FEDERAL MINISTRY OF AGRICULTURE
AND RURAL DEVELOPMENT

NATIONAL AGRICULTURAL TECHNOLOGY AND INNOVATION POLICY

(NATIP)

2022-2027

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FOREWORD

The Federal Ministry of Agriculture and Rural Development is mandated to ensure food security, employment generation and wealth creation through improved commodity value chain activities and rural infrastructural development. Meanwhile, the government has demonstrated consistent efforts to diversify Nigeria's economy through agriculture.

In recent times, the interlinked frameworks of the Agricultural Promotion Policy (2016-2020); the Economic Recovery and Growth Plan (2017–2020), and the Economic Sustainability Plan (2020-2021) focused on laying a foundation for rapid agricultural development using comparative advantage exploration, climate change adaptation, nutrition-sensitive agriculture, agro-enterprise promotion and market access linkages. As a result, massive investments were attracted into agriculture making Nigeria closer to self-sufficiency, particularly in rice and poultry production.

Interestingly, the extant policy direction of the government as encapsulated in the National Development Plan (2021-2025) reiterated earlier commitments to deploy knowledge, technology, innovative and global best practices to integrally strengthen the economic diversification process by revamping research**,** training, extension**,** improving access to inputs, technology and markets to revitalize agricultural production and processing in a manner that would create job opportunities and increase export revenue.

Accordingly, FMARD conceived the National Agricultural Technology and Innovation Policy (NATIP) to modernize the agricultural sector in line with the changing global food systems and supply chains. NATIP, 2022-2027 as approved by the Federal Executive Council on Wednesday, 18th May, 2022 will operate within other policies and strategies of relevant MDAs to ensure synergy and better coordination.

The renewed sectoral policy direction would consolidate the successes recorded in the implementation of the previous agricultural development policies and the repositioning of the National Agricultural Research System, holistic mechanization drive, provision of rural infrastructure, standardization of inputs and processing systems and techniques; development of commodity value chain through clusters and special agro-processing zones.

This Policy is not oblivious of the security challenges that threaten agricultural land and investments. Hence, a coordinated response has been carefully crafted to mobilize critical stakeholders to restore peace and security necessary for increased agricultural performance. Equally, the Policy generated important lessons from the COVID-19 pandemic, which further reinforced Government's resolve to pursue policies and programmes that would make Nigeria food secure and competitive in the global food chain.

Lastly, the Policy appreciated the need to mobilize critical stakeholders at state and local government levels, relevant MDAs, organized private sector and development partners in the implementation and monitoring of the Policy. This synergy holds the key to superior execution of the Policy in line with the national aspiration of fast tracking inclusive growth and development. Indeed, this Policy will be backed by specific implementation strategies and action plans, Agricultural Investment Plan and a robust monitoring and evaluation framework.

Dr. Mohammed Mahmood Abubakar
Honourable Minister of Agriculture and Rural Development,
FCTA Secretariat, Garki Area 11,
Abuja.
January 2022

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This document benefitted immensely from the contributions of members of the National and State Assemblies, commodity associations, research and training organizations, traditional institutions and other numerous stakeholders in the Agriculture sector. The contributions of these bodies are highly commendable and appreciated.

Also, FMARD acknowledges the inputs of the Departments, Parastatals of FMARD and the State Ministries of Agriculture, which assembled the necessary documents and provided the required information for the development of the Policy.

Equally worthy of mention are the technical and logistic contributions of the International Food Policy Research Institute (IFPRI) supported by USAID-Feed the Future Nigeria Agriculture Policy Activity, the USAID-Nigeria Agribusiness Investment Activity, the International Food and Agricultural Development (IFAD), Dangote Business School (DBS) and the Centre for Dryland Agriculture (CDA), Bayero University, Kano.

In all, a special appreciation is to the Federal Executive Council for approving the National Agricultural Technology and Innovation Policy (NATIP) 2022-2027 in May 2022 to guide the implementation of programmes and projects to ensure food security, employment generation and wealth creation in the country.

Federal Ministry of Agriculture and Rural Development,
FCTA Secretariat, Garki Area 11,
Abuja
January 2022

ACRONYMS

ACCOMEX	Agricultural Commodity Exchange Market
ACGS	Agricultural Credit Guarantee Scheme
ACVCD	Agricultural Commodity Value Chain Development
ADF	Agricultural Development Fund
ADPs	Agricultural Development Programmes
AETA	Agricultural Extension Transformation Agenda
AfDB	African Development Bank
AI	Artificial Intelligence
AIMS	Agricultural Input Management Service
AMTDC	Agricultural Marketing and Trade Development Corporations
APP	Agricultural Promotion Policy
APPEALS	Agro-Processing, Productivity Enhancement and Livelihood Improvement Support
ARCN	Agricultural Research Council of Nigeria
AROC	Agricultural Research Outreach Centre
ATA	Agricultural Transformation Agenda
AU	African Union
BMGF	Bill and Melinda Gates Foundation
BOA	Bank of Agriculture
BOI	Bank of Industry
CA	Community Association
CAADP	Comprehensive Africa Agriculture Development Programme
CACS	Commercial Agriculture Credit Scheme
CBA	Community-Based Associations
CBN	Central Bank of Nigeria
CBO	Community-Based Organization
CDA	Centre for Dryland Agriculture
CET	Common External Tariff
COVID	Coronavirus Disease
CRG	COVID-19 Recovery Grand
CSA	Climate Smart Agriculture
CSO	Civil Society Organization
DAPRS	Developing Agricultural Policy and Regulatory Systems
DBS	Dangote Business School
DFID	Department for International Development
DWC	Departmental Working Committee
ECOWAS	Economic Community of West African States
ERGP	Economic Recovery and Growth Plan
FADAMA	National Fadama Development Project in Nigeria
FAFIN	Fund for Agricultural Finance in Nigeria
FAIRS	Fisheries and Aquaculture Import Reduction Strategy
FAO	Food and Agriculture Organization
FMFBNP	Federal Ministry of Finance Budget and National Planning
FBO	Farmer-Based Organization
FBS	Farmer Business School
FCT	Federal Capital Territory
FDF	Federal Department of Fisheries
FDRD	Federal Department of Rural Development of FMARD
FEC	Federal Executive Council
FGN	Federal Government of Nigeria
FIF	Farm and Infrastructure Foundation

FMARD	Federal Ministry of Agriculture and Rural Development
FMC	Federal Ministry of Commerce
FME	Federal Ministry of Education
FMEV	Federal Ministry of Environment
FMITI	Federal Ministry of Industry, Trade and Investment
FMJ	Federal Ministry of Justice
FMP	Federal Ministry of Power
FMSTI	Federal Ministry of ScienceTechnology & Innovation
FMWH	Federal Ministry of Works and Housing
FMWA	Federal Ministry of Women Affairs
FMWR	Federal Ministry of Water Resources
GAIN	Grassroots Addressing and Identity Network
GAP	Good Agronomic Practices
GDP	Gross Domestic Product
GES	Growth Enhancement Scheme
GMP	Guaranteed Minimum Price
HOD	Head of Department
IARC	International Agricultural Research Centers
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICT	Information and Communication Technology
IFAD	International Fund for Agricultural Development
IFDC	International Fertilizer Development Center
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
INGO	International Non-Governmental Organization
ISO	International Standard Organization
KfW	Kreditansalt für Wiederaufbau (KfW)
KPI	Key Performance Indicator
LGA	Local Government Area
LGIC	Local Government Implementation Committee
LPRES	Livestock Productivity & Resilience Support Project
MARKETS	Maximizing Agricultural Revenue in Key Enterprise
MDA	Ministry, Department and Agencies
MDG	Millennium Development Goals
MT	Metric Ton
MTEF	Medium Term Expenditure Framework
NADMIS	National Agricultural Data Management and Information System
NAERLS	National Agricultural Extension and Research Liaison Services
NAFCON	National Fertilizer Company of Nigeria
NAFDAC	National Agency for Food, Drug Administration and Control
NAIC	Nigerian Agricultural Insurance Corporation
NALDA	National Agricultural Land Development Agency
NAPRI	National Animal Production Research Institute
NAQS	Nigeria Agricultural Quarantine Service
NARI	National Agricultural Research Institute
NARS	National Agricultural Research System
NASS	National Assembly
NASC	National Seed Council of Nigeria
NATIP	National Agricultural Technology & Innovation Policy
NBS	National Bureau of Statistics
NCAM	National Centre for Agricultural Mechanization
NCRP	Nationally Coordinated Research Projects
NDIC	Nigeria Deposit Insurance Corporation

NDP	National Development Plan
NEC	National Executive Council
NEPC	Nigerian Export Promotion Council
NEPZA	Nigeria Export Processing Zone Authority
NESG	Nigeria Economic Summit Group
NEXIM	Nigerian Export-Import Bank
NGO	Non-Governmental Organization
NIC	National Implementation Committee
NIFFR	National Institute for Freshwater Fisheries Research
NIMET	Nigerian Meteorological Agency
NIOMR	Nigerian Institute for Oceanography and Marine Research
NIRSAL	Nigerian Incentive-based Risk-Sharing System for Agricultural Lending
NLTP	National Livestock Transformation Programme
NNHS	National Nutrition and Health Survey
NPFS	National Programme for Food Security
NQAS	National Quality Assurance Standards
NSAP	National Schools Agricultural Programme
NSFP	National School Feeding Programme
NV20	Nigerian Vision 2020
P&PC	Planning and Policy Coordination of FMARD
PIMEC	Planning, Implementation, Monitoring and Evaluation
PPA	Policy Support Programs and Actions
PPP	Public-Private Partnerships
PSALI	Partnership for Securing Agricultural Lands and Investments
PSPA	Policy Support Programs & Actions
RAISE	Raising Agricultural Income with Sustainable Environment
REA	Rural Electrification Agency
RLPI	Ruminants Livestock Productivity Intervention
SAP	Structural Adjustment Program
SAPZ	Special Agro-Processing Zones
SCPZ	Staple Crop Processing Zone
SEC	Security and Exchange Commission
SG	State Government
SMANR	States' Ministry of Agriculture and Natural Resources
SMART	Specific, Measurable, Achievable, Realistic, Timely
SMEs	Small and Medium Enterprises
SNA	System of National Accounting
SON	Standards Organization of Nigeria
TAD	Transboundary Animal Diseases
TETFund	Tertiary Education Trust Fund
TV	Television
TWG	Technical Working Group
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollar
WADP	Women Agribusiness Development Project
WAERM	Water, Aquaculture and Environmental Resource Management
YADP	Youth Agribusiness Development Project

MANDATE

“Ensuring food security in crop, livestock and fisheries, generating agricultural employment and services, promoting the production and supply of raw materials to agro industries, providing markets for the products of the industrial sector, generating foreign exchange and promoting rural socio economic development”

MISSION

“Organizing and managing the agriculture sector and facilitating Agribusines for increased food security and employment along commodity value chains and agro-industrial development to earn foreign exchange and contribute to socio-economic development of the country”

VISION

“Growing Nigeria’s agriculture sector, driving income growth, accelerating food and nutrition security, generating employment, and transforming Nigeria into a leading global food market with wealth for farmers”

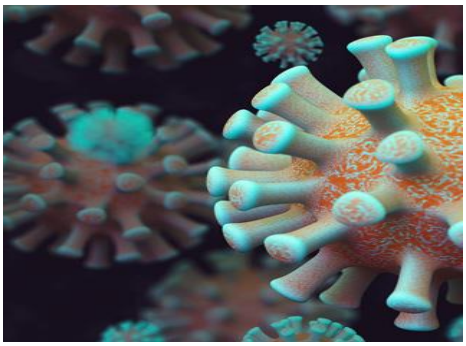
Executive Summary

Introduction

The important goal of every nation is to attain food security. Over the years, Nigeria has made concerted efforts and developed several agricultural development policies to achieve food security, inclusive growth, sustainable economic diversification and wealth creation. The outcomes of the policies and strategies implemented are mixed. While substantial progress has been recorded, particularly in the production of millet, sorghum, maize, cassava, rice, yam, cowpeas, oil palm and poultry, the country still imports wheat, maize, rice, sugar, fish, beef and dairy products. Also, the share of the agricultural output is dominated by crop production representing 85% while other sub-sectors such as livestock, fisheries and aquaculture and forestry accounted for only 15% (NBS, 2020).

The strategic importance of the agricultural sector to the Nigerian economy cannot be over-emphasized. Its contribution to GDP hovered between 24.45% in 2016 and 25.70% in 2020 (NBS, 2021). The potential of agriculture to rapidly help in achieving food security and economic diversification remains largely untapped. The sector is essentially subsistent with small farm holdings, inadequate cooperative groups, limited technology adoption, low application of good agricultural practices, low access to quality inputs, finance and market. Other constraints include ineffectual synergy among MDAs, poor cooperation among agricultural research and training institutions, input providers and farmers; limited extension services delivery, inadequate rural infrastructure, climate change, poor nutrition, underdeveloped rangelands and grazing reserves; insecurity of agricultural land and investments; insufficient value addition and inadequate agro-industrial processing facilities; lack of standardization of agricultural inputs and outputs as well as outbreaks of Trans-boundary Animal Diseases (TADs).

As the country was charting a new roadmap to scale up the successes of the previous policies to overcome constraints to agriculture, the COVID-19 pandemic struck at the core of its productive sectors. The pandemic disrupted global and domestic socio-economic activities with the agricultural sector severely affected through the shutdown of production facilities and the restrictions on the movements of people and goods. The Committee on World Food Security postulated that the pandemic would directly impact global food supply and demand, and indirectly reduce production capacity and purchasing power. FAO however predicted that food scarcity is not imminent in post-COVID-19, unlike in the 2007-2008 global food crisis.



Therefore, to ensure the continuous availability of affordable and nutritious food, the National

Development Plan (2021-2025) envisioned a significant increase in Nigeria's agricultural productivity through massive public and private investments in technology, innovation and adoption of climate-smart practices. This is consistent with Nigeria's commitment to developing agriculture by promoting private sector investments, under the Comprehensive Africa Agriculture Development Programme (CAADP), and a demonstrable path towards attaining the Sustainable Development Goals (SDGs) of eliminating poverty and zero hunger through inclusive growth, among others.

Within this context, the Federal Ministry of Agriculture and Rural Development (FMARD) adopted a multi-stakeholder approach to develop the National Agricultural Technology and Innovation Policy (NATIP). The Policy adopted a mix of short-term and medium-term multi-stakeholder approaches towards ensuring resilience, recovery and growth and, at the same time, achieving a shift from subsistence farming to modern agriculture capable of ensuring national food security and contributing significantly to the national economic diversification drive and creating at least 12 million jobs.

Purpose of the National Agricultural Technology and Innovation Policy (NATIP)

Increasing food prices and enomours productivity challenges are clear indications that Nigeria is not food secure. In this regard, the Government resolved to implement NATIP - a Policy articulated to unlock the country's untapped potentials through the massive deployment of 21st-century knowledge, technology and innovation in the agricultural sector to make Nigeria food and nuirition secure. The Policy replaces the Agricultural Promotion Policy which ended in December 2020. The Policy is expected to leverage the quick wins of the COVID-19 pandemic by building on agricultural gains that sustained food supply and nutrition for about 200 million Nigerians during the lockdown period.

Drawing from the National Development Plan (NDP, 2021-2025), SDGs and other global and continental frameworks guiding the future development of agriculture, NATIP adopted a 6-year time frame to generate thrust and capabilities as well as massive public and private sector investments for successful implementation. In the formulation process, the Policy benefitted from the lessons learned on import substitution, value-chain development and agricultural commercialization implemented under the Agricultural Transformation Agenda (ATA, 2012-2015), and the Agricultural Promotion Policy (APP, 2016-2020). Equally, the inputs from diverse national and international stakeholders have assisted in reshaping the new Policy. Thus, NATIP is conceived to address critical challenges of Nigerian agriculture and lay a solid foundation for modernizing the sector in line with the changing global food systems and supply chains. NATIP will also operate with other policies and strategies of relevant MDAs.

Specific Interventions

NATIP is built around 10 intervention pillars, which include the following:

i. **Synergy and MDA Alignment**: To overcome inadequate coordination and rivalry among MDAs, robust multi-stakeholder engagement and alignment within key departments and agencies as well as inter-ministerial dialogue would be promoted. Effective communication and partnership with states would also aid policy alignment and consistency. The Policy encourages the sustainability and mainstreaming of Agricultural Donor-funded Programmes and Projects.

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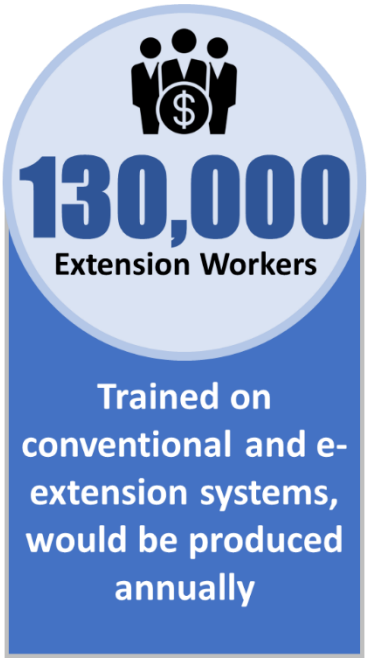
ii. **Knowledge Creation and Transfer**: To re-organize, unbundle and strengthen agricultural research and training systems for effective work with the private sector to develop inputs and medium scale technologies consistent with local needs. This will include the unbundling of the only National Livestock Research Institute (NLRI) to cater for diversities and critical demand for feeds, gene improvement and conservation. The intellectual properties, spinoffs and innovative enterprises to be generated from research and development would create opportunities for engaging at least 50,000 graduates and over 250,000 non-graduates across the country.

iii. **Rapid Mechanization**: As local technologies evolve, 600 private sector-driven service centres, equipped with tractors, assorted farming implements, automation of livestock, fisheries and poultry production processes, storage and IT facilities would be facilitated to attain at least 27 tractors per 100 sq km and increase livestock and fisheries production by 50% in the country. This will massively reduce production and post-harvest losses, and will further stimulate the direct and indirect creation of 2 million jobs in the country.



iv. **Establishment of Agricultural Development Fund**: The efforts to establish the Agricultural Development Fund to address sub-sectoral needs is critical to sustainable funding for the agricultural sector and would be vigorously supported. The Agricultural Development

Fund would act as a mega-funding agency that would channel the required funds into agricultural research and training institutions, extension, technology adoption, innovation, critical value-chains development, rural agricultural development and other key investments in the sector.

v. **Revitalization of Extension Service Delivery**: Effective synergy among Federal, State and Local Governments' extension agencies and other relevant private service providers would be established to revitalize the extension service system in the country. At least 130,000 extension workers to be trained on conventional and e-extension systems would be produced annually to address specific sub-sectoral needs. A pragmatic approach to training and mentoring of specialized extension agents would be deployed in remote locations to produce additional 170,000 village extension agents.

vi. **Livestock Development:** Implementation of the National Livestock Transformation Plan (NLTP), the Ruminant Livestock Intervention Programme (RULIP)), the National Livestock Breed Improvement Programme (NALBIP), the National Pasture Development Programme (NAPDEP), the National Dairy Development Programme (NDDP) and the Livestock Productivity and Resilience Support (L-PRES) Project would be supported to improve animal genetic resources, support establishment of functional models of ranches, grazing reserves, promote the development of integrated meat and dairy processing facilities and mitigate herder-farmer conflicts. This would invariably improve domestic livestock production, achieve import substitution and support foreign exchange conservation. Priority attention will also be accorded to productivity improvement and resilience of the livestock feed industry, poultry, pig, micro-livestock value chains for protein sufficiency. Again, the animal and aquatic diseases surveillance system would be strengthened for early detection and response to Trans-boundary Animal Diseases (TADs). It is expected that 1,500,000 new jobs would be created in the sub-sector.

vii. **Strengthening Value-Chains for Priority Crops:** Attention would be given to the value-chain development of maize, sorghum, rice, wheat, cassava, sesame, tomatoes, yam, cowpea, soybeans, cocoa, palm oil, hibiscus, cashew, potatoes, cotton, ginger, groundnuts and sugar cane. Key constraints facing these value chains would be reduced with the active participation of states and local governments, smallholder farmers and private investors. The establishment of over 100 processing centres in rural communities across the country, under the Green Imperatives Plan, would

be supported. Furthermore, the development of clusters, rural nodal centres, rural cottage industries and the establishment of at least six Special Agro-industrial Processing Zones (SAPZs), would be pursued. All these would assist in linking the agricultural sector with the industrial/processing sector, thereby boosting industrialization and creating at least 1 million jobs in the country.

viii. **Fisheries and Aquaculture, Marine and Inland Fisheries Development**: Innovative approaches would be deployed to encourage massive fish production, with active private sector participation to meet local protein needs, substantially reduce fish importation and create no fewer than 500,000 new jobs along the value chain. In this regard, the Fisheries and Aquaculture Import Reduction Strategy (FAIRS) would be completed and implemented. Tremendous attention would be given to the development of existing dams, reservoirs, inland water and marine resources. Also, there would be proactive investment promotion to generate resources for innovation and technology adoption by smallholder and large-scale private sector operators. Enforcement of international conventions to unlock opportunities for marine resources such as fish, shrimps and other seafood would equally be strengthened.

ix. **Market Development:** The marketing of commodities remains largely unorganized and under-developed, leading to inefficiencies and artificially created shortages. A multi-stakeholder approach would be adopted to equip and upgrade major commodity markets, re-organize rural commodity markets and urban market infrastructures, establish warehouses, environmentally friendly cold chain facilities and functional commodity exchange and warehouse receipt systems. Strong collaboration with the Security and Exchange Commission (SEC), states and market operators to radically transform the way commodities are traded, is important. Besides increasing access to market and income, over 300,000 new jobs would be created from the enhanced market development and access.

x. **Partnership for Securing Agricultural Lands and Investments (PSALI)**: A critical challenge to agriculture in Nigeria is insecurity. Enhanced security of agricultural land and investments would be achieved through a multi-stakeholder approach involving security agents, states, local communities, civil society organizations (CSOs) and key players in the agricultural sector. The Multi-MDA COVID-19 Ease of Movement Joint Task Force, involving Ministries of Agriculture and Rural Development, Defence, Interior and

Police Affairs as well as transporters and farmers associations would be expanded and transformed to provide a workable framework for the implementation of PSALI across the country. PSALI is expected to generate no fewer than 1 million jobs mainly in rural communities.

Cross-Cutting Interventions

Apart from the critical focal components, NATIP would build on the successes of the previous policies and programmes by focusing on 11 critical cross-cutting areas where implementation gaps have been identified. The key components are described below:

i. **Development of Rural Infrastructure**: Accelerating integrated rural development and sectoral linkages as envisioned by the NDP (2021-2025) entails effective coordination of the three tiers of governments, communities, development partners and private sector to generate and transparently deploy resources to rural infrastructure. Special attention would be placed on the development of land, roads, bridges, power, irrigation and water supply, among others. Engaging rural communities in executing infrastructural projects and the resultant benefits of improved infrastructure is expected to generate 2 million jobs.

ii. **Nutrition**: Initiatives in addressing malnutrition and under-nourishment would be promoted by supporting the diversification and production of nutrient-rich foods and ensuring that agricultural research investments focus on these food sources. Through a partnership with relevant MDAs, the private sector, the media, CSOs and other stakeholders, massive awareness creation campaigns using the mainstream and social media would be carried out to encourage healthy eating at home and schools. At least 100,000 high-income jobs are expected to be generated from public and private investments in nutrition.

iii. **Standardization for Exports:** Multi-MDA approach and harmonization of procedures leading to Good Agricultural Practices (GAP) certification and traceability of agricultural commodities would be pursued. Adherence to standards would, reduce the rejection of Nigerian commodities in the international market, improve quality for consumption and agro-export and enhance Nigeria's competitiveness within the framework of the African Continental Free Trade Agreement (AfCFTA) and other international treaties and conventions. Agro-certification under the Zero-Reject programme, Zero-Oil Plan, Animal Identification and Certification of meat products and other export promotion initiatives would be coordinated and streamlined in addition to generating opportunities for at least 100,000 new jobs.

iv. **Promoting Digital and Climate-Smart Agriculture:** This involves building capacity of various stakeholders on precision agriculture or e-agriculture that deploys digital technologies to optimize the food systems. The on-farm and off-farm technologies to be promoted relate to remote-sensing, yield mapping, GPS guidance systems, food Blockchain, artificial intelligence (AI), e-extension services, and tractor rental apps, among others. Today, e-agriculture presents veritable tools that support climate-smart agricultural practices that increase biodiversity, enrich soils, improve watersheds, promote organic farming and enhance ecosystem support services. This would cumulatively boost productivity and reduced methane gas and other GHGs emission. Through this initiative, about 50,000 graduates and over 150,000 non-graduates would be supported with the necessary capacity, technology and technical assistance to engage in profitable and environmentally sustainable agricultural activities.

v. **Strengthening Agricultural Lending and Insurance:** This is to ease access to lending facilities for investors, smallholder farmers and other stakeholders. Initiatives to facilitate no-interest loans, acceptance of moveable collateral, de-collateralization, rural savings and loans schemes, rural financial institutions and others would be promoted. The recapitalization and reorganization of the Bank of Agriculture would be prioritized to make it an effective lending platform for Nigerian agriculture. The regulatory mandates of the National Agricultural Insurance Corporation (NAIC) would be strengthened to ensure effective risk mitigation for investors, smallholder farmers and other stakeholders. Furthermore, the programmes and activities of Central Bank of Nigeria (CBN) and Nigerian Incentive-based Risk-Sharing System for Agricultural Lending (NIRSAL) would be harmonized with that of Bank of Agriculture (BoA), NAIC, commercial banks and other lending institutions to overcome the present operational and financing challenges facing the agricultural sector. Through increased access to financial interventions, at least 500,000 new jobs are envisaged.

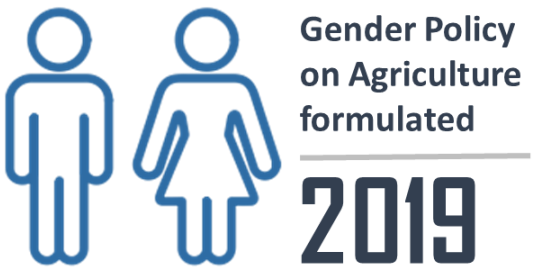
vi. **Data and Information Management:** Agricultural policy and strategy require accurate data, better coordination, robust monitoring and implementation mechanisms to provide the much-needed support such as knowledge transfer, efficient channelling of (subsidized) inputs, extension services, funding and rural infrastructure, etc. The National Agricultural Data Management and Information System (NADMIS) would be completed and implemented in collaboration with the relevant stakeholders.

vii. **Access to Quality Agricultural Inputs:** To collaborate with relevant stakeholders to implement Fertilizer and Seeds laws and other regulations like feed quality,

breeder farms and hatchery drug and vaccine standards, which are critical to regulating and easing access to high-quality inputs and enhancing the international competitiveness of agricultural produce. Gradual deregulation of the importation of blending materials would be encouraged to incentivize private sector investments in local fertilizer production and distribution. At the same time, local sourcing of blending materials would be intensified under the direction of the Federal Ministry of Mines. Focused and targeted incentives would be developed to stimulate rapid production of critical livestock and fish feeds, industry raw materials and veterinary medicaments. Improved access to inputs is expected to generate at least 200,000 additional jobs

viii. **Sustainable Use of Agricultural Land and Water Resources**: Nigeria's land and water resources remain largely underdeveloped. Using Inter-ministerial and private sector partnerships, the challenges associated with land clearing, land degradation, land fertility as well as water resources utilization and management would be coordinated and strengthened. This essentially would increase the size and quality of agricultural land. Also, the efficient utilization of existing dams, reservoirs and waterways to support irrigation, fisheries, improved water supply and generation of hydro-electric power would significantly support agricultural transformation in Nigeria. A mechanism for effective coordination of the relevant departments and parastatals in the Ministries of Agriculture, Water Resources, Transport and Power would be established.

ix. **Women and Youth in Agriculture**: Attention would be given to women and youths mainstreaming across the value-chains within the framework of the current Gender and Youth Policies of the relevant ministries. Targeted interventions would include capacity building, acquisition of 21st-century skill-sets, gender and youth-friendly innovations and enterprises, promotion of modern agriculture, and linkages to finance. Through active engagement of women and youth, 1 million new jobs are targeted along selected value chains.



x. **Cooperatives Revitalization**: To mobilize more human, material and financial resources into agricultural production, processing and distribution, cooperative formation and operations would be encouraged and strengthened across the agricultural value chains. This would scale up food production, provide employment and engender inclusive growth within the agricultural sector. Besides promoting cluster formation and development, this intervention would consolidate

at least five million women, youth and other vulnerable persons into the agricultural workforce.

xi. **National Food Reserve and Food Security**: Synergy with relevant MDAs, state governments and private sector operators would be coordinated to revamp the National Food Reserve and increase its capacity to a minimum of 2 million tons of assorted food through innovative private sector-driven initiatives and improved inventory management practices. This would minimize volatility in supply, reduce storage losses and enhance price stability for key food produce, thereby cushioning effects arising from disasters, such as floods, droughts, pests and disease pandemics.

Overall, NATIP is designed for food security, jobs and wealth creation and is expected to leverage other policies, strategies and programmes in the agriculture sector. The overall increase in productivity would lead to lower composite food prices by an average of 30 percent over the next six years, thereby improving access to quality food and nutrition as well as revamping the national strategic food reserve. The lower cost of production to be realized from mechanization, the use of high-quality inputs, innovative practices and access to affordable credit would fast track the industrialization process, create new high-income jobs and enhance the international competitiveness of the Nigerian agricultural products. Detailed Investment Plan and Strategic Plan would be developed to clearly define resource requirements, programmes, projects and activities that would support rapid agricultural development and employment generation as enshrined in the Policy.

1.0 SECTION ONE: INTRODUCTION

1.1 Background

In Nigeria, agriculture is the mainstay of the economy. The sector contributed about 30% to Nigeria's GDP in the third quarter of 2021 and 34.66% of total employment in 2020 (NBS, 2021). However, the role of agriculture in Nigeria's economy leaves much to be desired, given the contexts and trends of its performance, featuring food production that perpetually lags behind demand, leading to structural deficits in the supply of major commodities. Traditionally, the overall performance of the agricultural sector is premised on food security and agribusiness, the former characterized by a largely social utility function and the latter mainly by a private profit function; albeit both requiring the policy intervention by the government for optimal performance.

Agriculture is the sole anchor of the food systems and is essential in fostering sustainable inclusive economic growth, particularly the provision of food, raw materials, income for farmers, employment and a source of foreign exchange. This explained the commitment of successive governments to the development of the sector to ensure improved Food Systems, increased availability and affordability of nutritious food in an environmentally sustainable manner. Furthermore, agriculture is traditionally a business sector, representing a huge source of marketable commodities in Nigeria and whose performance is also governed by the prevailing 'doing business' environment that is significantly policy-driven.

However, the policies, programmes and projects implemented over the years have not substantially reduced the major constraints to agriculture. The sector still grapples with numerous challenges including limited awareness and adoption of productivity-enhancing technology; low agricultural productivity and value addition mainly due to inadequate research; innovation and extension; low-quality inputs, limited access to finance and markets; widespread insecurity of agricultural land and investments; institutional bottlenecks and weak policy implementation that lead to considerable food imports as well as outbreaks of animal diseases.

Generally, the country's crop productivity represents only 50% of global best practices. Meanwhile, between 2009 and 2019 for instance, the agricultural sector's GDP witnessed minimal growth, hovering between 26.75% in 2009 and 21.91 in 2019 (NBS, 2021). Cross-sectoral comparison within the reference period puts the average GDP of the sector at 21.91% compared to 24.19% and 53.02% for industry and services respectively (see Table 1).

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Year	Agric	Industry	Services
2009	26.75	21.24	50.98
2010	23.89	25.32	50.79
2011	22.23	28.28	49.24
2012	21.86	27.07	50.19
2013	20.76	25.74	52.37
2014	19.99	24.64	54.15
2015	20.63	20.16	58.12
2016	20.98	18.17	59.79
2017	20.85	22.32	55.8
2018	21.2	25.73	52.02
2019	21.91	27.38	49.73
Mean	**21.91**	**24.19**	**53.02**

Source: National Bureau of Statistics, 2021

In all, the Nigerian real sector appears to have performed sub-optimally in the past ten years. This development continues in the atmosphere of rapid population increase and infrastructural deficiency. Although, it is often thought that agricultural development might be a quick channel to step up the growth of the economy, the shift of attention from agriculture to the oil sector contributed immensely to the decline in both the contributions of the sector to the GDP and its overall performance.

A review of the sub-sectoral performance under the agricultural sector showed that the crop production sub-sector continued to crowd out all the other sub-sectors (see Table 2). However, the sub-sector also appears to have performed poorly, accounting for a paltry 3.69% growth from 2013-2017. Since then, there is no appreciable change in the performance of the sector.

Table 2. Sectoral Output Growth Rate of GDP at 2010 Constant Basic Prices (%)

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture	4.22	6.64	6.50	7.06	7.4	7.1	6.3	5.9	5.7	6.1	6.7	2.9	4.3	3.7	4.1	3.45
Crop Production	4.15	7.00	6.50	7.13	7.50	7.30	6.20	5.80	5.70	5.61	6.00	2.5	4.1	3.5	4.3	3.64
Livestock	4.8	4.19	6.5	6.76	6.9	6.9	6.9	6.5	6.5	6.4	6.5	6.0	5.4	6.0	2.9	1.16
Forestry	0.07	1.5	6.5	5.92	6.0	6.1	6.1	5.9	5.9	5.8	5.3	5.6	4.6	3.7	2.6	3.31
Fisheries	6.3	4.06	6.5	6.02	6.6	6.6	6.6	6.2	6.0	6.1	6.9	9.0	6.7	5.9	-0.7	1.34
Industry	-3.8	21.26	4.15	4.15	-2.5	-2.2	-3.4	2.0	5.3	3.8	1.2	-0.1	6	-3.4	-9.0	2.14
Building & Construction	4.34	8.75	10.00	10.00	13.0	13.0	13.1	12.0	12.2	11.6	9.4	14.2	13.0	4.4	-6.0	1.0
Whole Sale & Retail Trade	6.48	5.76	9.70	9.7	15.3	15.2	14.0	11.5	11.2	9.3	2.2	6.6	5.9	5.1	-0.2	-1.05

Services	22.5	0.41	8.83	8.83	9.2	9.9	10.4	10.8	11.9	8.5	5.0	9.4	7.1	4.5	-1.2	-0.67
Source: CBN Annual Report, 2017																

It is important to note however that the Nigerian agricultural sector has witnessed an appreciable increase in private sector involvement and a gradual but steady decline in the government's direct intervention. The government's steady withdrawal which is in sync with the pillars and principles of the Comprehensive Africa Agriculture Development Programme (CAADP) contributed to an average growth rate of seven percent since 2005, surpassing the lower growth rate benchmark of six percent promoted by the CAADP. Because of active private sector involvement, Nigeria is gradually moving towards self-sufficiency in rice and poultry production. However, not much progress has been recorded in the promotion and development of livestock, fisheries, wheat, cotton and other high potential commodities which are critical to Nigeria's food and nutrition security.

As the country implemented ERGP and other initiatives to relaunch the economy, the advent of the COVID-19 pandemic further disrupted the food system and supply chain in the country. The lockdown measures put in place paralyzed the movement of food and raw materials from the point of production to the consumers. The impact was glaring as food inflation rose to 15% in April 2020 and further increases in food prices continued up to 2021 (NBS, 2022). Hence, there is an urgent need for a holistic and collaborative approach to progressively position agriculture on the pedestal for growth to minimize the impact of the pandemic on the weak food system and supply chain.

Interestingly, the National Development Plan (2021-2025) envisioned to significantly boost agriculture, as technology, innovation and climate-smart practices were introduced to ensure the continuous availability of affordable and nutritious food in addition to massive generation of industrial products. Accordingly, the Plan accorded agriculture more budgetary allocations in line with the Maputo Declaration to complement massive investment in the sector.

Thus, the National Technology and Innovation Policy (NATIP) is a deliberate government effort to deploy knowledge and good agricultural practices to fast-track the development of agriculture. NATIP would be further developed into sub-sectoral Strategic Plans and the formulation of the National Agricultural Investment Plan to ensure the attainment of the cardinal goals of the Policy which include rapid deployment of knowledge and technology to improve productivity and to generate at least 12 million jobs, among others. Achieving these goals, however, depends largely on overcoming the critical challenges bedeviling Agriculture in Nigeria.

1.2 Policy Challenges of the Agricultural Sector

The policy efforts to enhance agricultural sector development in Nigeria are constrained by many challenges. These are related to (i) inconsistent, uncoordinated and inappropriate policies; (ii) fragmented and overlapping policy institutions; (iii) weak value chain development approaches; (iv) high rate of population growth and urbanization; (v) low technology and innovation for production, processing and storage; (vii) animal diseases (Trans-boundary animal diseases); (viii) poverty; (ix) climate change; (x) conflicts and insecurity; (xi) gender inequality and weak integration of youth and women in agriculture; (xii) weak agricultural cooperatives, and (xiii) lack of systematic, regularly updated and comparable data and information.

Among these factors, the high rate of turnover of policies and inconsistency in policies, which, combined with unpredictable policy shifts, have significantly deterred private investment in agriculture for many years. The narrow base of policy articulation and strategy formulation due to the limited involvement of stakeholders and institutions resulted in a lack of grassroots support necessary for success. The lack of managerial capacity, bureaucratic bottlenecks, limited transparency, and implementation gaps continue to make agricultural growth sluggish in Nigeria.

Another important factor is the ever-widening *Malthusian* gap between the rates of domestic food production and population growth, even as poverty is widespread in Nigeria, thereby presenting a major challenge to food security. The population has not only outpaced food output but has also overwhelmed the public infrastructure. Moreover, the majority of the rural populace engage in subsistent farming on small plots of land to feed their households and rely on seasonal rainfall. Lack of access to necessary infrastructures such as roads, power supply, irrigation facilities and others have further worsened rural poverty. Similarly, the challenge of animal diseases is the greatest fear of livestock farmers. The situation is further compounded by poor land and water management practices which have made agriculture more susceptible to climate change.

The main unresolved challenge is that the use of modern technologies and innovative techniques in the production, processing and distribution of agricultural products is very low in Nigeria. Also, there are inadequate facilities to preserve agricultural commodities, which result in wastages, thereby, further deepening the food insecurity level. In addition, lack of food processing equipment leaves farmers with no choice than to consume a significant fraction of their harvest within a short period, making them vulnerable at other non-harvest periods. This situation compounded the pervasive poverty especially as it relates to food.

Climate change has become a major challenge to the country's food security. This is because over 90 percent of agricultural production in Nigeria is rain-fed and susceptible to the vagaries of extreme weather events. Climate change will put future food, fodder and fibre production and ecosystem services under additional risk and uncertainty. Changes in the amount of rain and changes in rainfall patterns and recurrent droughts and/or floods lead to decreased resource productivity and production (crop, livestock and

fisheries). Erratic weather interferes with the processing of produce (an example is sun-drying of crops and smoking of fish). Increased frequency of major storms, leading to flooding, causes damage to farmland and commodities. Major storms can also cause road washouts, which make it difficult to access farms and to market products.

Many parts of Nigeria are under siege from conflicts, banditry, farmer-herder clashes, robbery, kidnapping and general insecurity. This represents a major disturbance factor to the food security of the people that make farmers flee in large numbers. This presents an unprecedented challenge to agriculture in Nigeria.

Gender inequality causes, and is also a result of, food insecurity. FMARD estimated that women contribute 50 – 60% of labour in agriculture and play important roles as producers of food, managers of natural resources, income earners, and caretakers of household food and nutrition security in the agro-ecological landscapes of Nigeria. However, their role is not fully recognized, resulting in a lack of women empowerment. Women farmers face a lot of challenges, including lack of access to land and funding, limited access to new practices and technological advancements in farming, fewer market opportunities, among others.

In a similar vein, while there is a consensus that a strong involvement of the youth in agriculture and natural resources management will boost food security in the country, there are limited incentives to enthuse the youth into agriculture. Youth participation in land-based sectors is very low, largely because of the perception that activities in the primary production sector are characterized by drudgery and minimal financial returns and are therefore meant for the least educated in society.

The availability of reliable data and information, adequate capacity to analyze the available information and good communication skills to inform decision-makers are critical to the understanding of the issues relating to food security. Decision-making on policy and programme design, legislation, channelling of resources and implementation needs to be evidence-based. Thus, to substantially increase the resilience of vulnerable people's livelihoods to threats and crises and contribute to the reduction of food insecurity and malnutrition, it is imperative to improve the availability of regular and timely information, as well as evidence-based analysis regarding food security, nutrition and resilience for decision-making. Therefore, the country's journey towards knowledge-based agricultural development must be supported by an efficient data management system.

The challenges highlighted, even though not exhaustive, remained with the sector for decades. There is a need to learn from the successes and challenges of the past policies and strategies to build a strong platform for the development of the agricultural sector in Nigeria.

1.3 Overview of Previous Agricultural Policies and Strategies in Nigeria

The colonial government imbibed a culture of planning that incorporated the sector policies in a single document, pursuant to the surplus extraction philosophy of the Colonial Administration. This was subsequently replaced by inward-looking and self-reliance philosophies in successive post-independent eras of macro-economic plans. The British government launched a 10-year Plan for Development and Welfare (1946). Then, following the introduction of the federal constitution in 1954, the defunct Regional Governments – East, West and North launched their individual agricultural development plans at different time horizons, but without a similar effort at the national level. This was because agricultural development was an item on the residual legislative list of the Constitution at that time, hence a sole responsibility of the regional governments.

However, following independence in 1960 and the subsequent creation of the Federal Ministry of Agriculture and Natural Resources in 1965/66, a Perspective Plan Document was produced for the agricultural sector by the Food and Agriculture Organization (FAO) – *Agricultural Development in Nigeria, 1965-1980*. Afterwards, the Ministry itself produced another Perspective Plan for the sector – *Agricultural Development in Nigeria, 1973-1985*.

Owing to the inherited constitutional provision for agriculture as joint federal and state responsibility, macro-economic planning at the national level integrated many sectors, comprising a series of homegrown development plans of the medium to long-term horizons namely: First National Development Plan 1962-1968; Second National Development Plan 1970-1974; Third National Development Plan 1975-1979; and Fourth National Development Plan 1980-1984. This was followed, after an interregnum in the country's planning process occasioned by the Structural Adjustment Programme (SAP) for the period 1984-1990. The era of three-year rolling plans covered 1990-1992, 1992-1994, and 1994-1996 periods. Afterwards, there was another era of strategy development at the economy-wide level, namely: the set of National Economic Empowerment and Development Strategy (NEEDS) and the State Economic Empowerment and Development Strategy (SEEDS). Lately, following a recession of the global economy in 2016, the culture of medium-term planning of the national economy has resumed with the launching of the Economic Recovery and Growth Plan (ERGP) for the 2016-2021 period, followed by the newly approved National Development Plan (NDP) for the 2021-2025 period.

Meanwhile, to implement these plans and policies, many implementation strategies were put in place for agriculture accompanied by programmes, projects and schemes:- namely: Operation Feed the Nation (OFN),1976, Green Revolution (GR),1980, Directorate of Foods, Roads and Rural Infrastructures (DFRRI), 1986, the National Agricultural Land Development Authority (NALDA), 1990, the specialized universities of agriculture (1988), the National Programme for Food Security (NPFS), 2000, the Agricultural Transformation Agenda (ATA), 2011 and the Agricultural Promotion Policy (APP), 2015.

ATA latched on pre-existing agricultural strategies designed and implemented during 2011 to 2015, in six major components namely: i) the Growth Enhancement Support Scheme (GESS) which was designed to improve farmer's access to modern agricultural inputs at subsidized prices; ii) Staple Crop Processing Zones based on the comparative advantage of each region and aimed at forming clusters in major food production for rice, sorghum, cassava, fisheries and horticulture; iii) Agricultural Commodity Value Chain Development (ACVCD) which focused on developing key commodities in both crop and livestock sub-sectors in different agro-ecological zones; iv) Agricultural Marketing and Trade Development Corporations (AMTDCs) to enhance farmer's access to markets; v) the Agricultural Extension Transformation Agenda (AETA) to improve dissemination of information and adoption of innovations; and vi) the Nigerian Incentive-based Risk-Sharing System for Agricultural Lending (NIRSAL) to de-risk lending to agriculture and tackle the bottlenecks that affect agricultural commodity value chains and the agricultural financing value chain.

ATA recorded notable achievements in the area of a) improved access to farm inputs, particularly fertilizer and seed, including the introduction of high-yielding varieties of cocoa and rice among other crops; b) financing through the recapitalization of the Bank of Agriculture (BoA); c) infrastructure in terms of the designation of a series of enclave-type Staple Crop Processing Zones for selected commodities; and d) market access by way of the establishment of select commodity marketing corporations (e.g. Cocoa Marketing Corporation).

The other achievements of ATA pertained to institutional reform, namely the creation of a Federal Department of Agricultural Extension and the move to reform the Agricultural Research System. Nonetheless, ATA faced several challenges in the implementation process, particularly the leakages that occasioned a huge debt burden on the government; the slow flow of investment that stagnated the SCPZ at takeoff; the flow of farm input subsidy benefits to unintended beneficiaries, and the challenge of Federal-State coordination of the GESS.

Since 2015, the present administration launched the Green Alternative–Agricultural Production Policy APP (2016-2020). APP attempted to reposition the sector for greater investment and increased diversification to accelerate economic recovery, reduce poverty and enhance food security. The main thrusts of APP centre around food security, right to food, import substitution, job creation and economic diversification. Some of the specific objectives include promoting agribusiness, attaining food security through self-sustaining growth; strengthening research and innovation on priority areas and disseminating outputs; enhancing standardization of agro-technology; and enhancing access of agricultural produce to domestic and international markets, among others.

The policy was instrumental to the major push towards self-sufficiency in rice production and processing; poultry production, in addition to a wide range of support to other value chains and improvements in rural infrastructure. However, the policy has not generated sufficient agricultural productivity and investments due to poor deployment of technology and knowledge required for increased productivity and lowering composite food prices in the country. This is mainly due to a lack of cohesion in the implementation of the policies as a result of inter-MDA rivalry and duplication of mandates. Other challenges relate to the limited private sector and stakeholders' involvements, low administrative capacity and weak link among research institutions, extension services, training and farmers, among others.

Before the introduction of the National Development Plan (NDP), 2021-2025, the Federal Government of Nigeria (FGN) implemented the Economic Growth and Recovery Plan (EGRP), 2015-2020, which recognized agriculture as central to rural development, social inclusion, food security and lifting 100 million Nigerians out of poverty. Thus, in the present circumstance, NDP provides the macro-economic planning context for NATIP, by leveraging the milestones achieved under the ERGP regime and pursuing socio-economic transformation of the country.

NDP envisioned that by 2025, the average economic growth would reach 4.6 percent; 35 million people removed from poverty and 21 million full-time jobs to be created. The Plan also recognized the importance of agriculture to the attainment of the overall national development within the planning period. However, the 2020 growth rate of agriculture at 2.2% compared poorly with the growth rate of 3.8% between 2010 and 2019 (NBS, 2021). The weak performance of the agricultural sector was mainly due to the preponderance of low-quality inputs, inefficient technologies and inputs, inappropriate production practices, the limited linkage between agriculture and industry, weak export performance and shortfalls in the budgetary allocations, among others.

1.4 Lessons Learned from the Past Policies and Strategies

The lessons learned from the conceptualization to the implementation of previous agricultural policies and strategies were taken into consideration in the formulation of NATIP. Foremost among the lessons are:

i. The country relied heavily on foreign researches, technologies, agronomic practices and inputs mainly because of limited attention to the disconnect between the agricultural research and training institutions with key stakeholders-extension, farmers, policymakers, inputs suppliers and processors;

ii. Skilled labour is scarce in policy implementation, monitoring and evaluation. This is due to the lack of balance between human resource development and agricultural development policies;

iii. The economic liberalization era has led to noticeable shortcomings in market management and organization, leading to more market distortions that harmed producers and consumers while benefitting middlemen, which, in turn, led to unfair distribution of development returns;

iv. Coordination between the different ministries and agriculture-related institutions in the implementation of policies, programmes and projects is very weak and this creates wide implementation gaps and inter-agency rivalry;

v. The reform of the Land Use Act to incorporate emerging issues (e.g., the quota on land titling) is necessary if sustainable agricultural development is to be achieved;

vi. The fragmentation of agricultural holdings constitutes a serious impediment to agricultural development, yet no policy has attempted to discourage over fragmentation of agricultural land;

vii. Despite the successes recorded in the rehabilitation of dams and expansion of irrigation schemes, there is still inadequate water for domestic and agricultural needs, particularly in the light of climate change;

viii. Input supply support policies, particularly fertilizer and seeds, have consistently failed mainly because of the issues of targeting, over-politicization of input supplies and malpractices in procurement and distribution; inadequate data on farmers and unsustainable funding models deployed;

ix. The country has not done much in the promotion of climate-smart agriculture to cope with the effect of climate variability, nutritive sensitive agriculture to address nutritional insecurity and malnutrition and organic agriculture for appreciable returns and mitigation against land degradation;

x. Policy inconsistencies and misalignments engendered underdeveloped value chains and Nigeria's commodities are non-competitive internationally;

xi. Stakeholder engagement remains weak in policy formulation and implementation, and

xii. Agricultural cooperatives have remained inconspicuous in Nigeria's cluster formation and management; input sourcing, input distribution, credit and insurance administration, commodity aggregation, processing, storage and marketing system

1.5 Strategic Direction of NATIP

The general direction of NATIP is reflected in the mission, main thrust and objectives as follows:

1.5. 1 Policy Mission

NATIP is uniquely designed to turn the COVID-19 pandemic into opportunity through a well-coordinated national approach to deploy 21st century knowledge and attract massive public and private investments into agriculture and agribusiness, thereby creating a diversified economy that guarantees access to nutritious food, growth and employment opportunities across the agricultural value-chains.

1.5.2 Policy Thrust

NATIP is a 6-year national agricultural policy, incorporating the intervention instruments and implementation strategy, aimed at sustainable development of national technological and innovative capacity to fast-track increased productivity, import substitution, with particular emphasis on the reduction of rice, dairy, meat and fish imports, increased resilience through digital and climate-smart agriculture, towards promoting agricultural value chains and investments.

1.5.3 Policy Objectives

The specific objectives of NATIP are to:

i. Promote knowledge generation and dissemination to agricultural value chain actors by strengthening agricultural research, innovation and extension service delivery;
ii. Deploy appropriate technologies and Good Agricultural Practices (GAP) for a rapid increase in production, processing and marketing of crops, fisheries, and livestock for domestic and international markets;
iii. Support the evolution of Agricultural Development Fund (ADF) into a Mega Agency to overcome agricultural funding inadequacies and fast track rural development;
iv. Increase access to agricultural finance, rural microfinance and promotion of agricultural insurance with active private sector participation;
v. Promote Digital and Climate-Smart Agriculture (CSA); Organic Agriculture and efficient water management for improved efficiency, productivity and income in the face of climate change;
vi. Increase access to agricultural land through land development and rural Infrastructural development to improve the livelihood and community resilience of rural dwellers;
vii. Strengthen animal and aquatic diseases surveillance system for prompt detection and response to trans-boundary animal diseases;
viii. Develop high priority value chains based on ecological or comparative advantages covering crops, livestock and fisheries sub-sectors in collaboration with states;

ix. Reduce malnutrition and improve nutritional security through improved food systems;
x. Increase the competitiveness of Nigeria's agricultural products in the international markets;
xi. Improve the security of agricultural land to create enabling environment for agricultural investment;
xii Facilitate the creation of 12 million job opportunities in the agricultural sector, and
Xiii Re-position agricultural cooperatives as a vehicle for the emergence of sustainable clusters.

2.0 Section 2: Contexts and Scope of the National Agricultural Technology and Innovation Policy (NATIP)

2.1.1 The General Context of NATIP

The general context of NATIP articulation and implementation pertains to an extant plan for the national economy–the National Development Plan (NDP) 2021-2025. This provides the overall context for NATIP concerning the provision of the Plan for agricultural and rural development.

Another context for NATIP is the constitutional provision for agricultural development as an item on the Concurrent Legislative List (Schedule 2 Part 2 of the Constitution of the Federal Republic of Nigeria, 1999 (as altered), which stipulates that agricultural policymaking is a joint responsibility of the federal and state governments. However, it is subject to a division of labour established between the two tiers of government in carrying out the joint responsibility for agricultural development; whereby the federal government is specifically responsible for policy interventions in terms of agricultural research, agricultural promotion and agricultural financing (Section 17), but maintains that nothing prevents the states from making and implementing policies in any conceivable area of agricultural development (Section 18). Therefore, the strategy formulation for NATIP implementation should operationalize and recognize the provision of separation of powers between the two tiers of government in a mutually responsible manner, thereby eliminating the present trend of policy overreach on the part of the federal government and complacency on the part of the States.

The last context of NATIP articulation and implementation is the pronounced effect of the COVID-19 Pandemic, which threatens food and nutrition security in the country for a couple of years now. Given the enormous constraints to the agricultural sector and the challenges posed by the global economic meltdown triggered by the COVID-19 pandemic, there is an imminent risk to food and nutrition security and value chain development in Nigeria. Therefore, to ensure recovery and growth after the COVID-19 drawback, NATIP presents an opportunity for immediate policy direction which places agriculture as the main driving force.

2.1.2 Background

Nigeria's total land area of 91.1 million ha is supported by 1.3 million ha surface of water bodies, 3.14 million hectares of irrigated land and a coastal line of over 800 km that is viable for marine products. Nigeria can support virtually all aspects of the agro-allied sector (crops, agro-forestry, fisheries, poultry and livestock). Despite these endowments, FMARD estimated that crop cultivation is presently carried out on only 32 million out of the 81 million ha of arable land. The average farm sizes are 0.5 ha and 4 ha in the

southern and northern parts of the country respectively, indicating the dominance of smallholders.

Regrettably, Nigeria had declined to 93 out 117 qualifying countries on the 2019 Global Hunger Index, and according to the Oxfam 2019 report, Nigeria ranks last of 157 countries with citizens living below the poverty line and ranks 125 out of 145 countries on the Gender Inequality Index. More worrisome is that malnutrition statistics indicate severe nutritional gaps. The 2018 Report of UNICEF indicated that 5 in 10 children under five years are malnourished. The GAIN 2018 reports indicated that overweight and obesity are on the rise, especially among adults in urban areas, consumption of nutritious animal sources such as fish has remained static, consumption of vegetables and pulses has declined by 7% while consumption of sugar-sweetened beverages had increased by 39%.

To find sustainable and innovative solutions to food and nutrition challenges, FMARD working in concert with the stakeholders in the Nigerian agriculture and allied services sector, envisioned the National Agriculture Technology and Innovation Policy (NATIP). NATIP is expected to achieve sustainable economic and social change through public and private sectors investments in agriculture and rural development while addressing the needs of women, youth and persons with special needs through deliberate efforts to inject technology and innovative techniques into agriculture.

2.2 Components of NATIP

i. Synergy and MDA Alignment
ii. Knowledge creation and transfer
iii. Rapid Mechanization
iv. Establishment of Agricultural Development Fund
v. Revitalization of extension service delivery
vi. Livestock development
vii. Strengthening Value-Chains for priority crops
viii. Fisheries & Aquaculture, Marine and Inland Fisheries Resources Development
ix. Market Development
x. Securing Agricultural Lands and Investments

2.3 Cross-Cutting Interventions

i. Development of rural infrastructure
ii. Nutrition
iii. Standardization for Exports
iv. Promoting Digital and Climate SMART agriculture
v. Strengthening Agricultural Lending and Insurance
vi. Data and Information Management
vii. Access to Quality Agricultural Inputs

viii. Sustainable use of Agricultural Land and Water Resources
ix. Gender and Youth in Agriculture
x. Cooperatives Revitalization
xi. National Food Reserve for food security.

2.4 Strategies and Policy Support to Achieve the NATIP Components Deliverables

2.4.1 Synergy and MDA Alignment

Agricultural activities take place mainly in states, but the communication between the centre and states is inadequate. Again, there is over-fragmentation of functions and roles among MDAs, such as the Ministries of Agriculture, Science and Technology, Environment, Water Resources, Industry, Trade and Investment, CBN and others without an effective mechanism for coordination. This challenge has caused an administrative lag on the side of FMARD to carry out its oversight functions of transforming agriculture and rural development in the country.

Given the above, NATIP will promote intra and inter-operational realignments between the Agencies, Departments, Institutions, and Parastatals under FMARD, promote synergies between FMARD and allied agencies, and build synergies with sub-nationals i.e. states and local governments, development partners and the private sector in pursuing the much-needed radical transformation of agriculture in Nigeria through:

i. Institutional alignment to ensure synergy of roles and responsibilities, to harmonize Terms of Reference (ToR) of government Departments and Agencies;
ii. Strong collaboration with State Governments through the creation of Committee of Practice (CoP) on Agriculture and Rural Development to enhance regular interactions and knowledge sharing;
iii. Strengthening capability of the Ministry with Geographic Information System, for real spatial monitoring of agricultural and rural development activities and provision of information for early warning system;
iv. A multi-stakeholder approach to generate and disseminate appropriate technologies and innovations that suit the needs of farmers in all the agro-ecological zones;
v. Fostering cooperation between agricultural extension organizations, research and training centres and universities;
vi. Establishing mechanisms for domesticating research and safeguarding researchers' royalties, as well as their Intellectual Property Rights;
vii. Reviewing the institutional structure of the different entities and units of FMARD, and defining their strengths, weaknesses and relations with other entities, as well as defining the tasks compatible with their functions, and

viii. Strengthening FMARD to coordinate all agricultural interventions and programmes.

Key intervention Programmes and Projects

Programme of intervention	Projects Elements	Responsibility
Central coordination	Inter-MDA structure created to coordinate agricultural intervention and policy implementation	Presidency, relevant MDAs, and private sector
Committee of Practice (CoP)	An arrangement for joint institutional actions on issues of common interest	FMARD, State Actors, development partners, farmer organizations and relevant private sector players
Capacity Strengthening	Institutional capacity strengthening plan of agriculture to be formulated and implemented	FMARD in consultation with states; and collaboration with Development partners

2.4.2 Knowledge Creation and Transfer

Over time, there were poor linkages among agricultural research and training institutions, extension services, input providers and the farmers. Also, there is a lack of policy direction on Innovation leading to limited functional research, intellectual properties, spin-offs and large-scale commercialization of agricultural research findings in Nigeria. As a result, the productivity of crops, livestock and fisheries remains largely underdeveloped. Fostering knowledge creation and transfer, particularly to farmers, entails re-organizing and strengthening agricultural research and training systems to effectively work with the private sector to help develop inputs and medium scale technologies consistent with the local needs. The intellectual properties, spinoffs and innovative enterprises to be generated from research and development would create opportunities for engaging annually, 20,000 graduates and 280,000 non-graduates, across the country.

Policy Support Programmes & Actions (PSPAs)

i. Generation of relevant and appropriate agricultural technologies and innovations for supporting agricultural value chain development and agribusiness undertakings.
ii. Making agricultural innovation/technologies generation and promotion entrepreneurial, demand-driven and cost-effective.
iii. Facilitation of adequate, relevant and appropriate agricultural technologies and innovations to end-users at all times.

iv. Strengthening of existing Adopted Villages, Agricultural Research Outreach Centers (AROC) and Agricultural Research Technology Transfer Centres (ARTTC) and the establishment of new ones.
v. Promotion of participatory technology development and domestication of agricultural research.
vi. Development of e-data collection system on agricultural production and marketing
vii. Promotion of indigenous knowledge system for generation of formal and informal innovations.
viii. Embed research and training institutions in major agricultural interventions for effective knowledge sharing and development of evident-based programmes.

Key intervention Programmes and Projects

Programme	Projects Elements		Responsibility
Responsive Research & Develop-ment to Crop, Livestock and Fisheries Production	○ Complete the reform of the mandate of ARCN for the reintroduction of NCRPs to minimize duplications and wastages in NARIs, CAs and relevant HIs in agriculture ○ Realignment of research and development agenda of NARIs, CAs and relevant section of other HIs ○ Re-introduction of joint operation and funding of relevant NARIs and CAs to serve particular mandate crops and farming system ○ Unbundle NAPRI for effective coverage of diversity in livestock research ○ Reintroduction of CRG approach coordinated by relevant MDAs to		ARCN, FMARD, Fed. Min. of Science and Technology, NARIs, TETFund, Development partners, ADPs, Universities, Colleges of Agriculture and the Private Sector

	promote the culture of problem-solving in the Agricultural sector		
Promotion of Indigenous Knowledge System	○ Enact laws that would mandate public and private sector organizations to support and finance research activities that have a direct bearing on their operations ○ Set up a technical committee to develop a national agenda and framework for agricultural research and innovation ○ Incentivize research institutions to identify and solve national agricultural challenges through grants, special funds, etc. ○ Strengthen collaborative researches among Agricultural Research Institutes, Universities and International Research Institutions ○ Set up a mechanism for the registration of patents and commercialization of research findings in research institutions		
Knowledge Transfer	○ Develop a robust mechanism to deliver research output to farmers and other value-		ARCN, FMARD, Fed. Min. of Water Resources, Fed. Min. of Environment, Fed. Min. of Science and Technology, NARIs, NUC, TETFund, Development

	chain actors through an extension service system ○ Establish a framework for active engagement between research institutions and the private sector ○ Involve research & training institutions in the design and implementation of critical agricultural interventions.	partners, ADPs, Farmer groups, Colleges of Agriculture and the Private Sector (large scale farmers and processors)
Genetic Improvement Program for Crops, Fish and Livestock	○ Enhance agricultural sector productivity through breeding and upgrading of indigenous species/varieties of crops, livestock and fisheries resources ○ Establish and upgrade crops and animal gene bank centres ○ Establish embryo transfer and artificial insemination centres	FMARD, ARCN, NAQS, Private sectors, Development partners, Higher Institutions of Learning, Min. of Science and Tech., states Min. of Agric., and LGAs
Market-Driven Research-Extension-Input-Program	○ Establish a strategic and operational Innovation Platform for relevant stakeholders ○ Strengthen CBA/CBF/FBS among farmer's groups and communities. ○ Promotion of public-private partnership for the conduct of adaptive research, demonstrations, and	FMARD, ARCN, Private Sector, Development Partners, Higher Institutions of learning, Min. of Science and Tech., states Min. of Agric., and LGAs

		Farmer's Pre-season Training ○ Establish linkages among AROCs, Adopted Villages and School Outreach in rural communities	
E-data collection system on agricultural production and marketing		○ Implementation of the Agricultural Production Survey	NAERLS, FMARD, FMTI, NBS, Private sector, research institutions, and development partners

2.4.3 Rapid Mechanization

The agricultural mechanization level in Nigeria is one of the lowest in the World. FMARD indicated that Nigeria's mechanisation is at 0.027 hp/hectare which is far from the FAO's recommendation of 1.5 hp/hectare. This explained the prevailing limited access to technology to the Nigerian farmers. The Agricultural Mechanization roadmap as enshrined in the Agricultural Policy Programme (APP) or the Green Alternative document had adequately addressed the role of mechanization in crops, livestock and fisheries sub-sectors development.

Inadequate technological inputs, particularly in production and farm-level processing equipment such as tractors, power tillers, harvesters, threshers, crushers, choppers, hay balers and milkers have reduced the amount of land area under cultivation and contributed to low crop and livestock productivity, and high post-harvest losses in the country. Thus, the promotion and deployment of appropriate technologies for crops, livestock and fisheries production, processing and marketing will enhance the productivity and competitiveness of the sector. The envisaged increased public and private sector investments, as well as development supports, are expected to generate about 2 million jobs.

Policy Support Programmes & Actions (PSPAs) to Support the Deliverables

i. Fast-tracking the implementation of the Green Imperative with significant private sector involvement to increase the density of tractors in the country.
ii. Increasing access to rural electricity and renewable energy to permit technology utilization.
iii. Supporting local fabricators of small- and medium-scale agricultural equipment
iv. Establishing agriculture-based technology incubation centres for training of women, youths and people with special needs.

v. Promoting motorized farm machineries and equipment for deployment in areas where land fragmentation is a key constraint to allow the use of sophisticated machineries.

vi. Promoting the use of on-farm processing equipment and encouraging value addition technologies across value chains.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
Renewable and Alternative Power Supply to Agriculture	○ Establishment of agriculture-based technology incubation centres for training of women, youths and people with special needs ○ Development and promotion of bio-fuel technology for farm and domestic power supply ○ Strengthening agribusiness Incubation Centres and agro-preneurial skill centres for agribusiness students, graduates and public ○ Up-scaling of wind turbine for rural power supply ○ Adaptation of solar power technology for sustainable farm power supply ○ Promotion of animal draft power for sustainable farm power supply	FMARD, Rural Electrification Agency (REA), Min. of Sci. & Tech, Research & Training Institutions, State Govts, ADPs, Private Sector and community organizations
Adaptation of Agricultural Mechanization System	○ Establishment of public tractor hiring services in 774 LGAs ○ Adaptation of efficient labour-saving devices relevant to smallholders ○ Development and promotion of a robust mechanization extension delivery system ○ Establishment of private sector-driven inputs and mechanization service centres ○ Adoption and upscaling livestock service centres ○ Promotion of mechanization service championed by Youths and Women as private sector-led Tractor/equipment	FMARD, Fed. Min. of Science and Technology, State Governments, NARIs, Development partners, farmer organizations and the Private Sector

	○ Hiring Services Providers in the rural areas. ○ Deployment of appropriate technologies for disabled people ○ Promotion of participatory technology development	

2.4.4 Establishment of Agricultural Development Fund

There is a general lack of sustainable funding for the agricultural sector which compounds the challenges of the sector. Achieving agricultural transformation would require funding beyond what the current budgetary allocation would provide. At the moment, the country is yet to establish a functional Agricultural Development Fund (ADF) which would direct substantial resources to research, technology upgrading, extension, innovation and critical value chain development. Hence, the introduction of the Agricultural Development Fund to evolve into a mega-funding agency will be supported.

It is expected that ADF will coordinate the generation of funds as well as the facilitation of project planning, monitoring and evaluation in the agricultural sector. By so doing, the over-reliance on external and foreign debt will be substantially reduced thereby retaining ownership of the country's major agricultural interventions.

Policy Support Programmes & Actions (PSPAs)

i. Aligning and supporting the Bill for the creation of the Agricultural Development Fund
ii. Securing government approval for the establishment of a mega agency to administer the funds
iii. Facilitating the establishment of the fund backed by legislation and clearly defined administrative structure
iv. Ensuring the appointment of qualified and credible managers for the Fund
v. Building a multi-stakeholder approach for the supervision of the implementation of the Fund.

Key Milestones and Activities

Milestone	Activity Elements	Responsibility
Creation of Agricultural Development Fund	○ Enactment of the relevant law ○ Sensitization of key actors on the Fund ○ Establishment of the Agency to manage the Fund	FMARD; CBN, NAIC; BOA; BOI; research and training

	○ Establishment of a credible governing structure of the Fund ○ Populating the Agency with relevant specialists	institutions and Private sector
Building capacity for a multi-stakeholder approach to managing the fund	○ Build capacity for managing agricultural fund ○ Active engagement with research and training institution ○ Active engagement with organized farmers groups ○ Multi-MDA approach to delivery	FMARD, States, CBN, BOA, BOI, Bankers Committee, research and training institutions, Private sector

2.4.5 Revitalization of Extension Service Delivery

With less than 20,000 extension workers across the country, farmers receive limited guidance and training in technology adoption and application of inputs, such as fertilizers, herbicides and pesticides, leading to over-utilization or underutilization of agro-inputs resulting in low productivity and reduced export opportunities.

The revitalization of the extension service system in the country would produce 130,000 extension workers using conventional and e-extension systems yearly. A pragmatic approach to training and mentoring of specialized extension agents would be deployed in remote locations. It is estimated that 170,000 village extension agents would be deployed in collaboration with the state governments, private extension providers and development partners.

Policy Support Programmes & Actions (PPAs)

i. Vigorously support the Implementation of the National Agricultural Extension Policy
ii. Strengthening research-extension-farmer linkage system
iii. Preparing and executing intensive programs for the training of 130,000 extension workers annually (including private extension agents) in the different specializations needed;
iv. Strong mechanisms for monitoring and evaluation of extension activities in the 36 States and Abuja, with the participation of concerned stakeholders;
v. Encouraging private sector, farmer-to-farmer and commodity-based advisors participation in extension service delivery;
vi. Improving the working condition and welfare of the extension personnel;
vii. Promoting the use of ICTs in extension service delivery;

viii. Establishment of farmer helpline-centres in the 6 geo-political zones, and
ix. Promoting the establishment of one-stop agricultural extension delivery centres in the 774 Local Government Areas.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
Public-Private Partnership Extension Service Delivery	○ Establish Junior Farmers, Field and Life Schools in rural communities. ○ Promote farmer-to-farmer extension and community-based advisors. ○ Establish Electronic Farmer Learning Platforms. ○ Promotion of Extension service delivery among Inputs suppliers, financial institutions and off-takers. ○ Provision of value chain information and technology Innovation Platforms.	FMARD, ARCN Private sectors, Development partners, Higher Institutions of Learning, Min. of Science and Tech., States Min. of Agric., and LGAs
ICT-Driven and Pluralistic Extension Services Delivery	○ Upgrading 6 Zonal National Farmers Helpline Centres in NARIs and NAERLS. ○ Source and initiate extension support suites and software for extension workers. ○ Establish and support Agricultural Radio Stations using FM in the 6 geopolitical zones. ○ Promotion of knowledge-based, pluralistic, market-oriented, and ICT-driven value-chain extension system.	FMARD, ARCN, Private sectors, Development partners, Higher Institutions of Learning, Min. of Science and Tech., States Min. of Agric., and LGAs

2.4.6 Livestock Development

Nigeria is endowed with a climate suitable for the development of various classes of livestock, from ruminants (cattle, sheep and goats), pseudo-ruminants (Camel, Donkey) to monogastric (Poultry, Pigs) and micro-livestock. Yet, Nigeria is a net importer of meat and dairy products. To reverse this trend, the coordinated implementation of major livestock intervention will be fast-tracked in addition to new efforts to inject technology and standardization in the sector. The existing programmes to be synchronized and strengthened include the National Livestock Transformation Plan (NLTP), the Ruminant Livestock Intervention Programme (RULIP), the National Livestock Breed Improvement Programme (NALBIP), the National Pasture Development Program (NAPDEP), the

National Dairy Development Programme (NDDP), and the Livestock Productivity, and Resilience Support (L-PRES) Project.

With the new coordinated response, significant progress will be made in the improvements of animal genetic resources; the establishment of functional models of ranches, grazing reserves; the development of integrated meat and dairy processing facilities; mitigating herder-farmer conflicts, import substitution and foreign exchange conservation. Also, priority will be accorded to productivity improvement and resilience of the livestock feed industry, poultry, pig, micro-livestock value chains for protein sufficiency as well as the re-introduction of Animal Identification System to help regulate and sanitize livestock movements and trading. It is expected that 1,500,000 new jobs would be created in the subsector.

In terms of animal health, the Animal and Aquatic Diseases Surveillance System for early detection and response to transboundary animal diseases (TADs) will be enhanced. Special attention will be given to the enhancement of national veterinary services in line with global best practices to effectively respond to the threats of TADs (Foot and Mouth Disease, Contagious Bovine Pleuropneumonia, Avian Influenza, New Castle disease, Peste des Petit Ruminants, African Swine Fever), thereby addressing the challenge of diseases mitigating optimal livestock and productivity and to ensure that animals and animal products from Nigeria are accepted in the international markets.

Policy Support Programmes and Actions (PSPAs)

i. Establishing a regulatory framework to guide livestock genetic improvement and implementing the National Animal Health Policy: the roadmap for the Eradication of Peste des Petit Ruminants (PPR) by 2030.
ii. Fast-tracking the development of ranching and grazing reserves with active private sector participation.
iii. Promoting the establishment of livestock service centres in strategic locations nationwide.
iv. Promoting group intervention in livestock of high priority value chains, such as dairy, beef, poultry, pig, sheep, goat, donkey, honey bee, leather, and micro-livestock, and facilitating Public-Private-Partnership (PPP) in the livestock industry.
v. Re-establishing national baseline for livestock population through a second national livestock census.
vi. Re-introduction of the Animal Identification System with active private sector participation.
vii. Strengthening protocols for certification of animals and animal products in line with the WTO guidelines to guarantee quality and access to the international market.
viii. Promoting the establishment of strategic animal feed reserves and promoting commercial pasture production.
ix. Promoting the development of Animal Healthcare Service delivery and veterinary infrastructure with active private sector participation.

x. Strenghening control of Transboundary Animal Diseases and collaborate with the private sector to establish Disease Free zones and compartments for the promotion of international trade on Animals and Animal products.

Key Intervention Programmes and Projects

Livestock Value Chain		
Programme	**Project Elements**	**Responsibility**
Dairy Development Programme	○ Develop grazing reserves ○ Promote the establishment of peri-urban and commercial dairy farms ○ Upgrade indigenous dairy cattle, sheep and goats by rehabilitating livestock multiplication centres ○ Strengthen capacity and utilization of AI, Crossbreeding and other Animal Reproductive technologies ○ Promote innovative dairy extension services ○ Improve nutrition of dairy animals through promotion of feeds and feeding techniques (pasture, fodder and commercial feeds) ○ Support the formation of cooperative societies and build capacity for Savings and Loans schemes ○ Develop milk collection and processing centres and establish linkages with large scale dairy industry ○ Develop cold chain services	FMARD; SMoA; Development Partners; INGOs; CSOs, research institutions and Private Sector
Livestock Breeds Improvement Programme	○ Upgrading of indigenous breeds of cattle, sheep and goats for milk and meat by revamping of Livestock Multiplication Centres ○ Support research into the development of pure indigenous dairy cattle	FMARD, SMoA, NAPRI, NAQS, NACGRAB, Private Sector Investors/Practitioners

	○ Strengthening and liberalization of AI and Crossbreeding Capacity and Utilization with stronger private sector participation ○ Genetic conservation of indigenous livestock resources	
Animal Feed Development Programme	○ Promotion of production of feeds for dairy and feedlot ○ Promotion of small and medium feed mills ○ Promotion of large, small and medium feed mills ○ Promotion of animal feed quality standard/control through the establishment of national animal feed reference laboratory ○ Promotion of alternative feed resources for classes of livestock ○ Strategic animal feed ingredients reserves development ○ Promotion and development of nutritional ruminant feed block ○ Promotion of local feed premix production	FMARD, SMoA, Development Partners and Private Sector Investors
Ruminant Animal Production, Processing and Marketing Programme	○ Research support for innovative technologies in up-scaling production ○ Promotion of feedlots for livestock fattening ○ Upgrading of indigenous beef cattle, sheep and goats through the promotion of AI and crossbreeding ○ Development of model Abattoirs in 36 States and FCT ○ Promoting the establishment of meat processing centres ○ Promotion of export of red and processed meat ○ Promotion of small- and medium-scale feed-mills for production of commercial livestock feeds ○ Re-introduction of Animal Identification System ○ Enhancing capacity on trade negotiations and facilitation	FMARD, SMoA, NAQS, Development Partners, Private Sector Investors and Research Institutions

Poultry, Pig and micro-livestock production and improvement Programme	○ Rural poultry production improvement scheme ○ Promoting the establishment of breeder parent stock poultry farm ○ Promotion of broilers (including Noilers) and layers production ○ Promotion and development of pig value chain ○ Improvement of smallholder poultry feed production ○ Promotion of large, small and medium feed-mills for production of commercial livestock feeds ○ Promotion of commercial processing of poultry, pigs and micro livestock ○ Promotion of micro-livestock production through Rabbit, Grasscutters, Honey bee and snail improvement and production schemes	FMARD, SMoA, Development Partners, research institutions, and Private Sector Investors
Promotion of Donkey Production	○ Promotion of increased donkey production through advocacy, research and input support to avert its extinction	FMARD, SMoA, NAQS, Research Institutes, Development Partners, NGOs and Private Investors
National Livestock Transformation Programme (NLTP)	○ Ranch development by medium and large-scale livestock producers ○ Peace-building interventions for harmonious coexistence between farming and pastoral communities ○ Humanitarian Response for conflict-affected communities ○ Partnership with private sector actors for creation of ICT based livestock identification and traceability	FMARD, FMoI, SMoA, NAQS, Development Partners, CSOs and Private Sector Investors
Livestock Productivity and Resilience	○ Building capacities, increase resilience, mitigate conflicts and create stronger synergy among actors	FMARD, Development Partners, SMoA,

Support (L-PRES)	○ Establishment of livestock centres and provision of community-based shared livestock production and processing facilities	Research Institutes and Farmer Organizations
Pasture and Feeds Resources Development Programme	○ Promotion of indigenous production of commercial pasture seeds and pasture ○ Extension support scheme for pasture production, preservation and utilization	FMARD, FMoI, SMoA Development Partners, CSOs and Private Sector Investors
Animal Disease Management and Strengthening of Private Sector Participation in Health Management Programme	○ ISO Certification of NAQS Laboratories ○ Control of Animal and Zoonotic Diseases ○ Upscaling Surveillance and Control of Transboundary Animal Diseases (TADs) ○ Establishment of Disease Free zones and compartments to enhance the quality and export of livestock ○ Strengthening of aquatic health and surveillance system ○ Establishment and equipping of regional and national animal health reference laboratory ○ Veterinary Infrastructure development ○ National One Health Initiative (Animal Health Component ○ National Animal Disease Information and Surveillance ○ Animal Health certification and standardization ○ Strengthening framework for private sector participation in animal health management ○ Develop National Policy on Anti-Microbial Resistance and Use (AMR/U) ○ Upscaling anti-microbial resistance surveillance in all animal processing centres and health centres ○ Mapping of Actors in the anti-microbial use value chain ○ Operationalization of Anti-Microbial Resistance Information System (AMRIS)	FMARD, SMoA, NAQS, FAO; ECOWAS, Development Partners, Research Institutions, Regional bodies and Private Sector Investors

	○ Development of National Animal Welfare Standard and Implementation Guidelines	
National Transboundary Pests' Surveillance and Control Initiative	○ Development of curriculum on quarantine in higher institutions ○ Increase the number, quality and capacity of quarantine stations and control posts ○ Strengthening and harmonization of national and regional policies and Program ○ Regional and international partnerships in the surveillance and control of pests ○ Control Programs for migratory birds and other pests of crops and livestock ○ Development of technical guidelines and standard operating procedures on wildlife disease surveillance ○ Implementation of wildlife associated Emerging Infectious Diseases (EIDs) surveillance programme	FMARD, SMoA, NAQS, Research Institutes, Development Partners and Regional bodies
Leather Processing and Export Programme	○ Creation of innovative platforms for the resuscitation of the leather industry ○ Enhancing domestic processing and export of finished hides and skins ○ The socialisation of leather and leather goods policy	FMARD, FMTI, NAQS, Research Institutions and Private sector investors

2.4.7 Strengthening Value-Chains for Priority Crops

Fixing the weak agricultural value chains entails the identification and promotion of high potential commodities and deploying knowledge, technology and capital for development. Attention will be given to the development of 20 value chains, including rice, maize, sorghum, wheat, cassava, sesame, tomatoes, yam, cowpea, soybeans, cocoa, palm oil, hibiscus, cashew, potatoes, cotton, ginger, groundnuts, sugarcane and oranges.

Strong collaboration with States will generate specific value chains for development depending on ecological or comparative advantages. The multi-stakeholder approach will be used in the development of clusters, rural cottage industries, rural nodal centres and the establishment of at least seven Special Agro-processing zones (SAPZs). All these would supplement the previous efforts to link the agricultural sector with the industrial/processing sector which will be doubly effective in restoring industrialization and creating at least one million new jobs in the country.

Policy Support Programmes and Actions (PSPAs)

i. Establishing regulatory frameworks and institutions that will encourage and guide different contract farming arrangements for priority crops.
ii. Promoting the value chain of export commodities with particular attention to ecological/comparative advantages.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
	Crop Value Chains	
Promotion of Crop Value Chains and Food Systems	○ Improving the productivity of existing farming system (FNS) using appropriate technologies and standardized inputs and processes ○ Development of specific Value Chains in States for import substitution (ISIRM) ○ Development of exportable agricultural produce and products (APPExp) ○ Facilitating the establishment of clusters for promotion of agribusiness for export APPExp) ○ Supporting States in promoting high valued vegetables and economic tree crops ○ Promoting the establishment of one-stop Farmer Service Centres ○ Promoting the establishment of specialized crops processing centres ○ Improving rural and urban commodity markets ○ Strengthening of farmer cooperatives ○ Provision of technical support for farmer groups to establish and manage savings and loans schemes; group aggregation and processing	FGN, SMoA, FMARD, NAERLS, ARCN, IARC, ADPs, CSOs, Development Partners, NARIs organized farmers group and market associations
Enhancement of Input Supply and Service Delivery to Agriculture	○ Implement Seed and Fertilizer laws ○ Regular conduct of Inventory Survey of agro-input sub-sector ○ Strengthening and up-scaling of agro-input distribution network	FGN, SMoA, FMARD, Private Sector Organizations, Development

(quality, price, availability and accessibility)	○ Implement targeted inputs subsidy regime ○ Adapt the local content law to agricultural input sourcing ○ Enforcement of compliance of SMART use of soil, water and crop enhancers	partners, Farmer Organizations and Community Organizations.
Promotion of Intensive Crop Production and Management System	○ Promoting the adoption of intensive/innovative farming practices for smallholder producers ○ Promotion of different contract farming models for food and cash crops ○ Provision of small-scale irrigation infrastructures to enhance farming systems all year round ○ Enhancing producers' capacity for increased crop diversification and intensification ○ Promotion of controlled-environment intensive production supported by insurance policy	FMARD, SMoA, ADPs, Development Partners and NARIs

2.4.8 Fisheries & Aquaculture, Marine and Inland Fisheries Resources Development

Despite its enormous water resources, Nigeria is a net importer of fish and other marine resources. The contribution of the sub-sector to the overall GDP is insignificant when compared to the relative high skills, abundant water resources and modest capital investments in the sub-sector. Over the years, many programmes have been implemented to stimulate investments and productivity in the fish and marine sub-sector but with mixed results.

Local fish and marine production and processing will be encouraged with active private sector participation to meet local protein needs, substantially reduce fish importation and create not fewer than 500,000 new jobs along the value chain. In this regard, the Fisheries and Aquaculture Import Reduction Strategy would be completed and implemented.

Policy Support Programmes and Actions (PSPAs)

i. Accelerate adaptive research in major aspects of fisheries to develop appropriate technologies to enhance productivity.

ii. Provide a minimum level of fisheries infrastructure required to lower the unit cost of fish production.

iii. Strengthen and empower private sector fisheries professional organizations and institutions and promote their linkage for synergy.

iv. Enhance the conservation and prevention of over-exploitation of fisheries resources in the numerous dams, lakes, reservoirs and lagoons nationwide and discourage obnoxious fisheries practices.

v. Enhance fish breeding, promote the availability of pest and disease control services, and enhance traceability.

vi. Enhance fish quality control, standardization and certification for local consumption and export.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
Commercial Aquaculture Development Programme	○ Promote the deployment of modern production and processing techniques to support the evolution of commercial fishing and farming clusters and estates nationwide ○ Support the establishment of integrated commercial private sector fish-farm estates and fish feeds production centres ○ Promote the use of lantern fish species in the commercial fish feed production ○ Support the establishment of commercial fish feed mill using local raw materials (one-ton fish feed mill) ○ Promote commercial fish cage culture in the marine and freshwaters to accelerate fish production. ○ Provide a special finance window to support the implementation of a national residue monitoring plan to enhance aquaculture export. ○ Facilitate the establishment of private sector commercial large-scale fish farms ○ Promote investment in Tilapia, Carp and other indigenous fish species	FMARD, NIFFR, NIOMR, FMWR, FMITI, Multilateral Funding/ Multinational Donor Agencies, SMoA, CBN (NIRSAL/other interventions programs)/ BOI, BOA, NAIC, and Financial Institutions, Private sector, Research & Training Institutions, Fish Farmers and Processor Groups

	○ Reactivate various National Aquaculture Technology Transfer Centers ○ Provide quality seed (fingerlings) support Program for the aquaculture sector ○ Establish regional fish disease laboratories for diagnosis and management of fish disease outbreaks ○ Build capacity of fish farmers, extension agents, fisheries professionals, veterinary doctors on fish disease identification and management ○ Provide targeted fiscal subsidies for the use of improved seeds ○ Support research institutes in the development of improved fingerlings of tilapia, carp, heterotis and other indigenous species. ○ Disseminate the knowledge of production and management of the improved fingerlings through extension services. ○ Support commercial production, supply and marketing of improved fish fingerlings (both freshwater and marine species). ○ Support Research Institutes on Brood-stock improvement programme for catfish to improve the quality of fingerlings ○ Promote the advance use of commercial mobile fish tanks	
Commercial Coastal & Inland Fishing Programme	○ Stocking of lakes, dams and reservoirs nationwide with high-quality fish fingerlings in partnership with communities ○ Promotion of appropriate fisheries management regime such as the closed season practice. ○ Establishment of structured landing sites at major inland water landing sites for private investments ○ Technology upgrading to support commercial coastal fishing.	FMARD, NIFFR, NIOMR, FMWR, Multilateral Funding/Multinational Donor Agencies, SMoA, CBN (NIRSAL/other interventions programs)/ BOI, BOA, NAIC, NEXIM and

	○ Provision of alternative livelihood Programmes for artisanal fishing in the inland water areas. ○ Promotion of private investments in ornamental and sport fishing	Financial Institutions, Private sector, Research & training Institutions, fish farmers and processor groups
Marine Industrial Fishing Programme	○ Technology upgrading, (sophisticated trawlers, safety equipment, etc) and capacity building support for commercial deep-sea fishing ○ Establishment of Vessel Monitoring Centres for improved monitoring, control and surveillance ○ Enhance surveillance of Nigeria marine waters. ○ Establish dedicated commercial fishing terminals/ports. ○ Promote private investments in offshore fisheries exploitation such as the Tuna and the Lantern fisheries	FMARD, NIFFR, NIOMR, FMWR, FMITI, Multilateral funding/ Multinational Donor Agencies SMoA, CBN (NIRSAL/other intervention programmes)/ BOI, BOA, NAIC, NEXIM and Financial Institutions, Private sector, Research & Training institutions, Fish Farmers and Processor Groups
Fish Processing and Post-harvest Management Programme	○ Support the establishment of fish processing centres ○ Support the establishment and upgrading of Fish cold-chain management and development ○ Promote the use of processing machines such as the commercial fish powder making machine and smoking kilns	FMARD, NIFFR, NIOMR, FMWR, FMITI, Multilateral Funding/ Multinational Donor Agencies SMoA, CBN (NIRSAL/other

	○ Support development of landing sites equipped with adequate integrated facilities ○ Farmer training and enlightenment on farm-gate handling, management of harvests and storage ○ Support commercial cold-transport facilities for the preservation of harvested fish products.	interventions programs)/ BOI, BOA, NAIC, NEXIM and Financial Institutions, Private sector, Research & Training Institutions, Fish Farmers and Processor Groups
Fish Trading and Marketing Promotion Programme	○ Support the establishment of dedicated private-sector driven dedicated fish markets for live and processed fish in the proximity of major landing sites across the country ○ Build capacity for the standardization of fish and marine resources for quality and exports	FMARD, NIFFR, NIOMR, FMWR, FMITI, Multilateral Funding/ Multinational Donor Agencies SMoA, CBN (NIRSAL/other interventions programs)/ BOI, BOA, NAIC, NEXIM and Financial Institutions, Private sector, Research & Training Institutions, Fish Farmers and Processor Groups

2.4.9 Market Development

Besides infrastructural challenges that restrict the movement of commodities to market, poor aggregation, weak link with up-takers, processors and unorganized commodity markets continue to limit the capacity of farmers to drive reasonable value on their commodities.

A multi-stakeholder approach would be adopted to up-grade major commodity markets, establish functional commodity exchange, promote warehouse receipt systems and re-organize rural commodity markets. Besides increasing rural and urban income, over 300,000 new jobs will be created from the enhanced market development and access

Policy Support Programmes and Actions (PSPAs)

i. Ensure the rendition of adequate Agricultural Market Information Services (AMIS) to all the active economic agents along the value chain of production, storage, processing and marketing
ii. Minimize supply variations and ensure food supply at affordable prices throughout the country.
iii. Reduce food shortages and price volatility via the use of agricultural policy measures.
iv. Ensure delicate balance between export-led growth and import substitutions policies towards improving the competitiveness of Nigeria's agro-industrial production
v. Establish and enforce standardized weights and measures for agricultural produce in collaboration with the relevant agency.
vi. Encourage stronger food safety and quality standards and enforcement in urban raw food markets characterized by overcrowding and unsanitary conditions.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
Establishment & Upgrading of Commodity Markets	○ Support establishment and operations of private sector-commodity exchange. ○ Upgrade, sanitize and organize rural commodity markets ○ Upgrade major commodity markets to meet international standards ○ Support the establishment of cold stores, preservations, light processing in major commodity markets ○ Significantly improve security and sanitations in commodity markets	FMARD, FMITI, NOA, Multilateral funding/ Multinational Donor Agencies, SMoA, CBN (NIRSAL/other interventions programs)/ BOI,

	○ Support the evolution of formal and modern management of the major commodity markets ○ Sensitize market associations to support the market development process	NAIC, and Financial Institutions, Private sector, Research & Training Institutions, Business Schools, Farmers, Processors & Marketers groups
Export Market Development	○ Link commodity markets to commodity exchange ○ Deployment of fully automated exportation process for produce and food products ○ Fast track the establishments of Agro-processing zones and strengthen agro-export production sites/facilities ○ Support commercial cold-transport facilities for the preservation of perishable and other commodities ○ Support the evolution of processing, packaging and preservation of commodities ○ Deploy quality standards and commodity inspections in high export potential commodity markets ○ Creation of a special export logistics window for agricultural products. ○ Export Trading desk to be created in all Nigerian Embassies/High Commissions	FMARD, FMITI, NOA, Multilateral funding/Multinational Donor Agencies, SMoA, CBN (NIRSAL/other interventions programs)/ BOI, and Financial Institutions, Private sector, Research & Training Institutions, Business Schools, Farmers, Processors & Marketers groups
Capacity Development of Market Actors	○ Targeted export training and capacity building through commodity associations focusing on logistics and standards. ○ Awareness training about funding opportunities for exporters,	FMARD, FMITI, NOA, Multilateral funding/ Multinational

	○ Capacity building on supply chain management ○ Training on the identification of export opportunities and trading partners ○ Train and sensitize commodity associations on management and conflict resolution	Donor Agencies, SMoA, CBN (NIRSAL/other interventions programs)/ BOI, and Financial Institutions; Private sector, Research Institutions Business Schools, and Market Associations

2.4.10 Securing Agricultural Lands and Investments

Partnership on Secure Agriculture Land and Investments (PSALI) is a multi-stakeholder approach involving security agents, States, local communities - community leaders, hunters, vigilante groups; civil society organizations and key players in the agricultural sector to restore security in farming communities. A Joint Task Force, involving the ministries of Agriculture and Rural Development, Water Resources, Defense, Interior and Police Affairs with the active participation of community leaders and community associations; transporters and farmers association would be created and strengthened to provide a workable framework for the implementation of PSALI across the country. When properly structured and deployed, PSALI would generate over 1 million jobs in rural communities.

Besides insecurity, the Land-use policy in Nigeria as enshrined in the Constitution is not what is obtainable on the ground. Hence, the need to re-examine the Land Use Act and make it more friendly to agriculture and agricultural investments.

Policy Support Programmes and Actions (PSPAs)

i. Establish Partnership on Secure Agriculture Land and Investments (PSALI) with FMARD as its secretariat;
ii. PSALI should be implemented at State, Local Government and community levels under an established structure;
iii. Promotion of organized hunters, agro-rangers, forest rangers/ forest marshals to support PSALI;

iv. Facilitating the recognition and entitlement of land ownership by formal or customary means to assist collateralization, and
v. Evolve Programmes that reduce implicit and explicit gender biases in land allocation and titling processes.

Key intervention Programmes and Projects

Programme	Projects Elements	Responsibility
Promotion of land certification for farm size consolidation and competitiveness	○ Promulgation of law and legislation at the state level to minimize farmland fragmentation ○ Mount Sensitization campaigns on land consolidation targeting key stakeholders ○ Community integration/involvement in effective utilization of land for agribusiness domiciled in their locality	FGN, SMoA, CSOs, FBOs, Organized Farmers groups, Development Partners and Traditional institutions.
Security enhancement	○ Establish PSALI Structure at national and sub-national levels ○ Promotion of agro-rangers for securing agricultural land and investment ○ Set up organized hunters, forest rangers/marshals to support PSALI ○ Create a special role for traditional Institution/community leaders under PSALI	FGN, SMoA, CSOs, FBOs, Organized Farmers groups, Development Partners and Traditional institutions

2.5. Cross-cutting Interventions

Besides the critical focal components, NATIP will build on the successes of the previous policies and Programmes by covering 11 critical cross-cutting areas where implementation gaps have been identified to exist. Special attention will be given to inter-ministerial, inter-agency and private sector synergy.

2.5.1 Development of Rural Infrastructure

The Nigeria rural sector performs far below expectation in terms of rural infrastructure development, poverty, job creation and other livelihood improvements. Rural communities where agricultural production mainly takes place also face gradual

degradation due to natural and human causes. The bane of rural infrastructure development in Nigeria is the absence of a reliable database. Thus, in many areas of the country, activities along the value chain face challenges in the absence of programmatic rural development services, such as land preparation and development, efficient storage, processing and market operations.

Consequently, the National Development Plan (2021 – 2025) envisions an integrated rural development approach through infrastructure development, to be anchored on effective inter-ministerial, sectoral and interdisciplinary linkages and establishment of a GIS database. Achieving this entails a holistic strategy to building infrastructure, resilience and enabling environment to support rural livelihood and overall wealth and jobs creations. At least 2 million jobs would be generated through the implementation of rural programmes and projects that support agricultural sector activities.

Policy Support Programmes and Actions (PSPAs)

i. Facilitate the development of robust rural infrastructure data management
ii. Provision of rural infrastructures, roads, electricity, irrigation, ICT, renewable energy, in major foods, livestock and fisheries production and processing clusters;
iii. Massive investments in land preparation and land development to support increased productivity and expand cultivatable land;
iv. Support the evolution of rural cooperative societies into clusters for easy provision of input and financial support; farmer enumeration, market access, and feedback;
v. Promotion of rural microfinance, savings and loans groups, banking and quick cash transfer outlets;
vi. Development of soil fertility and suitability map across the country;
vii. Strengthening conservation, reforestation and green belt policies;
viii. Promote the establishment of nodal centres, agro-processing and technology incubation centres.
ix. Promoting the role of women and youths in the different fields of rural development;
x. Facilitating access to production and market information across key value chains actors of the major commodities produced in different agro-ecological zones; and
xi. Promotion of community sensitization on nutrition and sustainable agriculture.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
National Farm Settlement and Rural Development	○ Rapid improvement in rural and farm access roads in farming communities ○ Facilitate access to power and ICT to support rural communities ○ Facilitate the enhancements of Rural markets and Storage infrastructures ○ Facilitate the establishment of land clearing and development centres in 6 geopolitical zones ○ Encourage the development of Farm Shelters and Markets in major production clusters ○ Facilitate the completion through Public-Private Sector Partnership (PPP) all the 774 One-Stop Extension Delivery Centers ○ Promotion of agro-rangers, forest rangers/forest marshals for securing agricultural land and investment ○ Facilitate improved community and animal health facilities in 6 geopolitical zones ○ Improve access to All-Season Farming Facilities in rural communities ○ Encourage rural banking and quick cash transfer outlets ○ Promoting and supporting farmers' associations, in the field of agricultural production and marketing as well as savings and loans schemes ○ Increase farmers' access to production and market information ○ Promotion of agro-forestry	FMARD, MST, MWR, ME, ARCN, SMoA., NALDA, Security Agencies, Research Institutions Private sectors, Development Partners, LGAs, Farmer and Community Associations
National GIS Rural Infrastructure Database	Re-introduce Rural Infrastructure Survey project.	FMARD, MoC, Development Partners, Research Institutions and Private Sector

2.5.2 Nutrition

To reverse the high prevalence of malnutrition and stunting in the country, previous initiatives under ATA and APP would be fast-tracked. This entails supporting the diversification and production of nutrient-rich foods and ensuring that agriculture research investments focus on nutrient-rich crops. Other measures will be taken to help transform the food systems, such as supporting mass media campaigns, social marketing campaigns, encouraging healthy eating at home and in schools as well as massive awareness creation on backyard sources of nutrition, especially in rural communities. At least 100,000 high-income jobs are targeted from nutrition programmes and investments.

Policy Support Programme and Actions (PSPAs)

i. Enhance Value Chains for Improved Nutrition;
ii. Diversify household food production and consumption, especially targeting women, and increase access to micronutrient-rich foods;
iii. Improve food safety along the value chain;
iv. Build resilience and social protection nets through food and nutrition systems for vulnerable groups;
v. Promote nutrition research and information systems;
vi. Improve the agricultural sector capacity to address food security and nutrition problems;
vii. Nutrition education, social marketing, behaviour change communication and advocacy, and
viii. Nutrition surveillance and monitoring and evaluation.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
National Food and Nutrition Security Programme	○ Promoting homestead/backyard gardening and urban agriculture ○ Promoting production and consumption of Pro-Vitamin A (PVA) Maize, Orange Fleshed Sweet Potato (OFSP), Iron and Zinc Sorghum/Millet, and Vitamin A Cassava. ○ Improving diet diversity, among vulnerable and resource-poor populations including IDPs. ○ Facilitating capacity building on post-harvest handling and provision of organic agricultural produce storage materials.	FMARD, ARCN, NARIs, Food & Strategic Reserve, Research Institutions, ADPs, IITA, Harvest Plus, Dangote Foundation, NASC, Farmer and Community Organizations

	○ Mobilizing farmers to participate in the production of farm produce for feeding pupils in each geographic area. ○ Reducing aflatoxin contamination of agricultural produce ○ Ensuring that agricultural produce meets quality and standard for local consumption and export. ○ Promoting Integrated Pest Management (IPM) strategies for a drastic reduction of chemical residues in our produce. ○ Conducting National Food Consumption and Micronutrient Survey ○ Promoting domestic production of meat, milk, eggs and honey ○ Facilitate the establishment of livestock centres and community-based shared livestock production and processing facilities	
National Action on Reduction of Pre- and Post-harvest Food Losses	○ Promoting the adoption of certified seeds and Good Agronomic Practices (GAP) ○ Promoting community-based shared storage facilities ○ Encourage the establishment of food processing clusters farming communities	FMARD, SMoA Development Partners, CSOs, FBOs, Min. of Health, Planning and Budget
National Food Production and Consumption Sensitization and Awareness Campaign	○ Enlightening households on food quality	FMARD, SMoA ADPs, NARIs, NAERLS and Development partners NGOs/CBOs/FBOs, Farmer and Community Organizations

2.5.3 Standardization for Export

It is estimated that Nigeria is losing USD 10 billion in annual export opportunities from groundnut, palm oil, cocoa and cotton alone due to continuous decline in the production and quality of those commodities. The main factors undermining the acceptability of locally produced and processed products include low access to modern production and

processing equipment, poor quality inputs and misapplication of inputs, poor post-harvest handling, malpractices by middlemen, inadequate market information, weak enforcement of producer and consumer protection policies and a weak agricultural extension system, among others.

Using the multi-MDA approach, agricultural inputs and outputs would be made more cost-effective and standardized to benefit from the African Continental Free Trade Agreement (AfCFTA) and other export opportunities. Ultimately, there will be a gradual and steady process of capacity development and ensuring adherence to GAP and traceability requirements leading to the certification of Nigerian commodities for exports. Over 100,000 jobs are envisaged from the improved international competitiveness of Nigerian commodities.

Policy Support Programmes & Action (PSPAs)

i. Support the implementation of Seed and Fertilizer laws;
ii. Effective use of regulations and extension systems to regulate, monitor and guide the use of agro-inputs;
iii. Strengthening and applying quality standards (sorting, grading and packaging and processes) for agricultural products for national and international markets;
iv. Facilitating the use of information and telecommunication technologies in agricultural product marketing;
v. Improving marketing facilities and services;
vi. Expanding the activities of commodity stock exchange to cover more States;
vii. Applying modern techniques and practices in monitoring, analyzing and predicting natural and marketing risks and developing risk mitigation measures;
viii. Enhancing the effectiveness of government's regulatory role in exercising control over agricultural output policies and consumer protection; and
ix. Promoting Good Agricultural Practice (GAP) certification for farmers, export of farm produce to achieve zero rejection of export.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
Quality Control Standards and Certification	○ Establishment and enforcement of standards and guidelines to regulate activities along the value chain. ○ Empowerment of private sector-led certification of produce for export	SECs, SON, NAFDAC, FMARD, NEPZA, Organized Producers and

	○ Developing traceability index for Agricultural products for competitiveness and global benchmarking. ○ Expansion and strengthening of the activities of Commodity Exchange Markets ○ Improving marketing facilities and services ○ Facilitating the use of information and telecommunication technologies in agricultural product marketing	Marketers Association

2.5.4 Promoting Digital and Climate SMART Agriculture

Climate change is negatively affecting the Nigerian agricultural sector but the policy approach and much-needed interventions remain largely ad-hoc. Food security is continually threatened by drought, floods and erosions in certain locations of the country and the water management system is largely mundane. Digital Agriculture, ranging from innovative technologies such as the use of drones, internet and other IT facilities/equipment along the value chain from input delivery, production, processing, and marketing, holds a great promise for enhancing agricultural development. Digital agriculture supports Climate-smart agriculture to effectively respond to the challenges associated with climate change.

Building capacity and mechanisms for fast-tracking e-agriculture, environmental protection, organic agricultural practices and improved water management, among others, would serve as a veritable tool for engaging over 50,000 graduates and over 150,000 non-graduates in the country.

Policy Support Programmes & Action (PSPAs) to Support the Deliverables

i. Encouraging the development of on-farm and off-farm use and adoption of digital technology and innovation platforms;
ii. Creating an ecosystem-driven digital agriculture platform that has the potential to serve all farmers in Nigeria;
iii. Supporting all agriculture programmes with digital capabilities to create sustainable business models and opportunities;
iv. Improving agricultural productivity, reducing food wastage and reducing the effect of climate change;
v. Allowing farmers to access financial services, register land and cattle online, access detailed geographic and soil-related information, reduce fraud, and improve efficiency in the delivery of goods and services, while helping governments to better target agricultural support;

vi. Collating and digitizing relevant agricultural research content and carrying out joint research on agricultural productivity and exportation needs;
vii. Promoting open data (research findings) in agriculture by making research content available to farmers, agriculture value chain players and startup businesses through digital platforms to spur innovations;
viii. Imbibing the culture of using extension workers to obtain information and develop content into digital agriculture platforms;
ix. Promotion of sustainable land and water management practices;
x. Ensuring the timely provision of weather and climate information to farmers for crops, fisheries and livestock production;
xi. Building farmers' capacity on sustainable methods of water harvesting techniques for supplementary irrigation;
xi. Promotion of greenhouse crops and vegetable production;

xii. Setting up minimum standards for organic crops, fisheries and livestock production in the country;
xiii. Promotion of organic crop, fisheries and livestock production, and
xiv. Supporting the establishment of Meteorological Stations in all FMARD state offices to have adequate and reliable data for forecasting purposes.

Key intervention Programmes and Projects

Programme	Projects Elements	Responsibility
Digital Agriculture	○ Develop/upgrade curriculum for Digital Agriculture in tertiary institutions ○ Build capacity of Graduates and youth in digital technology with a bias towards agricultural technologies ○ Facilitate the deployment and utilization of digital technologies and innovations, such as remote-sensing, yield mapping, GPS guidance systems, food Blockchain, artificial intelligence (AI), etc. ○ ABC of SLC (a community-based peer learning project facilitated by trained extension workers). ○ Smart-Input Pad – a digital-based determination of appropriate input applications. ○ Promote digital extension ○ Encourage home grown tractor rental apps ○ Encourage the evolution of regulated online produce markets	FGN, FMARD, NUC, NALDA, NAERLS, ARCN, IARC, ADPs, CSOs, NGOs, NARIs and Organized Farmers Groups

	○ Build digital knowledge-sharing platforms	
Climate SMART Agriculture	○ Facilitation of private sector-driven SMART agriculture hubs to enhance biodiversity, enrich soils, improve watersheds, promote organic farming and enhance ecosystem support services, etc. ○ Build robust mechanisms for weather and climate information sharing to farmers ○ Deploy innovative technologies for efficient utilization of land, water and inputs ○ Encourage the deployment of greenhouses in rural communities ○ Deploy ErosAlert –phone-based erosion prevention, monitoring and management project ○ Fast track Yield 10x – an incentive-based yield multiplication project. ○	FGN, FMARD, NALDA, NAERLS, ARCN, IARC, ADPs, CSOs, NGOs, NARIs and Organized Farmers Groups

2.5.5 Strengthening Agricultural Lending and Insurance

Farmers grapple with limited access to finance and high-interest rates even with the interventions by the CBN. This is mainly due to poor synergy among MDAs, weak delivery mechanisms, low capitalization and negligible involvement of the Bank of Agriculture (BOA) and the National Agricultural Insurance Corporation (NAIC) in agricultural lending and insurance. More worrisome is that commercial banks are averse to agricultural lending.

Reversing this unhealthy trend will be achieved through the recapitalization and re-organization of the BOA and the NAIC as well as improving synergy with the CBN, commercial banks and other lending institutions, especially micro-finance banks. Local Governments will be encouraged to implement Savings and Loans Schemes to increase access to rural finance, especially among farmer cooperatives. Improved access to finance is expected to generate 500,000 jobs across value chains.

Policy Support Programmes and Actions (PSPAs)

i. Provision of single digit interest rate loan for agricultural enterprises;
ii. Raising the budgetary allocations to the agricultural sector to attain the Maputo Declaration (10% of the total budget expenditure);
iii. Encouraging private sector participation in the provision of agricultural insurance cover;
iv. Reduction of insurance transaction costs and continuous mobilization and enlightenment campaign on the need of farmers to adopt agricultural insurance;

v. Reduction of credit transaction costs;
vi. Coordinating with State Governments to expedite land titling to enable land title holders to use it as collateral;
vii. Reviving and strengthening Agricultural Guarantee Credit Scheme;
viii. Committing a minimum of 10% of the total loanable funds within the banking sector to the agricultural sector in the country;
ix. Strengthen and support the regulatory mandate of NAIC to enable it to perform its designated function.
x. Reorganize and recapitalize BOA, and
xi. Organize and support farmer cooperatives around savings and loans schemes to foster savings and investment culture in rural communities.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
Strengthening of Microcredit Financing and Insurance Services	○ Fast track the implementation of the Rural Finance Institution (RUFIN) ○ Strengthening of NAIC to ensure that small scale farmers are appropriately covered ○ Improve the delivery of Fund for Agricultural Finance in Nigeria (FAFIN) ○ Establishment of functional linkages between farmer groups/producers and financial institutions ○ Establishment of functional linkages between farmer groups/producers and insurance institutions ○ Mass media publicity to educate value chain actors on access to finance ○ Encourage the evolution of farmer cooperatives into rural microfinance institutions through savings and loans schemes	FMARD; CBN, NIRSAL, NAIC; BOA; BOI; SMoA; Private Sector Enterprises; Development Partners, Producer Cooperatives, Microfinance Institutions, and Business Schools
Improvement of Access to Finance and	○ Implementation of aggregation business model for smallholder producers ○ Implementation of out-grower production business model for large crop producers	FMARD, SMoA, CBN, NIRSAL, BOA, BIO, Development

Risk Mitigation in Agriculture	○ Guarantee minimum price and warehouse receipt system to enhance risk mitigation ○ Expansion of insurance coverage to market/price fluctuations ○ Campaign and Sensitization of key actors along value chains on Agric insurance for enhanced risk mitigation	Partners, Bankers Committee, Microfinance Institutions, and Business Schools

2.5.6 Data and Information Management

Agricultural policy and strategy require accurate data, better coordination, robust monitoring and implementation mechanisms for knowledge transfer, efficient channelling of subsidized inputs, extension services, funding, rural infrastructure dissemination to the National Statistical System and other users.

The National Agricultural Data Management and Information System (NADMIS) would be completed and implemented in collaboration with States, LGAs, Line Departments and relevant partners among State and Non-state actors within the Statistical Ecosystem.

Policy Support Programmes & Actions (PSPAs)

i. Revamping of Sectoral statistics generation within the statistics ecosystem;
ii. Conducting regular studies and socio-economic impact assessment of interventions and projects;
iii. Continuous policy analysis, research studies and surveys on sub-sectoral activities to generate evidence-based information;
iv. Production of aerial statistics as a new requirement in data production and management system;
v. Collection and administration of Agricultural statistics;
vi. Collaboration with Development Partners and other relevant stakeholders in agricultural research, innovation and information management system;
vii. Advancement of Open Data initiation and Digitalization of Agricultural Statistics, and
viii. Inception activities for NADMIS implementation, capacity strengthening and sustainability of NADMIs.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
Data Generation and Management	○ Institutional Strengthening and Data Management ○ Data Recovery and Buyback operations ○ Data Regeneration and Renewal/Cloud Hosting ○ Technology-enabled Rural Infrastructure and other Surveys ○ Institutional Linkages and Full Deployment of Data Services	FMARD, NBS, SMAN, Development Partners and ARCN
Development of Agricultural E Directory	○ Direct Link of Users to agricultural Data Producer. ○ Electronic Computation and dissemination of analytical information	FMARD, CBN, NBS, Research Institutions and Development partners
Statistics Sector Strategy Framework	○ Revamp of Sectoral Statistics generation within the statistics ecosystem	FMARD, NBS, CBN, Research Institutions, and Development Partners
Economic Impact Assessment of Initiatives and Interventions in the Sector	○ Stakeholders' adoption of Research Technology and innovations for sustainable Value Chain development. ○ Economic Impact Assessment of Fiscal Policy Measures (FPM) designed to promote sustainable production in the sector. ○ AfCFTA Implementation Imperatives in the Sector	FMARD, FMFB&NP, NBS, NCS, FMITI,NAC Development Partners and Research Institutions
Market Information and Price Intelligence Studies	○ Evolving response market-based information and price intelligence studies ○ Supply and Demand update for value chains interventions	FMARD, States, Development Partners and Research Institutions

Agricultural Performance Survey (Wet & Dry seasons)	○ Conduct of field assessment and production estimation, reporting and documentation.	FMARD, CBN, NiMet , NBS & NAERLS
National Agricultural Exportable Commodities Statistics Survey	○ Conduct survey on Agricultural Exportable Commodities	FMARD, CBN, NBS & FMITI
National Agricultural Sample Survey & National Agricultural Sample Census	○ Pre-survey Activities: Listing, Instrument development for the conduct of National Agricultural Sample Survey & National Agricultural Sample Census.	FMARD, FMFB&NP, NBS, Development Partners

2.5.7 Access to Quality Agricultural Inputs

Sustained effort will be made to collaborate with relevant stakeholders to implement Fertilizer and Seeds laws which are critical to regulating and easing access to high-quality inputs and enhancing the international competitiveness of agricultural commodities. A special inputs subsidy would be designed to cushion the impact of the COVID-19 pandemic and ensure sustained food production in the medium term.

Gradual deregulation of the importation of fertilizer blending plants would be encouraged to incentivize private sector investments in local fertilizer production and distribution. At the same time, local sourcing of blending materials will be intensified with the oversight of the Ministry of Mines. Improved production and distribution of quality inputs is expected to generate over 200,000 jobs across the country.

Policy Support Programmes and Actions (PSPAs)

i. Supporting domestic production and distribution of critical farm inputs, namely fertilizer, improved seeds and crop protection products.
ii. Fast track the implementation of the Fertilizer Quality Control Act, National Seed Act; and Plant Varieties Protection Act and develop policy on the standardization of agrochemicals.
iii. Developing, promoting and adopting the use of organic fertilizer.
iv. Ensuring timely availability and easy access to fertilizers, seeds and other agricultural inputs.
v. Facilitate the development of organized and regulated markets for fertilizers, seeds and other agricultural inputs nationwide with active private sector participation.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
Reform of Presidential Fertilizer Initiative (PFI)	○ Production support rather than consumption subsidy ○ Liberalization of fertilizer price regime	FMARD, CBN, Development Partners, ARCN & Private Sector
Implementation of National Fertilizer Quality Control Act, 2019 and the Regulations	○ Strengthen the capacity of Fertilizer Inspectors in the 36 States & FCT ○ Fast track the enforcement of the Fertilizer ○ Establish Farm Inputs Reference Laboratory ○ Continuous inspections and assessments of fertilizer operators facilities nationwide to ensure compliance with the set standards ○ Periodic survey of fertilizer (open) market ○ Continuous assessment of Farm Inputs Quality Control Laboratories ○ Continuous sensitization on the harmonized Fertilizer Analysis Method for Fertilizer Quality Control	FMARD, Development Partners, Research Institutions, Private Sectors, Security Agencies, LGAs, Farmer and Community Associations
Establishment of a Regulatory Framework to provide an all-inclusive and adequate control and monitoring of the Pesticide industry	○ Support the enactment of the National Agricultural Pesticides Control Bill 2022 ○ Develop database/compendium (Directory) of all the agrochemicals/pesticides dealers ○ Deploy SMS Alert System (Mobile Authentication System) for on-the-spot identification of adulterated products; ○ Publicity/advocacy and sensitization in local languages of Hausa, Igbo and Yoruba ○ Develop specialized packaging for the industry to check fake labelling and reuse of the disposed of container	FMARD, NCS, NAFDAC, SON and NESREA

Development of Organic Fertilizer	○ Pursue a private-sector driven organic agriculture policy. ○ Strengthen the capacity of Farmers on handling and application of Organic and Bio-fertilizer. ○ Develop the organic farmers' database ○ Implement organic farmers support programme to promote an organic farming culture ○ Support development of domestic and export of organic agricultural produce/products ○ Ensure strict adherence to the organic standard ○ Support organic agriculture-based research and development ○ Incorporate organic agriculture into curricula of secondary and tertiary institutions	FMARD, MoE, NCS, NAFDAC, SON, Research Institutions and NESREA
Development of crop/soil specific fertilizer formulation	○ Encourage participation of fertilizer blenders in soil research and development ○ Encourage adoption of crop/soil specific fertilizer blending as fertilizer market strategy	FMARD, NCS, NAFDAC, SON, NESREA, Research Institutions, Private Sector and Development Partners
Farm Inputs Subsidy/ Support Programme	○ Continuous registration, clustering, and validation of farmers along various agricultural commodity value chains ○ Reach millions of Farmers with subsidized inputs	FMARD, NCS, NAFDAC, SON, NESREA, Research Institutions Private Sector, Development Partners

2.5.8 Sustainable Use of Land and Water Resources

Land and water resources are key sources of comparative advantages in Nigeria. Over time, land and water resources remain largely underdeveloped. Using inter-ministerial and private sector partnerships, the challenges associated with land clearing, land degradation, land fertility as well as water resources utilization and management will be coordinated and strengthened. Besides, expanding the size and quality of agricultural land, the efficient exploitation of existing dams, reservoirs and waterways to support irrigation, fisheries, improved water supply and generation of hydro-electric power will significantly support agricultural transformation in Nigeria.

Policy Support Programmes and Actions (PSPAs)

i. An assessment and inventorization of agricultural land resources on a continuous basis through regular action research and using modern technologies would be adopted;
ii. Deploy new knowledge to combat and prevent agricultural land degradation in all its forms;
iii. Build capacity farmers and other stakeholders on cost-effective and efficient integrated soil fertility management, proper land use and management using improved land management technologies;
iv. Support the reform of the Land Use Act to free more agricultural land;
v. Reclam degraded agricultural lands affected by drought, desert encroachment, soil erosion and flood to prevent their spread;
vi. Undertake comprehensive mapping of existing dams, waterways, reservoirs to determine needs for maintenance/upgrade and mobilize resources using PPP to upgrade key water resources across the country;
vii. Drastically reduce the menace of incessant flooding using regional and national collaborative (regulatory and investment);
viii. Collaborate with states to ease access to water by farmers, and
ix. Facilitate the deployment of water harvesting and run-off flows technologies and techniques to enhance irrigation and animal watering.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
Soil Fertility Management	○ Monitoring of the soil fertility status to evolve appropriate management techniques for each soil type ○ Production of nutrient status maps and deployed across the country	FMARD, SMoA NISS,NALDA, Research Institutions and Development Partners

	○ A multi-stakeholder approach to generate and disseminate advisory information on fertilizer use	
Soil Testing and Laboratory Management	○ Conduct soil survey of the nation's agricultural land ○ Facilitate the upgrade and deployment of soil testing equipment and services in laboratories ○ Link soil testing laboratories to research institutions and private sector organizations	FMARD, SMoA NISS,NALDA, Research Institutions and Development Partners
Land use and Conservation	○ Support the reform of the Land use Act ○ Land Development for Soil Mapping ○ Reclamation of degraded agricultural lands ○ Promotion of technologies for the correction of soil degradation and reclamation ○ Promotion of technologies for sustainable land management ○ Promotion of on-farm soil and water conservation technologies for water harvesting and soil erosion control ○ Watershed delineation and management	FMARD, SMoA NISS,NOSREA, NALDA, Research Institutions and Development Partners
Integrated Soil and Water Management	○ Enhance Water Harvesting infrastructure ○ Increase the number and quality of Micro Earth dams ○ Improve the number and quality of Mini-irrigation facilities ○ Improve Soil Conservation (Erosion Control) structures	FMARD, FMWR, SMoA NISS,NALDA, Research Institutions and Development Partners
Establishment of Nigerian Soil Information Service (NiSIS) platform	○ Upgrade and maintain Geographic Information (GIS) and Agro-Meteorological Stations ○ Source and disseminate information on sustainable soil management	FMARD, NISS, NALDA, SMoA, Research Institutions and Development Partners

	○ Maintain a database of all stakeholders involved directly and indirectly in soil-related activities	
Transforming Irrigation Management in Nigeria (TRIMING) Project	○ Improved irrigation services to farmers ○ Action research on irrigation schemes	FMARD/FMWR NISS, NALDA, SMoA and Farmer Associations

2.5.9 Women and Youths in Agriculture

This would ensure the mainstreaming of women and youths' participation across value-chains within the framework of the 2019 Gender Policy and youth empowerment initiatives. The two projects envisaged would add 1 million jobs among women and youths.

Policy Support Programs and Actions (PSPAs) to Support the Deliverable

i. Promoting the role of women and youths in the different fields of rural development.
ii. Promoting and supporting small farmers' associations, particularly in the field of agricultural production and marketing.

Key Intervention Programmes and Projects

Programme	○ Projects Elements	Responsibility
Women and Youth in Agriculture Empowerment	○ Multi-stakeholder interventions to foster Women Empowerment and Livelihood Improvement for Family Enterprise in Agriculture and Agribusiness, ○ Streamline and coordinate Youths Empowerment initiatives in Agriculture and Agribusiness. ○ Facilitating the establishment of Cottage industries in rural communities.	FMARD, FMW, FMYD CBN, SMoA, LGAs, Private sector, Development Partners, Community Organizations, Business Schools and Enterprise Development Centres
Mainstreaming Youth and Gender in Agriculture	○ Mainstreaming Gender into Extension Services, Climate Change Adaptation and Nutrition-Sensitive Agriculture	FMWA, FMARD, Development Partners, CSOs, Women Farmers Organisations, youth organization,

	○ Embed Gender Action Learning in agribusiness development initiatives ○ Promote women leadership programmes in agribusiness ○ Develop gender-sensitive financing in agribusiness	Business Schools and Enterprise development centres

2.5.10 National Food Reserve and Food Security

Synergy with relevant MDAs, State governments and private sector operators will be coordinated to revamp the national food reserve and increase its capacity to a minimum of 2 million tons of assorted food. This would minimize volatility in supply and enhance price stability for key food produce, thereby cushioning effects arising from disasters, such as floods, droughts, pests and disease pandemics.

Other interventions targeted are: adequate/timely provision of funds for stocking of Federal Government of Nigeria (FGN) retained Silo Complexes nationwide, periodic overhauling of the storage facilities (Silo complexes and Warehouses), including replacement of obsolete equipment with modern digital ones to ensure efficiency in stock reception and management; complete digitization of Monitoring and Evaluation (M&E) system of the National Food Reserve; development of a strategic plan to ensure maximum and efficient utilization of the present stock capacity of the National Food Reserve by both Government and Private operators (Concessionaires) and regular monitoring and evaluations.

Policy Support Programmes and Actions (PSPAs)

i. Fast track the implementation of the 3 Tiers National Food Storage Policy as follows:
   (a) On-farm Adaptive and Appropriate Storage Program to enable small scale farmers to have access to Appropriate Storage Structures
   (b) Encourage Buffer Stock in all states to be operated in a transparent manner
   (c) Private sector participation in the management of Strategic Food Reserve Department;
ii. Efficient and transparent Price Stabilization through mopping up at Guaranteed Minimum Price (GMP) and food releases;
iii. Fast track the Implementation and Management of National (Nigeria)/Regional (ECOWAS) Food Security Reserve Stocks;
iv. Deployment of technology and active involvement of research institutions in the implementation and monitoring of Optimal Stock, Food and Strategic Reserve Assessment, food releases, capacity and condition of the silos;

v. Constant review of the status and progress of Silos Concessioning to fine-tune the implementation model to enable it to meet the food security needs of the country and its sub-regions;
vi. Sustaining and improving the Nutritional Composition of the stored mandate crops or food commodities in the Strategic Food Reserves to ensure that it meets the minimum International Best Practice food requirement, and
vii. Ensure efficient management of the Strategic Food Reserve in line with the International Best Practice

Key Interventions Programmes and Projects

Programme	Project Elements	Responsibility
Strategic Food Reserve	○ Constant review and determination of Optimal Stock Level for the Food and Strategic Reserve and Assessment of the Storage Infrastructure Capacity ○ Embed technology and research institutions in the management of the national strategic reserve ○ Constant rehabilitation and refurbishment of all strategic silo structures ○ Implementation of transparent physical and financial food reserve system to avoid the destabilization of the market system ○ Fast track the implementation of the stocking of the Strategic Food Reserve system with active private sector involvement ○ Implementation of improved technologies by the use of carbon dioxide sensors in the silo bin ○ Publish the National Food Security Strategic Storage document, the procedure manual and the training manual in line with the ECOWAS protocols ○ Ensure the optimal stocking of the Grains/Food Items in Warehouses/ Silos	FGN/FMARD, SMoA, CBN, Commodity Exchange/market, Research Institutions, Farmer Organizations, and Private Sector

Programme	Project Elements	Responsibility
	○ Mopping up excess grains/food through an appropriate transparent model that will be devoid of destabilizing the market forces	
Buffer stock Operations	○ Constant engagement of the state governments, including FCT on the implementation of the Buffer Stock ○ Setting the standard, procedures and modalities for the implementation of Buffer Stock	FGN/FMARD, SMoA, CBN, Research Institutions, Farmer Organizations, and Private Sector
On-farm Food Storage Scheme	○ Support the implementation of the on-farm storage scheme by the small scale farmers	FGN/FMARD, SMoA, CBN, Research Institutions, Farmer Organizations, and Private Sector

2.5.11 Cooperative Revitalization

FMARD estimates that there are over 350,000 cooperative societies in Nigeria with a membership strength of about 10,000,000. They are mostly involved in primary agricultural production, micro-credit provision, tractor hiring services and commodity marketing. Evidence has shown that cooperatives are reliable platforms for achieving grassroots mobilization, inclusive growth and transparent resource administration, especially within the agricultural sector. It is envisaged that the impact of cooperatives will be better felt if they are adequately supported and developed.

Policy Support Programs and Actions (PSPAs)

- Conduct a census of existing cooperatives, their membership and their trade and vocations across the country.
- Strengthen cooperative governance and regulatory mechanisms at all levels.
- Expand opportunities for cooperative education and redesign the cooperative education curriculum of the Cooperative Colleges and Universities to meet the contemporary needs.
- Provide an innovative Funding system that cooperatives can access based on cooperative principles and conditions.

- Promote the use of technology and innovative practices among cooperatives.
- Develop an effective and efficient domestic and foreign trade network for cooperatives.
- Amend existing Cooperative Acts and guidelines to reflect current realities and future aspirations.
- Develop strong synergy between the Cooperative sector and relevant MDAs, organized private sector and development partners.

Key intervention Programmes and Projects

Programme	Project Elements	Responsibility
Cooperative Expansion and Intensification	• Survey of agriculture production clusters and identification of commodities with a comparative advantage across the agro-ecological zones of the country. • Promotion and development of cooperatives along strategic agricultural value chains. • Promotion and development of specialized cooperatives that cater for the peculiar needs of women, youth, IDPs, physically challenged and other vulnerable groups. • Promotion and development of cross-cutting cooperatives for agricultural input provision, credit and insurance provision, tractor hiring and other mechanization services, commodity aggregation, bulking and storage, commodity marketing, commodity processing, standardization and packaging, etc. • Promotion and support for Cooperative One Village, One enterprise Project (COVOP). • Promotion and support for Integrated Cooperative Enterprise Centers (ICEC)	FMARD, Research and Training Institutions, Cooperative Federation of Nigeria (CFN), State Dept. of Cooperatives (SDC), Organised Private Sector, and Development Partners

Funding for Cooperative Businesses and Infrastructure	• Establishment of National Cooperative Development Fund (NCDF) • Promotion and support for the formation of cooperative financing Agencies. • Support the evolution of savings and loans schemes and formal microfinance among cooperatives • Linkage with CBN, NIRSAL, DMBs, MFBs, Insurance Agencies, Development Partners and other Financing Institutions. • Seek greater support from the government for the provision of cooperative business enabling infrastructure and facilities.	FMARD, CFN, CBN, BOA, BOI and Development Partners
Cooperative Export Trade Development	• Promotion and development of cooperatives to be involved largely in export trade within and outside the AfCFTA. • Promotion and support of cooperatives to be involved in commodity value addition, standardization, packaging, branding and bar coding for export. • Support for the provision of crop and livestock products conditioning facilities, export terminal facilities, warehouses, etc. • Linking cooperatives and cooperative federations with relevant MDAs and support organizations	FMARD, FMITI, NEPC, SMEDAN, FMoFA, NAFDAC, CFN, Research and Training Institutions and Development Partners
Cooperative Business Enabling Infrastructure and Facilities	• Establishment of the online and offline data–supported “National Cooperative Business Support Platform”. • Upgrade rural infrastructure and services • Facilitate the establishment of skill acquisition centres, cooperative markets,	FMARD, FMW&H, CFN, NSIA, FRCN and Development Partners

	Integrated Cooperative Enterprise Centers and Transit Warehouses,	
Cooperative Assets Acquisition and Management	• Linkage and partnership of property and equipment owners with cooperatives • Creation of a funding source for asset acquisition by cooperative groups	FMARD, SMoA, Organised Private Sector, and Development Partners
Cooperative Governance and Regulation	• Review of existing cooperative laws in line with current realities • Conduct stakeholder consultations on acceptable governance and regulatory methods and procedures. • Develop and disseminate best practices for governance and regulation of cooperatives. • Sustained capacity development of cooperatives	FMARD, SMoA, CBN, Development Partners, Research and Training Institutions

2.6 Result-Based Monitoring and Evaluation

Notwithstanding the foregoing, this sub-section details the specific milestones that are expected to be achieved from the PSPAs using the multi-MDA and multi-stakeholder approaches. Specific key performance indicators are to be developed.

2.6.1 Cross-cutting interventions

i. Adoption of appropriate and efficient technologies for increased agricultural production, storage and processing.
ii. Establishment of strong linkages among research institutions, extension agents, farmers and MDAs;
iii. Achieve a 40% increase in the number of viable agricultural cooperatives and increase their food production, processing and income by at least 30%.
iv. Reduce by 50 percent the number of households that are food insecure;
v. Increase by 30 percent the number of households that have adequate nutrition;
vi. Achieve an efficient agricultural extension delivery system which includes extension worker farmer ratio of 1:500;
vii. Achieve certification of high export potential commodities;
viii. increase by 20 percent the value of agricultural products exported;
ix. Reduce the present level of food import (worth over $3 billion per annum) by 50 percent;

x. Derive about 10 per cent of the nation's foreign exchange earnings through agro-industrial exports;
xi. Enhance agro-industrialization and employment levels;
xii. Reduce the post-harvest loss of agricultural produce by an average of 50 per cent;
xiii. Increase by 20 percent the value addition of agricultural products through processing and nutrient fortification;
xiv. Increase by 30 percent, available rural infrastructures;
xv. Achieved partnership for improved security of agricultural land;
xvi. Establishment of Agricultural Development Fund;
xvii. Establish multi-MDA collaboration to support NATIP;
xviii. Create Committee of Practice to enhance communication with States;
xix. Establish private sector dialogue forums to advance agricultural investments;
xx. Mobilize donors/development partners to support policy components; and
xxi. Generate at least 12 million jobs from the agricultural sector within the policy time frame.

2.6.2 Crops Subsector

- Deploy knowledge and technology to achieve a 50% increase in yield of priority food and cash crops;
- Increase the size of irrigated land from the current 1 per cent of cultivable land to 5 percent;
- Increase area of land planted with diversified biomass including economic species in the agro-forestry programme from current 3.5 to 7 percent;
- Increase by 30 per cent the use of fertilizers by farmers across the country;
- Increase by 50 percent the use of animal traction and small machinery for agricultural production across the country;
- Increase farmers' access to quality inputs nationwide;
- Reduce production and post-harvest losses by 50% in food and cash crops by 2027;
- Increase the storage capacity of Nigerian Strategic Reserve from 1.3 to 2.0 MT by 2027;
- Produce 70% of the total food and feed demand of the country by 2026;
- Provide 25 agro-processing facilities tied to the silos and other cottage industries for value addition by 2027, and
- Support the continuous establishment of large-scale rice processing mills nationwide.

2.6.3 Livestock Subsector

- Promote integrated livestock development for quality and export;
- Strengthen the link between research institutions, extension and livestock farmers;
- Reactivate the intensive smallholder livestock fattening scheme;
- Reintroduce animal identification and strengthen livestock certification systems
- Support Gazetting of grazing reserves;
- Rehabilitate existing livestock multiplication centres for increased breed improvement;
- Reseed and rehabilitate grazing reserves;
- Increase the number of milk collection and processing facilities in dairy clusters nationwide and promote linkages with the dairy industry;
- Document 6,027 km stock routes and grazing corridors from the current 13,260 km already documented;
- Upgrade the existing Animal Genetic Resource Centres to serve farmer's needs;
- Strengthen livestock extension service delivery;
- Partner with the private sector to increase the hatchery capacity for broiler, layer and turkey by 50 percent;
- Increase support to livestock feeds production, and
- Strengthen veterinary services.

2.6.4 Fisheries and Aquaculture Subsector

- Promote research and development in fisheries;
- Support the establishment of 7 fish farm estates in each of the geopolitical zones including FCT (6 medium scale estates and 6 mega integrated estates);
- Increase current production of about 700,000 tons of fish to about 3 million tons per annum;
- Support the establishment of 7 fish feeds production centres and processing plants nationwide;
- Increase the production of fingerlings per annum from 500 million to 2.0 billion to boost fish production from 26.3% to 36.3% by 2027;
- Promote shrimp culture and ornamental fish culture to boost export to earn a minimum of $100 million annually;
- Provide support for the development of at least three (3) alternative indigenous fish species from the Nigerian inland and marine environment by 2023; and
- Develop templates for market competitiveness of aquaculture and fisheries products.

2.7 Agricultural Development Opportunities Based on Agro-ecological Zones

Previous agricultural development strategies did not pay specific attention to the endowment of Nigeria's agro-ecological zones. Different regions of Nigeria have different agricultural potentials so agricultural development should as a matter of necessity capitalize on those potentials and streamline the development process using adaptable technologies. This approach stems from the concern that recent agricultural development Programs and projects were not conceived to fully harness the regional variation of factors of production and natural resource endowment. In Nigeria, there are five major agricultural zones viz: the mangrove swamps, tropical rainforest, derived savannah, guinea savannah and dry savannah zones.

2.7.1 Agricultural Development Opportunities in Mangrove Swamps

The mangrove swamps are mainly along the coastal line of the Niger Delta area and fish is the main commodity produced. Policy objectives and actions would include:

i. Promote capture fisheries, as well as aquaculture in the LGAs situated in the off-shores;
ii. Provide infrastructure and institutional frameworks to enable the region to specialize in the production of economic trees, ornamental and protected agriculture in screen house;
iii. Promote small-scale agricultural enterprises and other rural income-generating activities for the poorer families;
iv. Generate suitable technologies for the development of aquaculture and e-marketing systems for aquaculture products;
v. Provide credit facilities to fish farmers as well as training of women and youths; and
vi. Develop marketing strategy for the ecological zone.

2.7.2 Agricultural Development Opportunities in Tropical Rain Forest

The tropical rain forest zone of Nigeria covers the eastern, central and western rain forests of Ogun, Oyo, Lagos, Osun, Ondo, Ekiti, Edo, Delta, Ebonyi, Enugu, Imo, Abia, Anambra, Rivers, Akwa-Ibom, Bayelsa and Cross River States. Cocoa, kola nut, oil palm and timber, are the economic trees produced in the zone. However, certain food crops such as rice, maize, sorghum, yam, cassava and fisheries & aquaculture are extensively cultivated in the zone. Policy objectives and actions will include:

i. Increase the productivity of 10 high priority commodities;

ii. Provide infrastructure and institutional frameworks that will help the region to specialize in the production of the main crops, and in addition, medicinal, economic and ornamental plants;
iii. Set up agro-processing centres in the production clusters of the main crops produced in the zone;
iv. Encourage the formation of farmer's cooperatives and strengthen the existing ones through the provision of technical and financial support; and
v. Establish the infrastructure and the institutional frameworks necessary to promote specialization in poultry, aquaculture and fishery enterprises.

2.7.3 Agricultural Development Opportunities in Derived Savannah

The derived savannah zone covers the middle-belt region, including most of Kwara, Kogi, Benue, Niger, Adamawa and Taraba States. Cereals, roots and tubers, cotton and groundnuts are the main crops produced in the zone. Policy objectives and actions will include:

i. Increase the productivity of 10 high potential commodities to attain the zone's production potentials;
ii. Strengthen the existing Animal Genetic Resources Centers for multiplication and conservation of the animal breeding stocks of the zone;
iii. Set up agro-processing centres around the production clusters of the main crops produced in the zone;
iv. Encourage the formation of farmers' cooperatives and strengthen the existing ones through the provision of technical and financial support, and
v. Provide infrastructural facilities and institutional frameworks that will enable the region to specialize in the production of the main crops as well as economic and ornamental plants.

2.7.4 Agricultural Development Opportunities in the Guinea Savannah

Guinea savannah zone covers Kebbi, southern parts of Sokoto, Kaduna, Kano, Bauchi, Gombe, Yobe and Borno States. Major crops produced in the zone include groundnuts, cotton, sesame, maize, sugarcane, soya beans, cowpea, sorghum, millet, rice, pulses, vegetables, fisheries and aquaculture and livestock. Policy objectives and actions include:

i. Increase the productivity of 10 high priority commodities produced in the zone to attain production potentials;

ii. Promote the cultivation of economic trees, ornamental, medicinal plants for processing and export purposes;

iii. Strengthen the existing Animal Genetic Resources Centers for multiplication and conservation of the animal breeding stocks of the region;

iv. Set up agro-processing centres around the production clusters of the main crops produced in the zone;

v. Revive and set up new milk-collection centres for dairy products;

vi. Train women and youth on nurseries preparation for the production of seedlings of economic trees and ornamental plants; and

vii. Revitalize and strengthen the States' veterinary and animal extension services delivery.

2.7.5 Agricultural Development Opportunities in Dry Savannah Zone

Dry savannah zone covers northern parts of Sokoto, Zamfara, Kaduna, Kano, Katsina, Bauchi, Yobe and Borno States. The main crops produced in the zone include groundnuts, sorghum, cotton, maize, tomato, vegetables, ginger, millet, soya beans, cowpeas, rice, fisheries & aquaculture and livestock. Policy objectives and actions will include:

i. Increase the productivity of 10 high potential commodities in the zone to meet the zone's production potentials;

ii. Promote the cultivation of economic trees, medicinal and ornamental plants, for processing and export purposes;

iii. Strengthen the existing Animal Genetic Resources Centers for multiplication and conservation of the animal breeding stocks;

iv. Set up agro-processing centres around the production clusters of the main crops produced in the zone;

v. Revive and setting-up new milk-collection centres for dairy products;

vi. Train women and youths on nurseries preparation for the production of seedlings of economic trees and ornamental plants, and

vii. Revitalize and strengthen the States' veterinary and animal extension services delivery.

3.0 SECTION THREE

3.1 Implementation Structure

The Nigerian Agricultural Technology and Innovation Plan will be implemented with the active participation of the three tiers of government, private sector, donor agencies, organized farmers' groups and development partners. The roles of the key stakeholders from inception to implementation coordination, monitoring and evaluation as well as maintaining accountability of project implementation are articulated and presented in this section.

3.1.1 Coordination Mechanisms

To achieve the primary goal of NATIP, a National Steering Committee on Agriculture (NSTCA), National, State and Local Government Implementation Committees and National Technical Committee are proposed.

3.1.2 National Steering Committee on Agriculture (NSCA)

Table 6: Composition

SN	Name	Remarks
1	Minister of Agriculture and Rural Development	Chairman
2	Ministers of Water Resources, Transportation, Environment, Health, Science and Technology, Trade and Investments, Women Affairs, Finance Budget and National Planning, Education, Communication, Youth and Sports	Members
3	Governor, Central Bank of Nigeria	Member
4	Representative of Organized private sector	Members
5	Permanent Secretary, FMARD	Secretary

3.1.3 Functions of National Steering Committee on Agriculture (NSCA)

a. To provide oversight on the MDAs' roles and functions in agriculture;
b. To approve Strategic Agricultural Interventions and Programmes;
c. To resolve inter-MDA duplication of responsibilities and ensure effective coordination of Agricultural policy and programmes, and
d. To provide guidelines, direction and monitoring on food systems and agricultural funding.

3.1.4 National Implementation Committee (NIC)

Table 7: Composition/Membership for National Implementation Committee (NIC)

SN	Name	Remarks
1	Minister of Agriculture and Rural Development (FMARD)	Chairman
2	Ministers of Water Resources, Transportation, Environment, Health, Science and Technology, Trade and Investments, Ministry of Finance, Budget and National Planning, Education, Communication, Youth and Sports	Members
3	Honourable Commissioners of Agriculture, Livestock & Fisheries of State Ministries of Agriculture	Members
4	Permanent Secretary, FMARD	Member
5	Managing Director Bank of Agriculture.	Member
6	Managing Director, NAIC	Member
7	All Technical Directors, FMARD – Headquarters.	Member
8	Organized private sector representing different segments	Members
9	Chairman of the Nigeria Agricultural Business Group (NABG)	Member

3.1.5 Functions of National Implementation Committee (NIC)

a. Approve Policy Framework for the implementation of NATIP;
b. Undertake responsibility for sourcing funds for NATIP implementation at the National level;
c. Consideration and approval of NATIP work plan and budget;
d. Approve communication and knowledge management to support the implementation of NATIP;
e. Approve the submissions or recommendations of the Technical Working Committee (TWC);
f. Oversee and provide overall guidance for NATIP projects and programme implementation;
g. Monitor and report on NATIP projects, programmes, and activities outcomes;
h. Liaise with the States and Local Government Committee for the implementation of NATIP;
i. Ensure synergy with development loans and donor support; and
j. Deliberate on any other issue that would aid the smooth implementation of NATIP.

3.1.6 Technical Working Committee (TWC)

Table 8: Composition/Membership for Technical Working Committee (TWC)

SN	Name	Remarks
1	Permanent Secretary, FMARD	Chairman
2	Managing Director, Bank of Agriculture	Member
3	Representative of CBN	Member
4	All Technical Directors, FMARD Headquarters	Member
5	Director-General, NASC	Member
6	Executive Director, ARCN	Member
7	Managing Director, NAIC	Member
8	Director General, NAQS	Member
9	All States' Permanent Secretary Ministry of Agriculture	Members
10	Director, P&PC	Secretary
11	Organized Private Sector	Member
12	Representatives from Universities/Faculties of Agriculture	Member

3.1.7 Functions of Technical Working Committee (TWC)

a. Ensure the implementation of NATIP and resolve emerging challenges;
b. Implement the decisions or approvals of the National Committee;
c. Consider and review submissions from the Departmental Working Committee (DWC);
d. Present periodic/annual reports on the implementation of the NATIP projects and programs;
e. Recommend to the NIC on areas of intervention;
f. Provide necessary feedback to the NIC for action, and
g. Develop robust communication and knowledge management to support the implementation of NATIP.

3.1.8 State Implementation Committee

Table 9: Composition/Membership for State Implementation Committee

SN	Name	Remarks
1	Honourable Commissioner, State Ministry of Agriculture	Chairman
2	FMARD State Director	Member
3	FMARD Zonal Director	Member
4	Directors of Technical Departments, State Ministry of Agriculture	Member
5	Representative of Bank of Agriculture	Member
6	Programme Managers States ADPs	Members
7	Representatives of farmers Group/Commodity Associations	Member
8	State Coordinators of various National Agricultural Development Projects and Programs such as SPC APPEALS, FADAMA, IFAD, World Bank, etc.	Members
9	Representative of Civil Society Organizations	Member
10	Representative of Donor Agencies and Developmental Partners	Member
11	Representative of traditional institution	
11	Local Government Representatives	Member
12	Organized private sector	Member
13	Permanent Secretary State Ministry of Agriculture	Secretary

3.1.9 Functions of State Implementation Committee

a. Implement the decisions of NIC;
b. Work out financing strategy for the implementation of NATIP at State and Local Government levels;
c. Liaise with other relevant State MDAs and farmers' Groups on NATIP goals;
d. Present periodic/annual reports to the NIC on the implementation of NATIP projects/programmes to NIC;
e. Recommend to the NIC, areas of need and intervention;
f. Liaise with the Local Government on issues relating to NATIP implementation;
g. Provide necessary feedback to the NIC, and
h. Undertake any other assigned responsibilities by the NIC.

3.1.10 Local Government Implementation Committee (LGIC)

Table 10: Composition/ Membership for Local Government Implementation Committee (LGIC)

SN	NAME	REMARKS
1	Local Government Chairman	Chairman
2	Representative of the State	Member
3	The HOD, Local Government Agric Department	Member
4	Representative of Bank of Agriculture	Member
5	Representatives of Farmers Group/commodity Association	Member
6	Representatives of Agro / Input Dealers	Member
7	Representative of Traditional institution	Member
8	FMARD State Field Officers	Secretary

3.1.11 Functions of Local Government Implementation Committee (LGIC)

a. Implement the decisions of NIC;
b. Identification of NATIP projects and programs beneficiaries;
c. Liaise with relevant State MDAs and farmers' Groups on NATIP goals;
d. Recommend to the SIC on areas of needs and intervention;
e. Provide education and awareness on the NATIP goals, and
f. Provide necessary feedback to the NIC.

3.2 Risks and Mitigation Strategies for NATIP implementation

Table 13: Risks and mitigation strategies for NATIP implementation

Risk Elements	Mitigating Factors
Insecurity	
Insecurity including banditry, kidnapping, insurgency	The commitment of Government to curb banditry, kidnapping and insurgency
Political Risk -Weak implementation strategies - Government's tendency to discontinue inherited projects/programs -Poor governance	- Use legislation to stabilize government policies - Use budget tracking mechanisms to ensure full project implementation - Legislative advocacy by CSOs and other stakeholders to support the Program/project continuity - Improvement in management and accountability
Social Risk -Corruption -Dishonesty, bureaucracy and fraudulent practices (especially issue of ghost beneficiaries) - People strategic behaviour -Public Procurement Act - Externalities	- Use budget tracking techniques to ensure appropriate utilization of funds - Involvement of all relevant stakeholders in project planning, implementation, monitoring and evaluation - Non-biased beneficiaries' identification and selection - Procurement Act review on the award of contracts and selection procedures -Use of media outlets to disseminate information to the grassroots level; especially radio stations that transmit in local languages - Robust research and statistics for data management and documentation of results as well as mutual collaboration and partnerships in foreign aid and government activities.
Administrative Risk -Inadequate technical know-how by implementers -Poor management of projects - Delay in approvals -Inadequate personnel with requisite skills	-Implement capacity building programmes for actors at various stages of the agricultural value chain -Strengthen executive capacity at project management level using necessary measuring tools for evaluation

- indiscriminate transfer of technical and management staff during project/programme execution	- Spread of projects/programmes across the States and geopolitical zones for balance - Long and short-term training of technical staff - Promotion of professionalism - Provision of incentives for prompt project delivery, efficient project management, etc.
Economic/Financial Risk -Market risk arising from high inflation - Unstable exchange rate -Untimely release of funds	- Timely releases of project and Programs funds - increasing farmers' access to local and international Markets - Adopt a guaranteed minimum price to stabilize farmers' income - Adopt risk-sharing mechanisms (e.g., NIRSAL)
Environmental Risks -Climate change - Natural hazards (flood, outbreak of pests and diseases)	- Early warning systems - Adoption of SLM practices - Adoption of insurance scheme - Use of Good Agronomic Practices (GAP) - Adopt a risk-sharing mechanism (e.g., NIRSAL)

4.0 Summary of Conclusions

This policy document has not only reviewed all the cross-cutting challenges of the Nigerian agricultural sector but has developed a policy strategy that can transform Agriculture into a world-class technology-based and private-sector driven sector. Achieving this is *sine qua non* to rapid economic growth, job creation, social inclusion, rural development, and foreign exchange earnings critically needed by the country.

For a country with a large hectarage of arable land and a fairly educated youthful population, agriculture is critical to the nation's foreign policy and its position within the comity of States. For its reputation in the politics of international economic relations to be above board, Nigeria must be job and food secure. The agriculture sector can assure both.

The disciplined implementation of NATIP would in no small measure guide the country to reaching its recommitments to the CAADP, achieving the set goals of the NDP 2021-2025 and drastically reducing the huge import of agricultural and allied products. Fiscal and monetary policies alignment, consistent funding, technology, inter-MDA and FG-States collaborations, private sector engagement and the adoption of the value chain approach are essential ingredients for actualizing the strategic mission of NATIP.

Accordingly, FMARD is expected to coordinate all aspects of Agricultural intervention for effective implementation and monitoring. For this, FMARD should facilitate sustained capacity development at the national and state levels to guide the implementation of NATIP. Also, donors/development partners and the organized private sector would be mobilized to support critical components of the Policy. Lastly, the Policy implementation would be supported by an Agricultural Investments Plan and a Strategic Plan detailing specific programmes, projects, activities, and the required jobs backed by clearly defined key performance indicators for effective monitoring and evaluation.

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