach a refined level of details of formulated investments. The costing was then key to adjust investments according to their targets, objectives, level of realism, and the modelling of enabling "soft'' environment around investments.

The costing exercise had multiple objectives to:

i. Understand and address financial gaps for nutrition-sensitive agriculture, through resource mobilization
ii. Create an enabling environment for nutrition and a basis for anchoring donor investments
iii. Agree on interventions falling within specific results and output groups, and establish a classification system according to technical entry points, thereby facilitating the identification of operationalization channels
iv. Set up targets for each intervention through a thorough exercise emerging from high level consultative consensus and debates following strategic orientations and sets of criteria
v. Accompany the M&E framework with nutrition budgetary allocation and yearly progress analyses within the agriculture sector towards expected national results for nutrition. (This will not only help keep track of the right investments but also enable adequate modelling of federal and state level scenarios to understand highest impact agriculture investments on nutrition, depending on specific contexts in country.)
vi. Develop a strong consensus-generating ownership among planning, M&E and operation experts in FMARD

To accelerate the costing process, FMARD organized a costing workshop that brought together a Costing Working Group of local agricultural programming and nutrition experts. The team was supported by an international costing expert from FAO Rome and FAO Country Office staff. The following sections describe the process taken as well as methods and key outcomes of the costing exercise.

Conversion of AFSNS into Investment Plan

The approach taken for costing is the "activity-based costing or ingredient approach"[37], referring to investments under formulation, for which the biggest work is to identify a level of implementation not

[37] "*This approach is used when a programme does not exist or exists but is inadequate. In this approach, the programme to be implemented is divided, based on a priori reasoning and limited experience, into its components and subcomponents by the activities to be undertaken (Fiedler 2003; Fiedler et al. 2008; Matz et al. 1984; Baker 1998). The inputs are identified for each activity and the input coefficients and the amounts of inputs required to produce the target outputs are appropriately assessed. The information on the price of inputs is collected from the competitive markets (or the shadow prices—the calculated price of a good or service for which no market price exists—are entered), and finally the total cost is estimated by component and cost centre (the basic unit of responsibility in an organization for which costs are accumulated)*" Nutrition Costing: Technical Guidance Brief, USAID 2017: https://www.usaid.gov/what-we-do/global-health/nutrition/technical-areas/nutrition-costing-technical-guidance-brief

existing yet and set ambitious but realistic targets. The Costing Working Group converted the Strategy into its Investment Plan by establishing a classification system using technical entry points of agriculture for nutrition and referring to the *matrix of investment types and entry points for nutrition*[38]. Identified and selected categories were divided in two groups: (i) **hard investments**, interventions requiring a material cost, and (ii) **soft investments**, designed on the basis of human, administrative, political, trade and social actions (Table 1).

Further steps were then taken:

1. Determination of phases of implementation: Costs are subject to change due to food market price volatility and fluctuations; socio-demographic growth; evolution of conflict areas; national, regional and international trade balance, flows and regulations; etc. Consequently, the duration chosen for the costing was a strategic choice of 4 years, 2017 – 2020. It will be crucial to engage in a second costing exercise for 2021 – 2025 based on preliminary results and indicators from implementation of nutrition-sensitive interventions. This second costing is crucial in order to prioritize interventions that show highest impacts and cost-effectiveness for nutrition, as well as to increase coverage from the 2017 – 2020 costing.
2. Reviewing and identifying interventions to be costed: Costing can only take place when interventions identified have been formulated taking into account operational parameters, with the understanding of nutrition incremental value. The interventions already identified in the results framework were disaggregated as needed into activities and sub-activities meant for the interventions operationalization. The activities were then grouped according to the already identified and selected categories. (See Annex for activity costs by category and sub-category. Activities are labelled by their associated output number in the results framework).
3. Targeting, geographic and individual coverage, and potential impact pathways leading to expected results: Establishing consensus around the states to be covered for each intervention; communities, associations, groups, households and individuals to be targeted; and estimating impact pathways based on interventions to results is crucial. The targets selected differed from one intervention and category to another, but mostly smallholder producers or producer organizations were targeted, with a specific emphasis on women groups. All geopolitical zones were covered, with emphasis on 13 selected states with the highest burden of stunting.
4. Collection of data on unit costs and unit targets: Unit cost information depends on different sets of criteria, such as market price fluctuations, implementation agency (government, NGO, development partner etc.), quantity, operational and administrative costs, among other factors. Unit targets were determined by inclusive discussions among the Costing Working Group by considering between the ideal case scenario and the realistic/down-to-earth scenario. Unit costs were provided and thoroughly reviewed by national stakeholders, and development partners.
5. Computation of costs: The unit costs and targets were computed to obtain investment costs.

[38] FAO (2016). Compendium of indicators for nutrition-sensitive agriculture. Rome: Food and Agriculture Organization of the United Nations

Table 1: Categorization through operational entry points for strategic costing

Category type	Category title	Sub-categories	Impact pathways	Costing specificities
SOFT INVESTMENTS	C.1 ENABLING ENVIRONMENT	C.1.1 Institutions and coordination mechanisms C.1.2 Trade and markets C.1.3 Advocacy and communication C.1.4 Infrastructures and organizational capacities	• Access to entitlements • Social protection / entitlements • Women's empowerment	• Official documentation • Official dialogues/ committees/ meetings • Consultations
	C.8 RESEARCH	C.8.1 Production / crop varieties C.8.2 Development of nutrient-dense products C.8.3 Identification and targeting of groups C.8.4 Technologies	• Food production • Community driven development (CDD) • Food market environment	• Consultations • Laboratory analyses • Research report drafting • Meetings
	C.9 CAPACITY	C.9.1 Planning and managerial capacities at all levels C.9.2 Capacities of agriculture extension workers at all levels C.9.3 Capacity enhancement in the use of technologies C.9.4 Capacity development among beneficiaries	• Awareness, skills, and knowledge • Capacity development • Sustainable enabling environment	• Trainings • Organizational development • Material design • Consultation
	C.10 MONITORING & EVALUATION	C.10.1 Baseline assessment and survey design C.10.2 Data management C.10.3 Regular monitoring	• Cost-effectiveness of nutrition-sensitive investments • Best practices	• Surveys/ studies • Investigation staff • Tools • Consultations

Category type	Category title	Sub-categories	Impact pathways	Costing specificities
HARD INVESTMENTS	C.2 PRODUCTION	C.2.1 Assets and inputs for diversified production C.2.2 Prison farming for internal food security C.2.3 Household-based farming C.2.4 Animal based foods: fisheries C.2.5 Animal based foods: livestock	• Natural resources environment • Food production • Agricultural income • Consumption • Women's empowerment	• Hectares of land • Inputs • Assets • Technical assistance
	C.3 BIOFORTIFICATION	C.3.1 Iron biofortification C.3.2 Zinc biofortification C.3.3 Vitamin A biofortification	• Food production • Agricultural income • Consumption • Natural resources environment	• Samples • Selected households • Technical demonstrations
	C.4 POST-HARVEST	C.4.1 On farm storage C.4.2 Processing C.4.3 Transportation	• Food market environment • Agricultural income • Consumption • Women's empowerment	• Machines and equipment • Structures • Demonstration assistance
	C.5 FOOD SAFETY	C.5.1 Production stage C.5.2 Processing stage C.5.3 SOPs C.5.4 Veterinary public health services	• Heath, water and sanitation environment • Food production • Natural resources environment	• Drafting of procedures • Tests and control packs • Monitor's supervision • Dissemination events • Structures
	C.6 MARKETS	C.6.1 Infrastructures C.6.2 Packaging C.6.3 Labelling C.6.4 Promotion and marketing	• Food production • Agricultural income • Consumption • Women's empowerment	• Structures • Consultations • Marketing campaigns/ events • Business studies
	C.7 NUTRITION EDUCATION & BEHAVIOUR CHANGE COMMUNICATION	C.7.1 Nutrition education C.7.2 Behavior Change Communication	• Awareness, skills and knowledge • Consumption • Women's empowerment	• Manuals and guidelines • Communication events/ messages/ modules • Physical demonstrations

6. Prioritization of costing based on adopted criteria: Selected criteria for prioritization were discussed and adopted through review sessions. Criteria considered were the following:
   a. Impact on nutrition outcomes – direct, intermediary and indirect;
   b. Highest burden of undernutrition areas – 13 States prioritized;
   c. Agro-ecological zones and comparative advantages;
   d. Capacity for implementation (organizational, human, social);
   e. Synergies with donor projects.

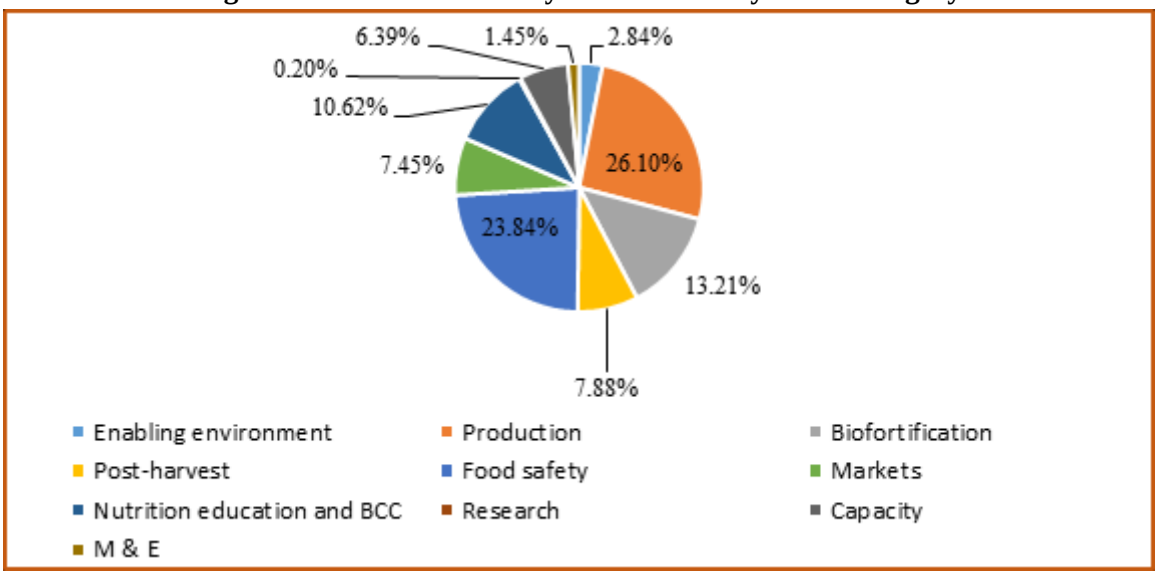
7. Comparison of expected outcomes with costs: The level of financial investment estimated for interventions and categories, and their relevance, were reviewed with regards to the results framework; to re-adjust where too heavy or too light compared to expected impact. The expected impacts were classified into three – indirect impact (*), intermediary impact (**), and direct impact (***).

AFSNS Costs

The four-year cost estimation for implementation of the AFSNS Investment Plan (2017 – 2020) is about **NAIRA 339,345,227,910**; **USD 1,112,607,305**.

Categories with the heaviest weight (Figure 4) are Production (26.1%), followed by Food safety (23.8%), Bio-fortification (13.20%), and Nutrition Education and BCC (10.6%).

Figure 4: Cost Estimation by Nutrition Entry Point Category



Costs by Categories

AFSNS INVESTMENT PLAN 2017 - 2020	Total cost (Naira)	Total cost (US$)
Programme costs	**261,034,790,700**	**USD 855,851,773**
Administrative and operational costs (20%)	**78,310,437,210**	**256,755,532**
Total 2017 - 2020	**339,345,227,910**	**USD 1,112,607,305**
OVERALL GOVERNANCE		
C.1 ENABLING ENVIRONMENT	**7,424,502,000**	**2.84%**
C.1.1 Institutions and coordination mechanisms	3,714,672,000	
C.1.2 Trade and markets	114,160,000	
C.1.3 Advocacy and communication	2,613,792,000	
C.1.4 Infrastructures and organizational capacities	981,878,000	
HARD INVESTMENTS PROGRAMMES		
C.2 PRODUCTION	**68,140,127,000**	**26.10%**
C.2.1 Assets and inputs for diversified production	57,925,900,000	
C.2.2 Prison farming for internal food security	2,840,800,000	
C.2.3 Household-based farming	5,062,227,000	
C.2.4 Animal based foods: fisheries	2,311,200,000	
C.2.5 Animal based foods: livestock	6,215,840,000	
C.3 BIOFORTIFICATION	**34,495,167,600**	**13.21%**
C.3.1 Iron biofortification	11,621,610,000	
C.3.2 Zinc biofortification	7,625,448,000	
C.3.3 Vitamin A biofortification	15,248,109,600	
C.4 POST-HARVEST	**20,574,710,000**	**7.88%**
C.4.1 On farm storage	105,790,000	
C.4.2 Processing	11,144,920,000	
C.4.3 Transportation	9,324,000,000	
C.5 FOOD SAFETY	**62,228,782,000**	**23.84%**
C.5.1 Production stage	2,988,856,000	
C.5.2 Processing stage	723,840,000	
C.5.3 SOPs	11,969,936,000	
C.5.4 Veterinary public health services	46,546,150,000	
C.6 MARKETS	**19,456,076,000**	**7.45%**
C.6.1 Infrastructures	904,440,000	
C.6.2 Packaging	627,680,000	
C.6.3 Labelling	11,224,000	
C.6.4 Promotion and marketing	17,912,732,000	
C.7 NUTRITION EDUCATION & BCC	**27,721,804,000**	**10.62%**
C.7.1 Nutrition education	8,773,704,000	
C.7.2 Behaviour Change Communication	18,948,100,000	
SOFT INVESTMENT PROGRAMMES		
C.8 RESEARCH	**514,327,500**	**0.20%**
C.8.1 Production / crop varieties	360,627,500	
C.8.2 Development of nutrient-dense products	91,875,000	
C.8.3 Identification and targeting of groups	23,125,000	
C.8.4 Technologies	38,700,000	
C.9 CAPACITY	**16,687,464,000**	**6.39%**
C.9.1 Planning and managerial capacities at all levels	4,341,050,000	
C.9.2 Capacities of agriculture extension workers at all levels	8,334,554,000	
C.9.3 Capacity enhancement in the use of technologies	95,787,000	
C.9.4 Capacity development among beneficiaries	3,916,073,000	
C.10 MONITORING & EVALUATION	**3,791,830,600**	**1.45%**
C.10.1 Baseline assessment and survey design	3,390,570,800	
C.10.2 Data management	301,041,800	
C.10.3 Regular monitoring	100,218,000	

Implementation Phasing

Total cost estimations for year one appear to be lighter than for the following years, as a result of higher "Soft Investments" (capacity, enabling environment, etc.) to prepare for technical interventions at the end of the year and following years.

AFSNS INVESTMENT PLAN 2017 - 2020	Cost 2017 (N)	Cost 2018 (N)	Cost 2019 (N)	Cost 2020 (N)
Programme costs	**62,560,766,958**	**66,363,286,025**	**67,162,546,025**	**64,948,191,692**
Administrative and operational costs (30%)	**18,768,230,088**	**19,908,985,808**	**20,148,763,808**	**19,484,457,508**
Total 2017 - 2020	**81,328,997,046**	**86,272,271,833**	**87,311,309,833**	**84,432,649,199**
OVERALL GOVERNANCE				
C.1 ENABLING ENVIRONMENT	**2,051,883,667**	**1,643,689,667**	**2,207,633,667**	**1,521,295,000**
C.1.1 Institutions and coordination mechanisms	979,743,000	949,143,000	892,893,000	892,893,000
C.1.2 Trade and markets	47,290,000	22,290,000	22,290,000	22,290,000
C.1.3 Advocacy and communication	992,450,667	322,778,667	992,450,667	306,112,000
C.1.4 Infrastructures and organizational capacities	32,400,000	349,478,000	300,000,000	300,000,000
HARD INVESTMENTS PROGRAMMES				
C.2 PRODUCTION	**17,035,031,750**	**17,035,031,750**	**17,035,031,750**	**17,035,031,750**
C.2.1 Assets and inputs for diversified production	14,481,475,000	14,481,475,000	14,481,475,000	14,481,475,000
C.2.2 Prison farming for internal food security	710,200,000	710,200,000	710,200,000	710,200,000
C.2.3 Household-based farming	1,265,556,750	1,265,556,750	1,265,556,750	1,265,556,750
C.2.4 Animal based foods: fisheries	577,800,000	577,800,000	577,800,000	577,800,000
C.2.5 Animal based foods: livestock	1,553,960,000	1,553,960,000	1,553,960,000	1,553,960,000
C.3 BIOFORTIFICATION	**8,623,791,900**	**8,623,791,900**	**8,623,791,900**	**8,623,791,900**
C.3.1 Iron biofortification	2,905,402,500	2,905,402,500	2,905,402,500	2,905,402,500
C.3.2 Zinc biofortification	1,906,362,000	1,906,362,000	1,906,362,000	1,906,362,000
C.3.3 Vitamin A biofortification	3,812,027,400	3,812,027,400	3,812,027,400	3,812,027,400
C.4 POST-HARVEST	**5,117,230,000**	**5,152,493,333**	**5,152,493,333**	**5,152,493,333**
C.4.1 On farm storage	-	35,263,333	35,263,333	35,263,333
C.4.2 Processing	2,786,230,000	2,786,230,000	2,786,230,000	2,786,230,000
C.4.3 Transportation	2,331,000,000	2,331,000,000	2,331,000,000	2,331,000,000
C.5 FOOD SAFETY	**15,210,337,000**	**15,240,949,000**	**15,889,054,000**	**15,888,442,000**
C.5.1 Production stage	945,068,000	965,680,000	539,360,000	538,748,000
C.5.2 Processing stage	180,960,000	180,960,000	180,960,000	180,960,000
C.5.3 SOPs	2,984,734,000	2,994,734,000	2,995,234,000	2,995,234,000
C.5.4 Veterinary public health services	11,099,575,000	11,099,575,000	12,173,500,000	12,173,500,000
C.6 MARKETS	**4,942,150,000**	**4,944,234,000**	**4,935,958,000**	**4,633,734,000**
C.6.1 Infrastructures	301,360,000	301,360,000	301,360,000	360,000
C.6.2 Packaging	156,920,000	156,920,000	156,920,000	156,920,000
C.6.3 Labelling	500,000	9,500,000	1,224,000	-
C.6.4 Promotion and marketing	4,483,370,000	4,476,454,000	4,476,454,000	4,476,454,000
C.7 NUTRITION EDUCATION & BCC	**4,868,975,000**	**7,380,941,667**	**7,736,493,667**	**7,735,393,667**
C.7.1 Nutrition education	87,700,000	2,658,666,667	3,014,218,667	3,013,118,667
C.7.2 Behaviour Change Communication	4,781,275,000	4,722,275,000	4,722,275,000	4,722,275,000
SOFT INVESTMENT PROGRAMMES				
C.8 RESEARCH	**44,816,875**	**371,266,875**	**92,386,875**	**5,856,875**
C.8.1 Production / crop varieties	20,941,875	268,691,875	69,011,875	1,981,875
C.8.2 Development of nutrient-dense products	9,000,000	82,875,000	-	-
C.8.3 Identification and targeting of groups	-	3,625,000	19,500,000	-
C.8.4 Technologies	14,875,000	16,075,000	3,875,000	3,875,000
C.9 CAPACITY	**3,414,209,500**	**4,685,048,167**	**4,294,103,167**	**4,294,103,167**
C.9.1 Planning and managerial capacities at all levels	1,226,197,250	1,062,804,250	1,026,024,250	1,026,024,250
C.9.2 Capacities of agriculture extension workers at all levels	2,098,244,000	2,300,422,000	1,967,944,000	1,967,944,000
C.9.3 Capacity enhancement in the use of technologies	9,000,000	43,387,000	21,700,000	21,700,000
C.9.4 Capacity development among beneficiaries	80,768,250	1,278,434,917	1,278,434,917	1,278,434,917
C.10 MONITORING & EVALUATION	**1,252,341,267**	**1,285,839,667**	**1,195,599,667**	**58,050,000**
C.10.1 Baseline assessment and survey design	1,163,190,267	1,122,802,267	1,104,578,267	-
C.10.2 Data management	77,447,000	94,299,400	81,133,400	48,162,000
C.10.3 Regular monitoring	11,704,000	68,738,000	9,888,000	9,888,000

ANNEX

Membership of the Inter-ministerial Agriculture Nutrition Working Group

i. Director of Agriculture
ii. Director of Rural Development
iii. Director of Livestock
iv. Director of Planning Policy and Coordination.
v. Director of Agriculture Extension
vi. Director of Fisheries
vii. Director of Gender and Youth
viii. Director of Food and Strategic Reserve
ix. Assistant Director I (Permanent Secretary's Office)
x. Representative, Agricultural Research Council of Nigeria
xi. Representative of Fadama III
xii. Representative of the National Programme for Food Security (NPFS)
xiii. Representative of Ministry of Budget and National Planning
xiv. Representative of Federal Ministry of Health
xv. Representative of Federal Ministry of Women Affairs
xvi. Representative of Federal Ministry of Education
xvii. Representative of Federal Ministry of Water Resources
xviii. Representative of Federal Ministry of Industry, Trade, and Investments
xix. Representative of Food and Agriculture Organization of the United Nations (FAO)
xx. Representative of United Nations Children's Fund (UNICEF)
xxi. Representative of International Fund for Agricultural Development (IFAD)
xxii. Representative of the European Union (EU)
xxiii. Representative of Bill and Melinda Gates Foundation (BMGF)
xxiv. Representative of Save the Children International
xxv. Representative of Global Alliance for Improved Nutrition (GAIN)
xxvi. Representative of TechnoServe
xxvii. Representative of Africare Nigeria
xxviii. Representative of Clinton Health Access Initiative (CHAI)
xxix. The Senior Advisor to the Honourable Minister on Food Security and Nutrition
xxx. The FMARD Nutrition Desk Officer/ Head of the Nutrition and Food Safety Division

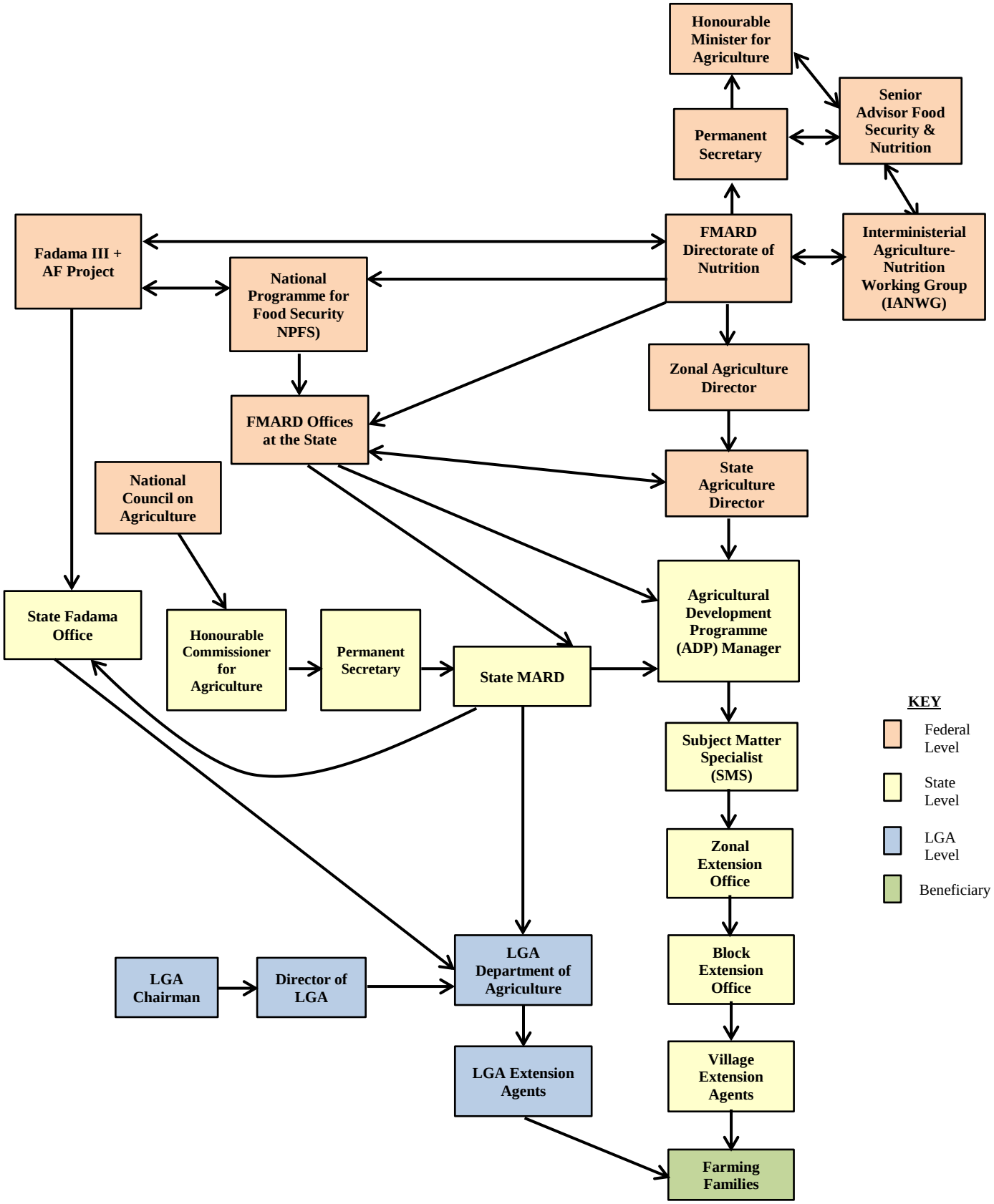
The Directors of the Federal Department of Agriculture and Department of Rural Development chair the meetings on behalf of the Permanent Secretary of Federal Ministry of Agriculture and Rural Development; and the Nutrition and Food Safety Division serves as the Secretariat. This body through the Nutrition and Food Safety Division will engage appropriate zonal and state level ministries of agriculture and other parastatals towards the implementation of nutrition sensitive agricultural policies and this Strategy in Nigeria.

Terms of Reference of the Inter-ministerial Agriculture Nutrition Working Group

The key scope and functionality of the Inter Ministerial Agriculture Nutrition Working Group is to:

1. Drive the development and institutionalization of innovative approaches that will improve nutritional outcomes and raise the level of food and nutrition security
2. Raise the profile of food security and nutrition within FMARD and mainstream nutrition into agricultural policies and programmes
3. Build and strengthen the evidence base for improving nutrition through the agricultural sector
4. Strengthen the leadership role of FMARD in improving nutrition through multi-stakeholder platforms

Figure Illustrating Expected Coordination of Nutrition-Sensitive Agriculture Activities within FMARD



Agricultural Sector Food Security and Nutrition Strategy Results Framework Matrix

OVERALL STRATEGY GOAL	To improve the food and nutrition security of all Nigerians while empowering women and promoting resilience of the most vulnerable through sustainable agricultural livelihoods			
ULTIMATE IMPACT	**Increase intake of nutritious food in adequate quantity and quality among the target populations**			
IMPACT INDICATOR	**BASELINE**	**TARGET**	**VERIFICATION SOURCES**	**ASSUMPTIONS**
Percentage of poorest households with acceptable Food Consumption Score (FCS)	71% (2011 Comprehensive Food Security and Vulnerability Analysis – CFSVA)	20% increase	CFSVA or baseline survey	The sustained and equitable development of nutrition-sensitive agriculture (including nutrition-sensitive agricultural value chains) contributes to economic growth, poverty reduction and increased food and nutrition security in Nigeria Increasing interest and commitment by the government of Nigeria in investing in agricultural developments with the aim of improving nutrition formally and financially translates into adequate investments, high level coordination and cross-sectoral national and state level mechanisms of collaboration Capacities at both federal and state levels to formulate, coordinate, monitor and evaluate ASFSNS interventions are strengthened where already existing and/or developed. Appropriate financing mechanisms and resources identified and implemented
Percentage of women of reproductive age (15-49) with increased Dietary Diversity or Minimum Dietary Diversity for Women at reproductive age (MDD-W)	TBD	20% increase from baseline values	MDD-W baseline, mid-term and end-line surveys	
Percentage of children 6 – 23 months old with Minimum Dietary Diversity (MDDIYC)	19% (2013 Nigeria Demographic and Health Survey -NDHS)	100% increase	NDHS or Nigeria Nutrition and Health Survey (NNHS)	
Global Hunger Index (GHI)	32.8% (2015 GHI)	50% reduction	International Food Policy Research Institute (IFPRI)	
Percent of national agriculture budget allocated to nutrition-sensitive interventions	0.62% (2014 FMARD budget analysis)	≥100% increase	Budget Office, Ministry of Finance or Department of Finance and Administration, FMARD	
The ASFSNS will also contribute in achieving the following national nutrition impacts and targets				
Prevalence of stunting among children <5 years old	37% (2013 NDHS)	40% reduction	NDHS	Other relevant sectors such as health, social protection, and education contribute and converge in their roles for addressing malnutrition
Prevalence of anaemia in non-pregnant women 15 to 49 years old	47% (2011 WDI)	50% reduction	World Development Indicators (WDI)	
Prevalence of low birth weight	15% (2011 WDI)	30% reduction	WDI	
Prevalence of obesity in women 15 to 49 years old	8% (2013 NDHS)	0% increase	NDHS	
Prevalence of overweight among children <5 years old	4% (2013 NDHS)	0% increase	NDHS	
Prevalence of wasting among children <5 years old	18% (2013 NDHS)	75% reduction	NDHS	

SPECIFIC OBJECTIVES		INTERMEDIATE OUTCOMES
1	To improve food security at the national, community, and household levels	Improved food safety along the value chain
2	To significantly reduce undernutrition, including micronutrient deficiency disorders, among infants, children, adolescents, and women of reproductive age	Enhanced value chains for improved nutrition
3	To prevent chronic nutrition-related non-communicable diseases	Diversified household food production and consumption, especially targeting women, and generally increased access to micronutrient rich foods
4	To increase the knowledge of nutrition among the populace and integrate nutrition education into agricultural formal and informal trainings	Nutrition research and information systems promoted
		Nutrition education, social marketing, behaviour change communication, and advocacy
5	To strengthen systems that build resilience for improved food and nutrition situation	Resilience and social protections nets for vulnerable groups built through food systems
6	To incorporate food and nutrition considerations into the Federal, State and Local Government agricultural sector development plans	Improved agricultural sector capacity to address food security and nutrition problems
		Nutrition surveillance and monitoring and evaluation

	PROXY INDICATORS	BASELINES	TARGETS	VERIFICATION SOURCES	RISKS AND ASSUMPTIONS
Specific objective 1: to improve food security at the national, community, and household levels	**INTERMEDIATE OUTCOME 1**	**Improved food safety along the value chain**			
	Change in aflatoxin contamination in maize and groundnut at point of consumption	TBD	25% decrease from baseline values at national level	Data/reports from 1. Partnership for Aflatoxin Control in Africa (PACA) 2. International Institute of Tropical Agriculture (IITA)	Aflatoxin control measures are scaled up in the planting, harvesting, processing, marketing, and storage of susceptible crops
	Tonnes of exported food commodities declared unsafe by international standards	TBD	50% decrease from baseline values at national level	Reports from the 1. Nigerian Customs Service (NCS) 2. National Agency for Food and Drug Administration and Control (NAFDAC) 3.National Bureau of Statistics (NBS)	Capacities of farmers, processors, and exporters to meet international food safety standards are increased

	PROXY INDICATORS	BASELINES	TARGETS	VERIFICATION SOURCES	RISKS AND ASSUMPTIONS
	INTERMEDIATE OUTCOME 2	**Enhanced value chains for improved nutrition**			
	Food Production Index	115 (2013 WDI)	25% increase	Reports from Federal Ministry of Agriculture and Rural Development (FMARD)	Food Production Index in past and updated years are properly calculated and accurate
	Cereal yields (kg) per hectare	1,537 (2013 WDI)	50% increase	Reports from the FMARD	Availability and widespread coverage of improved seeds, inputs, irrigation, and technical knowhow
	Food Insecurity Experience Scale	53% moderate to severe food insecurity (2014 provisional estimates from Gallup Word Poll)	≥50% reduction	FAO/WFP survey reports Baseline, mid-term and end-line survey reports Gallup World Polls	Equity in physical, economic, and physiological distribution of food
	Change in quantity of food imports	TBD	60% reduction from baseline values	NBS trade reports	Agricultural development reverses the underperformance of agriculture and thus reduces the level of food imports
	Retail market price of specified staple and nutrient-rich foods: • Maize • Millet • Rice • Groundnuts • Cowpeas • Cassava • Yam • Beef • Chicken eggs	TBD	≤10% decrease from baseline values	Nigeria Agricultural Market Information System (AMIS) NBS price bulletins FEWSNET	Agricultural development and reduction in food imports has a positive impact on food prices. Markets are competitive and integrated across and within geopolitical zones and states.
Specific objective 2: to significantly reduce undernutrition, including micronutrient deficiency disorders, among infants, children, adolescents, and women of reproductive age	**INTERMEDIATE OUTCOME 2**	**Enhanced value chains for improved nutrition**			
	Tonnes of selected nutrient rich foods (including bio-fortified crops) that are domestically produced, such as: • Tomatoes • Orange fleshed sweet potato • Pro-vitamin A rich cassava • Iron rich beans • Sorghum • Milk • Meat • Fish • Eggs	TBD	25% increase from baseline values	FMARD NBS Food Balance Sheets	National and state governments are committed to enhance farmer's capacities to access inputs, technologies and knowledge to boost agricultural production and productivity, with focus on marginalized rural households and women. Actions and activities to reduce postharvest loss and waste of nutritious foods such as vegetables, fruits, and animal foods, are accessed by smallholder farmers and scaled up. Capacities to collect, analyse, process and disseminate data on agricultural production and productivity might differ from state to state with data collection methods and outputs not being standardized. National authorities, in terms of resources and investments, strengthen capacity to harmonize and standardize Agricultural Information Systems
	Percentage of postharvest loss reduction of nutritious foods	TBD	40% reduction from baseline values	FMARD NBS	
	Percentage of waste reduction of nutritious foods	TBD	40% reduction from baseline values	FMARD NBS	

	PROXY INDICATORS	BASELINES	TARGETS	VERIFICATION SOURCES	RISKS AND ASSUMPTIONS
	INTERMEDIATE OUTCOME 3	**Diversified household food production and consumption, especially targeting women, and generally increased access to micronutrient rich foods**			
	Women's Empowerment in Agriculture Index (WEAI)	TBD	Increase from baseline values	Ad-hoc baseline, mid-term and end-line surveys	Women, including those in marginalized and poor rural communities, have access to inputs, technologies, capacity development, and finance opportunities; and are able to access markets
	Percentage of households with home gardens disaggregated by rural/urban residence	TBD	≥15% rural increase ≥50% urban increase from baseline values	Ad-hoc baseline, mid-term and end-line surveys	Significant proportion of households have access to land/appropriate space and other inputs for home gardens
	Percentage of households rearing poultry and/or small ruminants	TBD	≥10% rural increase ≥5% urban increase from baseline values	Ad-hoc baseline, mid-term and end-line surveys	Significant proportion of households have access to land/ appropriate space, knowledge, and inputs for small animal husbandry
Specific objective3: to prevent chronic nutrition-related non-communicable diseases (NCDs)	**INTERMEDIATE OUTCOME 3**	**Diversified household food production and consumption, especially targeting women, and generally increased access to micronutrient rich foods**			
	Number of domestically produced fruits and vegetables for commercial purposes	TBD	≥10% increase from baseline values	FMARD Ad-hoc baseline, mid-term and end-line surveys	Demand for indigenous vegetables and fruits is successfully increased
	Per capita consumption of fruits and vegetables	TBD	≥10% increase from baseline values	National Food Consumption and Nutrition Survey	Increased awareness of the importance of fruits and vegetables in reducing malnutrition and preventing NCDs Physical and economic barriers to fruit and vegetable intake are reduced
	Percentage of households/communities who received nutrition education sessions (also contributing to specific objective 4)	TBD	≥30% increase from baseline values	Ad-hoc baseline, mid-term and end-line surveys	Nutrition education material needs to be adapted for specific needs and purposes at state level. Need assessment needs to be carried out prior to the starting of any activity

	PROXY INDICATORS	BASELINES	TARGETS	VERIFICATION SOURCES	RISKS AND ASSUMPTIONS
Specific objective 4: to increase the knowledge of nutrition among the populace and integrate nutrition education into agricultural formal and informal trainings	**INTERMEDIATE OUTCOME 4**	**Nutrition research and information systems promoted**			
	Multisector national food and nutrition security information system in place	No system currently in place	Effective federal and state level system publicly accessible electronically	Regular bulletin on food security and nutrition released by the National Committee on Food and Nutrition (NCFN)	Solid understanding of the underlying causes of persistent hunger and malnutrition which is grounded in reliable data, statistics and analysis. Better information sharing and coordination
	Multisector state food and nutrition security information system in place	TBD	At least 30% of states are running a project to set up a food security and nutrition information system	Regular bulletins of food security and nutrition at state level	Thorough needs assessment needs to be conducted in terms of food security and nutrition information at state level
	INTERMEDIATE OUTCOME 5	**Nutrition education, social marketing, behaviour change communication, and advocacy**			
	Percentage of the population ≥15 years old who can correctly state food groups that need to be consumed daily for good nutrition, and give examples of foods in each food group	TBD	75% increase from baseline values	Ad-hoc baseline, mid-term and end-line KAP surveys	Nutrition communication is conducted at scale using contextually appropriate language, channels, and media Nutrition communication is understood and can be applied in everyday food consumption patterns
	Percentage of extension services who received training in nutrition-sensitive agriculture	TBD	50% increase from baseline values	Reports of the trainings	Well-functioning platforms need to be in place at state and local level to facilitate the delivery of the training
Specific objective 5: to strengthen systems that build resilience for improved food and nutrition situation	**INTERMEDIATE OUTCOME 6**	**Resilience and social protections nets for vulnerable groups built through food systems**			
	Resilience Index of households in poor rural or marginalized communities	TBD	Increase from baseline values	Resilience Index and Measurement Analysis of Ad-hoc baseline, mid-term and end-line surveys	Non-agricultural sector dimensions of household resilience are addressed by relevant stakeholders

Specific objective 6: to incorporate food and nutrition considerations into the Federal, State and Local Government agricultural sector development plans	**INTERMEDIATE OUTCOME 7**	**Improved agricultural sector capacity to address food security and nutrition problems**			
	PROXY INDICATORS	**BASELINES**	**TARGETS**	**VERIFICATION SOURCES**	**RISKS AND ASSUMPTIONS**
	Percentages of the following institutions that have a Nutrition Focal Point: • State Ministries of Agriculture • Agricultural Development Programmes (ADPs) • Local Government Departments of Agriculture (LGDAs)	TBD	50% of institutions	FMARD Ad-hoc baseline, mid-term and end-line surveys	Political commitment in support of achieving food security and nutrition is translated into strategies, investment, and capacity development programmes at all levels Transparent and accountable budgeting system that facilitates access to budget data
	Percent of total agriculture budget allocated to nutrition; disaggregated by state and LGA level	TBD	≥100% of baseline values	Analysis of budget data from Agriculture Departments of Finance and Administration at federal, state, and LGA levels	
	Percentage of Agricultural Extension Departments in Polytechnics and Universities that include nutrition in their curriculum	TBD	100% of Agricultural Extension Departments	Federal Ministry of Education (FME) National University Commission of Nigeria (NUC)	Nutrition training is included in the basic requirements for Agricultural Extension Education published by the NUC
	INTERMEDIATE OUTCOME 8	**Nutrition surveillance and monitoring and evaluation**			
	Agricultural Sector Food Security and Nutrition database	No database exists	Electronic, annually updated database	FMARD	Government's capacity to monitor food security and nutrition is improved and there is political commitment to routinely monitor and evaluate food security and nutrition within the agricultural sector

Specific Objective (SO) 1: to improve food security at the national, community, and household levels						
Sub-component 1.1 of SO1: to promote good agricultural practices (GAPs) among farmers						
Immediate outcome 1.1	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Farmers apply commodity-specific GAPs in the food value chain (including nutrition-dense foods)	Percent of farmers applying commodity-specific GAPs (disaggregated by states/gender and commodities)	TBD		At least 50% of farmers use appropriate GAPs in the food value chain		Agricultural Production Surveys by National Programme for Food Security (NPFS)
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
1.1.1 Development/ adaptation of GAPs manuals for major commodities (including nutrition-dense commodities)	Number of GAPs manuals released (developed or adapted for the Nigerian context)	TBD	Identification, standardization, and documentation of best practices in the production of each commodity (including nutrition dense commodities)	≥5 commodity-specific GAPs released per year until all relevant commodities are addressed	GAPs manuals validated and published	FMARD – FDA, Agricultural Extension Department, FISS, National Agriculture Seed Council (NASC) State ADPs, International Fertilizer Development (IFDC), National Agriculture (NARIs), Federal Institute of Industrial Research Oshodi (FIIRO), Private Sector Stakeholders, Farmers Associations
1.1.2 Increased capacity of extension agents (EAs) to use GAPs manuals to train and support farmers	Number of extension agents who have the capacity to train and support farmers on commodity-specific GAPs (disaggregated by gender, state and commodity)	TBD	Training sessions (and regular refreshment trainings) on GAPs for groups of EAs, with a focus on commodities produced in the livelihood zones covered by each EA group	≥50 EAs have acquired relevant GAPs knowledge and practices each month	Reports of the trainings Knowledge tests of the EA Feed-backs from the community of farmers	
1.1.3 Strengthen capacity of producer/farmer associations in commodity-specific GAPs	Number of producer/ farmer associations with strengthened capacity in commodity-specific GAPs	TBD	•Organization/identification of producer/farmer associations •Establishment of commodity-specific demonstration plots (through FFSs where available) •Training of producer associations	≥10 associations trained per commodity produced in each livelihood zone per year	Reports of trainings/ (including results of KAP questionnaires)	

Sub-component 1.2 of SO1: the scale-up of modern/improved transformation and storage techniques and technologies (at community and household level)						
Immediate outcome 1.2	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Improved transformation and storage of food (including nutrient dense food)	Quantity (tonnes) of commodities transformed and stored using improved techniques and technologies	TBD		At least 50% increase in the use of improved transformation and storage techniques and technologies		FMARD reports Ad-hoc surveys at farm or household level
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
1.2.1 Facilitated procurement/ manufacture of improved drying and storage technologies by farmer associations	Change in number of precision drying and hermetic storage equipment available and affordable for farmers	TBD	•Institution of duty/tax waivers for import/ production of hermetic storage and precision drying equipment •Reduction in lending rates for procurement/ production of equipment	At least 50% increase in the number of improved drying and storage technologies acquired by farmer associations	FMARD	FMARD – Departments of Agricultural Mechanization, Food Strategic Reserves (FSR), Extension, Federal Department of Agriculture (FDA) of the FMARD Private Sector Stakeholders, State ADPs
1.2.2 Promotion of improved transformation and storage techniques and technologies to farmer associations	Change in number of farmers using improved technologies, (disaggregated by state and gender)	TBD	•Prepare guidelines on use of improved technologies and techniques, such as precision drying, hermetic storage, and on-farm storage technologies (e.g. 1 tonne metal silo bin) •Training of extension workers to disseminate guidelines •Training of farmers to use technologies and techniques	At least 50% increase in the number of improved drying and storage technologies effectively used by farmer associations	FMARD	
Sub-component 1.3 of SO 1: to promote food irradiation						
Immediate outcome 1.3	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Reduced microbial contamination and spoilage in food	Percent reduction in postharvest losses attributable to local gamma irradiation	0%		≥20% reduction in postharvest losses in attributable to gamma irradiation of local produce		FMARD
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
1.3.1 Capabilities for food irradiation is enhanced	Gamma irradiation facility at Sheda, Abuja is certified by experts and ready for use	Irradiation facility is not completely ready to use	•Construction of road leading to gamma irradiation facility and other structures necessary to finalize the use of the facility (not funded under this ASFSNS) •Development of standard operating procedures for irradiation of various foods •Appropriate training of personnel	1. Standard operating procedures are available 2. All personnel at the Sheda Irradiation facility is trained	Reports from the Sheda Science and Technology Complex (SHESTCO)	Federal Ministry of Science and Technology (FMST) FMARD – FSR, Extension State ADPs, Private Sector Stakeholders

EXPECTED OUTPUTS	OUTPUT PROXY INDICATORS	BASELINES	INTERVENTIONS/ INVESTMENTS	TARGETS	VERIFICATION SOURCES	RESPONSIBLE INSTITUTIONS
1.3.2 States are sensitized about the use of gamma irradiation	Number of trainings about gamma irradiation conducted to relevant stakeholders at state level Number of states visited	0 Relevant stakeholders trained 0 States	•Identification of states with requisite infrastructure to send produce to the irradiation centre •Identification of produce to be targeted for irradiation •Preparation of presentation to highlight the benefits of irradiation for each produce •Advocacy visits to state and local level policymakers, as well as farmer associations	All relevant stakeholders in the 11 states within a 4 to 5 hour drive from the facility, and Abuja Federal Capital territory (FCT)	Reports of advocacy visits Reports of trainings Knowledge and practice test for the personnel	Federal Ministry of Science and Technology (FMST) FMARD – FSR, Extension State ADPs, Private Sector Stakeholders
1.3.3 Gamma irradiation is deployed for food security and safety	Tonnes of food irradiated by state	0	• Establishment of preparation and bagging centres in the states involved •Preparation of irradiation and movement schedules for produce	20% increase from baseline values	Reports from SHESTCO	
Sub-component 1.4 of SO 1: to develop a National Aflatoxin Control Initiative						
Immediate outcome 1.4	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Implementation of National Strategy on Aflatoxin Control	Percent of farmers of susceptible crops that apply appropriate practices for aflatoxin control (disaggregated by state and gender)	TBD		≥50% increase in farmers applying appropriate practices for aflatoxins control		FMARD
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
1.4.1 National Aflatoxin Control Strategy is developed	Aflatoxin control strategy is published	There is no national aflatoxin control strategy	•Research to identify entry points of aflatoxin contamination in susceptible crops •Research and dialogue with subject matter specialists to determine best practices for reducing aflatoxin contamination at each entry point •Compilation of best practices into a national strategy •Validation and finalization of the strategy	Aflatoxin strategy document that addresses all susceptible crops and all potential entry points of contamination is available by 2018	Research reports Reports of the expert meetings and validation meetings	FMARD – FDA, Extension services International Institute for tropical Agricutlure (IITA), National Agency for Food and Drug Administration and Control (NAFDAC)
1.4.2 Capacity to implement National Aflatoxin Control Strategy is increased	Number of trainings related to implementation of the aflatoxin strategy Number of people trained, disaggregated by gender Action plan available	No training currently available	•Development of training materials based on the aflatoxin strategy •Training of extension agents •Cascading of audience specific training to farmers, processors, distributors and other actors along susceptible value-chains •Support for increased production of necessary technologies for aflatoxin control (such as Aflasafe)	All relevant stakeholders have the capacity to implement the strategy by 2020	Training reports	

Sub-component 1.5 of SO 1: to ensure that agricultural practices and produce conform to Codex Alimentarius standards						
Immediate outcome 1.5	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Reduced chemical contamination of food	Percentage of commodity-specific market samples that comply with Codex Alimentarius Maximum Residue Limits (MRLs) for pesticides	TBD		At least 75% of market samples are within Codex MRLs for pesticides		NAFDAC monitoring reports
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
1.5.1 Relevant technical departments within FMARD provide inputs into the setting of Codex standards	Number of FMARD technical departments that attend NCC meetings	TBD	•Advocacy to relevant departments in FMARD on importance of attendance at NCC meetings •Resource mobilization for attending NCC meetings •Targeted activities to develop capacity to effectively attend the NCC meetings	All departments involved participate with relevant stakeholders to NCC meetings	Minutes and list of participants of NCC meetings	FMARD – FDA, Animal Husbandry, Fisheries, FSR, NAQS Standards Organization of Nigeria (SON), NCC, NAFDAC, Consumer Protection council (CPC), Ministry of Industry, Trade and Investment (FMITI), Ministry of Science and Technology (FMST)
1.5.2 National Agricultural Technical Working Group for Codex is strengthened	Number of standards and codes of practices established Number of codes of practices implemented	TBD	•Resource mobilization to convene regular working group meetings •Identification and compilation of country-specific commodities and corresponding international MRLs •Research and consultations to establish MRLs within national context	≥50% increase in the number of codes of practices established ≥50% increase in the number of codes of practices implemented	FMARD reports Minutes of Working Group meetings	
1.5.3 Capacity of stakeholders in the agricultural value chains to conform to Codex MRLs for pesticides is increased	Number of information dissemination for a/trainings on Codex MRLs for pesticides Number of people trained (disaggregated by state and gender)	TDB	•Development of education manuals for stakeholders at different points of agricultural value chains •Information dissemination on pesticide MRLs •Training on guidelines of actions that ensure conformity with MRLs	≥50% increase in the number of for a/trainings on Codex MRLs for pesticides ≥50% increase in the number of relevant stakeholders trained	Training reports	
1.5.4 Increased monitoring and evaluation of pesticide MRLs in commodities	Number of M&E exercises	TBD	•Development of standard operating procedures for monitoring MRLs in commodities •Purchase of rapid pesticide level detection test kits •Training to regulatory agencies on use of test kits and adequate sampling procedures •Resource mobilization for monitoring at different points along commodity value chains	≥50% increase in the number of M&E exercises	Monitoring reports	

Sub-component 1.6 of SO 1: to collaborate with food safety regulatory agencies to facilitate compliance with standards						
Immediate outcome 1.6	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Locally consumed foods meet international standards of safety and quality	Volume (in tonnes) of agricultural produce that meets standards of safety and quality	TBD		≥50% increase in the quantity (tonnes) of agricultural produce that meets standards of safety and quality		Reports from ad-hoc sampling and testing surveys
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
1.6.1 Certification system to signal quality for foods meeting standards is developed	Existence of a unified certification system	Fragmented and confusing certification system	•Compilation of standards for different commodities •Identification of all ministries, department, and agencies (MDAs) involved in adequate product certification •Development of a unified system to certify food quality •Development of a logo to signal certification of food quality	A multi-agency unified and streamlined certification process	FMARD reports	FMARD – Nigerian Agriculture Quarantine Services (NAQS), FDA, Food Strategic reserves (FSR) Nigerian Customs Services, SON, NAFDAC, Private Sector Stakeholders, Export Promotion Council, State ADPs, Farmers associations
1.6.2 Public (including farmers and marketers) is aware of international standards of quality and certification signals for quality	Number of public awareness events conducted Number of farmers and marketers trained (disaggregated by state and gender)	TBD	•Identification of appropriate media and channels for different audience •Development of education materials for different media •Periodic public enlightenment events/sessions, conveying consistent messages	≥50% of the population reached with food quality and certification messages	Ad-hoc surveys	
1.6.3 Farmers and marketers are supported to meet standards	Percent of foods intended for export that meet international quality standards	TBD	•Electronic platform where specific standards for different commodities can be accessed • Platform for expert consultation on challenges faced in achieving food quality standards	≥30% increase	Reports from ports of exit around the country	
Sub-component 1.7 of SO 1: to support facilities and systems that can promote food safety						
Immediate outcome 1.7	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Food safety is promoted in warehouse receipt systems, commodities exchange boards, and aggregation centres	Percentage of food samples from facilities/systems that meet food quality standards	TBD		100% of food samples taken from warehouse receipt systems, commodities exchange boards, and aggregation centres meet minimum food safety and quality standards		SON monitoring reports

ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
1.7.1 Facilities and systems that can promote food safety and quality are inventoried	Existence of a list of appropriate facilities/systems	TBD	•Research to identify formal and informal warehouse receipt systems, commodities exchange boards, aggregation centres, and similar facilities/ systems •Documentation of facilities/ systems, commodities involved, and existing food safety efforts	Complete list of relevant facilities/ systems, including location and priority commodities	FMARD reports	FMARD – FSR, FDA (Nutrition & Food Safety Division) NAFDAC, AFEX Commodity Exchange, Private Sector Stakeholders, State ADPs, Farmers Groups/ Associations
1.7.2 Food safety and quality standards are enforced in facilities and systems	Number of facilities/ systems that follow standard operating procedures for ensuring food quality	TBD	•Development of contextually appropriate standard operating procedures (SOPs) and guidelines for achieving food quality standards within facilities and systems •Provision of SOPs and guidelines to each facility/ system and education about use •Routine monitoring of facilities/ systems to ensure that SOPs and guidelines are in use •Enforcement of SOPs and guidelines in non-complying facilities/ systems	100% of facilities/ systems adhere to food quality SOPs and guidelines	Routine monitoring reports	
Sub-component 1.8 of SO 1: to increase production of nutrient dense food crops						
Immediate outcome 1.8	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Improved productivity and production of major nutrient dense foods in different geo-political zones	Ratio of domestic to imported nutrient dense commodities	TBD		Domestic to imported selected nutrient dense crops ratio increases by 30%		Reports from FMARD NBS
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
1.8.1 Improved and streamlined access to land	Number of acres of new farmland cultivated (by state and gender)	TBD	•Liaise with state governors to reserve tracts of land for farming •Facilitate a transparent and efficient land acquisition and documentation process	TBD	Reports of ease of doing business in agriculture index	FMARD – Federal Department of Agriculture (FDA), Horticulture Division, Federal Input Supply Services, Agriculture Mechanization, Extension, Land & Climate Change Department NIRSAL, RUFIN, BOA, RUWASA, Federal Ministry of Water and Resources
1.8.2 Improved credit and insurance facilities to incentivize additional private sector participation in nutrient dense crop production	% reduction in agricultural lending interest rates Number of additional commercial farmers (disaggregated by state and gender)	TBD	•Research on the agricultural credit approval process and turnaround time, to identify entry points for a more efficient process •Willingness-to-pay studies to identify insurance premiums •Awareness creation about available resources and opportunities	TBD	Audit reports of Bank of Agriculture (BOA), Rural Finance Institution Building Programme (RUFIN), and Nigeria Incentive-Based Risk Sharing System for Agriculture landing (NIRSAL)	
1.8.3 Increased access to mechanized agriculture	Number of tractors per 100 acres	TBD	•Establish waivers for agriculture equipment •Ensure that agriculture credit and insurance facilities extend to agriculture equipment	TBD	World Development Indicators	

EXPECTED OUTPUTS	OUTPUT PROXY INDICATORS	BASELINES	INTERVENTIONS/ INVESTMENTS	TARGETS	VERIFICATION SOURCES	
1.8.4 Increased import levies and excise duties on commodities that can be locally produced	Percent reduction in commodity importation following increase in levies and duties	TBD	•Validate that domestic production has been significantly increased •Identify level of duties and tariffs that will prohibit importation of affected commodities •Liaise with Nigerian Customs Services to ensure that levies and duties are enforced	TBD	Reports from Nigerian Customs Services (NCS)	(FMWR), state ADPs, CBN, Federal Ministry of Finance, Nigerian Customs Services, FAO, USAID, World Bank, International Development Fund (IFAD), Bill and Melinda Gates Foundation (BMGF)
1.8.5 Water resources are harnessed for sustainable year-round crop production	Number of multi-use water systems built	TBD	•Support construction of roof water harvesting structures and other multi-use water systems •Identify contextually appropriate irrigation solutions and facilitate their scale up •Ensure that waivers and credit for mechanized agriculture extend to irrigation equipment	TBD	Reports from Federal Ministry of Water Resources (FMWR), FMARD	
1.8.6 Meaningful extension services exist for crop production	Number of farmers that access extension services	TBD	•Establish a comprehensive expert consultation platform that includes resources for every aspect of the production process, including land clearing, commodity selection, planting, irrigation, pest management, food safety, mechanization, harvesting, processing, credit, etc.	TBD	Farmer surveys	

Sub-component 1.9 of SO 1: to revive prison farms and agro-allied prison industries

Immediate outcome 1.9	Proxy indicator	Baseline	Target	Verification Source
Increased food availability	Number of additional tonnes of food produced from prison farms	TBD	TBD	Nigerian Prison Services

ASSOCIATED OUTPUTS

EXPECTED OUTPUTS	OUTPUT PROXY INDICATORS	BASELINES	INTERVENTIONS/ INVESTMENTS	TARGETS	VERIFICATION SOURCES	RESPONSIBLE INSTITUTIONS
1.9.1 Prison farms are revived/ established for growing nutrient dense foods	Number of hectares of nutrient dense foods cultivated through the Nigerian Prison Services	TBD	•Dialogue with Nigerian Prison Services to commence large/ medium-scale production on prison farms and market gardens •Identification of a private agro-based implementing partner companies •Resource mobilization for cultivation of prison farms •Identification of commodities to be produced per prison farm/ market garden •Provision of agricultural inputs (tractors and tractor-driven implements, seeds, fertilizer, agro-chemicals and veterinary products) for farm cultivation •Provision of agricultural extension services for prison farms	All farm centres and market gardens will be cultivating 100% of their arable land, and farms will achieve a yield of up to 4 metric tons of cereals per hectare and 35 metric tons of tubers per hectare, by 2020	Reports from FMARD and Nigerian Prison Services Inspection visits reports	FMARD – FDA, Animal Husbandry, Fisheries, FISS, Extension Nigeria Prison Service, State ADPs

EXPECTED OUTPUTS	OUTPUT PROXY INDICATORS	BASELINES	INTERVENTIONS/ INVESTMENTS	TARGETS	VERIFICATION SOURCES	RESPONSIBLE INSTITUTIONS
1.9.2 Prisoners' agro-based capacity and skills developed	Number of prisoners trained in at least one aspect of an agricultural value-chain	TBD	•Select prisoners to benefit from agro-based training, based on severity of crimes and incarceration time yet to be completed •Conduct baseline assessment to identify existing skills and abilities •Divide prisoners into groups based on the particular skills be transferred to each group (e.g. crop production, animal rearing, processing, etc.) •Develop training manuals for different skills, and train prisoners	≥5,000 prison inmates have their capacity built in agro-based skills	Records of the Nigerian Prison Services	FMARD – FDA, Animal Husbandry, Fisheries, FISS, Extension Nigeria Prison Service, State ADPs
1.9.3 Agro-allied prison industries revived/ developed	Number of additional functional agro-allied prison industries	TBD	•Dialogue with Nigerian Prison Services to commence medium-scale agro-allied industries •Identification of the type of industry to be established, based on raw materials available from prison farms close by •Identification of private agro-based implementing partner companies •Resource mobilization and support for the acquisition of necessary equipment	3 agro-allied, medium-scale prison industries revived/ established per year, commencing from 2018	Inspection visits reports	

Sub-component 1.10 of SO 1: to increase market access for nutrient dense agricultural produce

Immediate Outcome 1.10	Proxy indicator	Baseline	Target	Verification Source
Markets are integrated across the country	Correlation coefficient of first differenced price series of staple foods	TBD	≥0.80 correlation coefficient between all geo-political zones in the country, for all staple foods	NBS

ASSOCIATED OUTPUTS

EXPECTED OUTPUTS	OUTPUT PROXY INDICATORS	BASELINES	INTERVENTIONS/ INVESTMENTS	TARGETS	VERIFICATION SOURCES	RESPONSIBLE INSTITUTIONS
1.10.1 Increased availability of facilities and systems that enable market access	Additional number of each appropriate facilities/systems	TBD	•Increased establishment of silos, warehouse receipt systems, commodities exchange boards, and aggregation centres through public-private partnerships and tax exemptions/ low interest financing	TBD	FMARD reports	FMARD – FSR, FDA (Nutrition and Food Safety Division) Africa Exchange Holdings (AFEX) Commodity Exchange, Private Sector Stakeholders, State ADPs, Farmers groups and farmer associations
1.10.2 Access to facilities and systems are enabled for smallholder farmers	Percent of smallholder farmers linked to facilities/ systems, disaggregated by gender	TBD	•Include list of facilities/ systems, services offered, and location in information systems •Liaise between smallholder farmers associations and commodity/ location appropriate facility/system	TBD	User database of facilities and systems	
1.10.3 Commodity marketers and distributors are incentivized to use facilities/systems	Number of marketers/ distributors that purchase through facilities/systems	TBD	•Regularly updated online platform where prices, quality, and available quantities of each commodity in a facility/system is available. Contact information, including phone numbers, of each facility/ system is also provided	TBD	Usage records of the platform	

Specific Objective (SO) 2: to significantly reduce undernutrition, including micronutrient deficiency disorders, among infants, children, adolescents, and women of reproductive age						
Sub-component 2.1 of SO 2: to reduce postharvest losses for improved nutrition						
Immediate outcome 2.1	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Increased availability and affordability of fruits and vegetables at markets	Available variety (number) of fruits and vegetables all year round Price of fruits and vegetables available all year around	TBD		Stable availability of fruits and vegetables all year round Affordable price of fruits and vegetables all year around		FMARD Market surveys
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
2.1.1 Backward integration is increased in the local fruits and vegetables products industry	Percentage of local fruits and vegetables products companies that source their raw materials locally	TBD	•Stakeholders' dialogue with representatives of local fruits and vegetables products companies to identify raw material requirements and factors that will facilitate backward integration •Staffed electronic communication system where companies can input their raw material needs, including quality and quantity •Identification of fruits and/or vegetables farmers associations to meet companies demands	TBD	FMARD reports Records of electronic communication system	FMARD – Nutrition & Food Safety Division, Food Strategic Reserve Department Financial Institutions (NIRSAL), Global Alliance for Improved Nutrition (GAIN), Food and Agriculture Organisation (FAO), BMGF, food safety experts (SON, NAFDAC), industry leaders (cold chain, packaging, crating, and processing), research partners (including FIIRO), IFAD, World Bank, Rockefeller Foundation
2.1.2 Technology for transformation and transportation of fruits and vegetables is available and affordable for small and medium enterprises	Number of cold storage facilities; packaging solutions established Number of SMES that have access to improved technology	TBD	•Research to identify packaging solutions and other technology to increase shelf-life of fruits and vegetables, while maintaining nutrient content •Identification and promotion of crating solutions for transporting fruits and vegetables •Ensuring that agricultural credit facilities and equipment waivers extend to the procurement of cold storage facilities	TBD	FMARD	

Sub-component 2.2 of SO 2: to increase production and processing of animal foods						
Immediate outcome 2.2	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Increased affordability of animal foods	Increased availability of fish, beef, and dairy products at retail markets Decreased price of fish, beef, and dairy products at retail markets	TBD		10% increase of availability of animal source food at retail market level 10% decrease of price of animal source food at retail market level		NBS (price bulletins) FMARD Development partners through their price surveillance mechanisms, FAO, World Food Programme-Vulnerability Analysis Mapping-(WFP-VAM), FEWSNET
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS / INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
2.2.1 Increased knowledge generation for animal production and processing	Number of studies conducted	TBD	•Identification of the necessary inputs, including feed and medicines, for rearing locally consumed animals •Research to identify ways to safely, sustainably, and efficiently supply feed and water for animal production •Research local ways to process and package animal foods into locally consumed products	TBD	Study reports	FMARD – Animal Husbandry and Fisheries Departments FAO, BMGF, Research Institutes, World Bank, Private Sector, NAFDAC, SON
2.2.2 Increased access to safe feed, water, and medicines for animal production	Percentage of animal producers with constraints in accessing animal feed, disaggregated by gender	TBD	•Tax holidays for animal feed companies, contingent on quality, quantity, and reach of feeds sold •Provision of boreholes at strategic locations in high animal production livelihood zones •Provision of safe solid and liquid waste disposal mechanisms	75% reduction	Sample surveys of animal producers	
2.2.3 Improved capacity for animal production and processing	Number of animal producers trained, disaggregated by gender	TBD	•Development of a 'National Guide to Animal Production and Processing for Food' that will be used to train farmers on essential knowledge for safe, efficient, and sustainable production •Training of extension workers to use the guide, and cascading of training to animal farmers	TBD	Training reports	
2.2.4 Increased access to extension and veterinary services	Percentage of animal producer groups/ associations that are linked to regular extension services and veterinary services Percentage of female members in groups/ associations	TBD	•Listing of available animal production extension and veterinary services by state, specifying physical location of service providers •Establishment of animal producer associations, including female members •Linking animal producer associations to closest/ most appropriate extension and veterinary service	TBD	Sample surveys	

EXPECTED OUTPUTS	OUTPUT PROXY INDICATORS	BASELINES	INTERVENTIONS / INVESTMENTS	TARGETS	VERIFICATION SOURCES	RESPONSIBLE INSTITUTIONS
2.2.5 Increased access to credit and machinery for animal production and processing	Percentage of animal producers with access to credit and mechanized production Number of additional animal foods processing companies	TBD	•Ensuring that animal producers and processors are eligible for available credit and insurance facilities •Ensuring that waivers on agricultural equipment cover equipment for animal production and processing •Creation of animal food processing zones (AFPZs) to facilitate sourcing of raw materials an d marketing/ distribution of finished products	TBD	FMARD Sample surveys	
Sub-component 2.3 of SO 2: to implement the Transformative Partnership for High Energy Foods (P4HNF)						
Immediate outcome 2.3	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Increased local production of ready to use therapeutic and supplementary foods	Quantity of high energy nutritious foods produced	TBD		100% of local demand		FMARD FMOH
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
2.3.1 Constraints to the local production of high energy nutritious foods in Nigeria are reduced	Number of companies producing high energy nutritious foods	TBD	•Identification of the policy, regulatory, market, and food safety related constraints to the local production of high energy nutritious foods •Identification of the government agencies that are necessary to address these constraints • Stakeholders' fora to agree on and assign actions to address the constraints	TBD	Reports from NAFDAC company registration/ monitoring	FMARD – Nutrition & Food Safety Division, Extension, Agri-business Private Sector Stakeholders, PCD, GAIN, UNICEF, FAO, WFP, NASSI, Research Institutes, International Development Agencies
2.3.2 Demand for high energy nutritious foods is increased	Number of persons consuming high energy nutritious foods, disaggregated by gender	TBD	•Establish structured market incentives for locally produced therapeutic, supplementary, and complementary foods by linking these foods with institutional initiatives such school feeding programmes, Community Management of Acute Malnutrition projects, prison feeding programmes, and related institutions	TBD	Reports of institutional initiatives	
2.3.3 Farmers' cooperatives are linked to key value chains for P4HNF	Number of farmer associations linked to supply chain of P4HNF	TBD	•Periodic identification of quantity of each commodity required for the production of high energy nutritious foods •Identification of the production capacity of involved farmer associations •Liaise between farmer associations and companies to facilitate procurement of commodities •Training and agribusiness development for farmer associations to supply the quality and quantity demanded	TBD	FMARD Reports from farmers' associations	

Sub-component 2.4 of SO 2: to increase coverage of bio-fortified staple crops						
Immediate outcome 2.4	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Increased production and distribution of bio-fortified crops	Number of farmers producing bio-fortified crops, (disaggregated by state and by gender)	TBD		TBD		FMARD
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
2.4.1 Bio-fortified crops already locally introduced are scaled-up	Number of states where orange fleshed sweet potato, pro-vitamin A cassava, yellow maize, and iron sorghum can be found in the markets	TBD	•Compilation of best practices for the production and utilization of available varieties of orange flesh sweet potato, pro-vitamin A cassava, yellow maize, and iron sorghum •Awareness creation among farmers producing traditional varieties of crops to promote switch to bio-fortified varieties •Support for viable seed system •Social mobilization among the public about the benefits of bio-fortified crops and how to identify them	36 states and FCT by 2025	Market surveys	FMARD – FDA, ARCN, NAERLS National Centre for Genetic Resources and Biotechnology, ICRISAT, HarvestPlus, IITA, CIP, BMGF
2.4.2 Additional bio-fortified crops are locally introduced	Iron beans and zinc rice are developed and tested for local production	TBD	•Research to identify local adaptation needs of internationally available varieties of iron beans, zinc rice, and other bio-fortified crops •Research to develop contextually appropriate varieties •Field testing of varieties and adjustments as necessary •Varietal release	Varieties of iron beans and zinc rice are available for local scale-up	Reports from agricultural research institutes	IITA, HarvestPlus, National Agricultural Research Institutes (NARIs)
Sub-component 2.5 of SO 2: to facilitate the business-to-business fortification of food around aggregation centres and SCPZs						
Immediate outcome 2.5	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Increased fortification of locally processed foods	Percentage of locally processed foods that are fortified	TBD		TBD		FMARD

ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
2.5.1 Regulatory environment for food fortification is strengthened	Percentage of food vehicles covered by existing mandatory food fortification legislation that are actually fortified	TBD	•Dialogue with processors in staple crops processing zones (SCPZs) to identify barriers to food fortification •Advocacy to necessary institutions to reduce policy and regulatory barriers •Communication of fortification standards, regulations, and guidelines to processors •Support for the enforcement of fortification legislation by providing information about food processors to regulatory agencies	75% increase	Fortification Assessment Coverage Tool (FACT) Survey	FMARD – FDA, Food Strategic Reserves, Agribusiness & Marketing Department Federal Ministry of Industry, Trade, and Investment; Private sector, NAFDAC, SON, CPC, GAIN, MI, BMGF
2.5.2 Existing legislation on fortification covers food vehicles not presently covered	Number of additional food vehicles for which fortification is mandated	TBD	•Identification of foods that are widely processed in Nigeria, including those process in SCPZs •Identification of widely processed foods that are already covered by existing fortification legislation •Dialogue with National Fortification Alliance (NFA) to promote legislation on additional foods	TBD	Reports of NFA meetings	

Sub-component 2.6 of SO 2: to promote homestead gardens				
Immediate outcome 2.6	**Proxy indicator**	**Baseline**	**Target**	**Verification Source**
Increased household access to micronutrient rich vegetables	Number of home gardens established	TBD	TBD	FMARD

ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
2.6.1 Production of fruits and vegetables around homesteads, especially by women, is supported	Number of community trainings on establishing homestead gardens Number of female beneficiaries of trainings	TBD	•Development of a national generic manual on establishing home gardens, which includes nutrition information •Advocacy to Local Government Chairmen and Community Heads to facilitate access to land for homestead gardens •Promotion of the establishment of women groups •Provision of training to women groups •Provision of extension support centres that can assist households in resolving challenges with home gardening	TBD	FMARD	FMARD – FDA, Extension, FISS, Land & Climate Change Department, Rural Mobilization RUWASA, FMWR, FMWA, NPFS, state ADPs, NGOs, CSOs, CBOs

EXPECTED OUTPUTS	OUTPUT PROXY INDICATORS	BASELINES	INTERVENTIONS/ INVESTMENTS	TARGETS	VERIFICATION SOURCES	RESPONSIBLE INSTITUTIONS
2.6.2 Indigenous vegetables are promoted	Simpson Index	TBD	•Identification of indigenous vegetables in each livelihood zone •Research to identify conditions necessary for growth of indigenous vegetables •Promotion of the growth of indigenous vegetables in homestead gardens	10% increase	Agricultural biodiversity surveys Household surveys	
2.6.3 Increased adoption of innovative ideas to homestead gardening and better management of natural resources	Number of households with limited access to land that have vegetable gardens	TBD	•Identification of contextually adaptable innovations for limited land home gardening, such as keyhole gardens and raised bed gardens •Piloting of innovations through the establishment of demonstration plots •Dissemination of technology to households and training	TBD		
Sub-component 2.7 of SO 2: to promote small animal husbandry						
Immediate outcome 2.7	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Increased household access to animal source foods, especially in rural areas	Number of households establishing small animal husbandry	TBD		TBD		FMARD
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
2.7.1 Mixed farming systems are promoted	Number of households growing crops as well as rearing animals	TBD	•Compile best practices for maximizing the benefits of combining horticulture with small animal production, while achieving food safety •Support community-based fish and poultry hatchery, and goat and sheep breeding services •Conduct community based training on small animal husbandry	TBD	FMARD	FMARD – Livestock, Fisheries, Veterinary & Pest Control, Extension, Rural Mobilization FMWA, State ADPs, NGOs, CSOs
2.7.2 Consumption of animal source foods in producing households is increased	Ratio of livestock producing households that consume an animal source food daily to non-producing households that do the same	TBD	•Include nutrition messages in animal husbandry training, emphasizing the importance of daily consumption of animal source foods •Train households to safely collect and process eggs and goat milk for household consumption	TBD	Household surveys	
Sub-component 2.8 of SO 2: to promote school agriculture programmes						
Immediate Outcome 2.8	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Access to vegetables and animal source foods is increased through the school system	Percentages of primary and secondary schools that have a functional school garden or rear animals	TBD		TBD		Federal Ministry of Education

ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
2.8.1 Services of agriculture extension staff are available to schools	Number of schools that receive agricultural extension services	TBD	•Obtain list of primary and secondary schools from Ministry of Education by LGA and ward •Assign schools to available extension agents in LGAs •Provide list of extension agents assigned to schools to the LGA Department of Education, including contact details of the agents •Through the Ministry of Education, advocate to schools to establish school gardens in accordance with the Implementation Guidelines on National School Health Programme	TBD	FMARD Ministry of Education	Federal Ministry of Education FMARD – Nutrition & Food Safety Division, FDA, Extension State ADPs, FMOH, FAO, NGOs, CSOs
2.8.2 Supply of improved farm inputs for crop and animal farming in schools is promoted	Number of schools receiving inputs	TBD	•Advocate to farmers associations and parent-teachers associations to provide inputs to school farms in their catchment areas	TBD	Federal Ministry of Education	
2.8.3 Operation of young farmers clubs are supported	Number of young farmers clubs established	TBD	•Encourage schools to set up young farmers clubs •Identify farming mentors and role models for the clubs through local farmers associations •Encourage farmers associations to adopt a club and motivate children to pursue agricultural careers	TBD	Federal Ministry of Education	
2.8.4 Learning experiences for successful home gardening are increased	Number of home gardens inspired through school gardens	TBD	•Local, successful school gardens/ farms are used as a point of reference for establishing home gardens •School gardens/ farms are used as demonstration plots for agricultural best practices •Pupils are encouraged to use school gardens/ farms as a models for gardens around their homestead	TBD	Federal Ministry of Education	

Specific Objective 3: to prevent chronic nutrition-related non-communicable diseases (NCDs)						
Sub-component 3.1 of SO 3: To scale-up the production of vegetables and fruits by smallholder farmers						
Immediate outcome 3.1	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Increased consumption of fruits and vegetables	Percentage of people who consume fruits and vegetables everyday	TBD		TBD		FMARD Food Consumption and Nutrition surveys
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
3.1.1 Access to inputs, including improved seeds, information, and irrigation is increased for smallholder fruit and vegetables farmers	Number of smallholder farmers producing fruits and vegetables	TBD	•Research to calculate average return on investment to smallholder farmers who produce fruits and/or vegetables •Preparation on information brochures for fruit and vegetable farmers •Provision of starter-packs and extension services for fruits and vegetable farming	TBD	FMARD	FMARD – FDA, Horticulture, Extension, FISS, NIHORT Universities, NGOs, CBOs, Federal Ministries of Education; Labour & Productivity; and Health; and Nigerian Prison Services
3.1.2 Demand driven production is supported through the use of institutional markets	Number of institutions where fruits and vegetables can be regularly accessed	TBD	•Promote the inclusion of fruits and vegetables in institutional markets such as schools, hospitals, and prison feeding programmes •Advocate to workplaces to include fruit/vegetable kiosks or vending in cafeterias, restaurants, or dining halls •Link institutional markets with fruits and vegetables farmers associations	TBD	Institutional surveys	

Specific Objective 4: To increase the knowledge of nutrition among the populace and integrate nutrition education into agricultural formal and informal trainings				
Sub-component 4.1 of SO 4: to sponsor the National Food Consumption and Nutrition Survey (NFCNS)				
Immediate outcome 4.1	**Proxy indicator**	**Baseline**	**Target**	**Verification Source**
Information to guide the content and design of nutrition interventions, including nutrition education, is provided	Policy brief based on the results of the NFCNS that highlight the implications of the results for nutrition education interventions	No policy brief available	Policy brief developed and disseminated within two weeks of the release of NFCNS results	MB&NP FMARD FMOH

ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
4.1.1 Survey is designed	Report of survey design	No survey design	•Convening of stakeholders to identify appropriate sampling, indicators, data collection, and instruments for conducting the NFCNS •Compiling information into a survey design •Validation of the survey design	Standardized survey design with multi-stakeholder partnerships	NBS reports FMARD reports	FMARD – ARCN, Nutrition & Food Safety Division National Bureau of Statistics, Development Partners, Universities
4.1.2 Data collectors, supervisors, and monitors are trained	Number of data collectors, supervisors, and monitors trained	Zero people trained	•Determination of the numbers of data collectors, supervisors, and monitors necessary and modalities of training •Identification of suitable and competent persons to perform these roles •Designing training materials •Conducting and cascading training	TBD	Training reports	
4.1.3 Data is collected, cleaned, and analysed	Existence of NFCNS data set	No data set	•Community mobilization •Operationalizing the survey design and collecting data •Cleaning the data and addressing inconsistent entries •Data analysis and tables generation	Publicly available, cleaned data set with standard indicators and recode manual	NBS reports	
4.1.4 Data is translated into easily understood information	Existence of survey report	No survey report	•Tables are merged and synthesized into intuitive versions •Narratives are written around tables •Charts and graphs are drawn to simplify/emphasize important information	A comprehensive survey report with an executive summary, that presents the findings of the survey in a concise and engaging manner	NBS	

Sub-component 4.2 of SO 4: to develop crop varieties with enhanced nutritional attributes				
Immediate outcome 4.2	**Proxy indicator**	**Baseline**	**Target**	**Verification Source**
Increased number of nutrient dense crops	Number of crop varieties developed	TBD	TBD	NARIs

ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS / INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
4.2.1 Research to achieve desired traits in local crops is conducted	Number of studies conducted to enhance the nutrient content of crop varieties	TBD	•Identification of crops to enhance •Determining which of several desired traits (increased nutrient content, decreased anti-nutrients, increased ease of preparation, and/or improved food safety) to target in each crop •Literature review and research on methods of achieving desired traits •Plant breeding to achieve the desired traits	TBD	Study reports	FMARD – ARCN, NARIs Universities, IITA, HarvestPlus, National Biotechnology Development Agency

EXPECTED OUTPUTS	OUTPUT PROXY INDICATORS	BASELINES	INTERVENTIONS / INVESTMENTS	TARGETS	VERIFICATION SOURCES	RESPONSIBLE INSTITUTIONS
4.2.2 Developed crop varieties is field-tested	Number of farmers planting new crop varieties for a trial	TBD	•Identification and selection of farmers to field test the production of new crop varieties •Support to identified farmers to plant new varieties and keep track of certain key performance indicators •Monitoring of test fields and farmer experiences with new varieties •Laboratory tests on harvests from new varieties to ensure that enhanced nutritional attributes are retained in real world setting	TBD	Reports from NARIs Ad hoc surveys	FMARD – ARCN, NARIs Universities, IITA, HarvestPlus, National Biotechnology Development Agency
4.2.3 Promotion and dissemination of successfully nutritionally enhanced new crop varieties	Number of hectares of new crop varieties planted Number of farmers who have switched from traditional to enhanced crop varieties	TBD	•Inclusion of new crop seeds in national seeds system •Identification and selection of seed producers •Campaigns to farmers to promote new crop varieties, citing the advantages over other varieties and show casing farmers who successfully tried new varieties and their testimonies •Support to farmers to replace base crop varieties with new varieties	TBD	Campaign reports Ad hoc farmer surveys	

Sub-component 4.3 of SO 4: to develop food products with improved nutritional attributes

Immediate outcome 4.3	Proxy indicator	Baseline	Target	Verification Source
Increased number of nutritious food products	Number of new food products with enhanced nutrition attributes developed	TBD	TBD	NAFDAC product registration reports

ASSOCIATED OUTPUTS

EXPECTED OUTPUTS	OUTPUT PROXY INDICATORS	BASELINES	INTERVENTIONS/ INVESTMENTS	TARGETS	VERIFICATION SOURCES	RESPONSIBLE INSTITUTIONS
4.3.1 Research to achieve desired properties in new food products	Number of studies conducted to improve the nutritional attributes of processed foods	TBD	•Identification of foods to improve •Determining which of several desired properties (increased nutrient content, decreased anti-nutrients, increased ease of preparation, and/or improved food safety) can be achieved through processing in each food •Literature review and research on improved processing techniques that can achieve desired properties •Development of technologies to produce the improved food products •Tests to determine palatability and acceptance of organoleptic properties of developed food products; and refinement where necessary	TBD	Study reports	FIIRO FMARD – FDA, Animal Husbandry, Fisheries, Extension, NARIs State ADPs, GAIN, Private Sector Stakeholders, SON, NAFDAC, CPC
4.3.2 Production of new food products are increased	Number of enterprises producing new food products	TBD	•Product marketing to small and medium scale enterprises to adopt technologies and techniques of improved food products •Advertisement to stimulate public demand of new food products	TBD	NAFDAC product registration reports	

Sub-component 4.4 of SO 4: to conduct assessments to guide implementation of entry points in the FSN Strategy						
Immediate outcome 4.4	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Contextualized knowledge to inform the operationalization of the AFSN Strategy	Number of relevant stakeholders aware of the Strategy	TBD		TBD		FMARD
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
4.4.1 Population groups with the greatest potential-to-benefit are the targets of each Strategy sub-component	Number of Strategy related interventions that are preceded by a pre-assessment	TBD	•Promotion of mini-studies prior to the implementation of any sub-component, to identify locations most affected by the sub-component, and to select target beneficiaries within these locations •Technical assistance and support for conduct of studies •Support for rapid analysis of study data, interpretation, and implications for sub-component implementation	TBD	Ad hoc surveys	FMARD – ARCN, NARIs FAO, GAIN, BMGF, IFPRI, DFID, USAID, CRS, ACF, SCI, FEWS NET
4.4.2 Implementation modalities for the sub-components in the Strategy are context specific and sensitive	Number of Strategy related interventions that involved community participation in the planning stage	TBD	•Promote community mobilization for interventions during the planning phase •Engage communities to discuss the intervention being planned, its benefits, and the importance of taking specified steps to ensure that community nutrition is also improved •Record reactions of communities and integrate their suggestions into sub-component implementation plan	TBD	Ad hoc surveys	
Sub-component 4.5 of SO 4: to promote the production and consumption of diverse diet						
Immediate outcome 4.5	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
All production activities are complemented with nutrition education messages that promote a diverse diet	Number of Strategy related interventions that incorporate nutrition education	TBD		TBD		FMARD
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
4.5.1 All new agricultural production/processing guidelines and training manuals include nutrition messages	Number of production/processing manuals and guidelines with nutrition messages	TBD	•Advocacy within FMARD to ensure that all crop and animal value chains realize the importance of including nutrition in their manuals and trainings •Support to each crop/animal value chain to compile crop/animal specific nutrition information •Support to value chains to prepare easily understood messages around nutrition information	TBD	Manuals and training reports of value chains	FMARD – Nutrition & Food Safety Division State ADPs, FME, FMI, NAFDAC, SON, CPC

EXPECTED OUTPUTS	OUTPUT PROXY INDICATORS	BASELINES	INTERVENTIONS/ INVESTMENTS	TARGETS	VERIFICATION SOURCES	RESPONSIBLE INSTITUTIONS
4.5.2 Resources for nutrition education within the agricultural sector are mobilized	Amount of Naira budgeted for and spent on nutrition education within agricultural sector interventions	TBD	•Promote an emphases on nutrition within value chain interventions, to stimulate social demand for products •Support value chains to prepare brochures on products, including messages on the nutritional/health benefits of consuming products •Support value chains to disseminate these brochures as an integral part of all interventions	TBD	FMARD reports	
Sub-component 4.6 of SO 4: to advocate for the legislation and regulation of nutrition labelling on packaged food products						
Immediate outcome 4.6	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Packaged foods have labels that include nutrition information	Percentage of packaged foods that have a label with nutrition information	TBD		TBD		CPC reports
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
4.6.1 Standards for nutrition labels are ratified	Existence of local standards for nutrition labels	TBD	•Discussions with stakeholders, including NAFDAC, SON, FMOH, and private sector to criteria for appropriate standards for nutrition labels in Nigeria •Setting of standards on nutrition labels for packaged foods •Establishment of penalties for non-compliance with label standards •Ensuring that standards are endorsed and legislated	Multi-stakeholder agreed standards	SON	FMARD – Nutrition & Food Safety Division NAFDAC, SON, FMOH Ministry of Information, NIFST, Food Manufacturer's Association, Universities/ NARIs
4.6.2 Guidelines for label regulation are published	Existence of regulatory guidelines for monitoring nutrition labels	TBD	•Support to regulatory agencies to communicate nutrition labels standards and penalties to food products manufacturing companies •Identification of guidelines for label regulation including standard operating procedures (SOPs) for label monitoring at factory, distribution, and retail levels •Label monitoring and regulation is integrated into routine monitoring activities of SON and NAFDAC •Nutrition labelling is enforced by penalizing repeated non-compliers	SOPs for SON and NAFDAC routine monitoring activities include guidelines for label monitoring and regulation	SON and NAFDAC routine monitoring forms	
Sub-component 4.7 of SO 4: to produce and disseminate food-based dietary guidelines						
Immediate outcome 4.7	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
The populace know about Nigeria's food based dietary guidelines	Percentage of the population 6 – 49 years old that are aware of local food-based dietary guidelines	TBD		≥75%		Nutrition KAP surveys

ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
4.7.1 Nigeria's food-based dietary guidelines are established	Existence of published dietary guidelines	Dietary guidelines are inadequate and outdated	•Compilation of contextually appropriate recommended dietary allowances/ dietary reference intakes •Grouping of all foods eaten locally into food groups, based on similarities in nutrient composition •Estimation of amount for one serving of each food group, based on body's nutrient requirements and food group's nutrient content •Determination of range of servings to be consumed for each food group daily, to meet nutritional needs but not exceed them •Compilation of information into a National Food-Based Dietary Guidelines, using contextually appropriate, easy to understand language	Comprehensive food based dietary guidelines that take into account daily nutrient requirements for different age groups and physiologic statuses; and how to meet these requirements through the diet	Minutes of meetings held to establish dietary guidelines	FMARD– Nutrition & Food Safety Division FMOH, State MDAs, Relevant Professional Associations, SMEs, FIIRO, Research Institutes, NGOs, CBOs, Development Partners
4.7.2 Food based dietary guidelines are disseminated	Number of copies of food-based dietary guidelines distributed	TBD	•Translation of dietary guidelines into major local languages, including pidgin English •Production of at least 100,000 copies of the guidelines, with numbers of copies assigned to different languages based on population of language readers •Production and distribution of summary guideline posters to be displayed in places of food consumption such as restaurants, cafeterias, etc. •Dissemination of copies to different states by identifying a focal point for dissemination and most popularly read languages in the state •Supporting state focal points for dissemination to publicise and distribute copies in local institutions	TBD	Reports from the Nutrition & Food Safety Division at FMARD	

Sub-component 4.8 of SO 4: to ensure that schools, workplaces and homes offer healthier meals				
Immediate outcome 4.8	**Proxy indicator**	**Baseline**	**Target**	**Verification Source**
People are able to prepare meals that meet the national dietary guidelines	Percentage of the population who report knowing and being able to prepare meals that meet the dietary guidelines	TBD	TBD	Nutrition KAP surveys

ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
4.8.1 Tasty recipes based on national food-based dietary guidelines are developed	Number of recipes developed and analysed for contribution of daily nutrient requirements	TBD	•Compilation and standardization of recipes commonly eaten across the country •Analyses of recipes to determine nutrient content and contributions to daily nutrient requirements •Estimation of amount for one serving of each recipe •Compilation of information into a recipe book using contextually appropriate measurements and language	Recipe book which includes standardized commonly consumed recipes across the country	Reports from FMARD Nutrition & Food Safety Division	FMARD – Nutrition & Food Safety Division FMOH,FME, Federal Ministry of Labour & Productivity, FMI, State Partners, FIIRO, Nutrition Society of Nigeria, NIFST, Int. Development Partners
4.8.2 Opportunities are created for people to taste and accept recipes	Number of schools, workplaces, and restaurants using recipes to prepare meals	TBD	•Campaigns to publicise recipes and their role in supporting people to achieve dietary guidelines •Dissemination of recipes to restaurants, schools and workplaces •Support for integration of recipes into school feeding and workplace menus •Certification of restaurants that serve meals that are based on the recipe book	TBD	National Food Consumption and Nutrition Surveys (NFCNS) Ad hoc surveys	
4.8.3 People's capacity are built to prepare recipes at home	Percentage of population who use recipes in their homes	TBD	•Recipe book is translated into major local languages, including pidgin English •Recipe book is distributed to libraries and booksellers across the country •Recipe book is made freely available for consultation in primary health care centres, hospitals, and schools •Support for the use of recipe book in food demonstration sessions in primary health care centres and schools, including training of health workers and teachers •Monthly publicized television programme that demonstrates the preparation of the meals in the recipe book	TBD	Nutrition KAP surveys NFCNS	

Sub-component 4.9 of SO 4: to promote positive attitudes and behavioural change for improved nutrition				
Immediate outcome 4.9	**Proxy indicator**	**Baseline**	**Target**	**Verification Source**
The populace are aware of the importance of good nutrition and practices that contribute to good nutrition	Percentage of 15 – 49 years old who are able to correctly state the most appropriate way to feed a child 0 – 6 months old	TBD	TBD	Nutrition KAP surveys

ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
4.9.1 Nutrition sensitization messages are developed	Number of messages developed	TBD	•Contextually appropriate, easy to understand messages that promote good dietary practices, health, sanitation, and hygiene at household and community levels and schools are developed using a multi-stakeholder participatory process •Messages are translated into major local languages, including pidgin English	TBD	Minutes of stakeholder meetings to develop messages	FMARD Federal Ministry of Information, FME, FMOH, NGOs,

EXPECTED OUTPUTS	OUTPUT PROXY INDICATORS	BASELINES	INTERVENTIONS/ INVESTMENTS	TARGETS	VERIFICATION SOURCES	
4.9.2 Leaflets and radio programmes are designed around messages	Number of leaflets distributed Number of radio programmes aired	TBD	•Messages are edited into leaflet format, including appropriate graphics and are distributed across the country •Scripts are developed around messages for broadcast, and a weekly family radio programme "Eating well for a healthy life" is launched	TBD	FMARD reports	Development Partners, Professional Associations

Specific Objective 5: To strengthen systems that build resilience for improved food and nutrition situation						
Sub-component 5.1 of SO 5: to support landless agrarian community households to establish small-scale agro-processing businesses						
Immediate outcome 5.1	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Landless agrarian community households have increased income	Percentage of landless agrarian community households with productive assets	TBD		TBD		Food Security and Vulnerability Surveys
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
5.1.1 Income earning capacity of landless households in agrarian communities is increased	Number of eligible households that receive income generation assistance	TBD	•Identification of eligible households in regions most vulnerable to malnutrition •Provision of starter packs and trainings for threshing, milling, grinding or other processing activities	TBD	Food Security and Vulnerability Surveys	FMARD – Extension, Agribusiness State ADPs, NARIs, IFPRI, NAERLS, NPFS, development partners, NGOs, CBOs, FBOs
5.1.2 Market access is increased for beneficiary households	Number of households receiving assistance that are able to sustain income generating activities	TBD	•Support for beneficiary households to successfully establish business and attract customers •Support for the establishment of cooperatives and savings and loans scheme so that beneficiaries can expand business	TBD	Ad hoc baseline, mid-term and end-line surveys	

Sub-component 5.2: to support smallholder farmers to diversify and sustain livelihoods						
Immediate outcome 5.2	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Smallholder farmers have increased incomes, food security and nutrition	Percentage of smallholder farmers that experience little to no hunger	TBD		TBD		Food Security and Vulnerability Surveys
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS / INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
5.2.1 Capacity of smallholder farmers to engage in additional agricultural activities is increased	Number of smallholder farmers assisted to diversity production Volume of inputs distributed	TBD	•Identification of suitable mixed cropping or mixed farming systems for intervention livelihood zone •Training for smallholder farmers to increase the types, quantity, and quality of crops and/or livestock produced •Increasing access of smallholder farmers to necessary inputs	TBD	Training reports	FMARD – Extension, FDA, Animal husbandry, Fisheries State ADPs, NARIs, IFPRI, NAERLS, NPFS, development partners, NGOs, CBOs, FBOs
5.2.2 Smallholder farmers are linked with institutional markets	Number of smallholder farmers that are linked to school feeding programmes	TBD	•Creating regulatory frameworks to ensure food procurement from smallholder farmers for school feeding programmes and other institutional markets •Identifying and removing entry barriers to the participation of smallholder farmers in school feeding programmes	TBD	Reports from FMARD	FMARD – FDA, FSR, Animal Husbandry, Fisheries, State ADPs, LGAs, NGOs, CBOs, School PTAs, Private Sector Stakeholders
5.2.3 Access to credit for smallholder farmers is facilitated	Number of smallholder farmers that receive credit	TBD	•Organizing smallholder farmers into cooperatives •Using participatory mechanisms to establish innovative cooperative bylaws that hold members accountable for loans taken and reduce risk of defaulting •Link the cooperatives to microcredit facilities	TBD	Reports from RUFIN	FMARD – FDA, RUFIN State ADPs, LGAs, Microfinance Banks, Private Sector Stakeholders, IFAD
5.2.4 Insurance services are extended to smallholder farmers	Number of smallholder farmers with insurance coverage	TBD	•Research the experiences of other countries to identify insurance structure for smallholder farmers •Conduct willingness-to-pay studies to establish insurance premiums and modalities for collection •Promote insurance services through produce cooperatives	TBD	Reports from NAIC	FMARD – FDA, RUFIN, NAIC State ADPs, LGAs, Private Sector Stakeholders, IFAD

Specific Objective 6: to incorporate food and nutrition considerations into the Federal, State and Local Government agricultural sector development plans						
Sub-component 6.1 of SO 6: to strengthen the planning and managerial capacity of federal, state, and LGA nutrition focal persons within the agricultural sector						
Immediate outcome 6.1	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
The ability of the agricultural sector to track the nutrition-sensitivity of actions is increased	Number of nutrition focal points within federal, state, and LGA MDAs (disaggregated by gender)	TBD		At least 1 nutrition focal point in each office of the Ministry of Agriculture (at state and decentralised level)		FMARD
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
6.1.1 Agricultural sector state and LGA MDAs are sensitized to appoint nutrition focal points	Number of states and LGAs sensitized	0	•Staggered inclusion of key decision makers from state MARDs and state ADPs in federal level nutrition events within the agricultural sector •Advocacy for the appointment of state and LGA nutrition focal points at these events	At least 1 nutrition focal point from the FMARD should attend nutrition events	Attendance list at nutrition events within the agricultural sector	FMARD – Nutrition & Food Safety Division State ADPs, FMOH, FADAMA III, Nutrition Society of Nigeria, FAO, development partners
6.1.2 The capacity of nutrition focal points is periodically increased	Number of trainings held for agricultural sector nutrition focal points Number of nutrition focal points trained	0	•Development of training materials for nutrition focal points within the agricultural sector •Identification of appointed nutrition focal points at federal, state, and LGA levels •Staggered training and re-training of nutrition focal points	≥ 1 training a year in each state All nutrition focal points trained in raising nutrition issues/ year	Training reports	
Sub-component 6.2 of SO 6: to build the capacity for federal, state, and LGA agricultural extension personnel to integrate nutrition into activities						
Immediate outcome 6.2	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Extension agents are able to effectively deliver nutrition education and implement the principles of nutrition-sensitive agriculture	Percentage of extension agents trained	TBD		≥ 50% increase in the number of extension workers with proven capacity to implement nutrition-sensitive principles in agriculture		FMARD, Department of Agricultural Extension

ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS / INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
6.2.1 Agricultural extension agents/officers are intensively trained on nutrition and nutrition-sensitive agriculture	Number of trainings conducted Number of extension agents trained, disaggregated by gender	TBD	•Development of facilitators' and participants' manual for training agricultural extension agents on nutrition, covering issues related to nutrition; food security and food safety; behaviour change communication; and activities related to the implementation of the sub-components in the AFSN Strategy •Listing of agricultural extension agents by state and LGA •Staggered training of extension agents	≥75% of extension agents/officers	Training reports	FMARD – Extension, FDA (Nutrition & Food Safety) State ADPs, LGAs
6.2.2 Referral systems are established for issues which the agents are unable to address	Extension agents possess protocol for referring clients for more specialized nutritional care	0	•For each LGA, mapping of nutrition related institutions and compilation of nutrition services provided •Developing a decision making flow chart for identifying individuals that need to be referred to receive certain services, and where to refer them to •Providing LGA-specific mapping of institutions and services, and decision making flow charts to extension agents	At least 50% of the issues that extension agents are unable to answer to are answered through the referral system	FMARD reports	
Sub-component 6.3 of SO 6: to upgrade the Nutrition and Food Safety Division of FMARD into a Directorate						
Immediate outcome 6.3	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Increased capacity of FMARD to advocate and mobilise resources for nutrition	Increase in the resources mobilised for nutrition	FMARD has a Nutrition and Food Safety Division headed by a Deputy Director		A full-fledged Directorate of Nutrition and Food Safety, with commensurate involvement in ministerial decision making and distinct budgetary allocations		FMARD reports
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
6.3.1 The structure of a Nutrition Directorate within FMARD is established	Existence of an organogram for a Nutrition Division within FMARD	0	•Identification of the necessary divisions and units that will need to be included in the Nutrition Directorate, and the specific roles and actions these divisions and units will perform •Identification of the expected relationships among the divisions and units in the Nutrition Directorate, and with other Directorates in the Ministry	An available organogram	Reports from FMARD Nutrition & Food Safety Division	FMARD Office of the Head of Service of The Federation

EXPECTED OUTPUTS	OUTPUT PROXY INDICATORS	BASELINES	INTERVENTIONS/ INVESTMENTS	TARGETS	VERIFICATION SOURCES	RESPONSIBLE INSTITUTIONS
6.3.2 The proposal for a Nutrition Department within FMARD receives high level support	The Minister or Permanent Secretary of FMARD formally support the creation of a Nutrition Directorate	0	•Development of a proposal that highlights the need for a Nutrition Directorate within FMARD, the roles that this Directorate is anticipated to perform, the benefits to the Ministry and to Nigeria, and the reasons why these roles cannot be effectively performed as a Division •Advocacy at the executive and legislative levels for the creation of this Directorate/ Department	Establishment of the nutrition department with	FMARD reports	FMARD Office of the Head of Service of The Federation
Sub-component 6.4 of SO 6: to facilitate the integration of nutrition into the agricultural curriculum of tertiary institutions						
Immediate outcome 6.4	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Agriculture graduates from Nigerian Universities have basic nutrition knowledge and understand the role of agriculture in improving nutrition	Percentage of agriculture graduates who take at least one nutrition course as part of their training	TBD		100%		FME
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
6.4.1 The nutrition content for agricultural training in tertiary institutions is developed	Existence of a syllabus for nutrition within agricultural training	0	•Discussions among stakeholders to identify the nutrition knowledge that would be important for students in agricultural training •Development of this content into a modular format, including identifying the sequence of modules	Training material developed/adapted	FME	FME, FMARD – Agricultural Research Council of Nigeria Nutrition Society of Nigeria, Relevant federal/ state universities, NUC, FAO, IFPRI, MBNP, FMOH, FME, FMF, other relevant MDAs
6.4.2 Nutrition content is integrated into existing national agricultural curricula	Updated agricultural curricula is published	0	•Discussions with NUC about updating the agricultural curricula to include identified modules •Review of existing agricultural curricula to identify appropriate entry points for nutrition modules and or most suitable point in training to undertake full nutrition course	TBD	NUC	
6.4.3 Updated agricultural curricula is promoted in tertiary institutions	Number of agriculture training institutions that adopt updated curricula	0	•Distribution of updated curricula to agriculture departments in universities and other tertiary training institutions •Support for the adoption and implementation of the curricula is provided through the Nutrition Society of Nigeria	TBD	NUC	

Sub-component 6.5 of SO 6: to build national capacity to construct, maintain, and repair technologies for the implementation of the AFSN Strategy						
Immediate outcome 6.5	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
Communities are able to sustain the use of technologies that support improved nutrition	Percentage of intervention communities that have local capacity to maintain introduced technologies	TBD		100%		Ad hoc baseline, mid-term and end-line surveys
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
6.5.1 Technologies that can be locally constructed and/or maintained are identified	List of technologies related to the ASFSNS that can be locally constructed/maintained	TBD	•Assessment of technologies necessary for the implementation of the sub-components of the AFSN Strategy, and identification of those that can be locally constructed/ maintained. (Technologies can include roof water harvesting structures or other multi-use water system structures; improved drying, storage, or other processing techniques) •Identification of construction/ maintenance materials, and determination of availability of these materials across the country •Specification of LGAs across the country in which each technology can be constructed/ maintained, given identified constraints, such as those in accessing materials	LGA-specific list of technologies that can be contextually constructed/ maintained	FMARD reports	FMARD – Mechanization, Agribusiness State ADPs, Private Sector Stakeholders
6.5.2 Community artisans and masons are trained to construct and maintain AFSN Strategy-related technologies	Number of artisans and masons trained	TBD	•Development of training materials for the construction/repair/maintenance of each applicable technology •Identification of trainees for each feasible technology in interventions LGAs (based on LGA list of feasible technologies) •Training of artisans •Support to establish viable business around the technologies, including facilitating access to potential clients	TBD	FMARD reports	

Sub-component 6.6 of SO 6: to establish a comprehensive M&E Framework for the AFSN Strategy						
Immediate outcome 6.6	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
The AFSN Strategy is systematically implemented and achieved	Number of FMARD MDAs that consider the objectives, outcomes, and outputs of the ASFSNS in conducting their activities	Zero MDAs		TBD		FMARD
ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
6.6.1 Activity framework for the AFSN Strategy is elaborated	Completed activity framework	No activity framework for the AFSN Strategy is available	•Expansion of the entry points for achieving the expected ASFSNS intermediate results into outputs and activities •Identifying the organizations responsible for implementing these outputs and activities and the expected timeline	A complete framework of activities for the ASFSNS Strategy is available	Draft AFNS Strategy document	FMARD – Planning & Policy Coordination Department FMOH, FME, NGOs, CBOs, private sector, GAIN, development partners
6.6.2 M&E framework is drafted	Draft M&E framework document	No draft M&E framework	•Using a participatory process, activity framework is translated into an M&E framework, including intermediate and immediate outcome indicators, output indicators, baselines and targets, and data verification sources	A complete framework that is aligned with the ASFSNS activity framework	FMARD	
6.6.3 M&E framework is validated	Dissemination of M&E framework for use by MDAs and other stakeholders	No awareness exist regarding the M&E framework	•Multisectoral stakeholder workshop to review the M&E framework vis-à-vis the AFSN Strategy, and identification of gaps and ambiguities •Incorporation of stakeholder comments and feedback into draft M&E framework •Publishing and dissemination of finalized M&E framework	At a least a validation workshop for the validation and dissemination of the strategy	FMARD	
Sub-component 6.7 of SO 6: to obtain regular information about the food and nutrition situation of different LGAs and states						
Immediate outcome 6.7	**Proxy indicator**	**Baseline**		**Target**		**Verification Source**
The implementation of the AFSN Strategy is able to prioritize LGAs most vulnerable to malnutrition	Number of LGAs and states for which there is updated food and nutrition situation information	TBD		TBD		FMARD

ASSOCIATED OUTPUTS						
EXPECTED OUTPUTS	**OUTPUT PROXY INDICATORS**	**BASELINES**	**INTERVENTIONS/ INVESTMENTS**	**TARGETS**	**VERIFICATION SOURCES**	**RESPONSIBLE INSTITUTIONS**
6.7.1 Available state and LGA food and nutrition situation is mapped	A table exists that summarizes the food and nutrition situation in each state and LGA	TBD	•Compilation of accurate and relevant information through vertical and horizontal collation of food security and nutrition data from the LGAs, state, and federal levels •Development of a yearly summary table containing food and nutrition situation disaggregated by state and LGA	TBD	FMARD PPC Department	FMARD – Planning & Policy Coordination Department (PPC); Nutrition & Food Safety Division National Bureau of Statistics, States and LGA, FMOH, FME, NGOs, CBOs, private sector, GAIN, development partners
6.7.2 Data gaps in food and nutrition situation are identified	Number of surveys conducted	TBD	•Identification of states/ LGAs for which there is insufficient data on food and nutrition situation •Conducting sample surveys in states/LGAs with missing data •Conducting sample surveys to update data in states/LGAs with outdated data	TBD	Survey reports	
6.7.3 A food security and nutrition database is established	Launching of a national food security and nutrition database	TBD	•Development of an online database containing available state and LGA information •Establishing and promoting a system for state and LGAs to submit updated information for review, validation, and subsequent inclusion in the database •Creating a knowledge management platform to assist states/LGAs in conducting assessments, designing interventions, targeting, and implementing interventions •Creating awareness about database and knowledge management initiatives and providing assistance for states/LGAs to access the resources	TBD	Report of database launch event	

Investment Costs by Sub-Category and Output

Output Nb.	ENABLING ENVIRONMENT FOR NUTRITION	IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
	GOVERNANCE					
	C.1.1 INSTITUTIONS AND COORDINATION MECHANISMS					**3,714,672,000**
1.8.1	**Liaise with state governors to reserve tracts of land for farming**		1.a Nb of letters prepared to reserve tracts of land for farming from FMARD to State governors 1.b Nb of dialogues between FMARD and State governors	1. 1.a 37 letters 1.b 37 meetings (30 ppl)	1. 1.a courier: 5,000 / letter 1.b 30 ppl (1 day)	**104,340,000**
1.8.1	**Facilitate a transparent and efficient land acquisition and documentation process**		1. Frequency of transparency committee meetings 2. Nb of regular check-ups to strengthen transparency in the documentation process for land acquisition 3. Nb of compliance committees for land acquisition wrongly documented	1. 1 / 6 month (50 ppl, 1 day) 2. 200 / year 3. 1 meeting every 6 months	1. 2. Documentation 2 pers for 1 week / check-up 20,000 N / week total / check up	**41,792,000**
1.8.3	**Establish waivers for agriculture equipment and animal production and processing equipment**		1.a Nb of request letters prepared for request for agricultural credit facilities and equipment waivers from FMARD to FMOF 1.b Nb of dialogues between FMARD and FMOF	1. 1.a At least 2 letters 1.b 2 consultation meetings / year	1. 1.a courier: 5,000 / letter 1.b 50 ppl (1 day)	**5,640,000**
1.10.2	**Linking smallholder farmers associations, women groups and animal producer associations and commodity / location with appropriate facility/system**		1. Nb of smallholder farmer associations approached to be linked with appropriate facilities 2. Nb of women groups approached to be linked with appropriate facilities 3. Nb of animal producer associations approached to be linked to vet services 4. Nb of negotiation joint meetings with facility / system coordinators and groups	1. 10,000 associations 2. 10,000 women groups 3. 20,000 animal producer associations (+ poultry, livestock & fish) 4. at least 1,000 / year	1. 1 prospector / ward for 10 days each, 5,000 / hour 2. 612,000 / meeting	**2,224,000,000**
2.2.4	**Establishment of women animal producer associations and regular trainings on management (accounting, literacy etc.), animal health and nutritional benefits of animal proteins**		1. Nb of women animal producer associations established 2. Nb of associations trained 3. Nb of technical assistants for establishment and development	1. 1 / LGA = 5,000 2. 1 / LGA = 5,000 3. 1 / LGA = 2,500	1. 2 months / year (transport + per diem + accommodation) 2. 3 months / year 200 women / group 3. 5 months / year 30,000 / month	**541,800,000**
2.6.1	**Establishment of horticulture based women groups and regular trainings on management (accounting, literacy etc.), ag maintenance and nutritional benefits of animal proteins**	*	1. Nb of women groups established 2. Nb of technical assistants (extension agents) for establishment and development 3. Nb of trainings held	1. 1 / LGA = 5,000 2. 1 / LGA = 5,000 3. 1 / LGA = 2,500	1&2. 10,000 N/technical assistant/ward for 10,000 wards 3. 300,000 N/ training for 10,000 trainings	**541,800,000**

Output Nb.	ENABLING ENVIRONMENT FOR NUTRITION	IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
2.3.1	**Identification of the constraints (policy, regulatory market, and food safety related) to the local production of high nutritious foods and addressing them to related government agencies**		1. Consultation to identify constraints to local production of nutritious foods 2. Dissemination of major constraints and meetings with related government agencies 3. Nb of stakeholder meetings to agree on and assign actions to address constraints	1. 2 consultants (6 months each) 2. 1 / year 3. 2 stakeholder's meetings / year	1. 500,000 N each / month 2. 612,000 3. 4M / meeting	**60,000,000**
4.6.1	**Discussions with stakeholders, including NAFDAC, SON, FMOH, and private sector to set up criteria for appropriate standards for nutrition labels in Nigeria**		1. Nb of stakeholders meetings to set up standards for nutrition labels in Nigeria 2. Nb of days for nutrition desk officer to compile criteria for nutrition labels	1. 3 stakeholder meetings / year (50 ppl, 2 days for travel) 2. 10	1. N 4 M 2. 5,000	**48,200,000**
6.3.1	**Identification of the expected relationships among the divisions and units in the Nutrition Directorate, and with other Directorates in the Ministry**		1. Nb of consultants to identify the expected inter and intra divisional relationships, and the roles and actions to be performed 2. Nb of advocacy documents produced	1. 2 consultants for 2 months 2. 1 advocacy document produced (* 4 as updated 1 / year)	1. 500,000 2.	**6,000,000**
1.5.2, 1.5.4, 1.9.1, 1.5.1, 1.9.3	**Mobilize resources for meetings, monitoring of pesticide MRLs, cultivation in prison farms and acquisition of necessary equipment**		1. Nb of resource mobilization proposals developed 2. Nb of funding agencies approached 3. Nb of private institutions approached	1. At least 5 proposals 2. At least 10 funding agencies 3. At least 50 private institutions	1. 3 working sessions / proposal (15) = 1 day * 5 ppl 2. 2 * 10 meetings 3. 2 * 50 meetings	**112,500,000**
1.4.1	**Collection and compilation of best practices for aflatoxin control into a national strategy**		1. Nb of months for desk reviews 2. Nb of months for case studies documented	1. 5 months, for each of 10 States Nutrition officers / State 2. At least 3 months (1 / case study)	1. 500,000 N 2. 500,000 N	**28,600,000**
	C.1.2 TRADE and MARKETS					**114,160,000**
1.8.4	**Identify level of duties and tariffs that will prohibit importation of affected commodities**		1. 1.a Nb of request letters prepared for increase of duties and tariffs from FMARD to FMOF 1.b Nb of dialogues between FMARD and FMOF 2. Nb of circulars / gazettes on levies and duties issued by Nigerian Customs Services	1. 1.a at least 10 letters 1.b 20 consultation meetings 2. at least 10 circulars / gazettes	1. 1.a courier: 5,000 / letter 1.b 50 ppl (1 day)	**53,160,000**
2.2.2	**Tax holidays for animal feed companies, contingent on quality, quantity, and reach of feeds sold**		1. Nb of stakeholder meetings with aninmal feed companies 2. Nb of communiques for tax holiday	1. 1 meeting / yr 2. 1 communique	1. 4 M 2. 5 M / communique	**36,000,000**
5.2.2	**Creating regulatory frameworks to ensure food procurement from smallholder farmers for school feeding programmes and other institutional markets**		1. Nb of consultants developing regulatory frameworks for school feeding programmes 2. Nb of stakeholders meetings	1. 2 consultants * 5 months 2. 5 stakeholders meetings	1. 500,000 / month 2. N 4M / meeting	**25,000,000**

Output Nb.	ENABLING ENVIRONMENT FOR NUTRITION	IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
	C.1.3 ADVOCACY for FINANCIAL AND POLITICAL COMMITMENT AND COMMUNICATION					**2,613,792,000**
1.3.2, 1.5.1, 1.9.1, 2.5.1, 2.6.1, 2.8.2, 2.8.3, 4.5.1, 6.3.2	**Organize advocacy meetings at all levels about: 1) the use of gamma irradiation, 2) agribusiness in prison farms, 3) reduction of policy and regulatory barriers, 4) access to land and establishment of homestead gardens, 5) nutrition-related activities in school, 6) inclusion of nutrition in all value chain manuals and trainings**		1. Nb of advocacy high level meetings at central level by thematic 2. Nb of advocacy meetings at State level by thematic 3. Nb of advocacy meetings at LGA level	1. 6 / year 2. 6 / year * 37 = 259 3. 6 / year * 774 = 5418	1. 37 ppl, 3h / day 2. 50 ppl / 6h 3. 50 ppl / 1 day	**1,339,344,000**
2.5.1, 2.5.2	**Generate dialogue 1) with processors in staple crops processing zones (SCPZs) to identify barriers to food fortification; and 2) with National Fortification Alliance (NFA) to promote legislation on additional foods**		1. Nb of meetings with processors (SCPZs) 2. Nb of meetings with National Fortification Alliance (NFA)	1. 7 (once) / year (100 ppl) 2. 1 / yr	1. N 11 M 2. 612,000 N	**170,448,000**
1.6.3, 2.1.1	**Develop a promotion strategy for platforms developed as per: 1) Electronic platform where specific standards for different commodities can be accessed, and 2) Staffed electronic communication system / platform where companies can input their raw material needs, including quality and quantity**		1. Nb of communities reach by promotion of electronic platforms 2. Nb of companies reach by promotion of electronic communication system / platform	1. at least 10,000 communities (wards) 1 promoter / LGA = 774 promoters 1 month / year (4 wards / year / promoter) 2. at least 5,000 companies Promotion event = 1 / yr	50 M	**50,000,000**
1.6.2	**Periodic public enlightenment events/sessions, conveying consistent nutrition messages**		1. Nb of TV live sessions / events organized 1.a nb TV events / sessions developed 1.b nb TV events / sessions periodically screened 2. Nb of live demonstrations	1. 3 TV live sessions / yr 1.a Development 1.b Propagation: 1 / month 2. LGA level = 774 demonstrations total	1. 1.a 5M N 1.b 10 M N / session 2. 1 M / session	**1,054,000,000**
	C.1.4 INFRASTRUCTURES AND ORGANIZATIONAL CAPACITES FOOD ENVIRONMENT					**981,878,000**
1.6.1	**Development of a unified system to certify food quality and relevant criteria**	*	1. Nb of stakeholders meeting 2. Nb of consultants engaged to develop unified systems 3. Nb of validation meetings 4. Nb of certification system manuals produced 5. Nb of training of MDA staff on certification system	1. 4 stakeholders meetings 2. 2 consultants (1 month) 3. 2 validation meetings 4. 1000 manuals 5. 1 training for 50 MDA staff	1. 5 M per meeting 2. 1,000,000/month for 2 consultants 3. 5 M per meeting 4. 2,500 per manual 5. 12 M per training	**46,500,000**

Output Nb.	ENABLING ENVIRONMENT FOR NUTRITION	IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
1.8.5	**Support construction of roof water harvesting structures**	*	1. Nb of roof water harvesting structures 2. Nb of months for technical assistance	1. 1 / ward = 10,000 structures 2. 1 technician/ ward (1 month / year)	1. 70,000 / structure & transportation 2. 20,000 / month	**900,000,000**
1.8.5	**Identify contextually appropriate irrigation solutions and facilitate their scale up**	*	1. Consultation to identify and develop contextually appropriate irrigation solutions 2. Management committee meeting to adopt irrigation solutions	1. 2 consultants (6 months each) 2. 2 management committee meetings	1. 1,000,000 N/ month for 2 consultants 2. 289,000 N / for 2 consultants to attend management meeting	**6,578,000**
1.10.1	**Establishing public-private partnerships and tax exemptions/ low interest financing for increased utilization of silos, warehouse receipt systems, commodities exchange boards, and aggregation centres**	*	1. Nb of communication exchanged with banks, commodity exchanges, marketing boards, aggregation centres and other storage centres 2. Nb of consultative meetings between FMARD and stakeholders	1. At least 100 communication exchanges/ consultative meeting = 400 communication exchanges per year 2. 4 consultative meetings/ year (100 ppl in each, 1 day)	1. 1,000/ communication exchange for 400 exchanges 2. 7,000,000 N/ consultative meeting for 4 consultative meetings per year	**28,800,000**

Output Nb	PRODUCTION	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COST	TOTAL COST/ INVESTMENT
	C.2.1 ASSETS and INPUTS for DIVERSIFIED PRODUCTION					**57,925,900,000**
5.1.2	**Establishment of cooperatives and savings and loans schemes so that beneficiaries can expand business**	*	1. Nb of cooperatives established 2. Frequency of management assistance 3. Nb of MoU agreements (government guarantee programme) with banks	1. 1 / LGA = 774 2. Cooperative management class (accounting, management, literacy, book keeping, etc) 3. 774 MoU agreements	1. Technical assistance for establishment: 1 M N / year / LGA 2. 3.7 M N / year / LGA 3. 500,000 N / year / LGA	**14,851,200,000**
3.1.1	**Multiplication of indeterminate tomato seeds**	*	1.Nb of hectares / State 2. Kg of seeds provided / farmer 3. Nb of hours for technical assistance	1. 1 ha / farmer = 5 ha / State 2. / ha 3. TA for 1 ha: 21 days/ yr first stage = establishment of nursery: 1 wk second stage = control of weeds: 2 wks third stage = harvesting: 1 week	1. 1,677,500 / kit 2. 150,000 / month = 450,000/ year	**3,148,700,000**
3.1.1	**Provision of soil testing kits through labs (1 kit is usable for at least 1,000 samples)**	*	1. Nb of standard soil testing kits: soil doctor (1 kit for 2000 samples) 2. Nb of lab operators / carriers (for 3 months)	1. 10 / State: 370 / year 2. 370 / year	1. 1,677,500 / kit 2. 150,000 / month = 450,000 / year	**3,148,700,000**

Output Nb	PRODUCTION	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COST	TOTAL COST/ INVESTMENT
3.1.1	**Provision of irrigation materials for dry season farming**	*	1. small water pumps 2. drip lines (pipes for drip irrigation) + accessories 3. hoses 4. washbore	Agro-ecological targeting: Humid Forest area (12 States) and Derived Savannah area (10 States): 10% Sahel Savannah, Sudan Savannah and Mid-Altitude: 60% Northern and Southern Guinea Savannah: 30% 1. 500 / State = 37,000 2. drip line: 500 / State = 37,000 3. 1,000 / State = 74,000 4. 500 / State	1. 80.000 N / pump 2. drip line: 300,000 N / drip line 3. 20,000 N / 50 meter roll (= 400 N / meter) 4. 60,000 N	**7,520,000,000**
5.2.1	**Provision of necessary inputs to smallholder farmers**	**				**29,257,300,000**
	Provision of seeds		Seed kg / ha	Each seed: 1,000 farmers = 37,000 * 8 = 296,000 (8,000 farmers / State) Seed kg / ha: Rice: 30 kg / ha Maize: 25 kg / ha Cassava: 60 bundles / ha Beans: 25 kg / ha Tomato: 5 kg / ha Sweet potato: 3 tons / ha Yam: 3 tons / ha Carrots:	Rice: 450 N / kg Maize: 400 N / kg Cassava: 600 N / bundle Beans: 700 N / kg Tomato: Sweet potato: 500 / bundle Carrot: Yam: 1 million / ton	
	Agrochemicals		1. Herbicide: L / ha 2L pre and 4L post 2. Pesticides: L / ha	1. for 1 year: 6 L / farmer = 15,600 * 6 = 93,600 L / year 2. for 1 year: 8 L / farmer = 15,600 * 8 = 124,800 L / year	Herbicide: 3,500 / L Pesticide: 3,500 / L	
	Fertilizers		1. Organic fertilizer 1.a Liquid fertilizer 1.b Solid fertilizer	1.a 2.5 L / farmer / yr 1.b 200 kg / farmer / yr	Organic fertilizer: 1.a 1,200 / L 1.b 3,500 / bag (50kg) (Non-organic: 7,000 / bag (= 50kg))	
	Technical assistance		5 technicians for 1,000 farmers	4 months / year	Monthly salary = 50,000N / farmer	
	C.2.2 PRISON FARMING FOR INTERNAL FOOD SECURITY					**2,840,800,000**
1.9.1	**Provision of inputs (tractors and tractor-driven implements, seeds, fertilizer, agro-chemicals and veterinary products) for farm cultivation in prison farms (13 prison farms)**	*	1. Nb of hectares 2. Nb of tractors 3. Seed kgs / ha 4. agrochemicals	1. 1,200 ha / prison = 15,600 ha 2. 2 / prison = 26 3. Seeds for 15,600 ha 4. Agrochemicals		**2,840,800,000**
	Provision of seeds		Seed kg / ha	Rice: 30 kg / ha Maize: 25 kg / ha	Rice 2000 ha Maize 2000 ha	

Output Nb	PRODUCTION	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COST	TOTAL COST/ INVESTMENT
				Cassava: 60 bundles / ha Beans: 25 kg / ha Tomato: 5 kg / ha Orange flesh sweet potato: 3 tons / ha Yam: 10,000 of 250g seed yam = 2,500 kg / ha Carrots:	Cassava 2000 ha Beans 2000 ha Tomato 2000 ha Sweet potato 2000 ha Carrot 2000 ha Yam 1560 ha	
	Agrochemicals		1. Herbicide: L / ha 2L pre and 4L post 2. Pesticides: L / ha	For 1 year 1. 6 L / ha = 15,600 * 6 = 93,600 L/ year 2. 8 L / ha = 15,600 * 8 = 124,800 L/ year	Herbicide: 3,000 / L Pesticide: 3,000 / L	
	Fertilizers		1. Organic fertilizer 1.a Liquid fertilizer 1.b Solid fertilizer 2. Non-organic fertilizer	1.a 2.5 L / ha 1.b 200 kg / ha 2. 200 kg / ha	Organic fertilizer: 1.a 1,200 / L 1.b 3,500 / bag (50kg) 2. Non-organic: 7,000 / bag (= 50kg)	
	Livestock		1. Dairy cattle 2. Beef cattle 3. Assorted veterinary drugs (antibiotics, dewormers, antiprotozoan, acaricides) 4. Animal vaccine 5. Veterinary kits 6. Feed supplementation 7. Fodder pasture	1. 20 / 3 prison farms = 60 2. 20 / 3 prison farms = 60 3. 10,000 ml / farm = 30,000ml 4. 150 doses / farm = 450 doses 5. 2 kits / farm = 6 kits 6. 1 metric ton / farm = 3 metric tons 7. 5 ha / farm = 15 ha 1M / 5 ha		
	C.2.3 HOUSEHOLD FARMING					**5,062,227,000**
1.8	**Subsidizing soya bean seed**	*	1. Nb States (wit comparative adv) 2. Nb ha 3. Seeds / ha	1. 7 States 2. 1,000 ha / State = 7,000 ha 3. 50 kgs / ha	700 N / kg = 35,000 / ha	**245,000,000**
1.1.3	**Setting up farm centres for promotion / demonstration of good agricultural practices**	*	1. Nb of farm centres 2. ha / farm centre 3. Nb of hours for ag technician 4. Inputs / assets pack 4.a Kilos / ha by seeds 4.b Kgs / ha by organic fertilizers 4.c L / ha by arochemicals	1. 109 farm centres 2. 5 ha / farm centre = 545 ha 3. 109 (additional time: nb hours / week) 4. 4.a seeds: 30 kgs / ha = 16,350 kgs 4.b fertilizers: 200 kgs / ha = 109,000 kgs 4.c agrochemicals: 6 L / ha = 3270 L	2. farm centre = 3. 14 hour / week for 6 months 3,000 / hour 4.a 1,000 N / kg 4.b 1,200 N / L 4.c 3,500 N / L	**744,252,000**
2.6.3	**Establishement of kitchen gardens for 500 vulnerable households by LGA for 397 LGAs in 18 States (39,875 households / year)** **(7 States North West, 6 States North East + Plateau & Nasarawa in North Central, Oyo in South West & Ebonyi in South East & Akwalbom in South-South)**	***	1. kg / household of seeds (vegetable, tomatos, peppers, carots , etc.) 2. Nb of contacts / yr for technical assistance 3. Nb of demonstration kitchen gardens	1. 500 g / household / year = 2kg / HH total 5. 5 technical assistants / 500 HH: 5 contacts (8h/contact) a year / household 6. 10,000 demonstration kitchen gardens (at least 1 / ward)	4. Veg seeds: 1,500 / kg 5. 40hr / year / household =	**3,992,625,000**

Output Nb	PRODUCTION	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COST	TOTAL COST/ INVESTMENT
2.6.3	**Pilot establishement of urban and peri urban kitchen gardens (inclusing also rooftop gardens / sackfarming etc.) in 4 States**	***	1. 100 / State = 400 households 2. kg / household of seeds (vegetable, tomatoes, peppers, carrots , etc.) 2. Nb of contacts / yr for technical assistance 3. Nb of demonstration kitchen gardens	1. 500 g / household / year = 2kg / HH total 5. 5 technical assistants / 500 HH: 5 contacts (8h/contact) a year / household 6. 100 demonstration kitchen gardens (at least 1 / ward)	4. Veg seeds: 1,500 / kg 5. 40hr / year / household =	**10,350,000**
3.1.1	**Provision of starter-packs for fruit and vegetable farming (in the 7 agroecological zones), for 1,000 smallholder farmers by zone**	**	1. Nb of starter packs 1.a Kilos / ha by seeds 1.b Kgs / ha by organic fertilizers 1.c L / ha by agrochemicals	1. 7,000 starter packs 1.a Seeds: 1.b Fertilizers: 1 bag (50 kg) 1.c Agrochemicals: 1 L	1. 7,000 starter packs 1.a Fertilizers: 7,000 / bag (50 kg) 1.b Seeds: 1.c Agrochemicals: 1,500/ L	**70,000,000**
	C.2.4 ANIMAL-BASED FOODS: FISHERIES					**2,311,200,000**
2.7.1	**Provsion of fish hatcheries and maintenance**	*	1. Number of fish hatcheries 2. Nb of contacts / yr for technical assistance	1. 20 (1 / State for 20 States) 2. 50h / technical assistant (by hatchery)	1. 5 M N (structure and equipment) 2. 5,000 N /hr	**105,000,000**
2.7.1	**Provision of fish starter pack (tilapia and clarias)**	**	1. Number of farmers 2.a Nb of juveniles / pack 2.b Nb of feed bags 3. Nb of contacts / yr for technical assistance	1. 100 farmers / 20 State: 2,000 farmers 2.a 200 / pack 2.b 3 bags = 15 kg*3 = 45 kg / pack 3. 40 technical assistants	2.a 450 N / juvenile 2.b 7,500 N / bag = 22,500 N / pack 3. Technical assistance: 15 h contact / year / farmer 2,000 N / hr for technical service	**2,206,200,000**
	C.2.5 ANIMAL-BASED FOODS: LIVESTOCK					**6,215,840,000**
	1. small ruminants					
2.7.1	**Provision of small ruminant packs (5 sheep / goats, concentrate, minerals and vitamins, vaccine and drugs)**	**	1. Number of farmers 2. Starter pack 2.a Nb of sheeps / goats 2.b Nb of concentrates 2.c Nb of minerals / vitamins 2.d Nb of vaccines 2.e Nb of vet drugs 3. Nb of hours by vet technician	1. 100 / State = 3,700 farmers 2. Starter pack 2.a 5 / pack 2.b 2 bags / pack = 50 kg / pack 2.c 2 sachets / pack = 200 g / pack 2.d vaccine: 10 doses / pack 2.e vet drugs: 50 ml / pack 3. 2 vet technicians / State = 74	2.a 10,000 N / animal 2.b 3,000 N / bag 2.c 1,200 N / sachets 2.d 200 / doses 2.e 100 N / ml 3. 1 vet technician: 6 times a year = 12h / year / farmer = 600h / technician / year = 10.000 / hour	**388,500,000**
	2. cattle (beef and dairy)					
2.2.2	**Provision of hand pump boreholes at strategic locations for livestock in vulnerable livelihood zones**	*	1. Vulnerable States 2. nb boreholes	1. 18 vulnerable States 2. 2 boreholes / State = 36 boreholes	2. 1.5 M N / borehole	**54,000,000**

Output Nb	PRODUCTION	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COST	TOTAL COST/ INVESTMENT
2.2.4	**Provision of dairy cattle and beef and animal health services**	**	1. Number of farmers 2. Starter pack 2.a Nb of dairy cattle / beefs 2.b Nb of concentrates 2.c Nb of minerals / vitamins 2.d Nb of vaccines 2.e Nb of vet drugs 3. Nb of hours by vet technician	1. 50 / State = 1,850 farmers 2. Starter pack 2.a 2 / pack 2.b 5 bags / pack = 125 kg / pack 2.c 10 sachets / pack = 1kg / pack 2.d vaccine: 50 doses / pack 2.e vet drugs: 200 ml / pack 3. 2 vet technicians / State = 74	2.a 80,000 N / head of cattle 2.b 3,000 N / bag 2.c 1,200 N / sachets 2.d 200 / doses 2.e 100 N / ml 1 vet technician: 6 times a year = 12h / year / farmer = 600h / technician / year = 10,000 / hour	**4,441,480,000**
	APICULTURE					
2.7.1	**Provision of bee keeping starter packs**	**	1. Nb of farmers 2. Nb of starter packs (gloves, boots, bee suit, brush, smoker, hive) 3. Nb of hours vet technician	1. 50 / State (15 States) = 750 2. 1 starter pack / farmer / 4 yr 3. 1 vet technician / State = 50 vet technicians	Approx. 150,000 N/ pack for 10 colonies: 2 sets bee suits, accessories = 245,000 training: 37,000 (when giving the starter pack)	**298,100,000**
	POULTRY					
2.7.1	**Provision of poultry starter packs**	***	1. Number of farmers 2. Starter pack 2.a day-old-chicks 2.b feed 2.c minerals / vitamins 2.d vaccine 2.e vet drugs 3. Vet technician	1. 500 / State = 18,500 farmers 2. Starter pack 2.a 100 doc / pack 2.b 3 bags / pack = 75 kg / pack 2.c 2 sachets / pack = 200g / pack 2.d vaccine: 600 doses / pack 2.e vet drugs: 500g / pack 3. 4 vet technicians / State = 148	2.a 250 N / doc 2.b 4,500 N / bag 2.c 1,200 N / sachet 2.d 20 N / dose 2.e 1,500 N / pack 3. 1 vet technician: 6 times a year = 12h / year / farmer = 600h / technician / year = 10,000 / hour	**1,024,160,000**
2.7.1	**Provision of poultry hatchery**	*	1. Number of hatcheries 2. Technical assistance	1. 6 poultry hatcheries 2. 6 technical assistants	1. poultry hatchery = 150 M N (structure, incubator, equipment) 2. 6 contacts/ year	**9,600,000**

Output Nb	BIOFORTIFICATION	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COST	TOTAL COST / INVESTMENT
	C.3.1 IRON BIOFORTIFICATION					**11,621,610,000**
	1. Rice					
2.4.2	**Dissemination of iron biofortified rice crops and provision of samples to targeted smallholder farmers**	***	1. Frequency of dissemination 2. Nb of smallholders provided with samples 3. Technical assistance	1. 3/ year/ LGA = 2,322/ yr 10,000 dissemination meetings 2. 3 / LGA = 2,322 3. 15 h contact/ year/ farmer	1. 1,2M N / delivery for 200 households 2. 1 sample (seeds) = 500 / kg 1 / year / each farmer (2,322) 3. Technical assistance: 2,000 N / hr for technical service	**3,998,484,000**

Output Nb	BIOFORTIFICATION	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COST	TOTAL COST / INVESTMENT
	2. Sorghum					
2.4.2	**Dissemination of iron biofortified sorghum crops and provision of samples to smallholder farmers**	***	1. Frequency of dissemination 2. Nb of smallholders provided with samples 3. Technical assistance	1. 3 / year / LGA = 2,322 / year 10,000 dissemination meetings 2. 3 / LGA = 2,322 3. 1/ yr/ each farmer (2,322)	1. Dissemination campaign 7 M / campaign 2. 1 sample (seeds) = 250 / kg 3. Technical assistance: 15 h contact / yr/ farmer 2,000 N/ hr for technical service	**3,810,402,000**
	3. Beans					
2.4.2	**Dissemination of iron biofortified bean crops and provision of samples to smallholder farmers**	***	1. Frequency of dissemination 2. Nb of smallholders provided with samples 3. Technical assistance	1. 3 / year / LGA = 2,322 / year 10,000 dissemination meetings 2. 3 / LGA = 2,322 3. 1/ yr/ each farmer (2,322)	1. Dissemination campaign 7 M / campaign 2. 1 sample (seeds) = 500 / kg 3. Technical assistance: 15 h contact / yr/ farmer 2,000 N / hr for technical service	**3,812,724,000**
	C.3.2 ZINC BIOFORTIFICATION					**7,625,448,000**
	1. Rice					
2.4.2	**Dissemination of zinc biofortified rice crops and provision of samples to smallholder farmers**	***	1. Frequency of dissemination 2. Nb of smallholders provided with samples 3. Technical assistance	1. 3 / year / LGA = 2,322 / year 10,000 dissemination meetings 2. 3 / LGA = 2,322 3. 1/ yr/ each farmer (2,322)	1. Dissemination campaign 7 M / campaign 2. 1 sample (seeds) = 500 / kg 3. Technical assistance: 15 h contact / year/ farmer 2,000 N / hr for technical service	**3,812,724,000**
	2. Wheat					
2.4.2	**Dissemination of zinc biofortified wheat crops and provision of samples to smallholder farmers**	***	1. Frequency of dissemination 2. Nb of smallholders provided with samples 3. Technical assistance	1. 3 / year / LGA = 2,322 / year 10,000 dissemination meetings 2. 3 / LGA = 2,322 3. 1/ yr/ each farmer (2,322)	1. Dissemination campaign 7 M / campaign 2. 1 sample (seeds) = 500 / kg 3. Technical assistance: 15 h contact / year/ farmer 2,000 N / hr for technical service	**3,812,724,000**
	C.3.3 VITAMIN A BIOFORTIFICATION					**15,248,109,600**
	1. Cassava					
2.4.1	**Dissemination of vitamin A biofortified cassava crops and provision of samples to smallholder farmers**	***	1. Frequency of dissemination 2. Nb of smallholders provided with samples 3. Technical assistance	1. 3 / year / LGA = 2,322 / year 10,000 dissemination meetings 2. 3 / LGA = 2,322 3. 1/ yr/ each farmer (2,322)	1. Dissemination campaign 7 M / campaign 2. 1 sample (seeds) = 400 / kg 3. Technical assistance: 15 h contact / year/ farmer 2,000 N / hr for technical service	**3,811,795,200**
	2. Maize					
2.4.1	**Dissemination of vitamin A biofortified maize crops and provision of samples to smallholder farmers**	***	1. Frequency of dissemination 2. Nb of smallholders provided with samples 3. Technical assistance	1. 3 / year / LGA = 2,322 / year 10,000 dissemination meetings	1. Dissemination campaign 7 M / campaign 2. 1 sample (seeds) = 300 / kg 3. Technical assistance: 15 h contact / year	**3,810,866,400**

Output Nb	BIOFORTIFICATION	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COST	TOTAL COST / INVESTMENT
				2. 3 / LGA = 2,322 3. 1/ yr/ each farmer (2,322)	/ farmer 2,000 N / hr for technical service	
	3. Sweet potato					
2.4.1	**Dissemination of vitamin A biofortified sweet potato and provision of samples to smallholder farmers**	***	1. Frequency of dissemination 2. Nb of smallholders provided with samples 3. Technical assistance	1. 3 / year / LGA = 2,322 / year 10,000 dissemination meetings 2. 3 / LGA = 2,322 3. 1/ yr/ each farmer (2,322)	1. Dissemination campaign 7 M / campaign 2. 1 sample (seeds) = 500 / kg 3. Technical assistance: 15 h contact / year / farmer 2,000 N / hr for technical service	**3,812,724,000**
	4. Plantains & bananas					
2.4.2	**Dissemination of vitamin A biofortified plantain and bananas and provision of samples to smallholder farmers**	***	1. Frequency of dissemination 2. Nb of smallholders provided with samples 3. Technical assistance	1. 3 / year / LGA = 2,322 / year 10,000 dissemination meetings 2. 3 / LGA = 2,322 3. 1/ yr/ each farmer (2,322)	1. Dissemination campaign 7 M / campaign 2. 1 sample (seeds) = 500 / kg 3. Technical assistance: 15 h contact / year / farmer 2,000 N / hr for technical service	**3,812,724,000**

Output Nb	POST-HARVEST	EXPECTED IMPACTS	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST / INVESTMENT
	C.4.1 ON-FARM STORAGE					**105,790,000**
1.2.1, 1.9.1	**Provision of 1 ton metal silo**	*	1. nb of silos / prison farms 2. nb of silos / cooperative of women groups	1. 10 silos / prison farm = 130 silos 2. 3 silos / cooperative * (3*774) = 6,966	10,000 N / metal silo	**70,960,000**
1.2.1	**Provision of hermetic storage**	*	Nb of hermetic storage for youth & women cooperative groups benefiting	4644 (3 women groups + 3 youth groups/ LGA)	1,500 N / hermetic storage bag - 5 bags per group	**34,830,000**
	C.4.2 PROCESSING					**11,144,920,000**
5.1.1	**Provision of processing starter packs for soya bean commodity group**	*	1. Nb of starter packs for soya bean commodity producer groups (miller, extractor, preservator) 2. Nb of hours for demonstration	1. 1 starter pack / commodity group (7 States) 2. 5h / starter pack	1. Starter pack: dehusker toasting machine extractor press miller 2. 2,000 / hour	**844,200,000**
5.1.1	**Provision of processing starter packs for fruit commodity group**	**	1. Nb of starter packs for fruit commodity groups (dryer, canning machine, extractor, processor) 2. Nb of hours for demo	1. 1 starter pack / commodity group 2. 5h / starter pack	1. Starter pack: dryer packaging equipment 5KVA petrol generator 2. 2,000 / hour	**1,784,880,000**

Output Nb	POST-HARVEST	EXPECTED IMPACTS	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST / INVESTMENT
5.1.1	**Provision of processing starter packs for vegetable commodity group**	**	1. Nb of starter packs for vegetable commodity groups (dryer, processor) 2. Nb of hours for demonstration	1. 1 starter packs / commodity group 2. 5h / starter pack	1. Starter pack: dryer, packaging equipment, grinder 5KVA petrol generator 2. 2,000/ hour	**1,784,880,000**
5.1.1	**Provision of processing starter packs for fish commodity group including vulnerable farmer groups**	**	1. Nb of starter packs for fish commodity groups (dryer (charcoal powered), smoking kiln, packaging) 2. Nb of hours for demonstration	1. 1 starter packs / commodity group 2. 5h / starter pack	1. Starter pack: kiln, packaging, 5KVA petrol generator 2. 2,000 / hour	**896,880,000**
5.1.1	**Provision of processing starter packs for livestock commodity group including vulnerable farmer groups**	**	1. Nb of starter packs for livestock commodity groups (dryer, meat chopper / grinder, milking machine, cheese making machine) 2. Nb of hours for demo	1. 1 starter packs / commodity group (20 States only) 2. 5h / starter pack	1. Starter pack: Abattoir, Dryer, Grinder, Butcher kits, Milking machine, Cheese making machine, packaging equipment 2. 2,000 / hour	**1,204,000,000**
5.1.1	**Provision of processing starter packs for groundnut commodity group**	*	1. Nb of starter packs for groundnut commodity groups (sheller, miller, dryer, extractor, grinder, processor) 2. Nb of hours for demonstration	1. 1 starter packs / commodity group (22 States only) 2. 5h / starter pack	1. Starter pack: sheller, roaster, miller, dryer, extractor, grinder, processor, Packaging equipment 5KVA petrol generator 2. 2,000 / hour	**1,061,280,000**
1.2.1	**Setting up of aggregation centres for sorting and grading**	*	1. Nb of aggregation centres (structural construction) 2. Sets of equipment: dryer, cleaner, weighting scales, magnetic separators, converyers, elevators, storage bins, miller, processor, sorter, grader, moisturemeter, generators 3. Supervision and operational assistance / centre	1. 3 aggregation centre for 24 States: 72 2. 72 sets of equipment 3. 2 people / centre / year - 6 months / year	1. 7 M / centre 2. 8M / set 3. 50,000N / month	**1,082,400,000**
2.2.3	**Setting up milk collection centres for dairy**	**	1. Nb of collection centres (structural building) 2. Milk collection equipment (milk can, milk testing kits) 4. Technical supervision and testing	1. 4 milk collection centres for each of 15 States: 60 2. 60 sets of equipment 3. 60 technicians: 12 months / collection centre	1. 8M N / collection centre 2. 2M N / set of equipment 3. 1 month = 30,000 N	**2,486,400,000**
	C.4.3 TRANSPORTATION					**9,324,000,000**
2.2.3	**Provision of cooling vans for meat chain , fish, fruit / veg and milk chains**	**	1. Nb of meat cooling vans 2. Nb of fish cooling vans 3. Nb of fruit / veg cooling vans 4. Nb of milk cooling vans 5. Spare parts, services and maintenance	1. 2 / State 2. 1 / State 3. 2 / State 4. 1 / State 5. 5% of total cost	1. 40M 2. 40M 3. 40M 4. 40M 5. 8M	**9,324,000,000**

Output Nb	FOOD SAFETY	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST / INVESTMENT
	C.5.1 PRODUCTION STAGE					**2,988,856,000**
1.3.2	**Development of standard operating procedures for irradiation of various foods**	*	1. Nb of consultations to draft the operating procedures 2. Nb of stakeholders operating procedures validation meetings 3. Nb of committee meetings for dissemination and adoption	1. 2 consultants (3 months each), 1 National & 1 International 2. 2 stakeholder's meetings 3. 1 management committee meetings	1. 500,000 N each / month 2. 5M / meeting 3. 612,000 N / committee meeting	**13,612,000**
1.3.3	**Establishment of preparation and bagging centres in the States involved**	*	1. Nb of preparation and bagging centres built 2. Nb of preparation equipment sets 3. Nb of sets of bagging materials 4. Nb of months by technician	1. 3 centres for each of 20 States = 60 centres 2. 60 sets of preparation equipment 3. 60 sets of bagging materials 4. 60 technicians: 5 months / year for 4 years	1. 25M / centre (structure) 2. 2.5M: weighting machine, 1.5M: sewing machine = 4M package 3. Cost handled by farmers 4. 2,000N / hour	**843,360,000**
1.5.4	**Development of standard operating procedures for monitoring MRLs (Maximum Residual Levels) in commodities**	*	1. Nb of consultants to draft the operating procedures 2. Nb of stakeholders meetings 3. Nb of management meetings for dissemination and adoption	1. 2 consultants (6 months each), 1 National & 1 International 2. 2 stakeholder's meetings 3. 1 management committee meetings	1. 500,000 N / month 2. 5M / meeting 3. 612,000 N / committee meeting	**13,612,000**
1.5.5	**Provision of rapid pesticide level detection test kits for the monitors of MRLs**	*	1. Nb of rapid pesticide level detection test kits provided 2. Nb of hours for monitor's supervision 3. Nb of days transportation supervision monitoring	1. 1 / ward = 10,000 2. 1 / LGA = 774, 6 times (4h) / year 3. 3 days / year transportation	1. 140,000 N / kit 2. 2,000 N / hour 3. 220,000 N / year / supervisor	**2,118,272,000**
	C.5.2 PROCESSING STAGE					**723,840,000**
1.4.2	**Distribution of aflatoxin control technologies (such as Aflasafe) to farmer groups**	**	1. Nb of aflatoxin control packs distributed 2. Nb of technical assistants for distribution and demonstrations	1. 10 / ward / year = 400,000 2. 774 technicians (1/LGA), for 2 months / year	1. 1,500 N / pack 2. 20,000 N / month (+transport)	**723,840,000**
	C.5.3 SOPs					**11,969,936,000**
1.7.2	**Development of contextually appropriate standard operating procedures (SOPs) and guidelines for achieving food quality standards within facilities and systems**	*	1. Nb of consultants to develop SOPs 2. Nb of stakeholders meeting for validation of SOPs 3. Nb of management committees	1. 2 consultants (3 months each), 1 National & 1 International 2. 2 stakeholder's meetings 3. 1 management committee meetings	1. 500,000 N each / month 2. 5M / meeting 3. 612,000 N / committee meeting	**13,000,000**
1.7.3	**Provision of SOPs and guidelines to each facility / system and education about use**	*	1. Nb of LGAs provided with SOPs 2. Nb of dissemination events at zonal level	1. 774 LGAs: 3,000 SOPs 2. 6 dissemination events (1 / region)	1. 5,000 N by SOP (5,000 SOPs) 2.	**11,634,000,000**

Output Nb	FOOD SAFETY	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST / INVESTMENT
1.7.4	**Routine monitoring of facilities/ systems to ensure that SOPs and guidelines are in use**	*	1. Frequency of monitorings 2. Nb of supervising monitors	1. 2 times / year 2. 1 / State = 74	2. 1 M N / year / supervisor	**296,000,000**
1.7.5	**Enforcement of SOPs and guidelines in non-complying facilities/ systems**	*	1. Frequency of monitorings 2. Nb of supervising monitors	1. 1 times / year / State 2. 1 / State = 74	2. 182,000 N / State / year	**26,936,000**
	C.5.4 VETERINARY PUBLIC HEALTH SERVICES					**46,546,150,000**
2.2.2	**Provision of safe solid and liquid waste (animal and domestic) processing sites in rural communities**	**	1. Nb of waste processing sites / senitorial district (3 by State) 2. Nb of waste vans 3. Nb of waste disposal equipments (incinerators) 4. Nb of hours for supervision technicians 5. Nb of days for van drivers 6. Nb of days for waste collectors	1. 1 / senitorial district = 109 2. 109 3. 109 equipment sets 4. 109 technicians: 1h / day 5. 109 drivers 6. 218 waste collectors	1. 50M N / site 2. 35M N / van 3. 15 M N / equipment set 4. 2,000 N / h 5. 3,000 / day for 5 working days (4 years) 6. 2,000 N / day for 5 working days	**10,900,000,000**
2.2.2	**Construction of slaughter slabs for vulnerable rural communities**	*	1. Nb of slaughter slabs 2. Nb of equipment sets for slaughter slab 3. Nb of hours for vet technical supervisors	1. 1 / LGA = 774 2. 774 3. 4h / day for 4 years (1 vet technical supervisor / State)	1. 15 M / slaughter slab 2. 1.5 M / set 3. hour = 5,000 N	**12,948,600,000**
	Live bird market for poultry processing at rural community level	**	1. Nb of live bird markets constructed 2. Nb of equipment sets for lbm 3. Nb of hours for vet technical supervisors	1. 1 / LGA = 774 2. 1 package / LGA = 774 3. 12 months / vet assistant for 4 years	1. 20 M / lbm 2. 1 M / set 3. month = 50,000 N	**22,697,550,000**

Output Nb	MARKETS	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
	C.6.1 INFRASTRUCTURES					**904,440,000**
2.2.5	**Creation of animal food processing zones (AFPZs) to facilitate sourcing of raw materials and marketing / distribution of finished products**	*	1. Nb of AFPZs created 2. Nb of equipment sets 3. Nb of supervision assistants	1. 6 (1 / geopolitical zone) 2. 6 equipment sets 3. 18 supervision assistants (3 / zone)	1. Structure: 150 M N each 2. Equipment set: 500,000 M N / set 3. 3 months / year 20,000 N / month	**904,440,000**
	C.6.2 PACKAGING					**627,680,000**
2.1.2.	**Identification and promotion of packaging (crating) and transportation solutions for fruits, vegetables, complementary food products and animal and aquatic products (milk, egg, meat, fish)**	*	1.Nb of consultants 2. Nb of sensitization campaigns	1. 6 consultations (for each food group) 2. 37 sensitization campaigns / year	1. 500,000 N / consultant (1 month each) 2. 4,160,000 / campaign	**627,680,000**

Output Nb	MARKETS	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
	C.6.3 LABELLING					**11,224,000**
1.6.1	**Development of a logo to signal certification of food quality**	*	1. Nb of logos produced 2. Nb consultants to develop logo 3. Nb consultative meetings on logo 4. Nb of validation committee meeting	1. At least 1 logo 2. 3 consultants (1 month each) 3. 3 consultative meetings 4. 2 validation meetings	2. 500,000 N / consultant/ month 3. 3 M N / meeting 4. 612,000N / meeting	**11,224,000**
	C.6.4 PROMOTION AND MARKETING					**17,912,732,000**
4.3.2	**Promote technologies and techniques of improved food products to small and medium scale enterprises**	**	1. Nb of stakeholders sensitization meetings 2. Nb of demonstrations	1. 4 / year 2. 1 / geopolitical zone = 6 demos / year	1. 4 M N / meeting 2. 1.6 M / demo	**102,400,000**
4.3.2	**Advertisement to stimulate public demand of new food products**	*	1. Nb of printed advertisements 2. Nb of TV ads 2.a nb TV ads developed 2.b Nb of months when TV ads propagated 3. Nb of radio ads 3.a nb radio spots developed 3.b nb radio spots regularly propagated	1. 3 / year = 12 ads 2. 1 TV ad 2.a Development 2.b Propagation: 1 / month 3. 3 radio spots / week 3.a Development 3. b Propagation	1. 1.5 M N / ad 2.a 5M N 2.b 3 M N / slot 3.a 500,000 / spot 3.b 100,000 / spot	**455,000,000**
2.3.2	**Support local small and medium scale production of therapeutic, supplementary, and complementary foods**	***	1. Nb of scoping studies on complementary foods commercialized in the country 2. Nb of cooperatives benefiting from locally adapted fortification modules 3. Nb of complementary food products developed 4. Nb of joint meetings with producer groups and buyers	1. 1 scoping study 2. 774 cooperatives in the 4 years 3. At least 1 / agro-ecological zone = 7 4. 2 / year cooperative		**17,337,600,000**
1.10.3	**Expand the eagriculture.gov.ng online platform with regularly updated quality information on crop prices, quality, location, available quantities and facilities / services for each commodity**	*	1. Nb of information compilers / LGA 2. Nb of online platforms developed 3. Nb of regular updates of platforms	1. 774 information compilers (1 month / compiler / LGA) 2. 1 platform 3. 1 week / month	1. 20,000 N / month 2. 2M N 3. 7,000 / week	**17,732,000**

Output Nb	NUTRITION EDUCATION & BCC	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COST	TOTAL COST/ INVESTMENT
	C.7.1 NUTRITION EDUCATION					**8,773,704,000**
2.6.1	**Development of a national generic manual on establishing home gardens based on local biodiversity and indigenous crops, which includes nutrition information**	*	1. Nb of days for consultants 2. Nb of generic home garden manuals produced 3. Nb of generic home garden manuals distributed 4. Nb of validation meetings held	1. 2 consultants for 1 home garden manual developed 2. 500,000 generic home garden manuals produced 3. 500,000 generic home garden manuals distributed 4. 2 validation meeting held	1. Development: 2 consultants (150,000 N/ day/ consultant) for 80 days 2. 1,000 N / manual, total: 200 M N 3. 100,000 N / State (13500 manuals / State) 4. 5,000,000 N / validation meeting	**537,700,000**

Output Nb	NUTRITION EDUCATION & BCC	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COST	TOTAL COST/ INVESTMENT
4.5.2	**Support 24 value chain units to prepare brochures on products, including messages on the nutritional/health benefits of consuming products**	*	1. Nb of months for experts to develop nutrition messages 1.a Nb of communication experts 1.b Nb of nutrition experts 2. Nb of months for translation of brochures 3. Nb of months for graphic designer 4. Nb of brochures printed and produced 5. Nb of brochures distributed	1. Development of nutrition messages 1 communication expert (6 months) 1 nutrition expert (1 year) 2. 3 languages = 3 translators (1 month each) 3. graphic designer (1 month) 4. 4 brochures /value chain = 96 * 37 = 3,552 5. 3,552 brochures distributed across all Value Chain Unit (VCU)	1.a comm = 200,000 N 1.b nutrition expert = 300,000 / month, 2. translator = 400,000 N / month 3. graphic designer = 200,000 N / month 4. 1,000N / brochure 5. 0 N (no cost) / VCU	**17,404,000**
4.7.1, 4.7.2	**Compilation of information into a National Food-Based Dietary Guidelines, using contextually appropriate, easy to understand language**	*	1.a Nb of months for nutrition expert 1.b Nb of months for communication expert 1.c Nb of months for laboratory expert 2. Nb of months for translation 3. Nb of months for graphic design 4. Nb of Guidelines disseminated and distributed	1. 1.a nutrition expert (1 year), 1.b communication expert (6 months), 1.c laboratory assistance (2 months) 2. 2 months for each of 3 translators 3. graphic designer (2 months) 4. 200,000 / State	1.a nutrition expert: 300,000 / month 1.b communication expert: 200,000 / month 1.c laboratory assistance: 300,000 / month 2. 300,000 / month 3. 200,000 / month 4. 1,000 / guideline	**7,426,400,000**
4.8.1	**Compilation of information into 5 recipe books using contextually appropriate measurements and language**	*	1. Nb of months for consultation in recipe book production process 1.a nutrition expert 1.b Laboratory analysis 2. Nb of months for translation of recipe books 3.a Nb of months for graphic design 3.b Nb of recipe books distributed	1. 1.a 9 months 1.b 5 months 2. 4 laboratory assistants, 2 months 3. 50,000 / geographical zone = 300,000	1. 1.a nutrition expert = 300,000 / month 1.b Laboratory assistance = 300,000 / month 2. translator = 300,000 / month 3. graphic designer (1 months) 2,500 N / recipe book 4. 50,000 / Geographical zone	**776,200,000**
6.4.2	**Review of existing agricultural curricula to identify appropriate entry points for nutrition modules**		1. Nb of days for consultations to review ag curricula and identify entry points 2. Nb of validation meetings	1. 2 consultants (20 days each) 2. 2 validation meetings	1. 150,000 N each / day 2. 2,500,000/ meeting 3.	**16,000,000**
	C.7.2 BEHAVIOR CHANGE COMMUNICATION					**18,948,100,000**
2.4.1 & 4.7.2	**Social mobilization among the public about how to get the best out of your food (including food based dietary guidelines, the benefits of fortified foods and bio-fortified crops and how to identify them, etc.)**		1. Nb of sensitization campaigns 2. Nb of community mobilization officers/LGA NOA Officers	1. 1 campaign/ ward = 10,000 campaigns 2. 1 / LGA = 774 community mobilization officers/LGA NOA Officers	1. 1.5 M N / campaign 2. 1 Officers / day = 50,000	**15,038,700,000**
4.8.3	**Support for the use of recipe book in food demonstration sessions in primary health care centres and schools**	**	1. Nb of primary health care centres receiving food demonstration using recipe book 2. Nb of schools receiving food demonstration using recipe book	1. 1 / ward = 10,000 2. 1 / ward = 10,000	1. 200,000 / demonstration session 2. Food: 12,000	**2,120,000,000**

Output Nb	NUTRITION EDUCATION & BCC	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COST	TOTAL COST/ INVESTMENT
4.9.2	**Scripts are developed around messages for broadcast, and a weekly family radio programme "Eating well for a healthy life" is launched**	**	1. Nb of radio broadcasts 2. nb radio scripts developed 3. nb radio messages regularly propagated	1. 3 radio spots / week for 48 weeks / year 2. Development 3. Propagation	1 2. 500,000 / spot 3. 100,000 / spot	**182,400,000**
6.4.1	**Development of nutrition content as modular format into agricultural training**	*	1. Nb of stakeholder meetings 2. Nb of consultants engaged to develop nutrition modules 3. Nb of validation meetings	1. 3 stakeholders meetings 2. 3 consultants engaged 3. 2 validation meetings for nutrition modules	1. 6.4 M / meeting 2. 150,000/day each for 3 consultants for 60 days 3. 6.4 M/ meeting	**59,000,000**
2.3.3	**Focus group discussions with cooperative members for selection of commodities with nutritional added value**	***	1. Nb of focus group discussions	4 stakeholder meeting/year	500,000M / focus group discussion	**1,548,000,000**

Output Nb	OPERATIONAL RESEARCH	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
	C.8.1 PRODUCTION / CROP VARIETIES					**360,627,500**
1.5.2	**Identification and compilation of country-specific commodities and corresponding international MRLs**	*	1. Nb of days for consultations to draft document 2. Nb of validation meetings 3. Nb of documents printed	1. One consultant to conduct research, including travel for data gathering and consultations 2. 1 validation meeting with members of National Codex Committee 3. 250 copies	1. Consultant days: N150,000 = N3,000,000 for 20 2. 2 validation meeting: N2,520,000 3. 2,500	**6,145,000**
1.5.2	**Research and consultations to establish MRLs within national context**	*	1. Nb of days for consultations 2. Nb of consultative meetings 3. Nb of commodities collected 4. Nb of lab analyses	1. 20*2 day consultations to conduct research, including travel for data gathering and consultations 2. 3 Consultative meetings with members of National Codex Committee on related issues and data sources 3. Collection of commodities from across the country 4. Nb of laboratory analyses	1. Consultant days: N150,000 = N6,000,000 for 40 days 2. 3 consultative meetings: N4,000,000 per meeting X 3. Collection of commodities from across the country: N700,000 4. Laboratory analyses of samples: N5,000,000	**42,920,000**
1.6.1	**Compilation of food safety standards for different commodities**		1. Nb of days for consultations to draft document 2. Nb of validation meetings	a. One consultant to conduct research, and compile b. 3 validation meetings	1. Consultant man days: N150,000 = N2,250,000 for 15 days 2. validation meeting = 2,500,000	**17,250,000**
1.7.1	**Research to identify formal and informal warehouse receipt systems, commodities exchange boards, aggregation centres, and similar facilities/ systems**		1. Nb of days for consultants producing research reports 2. Nb of validation meetings	1. One consultant to conduct research for 38 days 2. 3 validation meetings	a. Consultant days: N150,000 = N5,700,000 for 38 days	**10,700,000**

Output Nb	OPERATIONAL RESEARCH	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
1.7.1	**Documentation of facilities/ systems, commodities**		1. Nb of days for consultants to documenting list of facilities/ systems 2. Nb of validation meetings	One research consultant	a. Consultant man days: N150,000 = N300,000 for 2 days	**5,500,000**
1.8.4	**Document and validate that domestic production has been significantly increased**		1. Nb of days for consultants to documenting domestic production increase 2. Nb of validation meetings	1. One consultant to conduct research for one week 2. 1 validation meetings	a. Consultant man days: N150,000 / day	**3,550,000**
2.1.1	**Identification of fruits and/or vegetables farmers associations to meet companies demands**		1. Nb of lists of fruits/vegetables farmers associations and production capacity established 1.a Nb of staff in charge of identification	a. Three staff of the horticultural division working for 5 days	a. Staff man days: N5,000 per staff per day X 3 = N75,000	**75,000**
2.2.1	**Identification of the necessary inputs, including feed and medicines, for rearing locally consumed animals**		Nb of staff in charge of listing inputs used for rearing locally consumed animals by state	Two staff of State Ministry of Agriculture in each state working for 3 days	Staff man days: N5,000 per staff per day X 2 staff X 3 days X 37 states = N1,110,000	**1,735,000**
2.2.1	**Research to identify ways to safely, sustainably, and efficiently supply feed and water for animal production**		Nb of research reports produced by consultants	One consultant to conduct research and write report for	Consultant man days: N150,000 / day	**2,125,000**
2.2.1	**Research local ways to process and package animal foods into locally consumed products**		Nb of research reports produced by consultants	One consultant to conduct research and write report	Consultant man days: N150,000	**2,125,000**
2.4.2	**Complementary research to support the local adaptation of internationally available varieties of iron, zinc rice, and vitamin A bio-fortified crops; development of contextually appropriate varieties; and field test varieties**		Nb of research reports produced by research institutes	One research institute to conduct research and write report		**95,000,000**
2.6.2	**Identification of indigenous vegetables in each livelihood zone and research to identify conditions necessary for the growth of indigenous vegetables**		Nb of surveys on indigenous vegetables in each livelihood zone/ state is available produced by consulting firms	One consultant to conduct research and write report for	Consultant man days: N150,000	**4,325,000**
4.2.1	**Research on crops and plant breeding systems to enhance nutritional attributes**		1. Nb of research institutes selected through competitive bids 2. Nb of universities involved in the research	1. Institute selected between research institutes and agriculture universities	1. contract to 1 research institute: N50,000,000 per institute	**152,500,000**
4.2.2	**Field trials of developed crop varieties**		Nb of farmers supported for the new varieties field trials 1 Kg of seeds supplied 2. L of pesticides 3. kg of fertilizers	1. 175 farmers 2. 175 field trials 3.	1. 2.	**7,927,500**

Output Nb	OPERATIONAL RESEARCH	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
4.7.1	**Grouping of all foods eaten locally into food groups, based on similarities in nutrient composition**		Nb of research reports produced by research consultant	One research consultant to conduct research and write report	Consultant man days: N150,000 = N3,000,000 for 20 days	**5,125,000**
5.2.1	**Identification of suitable mixed cropping or mixed farming systems for intervention livelihood zone**		Nb of research reports produced by research consultant	a. One research consultant to conduct research and write report b. Stakeholders meeting for validation and consultation	a. Consultant man days: N150,000 = N3,000,000 for 20 days b. 1 Stakeholders meeting: N4,240,000	**3,625,000**
	C.8.2 DEVELOPMENT OF NUTRIENT-DENSE PRODUCTS					**91,875,000**
1.1.1	**Identification, standardization, and documentation of best practices in the production of each commodity (including nutrition dense commodities)**		Research report is available	a. One research consultant to conduct research and write report	a. Consultant man days: N150,000 = N6,000,000 for 40 days	**6,625,000**
2.1.2	**Research to identify packaging solutions and other technology to increase shelf-life of fruits and vegetables, while maintaining nutrient content**		Research report is available	a. One research institute appointed through a bidding process to conduct research and write report	a. Contract to research institute: N25,000,000	**25,625,000**
4.3.1	**Identification of foods to improve nutrition properties through processing in each food**		1. Nb of research reports 2. Nb of tests to determine palatability of organoleptic properties	1. Contract to Federal Institute of Industrial Research, Oshodi (FIIRO)	1. and 2. Institutional support to FIIRO: N50,000,000	**50,625,000**
4.8.1	**Development of standard recipe book compiling locally eaten recipes, their nutrient contents and nutritional contribution**		Standardized recipe book containing serving sizes of recipes and nutrient contents in one serving	a. Research consultant to conduct research and write report	a. Consultant man days: N150,000 = N9,000,000 for 60 days	**9,000,000**
	C.8.3 IDENTIFICATION OF GROUPS WITH POTENTIAL TO BENEFIT ACTIVITIES					**23,125,000**
1.8.2	**Research on the agricultural credit approval process and turnaround time**		Research report available and evidence based insurance premiums available	a. Research consultant to conduct research and write report	a. Consultant man days: N150,000 = N3,000,000 for 20 days	**3,625,000**
4.7.1	**Development of food based dietary guidelines**		a. Local dietary reference intakes available b. Food based dietary guidelines are developed and available	a. Nutrition education consultant to conduct research and write report b. 3 Stakeholders meeting to validate dietary reference intakes and food based dietary guidelines	a. Consultant man days: N150,000 = N9,000,000 for 60 days b. Stakeholder meetings: N4,900,000 per meeting X 3 meetings	**19,500,000**
	C.8.4 TECHNOLOGIES					**38,700,000**
1.4.1	**Research to identify entry points of aflatoxin contamination in susceptible crops and dialogue with subject matter specialists**		1. Nb of consultants for the aflatoxin research 2. Nb of consultation meetings with subject matter specialists 3. Nb of validation / dialogue meetings	1. 1 consultant for 60 days 2. 2 total 3. 1 validation meeting / year	1. 150,000 / day 2. 600,000 3. 5M	**12,200,000**

Output Nb	OPERATIONAL RESEARCH	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
2.6.3	**Identification of contextually adaptable innovations for limited land home gardening, such as keyhole gardens and raised bed gardens**		1. Nb of consultants for the identification of innovations for home-gardening 2. Nb of validation meetings	1. 1 consultant for 60 days 2. 1 validation meeting / year	1. 150,000 / day 2. 5M	**11,000,000**
4.2.2	**Laboratory tests on harvests from new varieties to ensure that enhanced nutritional attributes are retained in real world setting**		Nb of new varieties tested through laboratory	At least 15 new varieties	5 M / lab sample test	**15,500,000**

Output Nb	CAPACITIES	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
	C.9.1 PLANNING & MANAGERIAL CAPACITY AT ALL LEVELS					**4,341,050,000**
1.1.3	**Organization/identification of producer/farmer associations**	*	1. Nb of smallholder producer associations formed 1a. Nb of producer associations registered with CAC 1b. Nb of producer associations registered with institutional markets 2. Nb of facilitators supporting formation of producer groups 2a. Nb of travels for facilitators 2b. Nb of days of facilitation	1. 20 associations/ state (each association with 100 members) Total is 740 associations 1a. 740 associations registed with CAC 1b. 740 associations registered with financial institutions (Insurance, banks) 2. 74 facilitators (2 per state) 2a. 1 travel per facilitator per year 2b. 50 days of work / facilitator / yr	1a. N100,000 per CAC registration 1b. N10,000 per institutional market registration 2a. N100,000/ person/ trip for 4 trips 2b. N20,800 DTA/day for 50 days per year for 4 years	**418,840,000**
1.1.3, 1.4.2, 1.2.2	**Establishment of commodity-specific demonstration plots (through FFSs where available), including demonstration of aflatoxin control measures, use of improved technologies**	*	1. Nb of hectares of land of demonstration plots 2. Nb of kg of seeds used in demonstration plots 3. Nb of kg of fertilizers used in demonstration plots 4. Nb of litres of herbicides used 5. Nb of litres of insecticides used 6. Nb of packaging materials used 7. Nb of farm operators 8. Nb of small water pumps 9. Nb of metres of hoses 10. Nb of washbores 11. Nb of improve technologies available for demonstration plot	1. 0.25 hectares per LGA in each LGA = 0.25 * 774 demonstration plots = 193.5 hectares 2. 6.25 kg / LGA 3. 50 kg / LGA 4. 1 litre / LGA 5. 1 litre / LGA 6. 10 packaging materials/ LGA 7. 1 farm operator/ LGA 8. 1 water pump/ demonstration plot 9. 10 meter roll / LGA 10. 1 washbore per LGA 11. 2 technologies per LGA (1 ton metal silo and 10 hermatic storage bag)	1. 0 N (free)/ 0.25 hectares of land 2. 4,375 N for 6.25 kg of seeds 3. 8,000 N for 50 kg of fertilizer 4. 1,200 N per litre of herbicide 5. 1,800 N per litre of insecticide 6. 6,000 N for 10 packaging materials 7. N30,000 per farm operator (15 man days) per month 8. 80,000 per LGA 9. 4000 N per LGA 10. 60,000 N per LGA 11. 25,000 N per LGA	**1,311,543,000**

Output Nb	CAPACITIES	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
1.1.3	**Training of producer associations**		Nb of training held 1. Nb of training venue 2. Nb of farmers trained 3. Nb of trainers 4. Nb of training leaflets	2 trainings per year (2 days each) for four years/ LGA = Total of 6,192 trainings 1. 6,192 venues 2. 100 farmers/ training =619,200 farmers 3. 2 trainers/ training = 12,384 trainers 4. 100 leaflets/training = 619,200 leaflets	400, 000 N per training (Farmer transportation=2,000 N/farmer Lunch = 1,500 N per farmer and trainer DTA for trainers = 16,000 N per trainer Leaflets = 100 N per leaflet)	**2,476,800,000**
1.5.1	**Targeted activities to develop capacity to effectively attend National Codex Committee (NCC) meetings**		Nb. of meetings held to develop technical papers to be presented to NCC by FMARD	16 meetings to develop 10 technical papers over four years	45,000 N per meeting	**720,000**
1.5.3	**Development of (Codex MRLs) education manuals for stakeholders at different points of agricultural value chains**		1. Nb of consultants engaged to develop education manuals 2. Nb of validation meetings held on the education manuals	1. 1 consultant 2. 2 validation meetings	1. 500,000 N / month for 6 months 2. 5,000,000 / validation meeting	**13,000,000**
1.5.3	**Information dissemination on pesticide MRLs**		1. Nb of copies of pesticide information materials printed 2. Nb of formal launch event	1. 1,000 copies printed 2. 1 formal launch event	1. 2,500 N per copy 2. 520,000 N per launch event (venue, refreshments and programme)	**3,020,000**
1.5.3	**Training (of trainers) on guidelines of actions that ensure conformity with MRLs (Maximum Residue Levels)**		1. Nb of trainings for master trainers	1 Master Trainers training (100 Master trainers)	20,760,000 N per training	**20,760,000**
4.4.1	**Technical assistance and support for the conduct of such (potential-to-benefit) studies**		Nb of consultancy days for which technical assistance is provided	30 consultancy days / year	N150,000/ day	**18,000,000**
4.5.1	**Support to each crop, fish and livestock value chain units to identify and compile crop/animal species specific nutrition information**		Nb of consultancy days to compile value chains specific nutrition information	60 consultancy days	150,000 N per day	**9,000,000**
6.1.2	**Development of training materials for nutrition focal points within the agricultural sector**		1. Nb of consultancy days to develop manual 2. Nb of validation meetings 3. Nb of manuals printed	1. 60 consultancy days 2. 2 validation meetings 3. 500 copies of manuals printed		**23,050,000**
6.1.2	**Identification and training and re-training of appointed nutrition focal points at federal, state, and LGA levels**		1. Nb of trainings for master trainers held 2. Nb of trainings for focal points held	1. 1 master training held (30 master trainers trained) 2. 12 trainings for focal points (2 per geo-political zone; 400 focal points trained across the country)	1. 9,825,000 N per training 2. 6,082,000 N per training	**46,317,000**
	C.9.2 CAPACITIES OF AGRICULTURE EXTENSION WORKERS AT ALL LEVELS					**8,334,554,000**
1.1.2, 1.2.2, 1.4.2, 2.2.3, 6.2.1, 6.2.2	**Training Extension Agents (EAs) on GAPs; nutrition; and other activities related to the implementation of the sub-components in the AFSN Strategy**		1. Nb of consultancy days to develop extension agents manual for the agricultural sector food security and nutrition strategy 2. Nb of validation meetings for the extension agents manual	1. 240 consultancy days 2. 4 consultation/ validation meetings 3. 3 translations of extension agents manual 4. 40,000 extension agents manual printed 5. 3 trainings for master trainers (35	1. 150,000 N / consultancy day 2. 10,000,000 N per consultation/ validation meeting 3. 100,000 N per translation of extension agents manual 4. 2,500 N per manual printed	**7,334,300,000**

Output Nb	CAPACITIES	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
			3. Nb of translations of extension agents manual 4. Nb of extension agents manual printed 5. Nb of trainings for master trainers 6. Nb of trainings for extension agents	master trainers per training) 6. 222 trainings for extension agents per year (6 trainings per state per year, to train a total of 10,000 extension agents per year, for four years)	5. 18,000,000 N per training 6. 8,000,000 N per training	
1.4.2	**Cascading of audience specific (aflatoxin) training to processors, distributors and other actors along susceptible value-chains**		1. Nb of trainings for processor associations 2. Nb of trainings for marketing association	1. 1 processor association training per state per year (37 trainings per year for four years) 2. 1 marketing association training per state per year (37 trainings per year for four years)	1. 2,256,000 N per training 2. 2,256,000 N per training	**667,776,000**
1.5.4	**Training to regulatory agencies on use of pesticide MRLs test kits and adequate sampling procedures**		Nb of trainings for regulatory agencies	1 training per geo-political zone (10 agents recruited across NAFDAC and SON trained per state)	4,538,000 N per training	**27,228,000**
2.6.1	**Provision of extension support centres that can assist households in resolving challenges with home gardening**		1. Nb of extension support centres established 2. Nb of extension agents staffing extension support centres 3. Nb of motorcycles to transport extension agents	1. 5 functional centres per state 2. 2 extension agents as permanent staff of the centre 3. 1 motorcycle per centre	1. 200,000 N per centre (cost of refurbishing and furnishing offices) 2. 600,000 / agent/ year/ centre 3. 250,000 per centre	**305,250,000**
	C.9.3 CAPACITY ENHANCEMENT IN THE USE OF TECHNOLOGIES					**95,787,000**
1.3.1	**Appropriate training of personnel (on gamma irradiation)**		Nb of trainings for personnel on gamma irradiation	1 training for 20 personnel	3,967,000 per training	**3,967,000**
6.5.2	**Development of training materials for the construction/repair/maintenance of each applicable technology**		1. Nb of consultancy days for the development of training materials 2. Nb of validation meetings for manual 3. Nb of training materials printed	1. 60 consultancy days 2. 2 validation meetings 3. 1,000 training materials printed	1. 150,000 N per day 2. 5,000,000 N per validation meeting 3. 2,500 N per training material	**21,500,000**
6.5.2	**Identification and training of trainees for each feasible technology in interventions LGAs (based on LGA list of feasible technologies)**		1. Nb of trainings of master trainers 2. Nb of trainings of trainees for different technologies	1. 1 training of master trainers for 10 master trainers 2. 10 trainings of trainees for 400 trainees from 380 LGAs (40 trinees per training)	1. 5,220,000 N per training 2. 6,510,000 N per training	**70,320,000**
	C.9.4 CAPACITY DEVELOPMENT AMONG BENEFICIARIES					**3,916,073,000**
2.3.3	**Training and agribusiness development for farmer associations to supply the quality and quantity demanded (by P4HNF)**		Nb of trainings held for farmers associations	144 trainings of farmers associations (6 farmer associations (100 members each) trainings per geo-political zone per year)	3,000,000 per training	**432,000,000**
2.6.3	**Training of (urban) households on technology (for innovative gardening approaches)**		Nb of trainings for urban households	335 trainings (20 trainings in each of 10 high density urban states and 5 trainings in each of 27 other states)	600,000 N per training	**201,000,000**

Output Nb	CAPACITIES	EXPECTED IMPACT	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
2.2.3	**Establishment of demonstration farms for livestock, poultry and fishery (through FFSs where available)**	*	1. Nb of animal farms constructed 2. Nb of starter stock (animals) used 3. Nb of kg of feed used 4. Nb of mls of assorted veterinary drugs and vaccines used 5. Nb of technical assistants 6. Nb of animal farm equipment (feeder and drinkers)	1. 1 animal-specific farm per LGA 2. 50 day old chicks/ 2 goats/ 2 sheep/ 200 fish fingerlings/ 1 cow per LGA 3. 100 kg of feed per LGA 4. 50 mls / LGA 5. 9 technical assistants per state (3 per senatorial disctrict) 6. 2 farm equipment per LGA	1. 125,000 N for construction of farm structures per LGA 2. 30,000 N per LGA 3. 20,000 N per LGA 4. 2,500 N per LGA 5. 30,000 N per technical assistant per month 6. 2,000 N per LGA	**148,923,000**
1.1.3	**Training of animal producer associations**		Nb of training held 1. Nb of training venue 2. Nb of animal farmers trained 3. Nb of trainers 4. Nb of training leaflets	1 training (2 days each) per LGA = Total of 744 trainings 1. 744 venues 2. 50 farmers / training = 37,200 farmers 3. 2 trainers/ training = 1,548 trainers 4. 50 leaflets per training = 37,200 leaflets	225, 000 N per training (Transportation for farmers = 2,000 N per farmer Lunch = 1,500 N per farmer and trainer DTA for trainers = 16,000 N per trainer Leaflets = 100 N per leaflet)	**174,150,000**
4.8.3	**Training of primary health care staff and school teachers on recipe book**		1. Nb of trainings held for primary health care workers 2. Nb of trainings held for school teachers	1. 5 trainings (2 days each) per state = Total of 185 trainings 2. 5 trainings (2 days each) per state = Total of 185 trainings	1. 8,000,000 N per training 2. 8,000,000 N per training	**2,960,000,000**

Output Nb	MONITORING AND EVALUATION	EXPECTED IMPACTS	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
	C.10.1 Baseline assessment and survey design					**3,390,570,800**
4.1.1	**Conduct for National Food consumption and Nutrition Survey**		See details in table "detail costs"	See details in table "detail costs"	See details in table "detail costs" (includes costs for collecting, shipping, and analyzing blood and food samples)	**3,313,734,800**
6.7.3	**Creating a knowledge management platform to assist states/LGAs in conducting nutrition assessments, designing interventions, targeting, and implementing interventions**		1. Nb of Stakeholders meeting 2. Nb of managment meeting to validate the platform 3. Nb of consultant engaged 4. Nb of supporting tools for the operationilization of the platform 5. Technical supervision/State	1. 4 Stakeholders meeting 2. 2 management meeting 3. 2 consultants 4. 37 computerized tools 5. 37 Technical supervision	1. N4,964,000/stakeholders meeting 2.N 612,000 / management meeting 3. N500,000/ month 4. N500,000/tool/State 5. N100,000/technician/month	**37,724,000**
	C.10.2 Data management (collection, compilation)					**301,041,800**
2.2.4	**Updating the list of available animal production extension and veterinary services by State, specifying physical location of service providers**		1. Nb of enumerators for data collection	1 enumerator / LGA / 2 day/ twice a year	1. 5,000/ day for enumerator	**37,848,000**

Output Nb	MONITORING AND EVALUATION	EXPECTED IMPACTS	INDICATORS	TARGETS	UNIT COSTS	TOTAL COST/ INVESTMENT
2.3.3	**Assessment of farmer association production capacity for food crops destined for mandatory fortification**		1. Nb of stakeholder meeting 2. Nb of Monitors	1. 2 stakeholder meeting/year 2. 2 Monitors / LGA /2 day	1. N4 M /stakeholders meeting 2. 25,000 / day with transportation	**170,800,000**
2.8.1	**Compile list of primary / secondary schools (from Ministry of Education) and extension agents (from MoA) by LGA and wards**		1. Nb of contacts by State 2. Nb of validation meetings	1. 2 / State 2. 1 validation meeting / State	1. / 2. 305,000	**11,285,000**
4.4.1	**Promotion of mini-studies prior to the implementation of any sub-component to target the most vulnerable beneficiaries**		1. Nb of mini studies through consultations 2. Nb of printed mini studies	1. at least 100 mini studies = 2 days / study 2. 250 printings	1. 150,000 N / day	**30,625,000**
6.2.2	**Mapping nutrition related institutions, compiling nutrition services provided for each LGA and developing decision making flow chart**		1. Nb of contacts by State 2. Nb of validation meetings	1. 2 / LGA 2. 6 validation exercise / State	1. / 2. 800,000	**29,600,000**
6.7.1	**Mapping of food and nutrition situation at State and LGA level through collection and compilation of relevant information**		1. Nb of enumerators 2. Nb of supervisors 3. Nb of monitors 4. Nb of enumerators trainings 5. Nb of consultants 6. Nb of reports printed	1. 1 / LGA 2. 1/ 10 LGAs 3. 1/ 20 LGAs 4. 2 trainings 5. 1 consultant / geopolitical zone	1. 2. N560,000 / monitor 4. 908,000 / training 5. N500, 000 / month	**20,883,800**
	C.10.3 Regular monitoring and tracking					**100,218,000**
2.4.1	**Compilation of best practices for the production and utilization of available varieties of orange flesh sweet potato, pro-vitamin A cassava, yellow maize, and iron sorghum**		1. Nb of stakeholder meeting 2.Nb of Monitoring activities 3. Nb of Monitors deployed to collect food security and nutrition data 4. Nb of Consultant	1. 2 stakeholder meeting/year 2. 2 Monitoring activities 3. 2 Monitors/State/10day 4. 1 Consultant/10days	1. N4,964,000/stakeholders meeting 3. N560,000 / monitor 4. N500, 000 / month	**18,625,000**
2.7.1	**Compile best practices for maximizing mixed farming systems**		1. Nb of focal State persons	1. 1 / State = 37	1. 8000,000 for field visits by focal State person 2. 500,000 / day 3. 2,500 / printed report	**40,225,000**
4.6.2	**Label monitoring and regulation is integrated into routine activities of SON and NAFDAC**		Nb of advocacy / consultative meetings			**7,368,000**
6.6.4	**Tracking and assessing the M&E framework indicators**		1. Nb of in house trainings 2. Nb of consultations for expert = 5 day / year	1. 1 / year 2. 500,000 / training	1. N4,964,000/stakeholders meeting 2. . N560,000 / monitor 3. N500, 000 / month	**34,000,000**

GLOSSARY

Nutrition is the intake of food, considered in relation to the body's dietary needs".

Aflatoxins are poisons produced by *Aspergillus* fungi species, and colonized on food crops both on-farm and off-farm, in warm temperatures, favourable moisture conditions, and through pest damage

Food access is a function of the physical, social, and policy environment that determine how effectively households are able to use their resources (capital, labour, knowledge, and others) to meet their food security objectives. Access is therefore ensured when all households and all individuals within those households have sufficient resources to obtain appropriate foods for a nutritious diet.

Food availability refers to the physical existence of food whether from individual production or from the market. It is a combination of domestic food production, commercial food imports, food aid, and domestic food stocks, as well as the underlying determinants of all of these factors.

Food security "is a situation that 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. It has four pillars – food availability, food access, food utilization, and food stability".

Food stability means that households should not risk losing access to food as a consequence of sudden shocks (climatic crisis, price fluctuations) or cyclical events (e.g. seasonal food insecurity) or conflict.

Food systems refer to "the production, marketing, transformation and purchase of food, and the consumer practices, resources and institutions involved in these processes"

Food utilization means that "food is properly used; proper food processing and storage techniques are employed; adequate knowledge of nutrition and child care techniques exists and is applied; and adequate health and sanitation services exist".

Malnutrition occurs if diets do not provide adequate calories, protein, and micronutrients for growth and maintenance or a person is unable to fully utilize the food eaten due to illness (undernutrition). Malnutrition also occurs if too many nutrients are consumed (overnutrition).

Nutritious foods or nutrient-dense foods are foods that have a meaningful amount of multiple nutrients. They include animal-source foods (including fish, meat, eggs, and dairy products), fruits and vegetables, bio fortified staples, fortified foods, and traditional local crops (including neglected and underutilized species and wild foods).