



Federal Republic of Nigeria

FEDERAL MINISTRY OF AGRICULTURE AND WATER RESOURCES

NATIONAL FOOD SECURITY PROGRAMME

May 2008

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EXECUTIVE SUMMARY

INTRODUCTION

Agriculture employs about two-thirds of Nigeria's total labour force, contributes about 40% of the Gross Domestic Products (GDP) and provides 88% of non-oil earnings. The agricultural GDP is contributed by Crops (85%), Livestock (10%), Fisheries (4%) and Forestry (1%). More than 90% of the agricultural output is accounted for by small-scale farmers with less than two (2) hectares under cropping. It is estimated that about 75% (68 million ha) of the total land area has potential for agricultural activities with about 33 million ha under cultivation. Similarly, of the estimated 3.14 million ha irrigable land area, only about 220,000 ha (7%) is utilized.

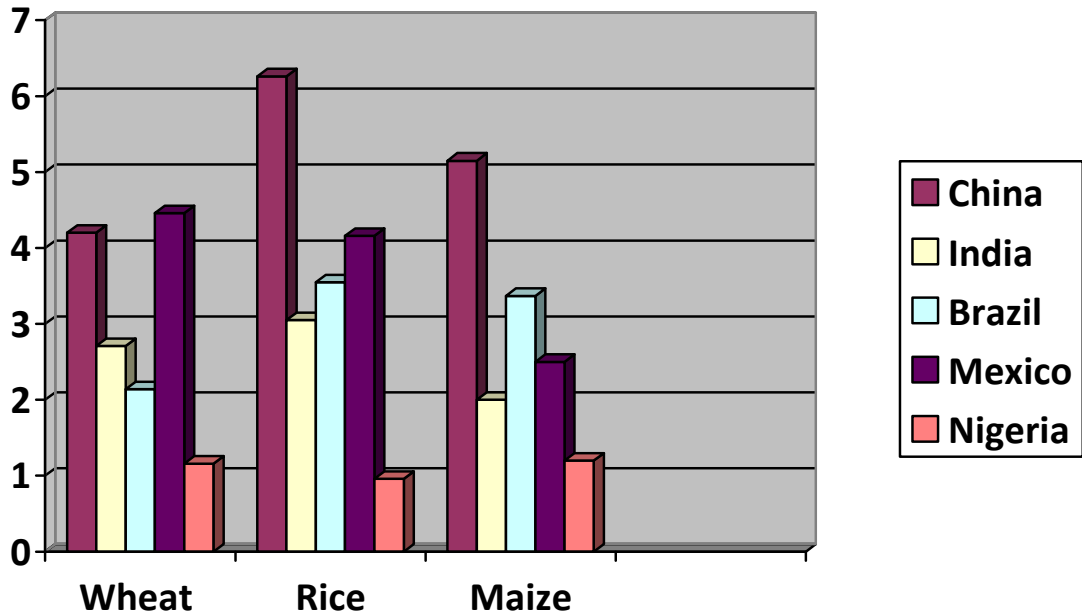
Nigeria has diverse and rich vegetation capable of supporting a heavy population of livestock as well as 267.7 billion m³ of surface water and 57.9 billion m³ of underground water. The country is also blessed with a reasonably abundant rainfall of between 300 mm to about 4000 mm per annum as well as an extensive coastal region that is very rich in fish and other marine products.

NIGERIAN AGRICULTURE IN THE CONTEXT OF GLOBAL BEST PRACTICES

International Benchmarking

Benchmarking has become the standard norm for improving the performance of the public sector. Based on the current state of Nigeria's agriculture, it becomes imperative to compare its performance (commodity wise) against those of similar countries that compare with the Nigerian conditions. As the country aims to be among the 20 most developed countries of the world by 2020, it must begin to measure its progress and performance against those of its peers who are doing well currently or would be doing well in the years ahead. Based on contribution to the global agriculture produce trade market, the following benchmarking is explicit:

Benchmarking Of Crop Yield (Mt/Ha) In Relation To Other Developing Countries



Commodity Branding

Today, agriculture is multi-billion dollar global industry, with major and minor players exporting and selling their products around the world. As production is now targeted for global markets, farmers increasingly require a global strategy through branding. The diversity of agricultural produce/commodities in Nigeria provides very wide options for commodity branding.

Institutional Memory

It must be appreciated that Nigeria had tried several initiatives in the effort to contend with the problem of food provision for its citizens. The characteristics, achievements and constraints of such interventions which are here listed have been taken into consideration in the articulation of the current food security strategy programme.

Agricultural Development Initiatives Implemented by Past Governments

S/NO.	Projects/Program	Description	Weaknesses
1.	Cooperatives (1935 to Date)	The Nigerian Cooperatives Ordinance was promulgated in 1935 to regulate Cooperative activities in the country. In 1974 a law was enacted which established the Department of Cooperatives in 1974.	Policy inconsistency and administrative dislocations of the Federal Department in charge of Cooperatives.
2.	Commodity Boards (1947 to 1986)	Commodity Marketing Boards started during the colonial era with the establishment of first generation marketing Boards as follows: Cocoa Marketing Board in 1947, Palm Produce, Groundnut and Cotton Marketing Boards 1949. The second generation established in 1954 were the regional marketing boards. They served as buyers of last resort, at fixed prices and held strategic or buffer stock.	Inability to pay farmers the subsisting market price then. Scrapped in 1986 under Structural Adjustment Programme.
3.	Agricultural Research Institutes (1964 to Date)	Four research institutes namely: Cocoa, Oil Palm, Rubber and Trypanosomiasis were established by Nigerian Research Institute Act in 1964. In 1975 the Agricultural Research Institute Decree came into effect where additional Research Institutes were established to conduct research in various crop, livestock and fisheries.	Instability of the Research Institutes as a result of constant movement of the agricultural research institutes from one Ministry to another. There was also a major problem with funding of these Institutes.
4.	National Accelerated Food Production Project (NAFPP) (1970s)	Objectives were to increase the yields of seed varieties and enhanced fertilizers use and promoted extension and credit services as well as adaptive research and staff training. A number of national crop centres were established at different locations e.g. Ibadan for rice and maize Zaria for sorghum, millet and wheat and Umudike for Cassava.	Started very well but the wheat programme was affected by a basic withdrawal of political support and lifting of the ban on wheat import.
5.	Nigerian Agricultural Cooperative Bank, NACB (1973 to Date)	The main specialised institution for agricultural credit delivery in the country.	Directed to provide subsidized credit at single digit interest rate without the corresponding subsidy provided by government. Needs to be reformed for greater efficiency and effectiveness in resource mobilization and credit delivery.
6.	Agricultural Development Projects (ADPs) (1975 to Date)	World Bank funded at inception. ADP revolution started in 1974 with the establishment of Gombe, Funtua and Gusau ADPs. They were set up to provide extension services, technical input support and rural infrastructure services. Though they were set up to perform a temporary role in providing advisory services, the ADPs have literally assumed a permanent status. They are now recognized as the major agricultural development institutions in the state	The decline in oil prices that started in 1982 had a substantial fiscal effect in Nigeria and led to shortages of counterpart funds for these projects. The emphasis on modern technology in the ADPs led their agricultural research and extension services to focus on relatively high input technology for sole cropping systems. These systems were not used by the majority of smallholders who used mixed/relay cropping systems as a rational strategy to reduce risks Extension Methods: The change from the training and demonstration system to the T&V system was slow resulting in top down rather than responsive recommendations to farmers.

S/NO.	Projects/Program	Description	Weaknesses
7.	River Basin Development Authorities (RBDAs) (1977 to Date)	The major instrument of the water resources and irrigation policy was the establishment of 11 RBDAs in 1977 to develop and take advantage of available water bodies in the country for agriculture, fishing and other purposes.	1) The failure of the RBRDAS was due to unnecessary political interference and managerial problems resulting from socioeconomic cleavages which permeated the nations socio-political, economic and cultural Institutions. 2) Lack of qualified manpower to provide effective leadership at the departmental levels.
8.	Operation Feed the Nation (1976 to 1979)	This was a mass mobilization and mass awareness program created in 1976 through 1979 in reaction to the first real food crises in the country.	The lack of continuity and shift in approach by successive governments were the reasons for the failure of the poverty alleviation programmes.
9.	Green Revolution (1979 to 1983)	The program focused on food production, input supply and subsidy, special commodity development, review of agricultural credit guarantee scheme and increased resource allocation to RBDAs.	The lack of continuity and shift in approach by successive governments were the reasons for the failure of the poverty alleviation programmes.
10.	Directorate of Foods and Roads and Rural Infrastructure (DFFRI) (1986 to 1993)	DFFRI was established in late 1986 to accelerate the rate of infrastructure development in the rural areas. It was originally designed as supra-ministerial body for channelling the proceeds of the liberalized foreign exchange market for rural development.	The lack of funds and commitment limited the extent of infrastructural provision in the rural areas. The government rural infrastructural programmes were embarked upon without effective programme of action and appropriate institutional arrangements for their execution.
11.	National Agricultural Land Development Authority (NALDA) (1991 to 1999)	The objectives of the Authority include providing strategic public support for land development, promoting and supporting optimum utilization of Nigeria's rural land resources, providing gainful employment opportunities for rural people as well as raising incomes and improving general living standards in rural areas.	The NALDA approach increased rather than reduce the direct public provision of goods and services which could be provided by the private sector instead. Many of NALDAs' services were duplications, albeit on a more intensive basis of services provided by the ADPs.
12	Presidential Initiatives on Cocoa, Cassava, Cocoa, Rice, Livestock, Fisheries, Vegetables (1999 to 2007)	These were initiated by the last administration in an effort to improve Nigeria's food production in line with vision 2020. The strategy is to attract the attention of the highest level of political authority for special intervention in the commodity sector.	Weaknesses were poor funding and lack of institutional arrangements for implementation.

4.0 KEY DEVELOPMENT CHALLENGES FACING THE AGRICULTURAL SECTOR

- Inconsistent agricultural policies
- Dearth of reliable planning statistics
- Ageing and unorganized farmers
- Poor uptake of research results
- Decayed and inadequate infrastructure for research
- Seed stock - poor yield potential
- Rain-fed production, low irrigated land area (only 220,000 Ha as against 3.1m Ha)
- Subsistence level production (90%)
- Agric land – ownership, no collateral value, uncertain soil fertility
- Fertilizer & Agric Chemicals – supply problem, poor quality
- Low mechanization, inappropriate technology
- Extension - poorly resourced, low staff morale
- Poor Credit – access and management
- Poor rural infrastructure (power, roads, water supply)
- Livestock & Fishery – poor quality feed, diseases
- Livestock – grazing reserves - gazetted but undeveloped
- Fishery – piracy, poor exploitation of Tuna stock
- Weak private sector linkage
- Storage and preservation –poorly developed
- Processing – very weak and largely traditional
- Marketing structure – weak and inefficient

CONSEQUENCES OF THE CHALLENGES

- Nigeria is yet to achieve food self sufficiency and food security.
- Nigeria spends \$3 billion on food import annually.
- Nigerian agriculture is still at subsistence level, with low productivity and poor return on investment.

POLICY THRUSTS

Import Substitution

To complement its staple food supply, Nigeria is still largely dependent on imports of wheat, rice, sugar, milk and many other food items. It is aimed that in the medium term, substantial import substitution should be achieved for rice, sugar and wheat.

Substantial Food Security

Since agriculture has multiplier effects on the socio-economic and industrial fabric of the country, it is imperative for government to intervene in order to enhance the food security of its populace, provide gainful employment and stem rural-urban migration.

Promotion of Modern Agricultural Practices

For the country to attain a certain level of industrialization by 2020, there must be a major shift from the current subsistence nature of its agriculture to modernized agricultural production, storage, processing and marketing. This is largely expected to be achieved through private sector linkages and participation with necessary support and incentives from government.

Natural Resources Conservation

Declining soil fertility, indiscriminate removal of vegetation and soil erosion threaten the ability to produce sufficient food. This calls for the need to emphasize conservation of land and water in addition to our livestock and fisheries. The interventions must lead to a paradigm shift from the prevalent rain-fed agriculture to an irrigation farming system to take maximum advantage of the available water mass in an efficient manner.

COMPARATIVE ADVANTAGE IN CROP PRODUCTION

In terms of states with comparative advantages for import substitution, the following are easily identified:

States with Comparative Advantages in Crop Production

S/No.	Commodity	State	Estimated Ha Required for Self Sufficiency ('000)
1	Rice	Anambra Bayelsa, Benue, Delta, Ebonyi, Edo, Kebbi ,Kogi, Kwara , Niger, Ogun, Rivers , Taraba, Kano, Kaduna	To be determined at State level for all commodities. Minimum of twenty thousand (20,000) ha is expected to be brought under cultivation in each State of the Federation and the FCT in the first phase.
2	Wheat	Bauchi, Borno, Jigawa, Kano, Katsina, Kebbi, Yobe, Zamfara	
3	Sugarcane	Adamawa, Kano, Kogi ,Kwara, Niger, Taraba, Zamfara,	
4	Tomato	Adamawa, Kano, Katsina. Kogi , Kwara Niger, Taraba, Zamfara	
5	Cotton	Gombe, Kano, Jigawa, Katsina, Ogun, Oyo, Zamfara	
6	Soybeans	Benue, Kaduna, Taraba, Niger, Kano	
7	Maize	Plateau, Kaduna, Niger, Taraba, Borno, Ogun	
8	Cowpea	Zamfara, Kaduna, Borno, Niger, Kano	
9	Cocoa	Ondo, Edo, Osun, Ogun, Oyo, Kogi, Ekiti, Cross River	
10	Jatropha	Katsina, Jigawa, Kebbi, Sokoto, Borno, Yobe, Kano	
11	Rubber	Edo, Delta, Ondo, Ogun, Abia, Imo, Cross River	
12	Oil Palm	Kogi, Ebonyi ,Edo, Abia, Imo, Anambra ,Rivers,Cross River, Akwa Ibom	
13	Groundnuts	Kano, Katsina, Sokoto, Jigawa, Kaduna	
14	Cassava	Benue, Ogun, Imo, Oyo, Taraba, Kogi, Kaduna, Ondo, Cross River, Enugu	

TARGETS TO ADDRESS THE CHALLENGES

To achieve self sufficiency, specific targets have been estimated for achievement in the intervention period (2008 – 2011)

Crops

Crop	Targets: 2008 -2011	% Increase
Cassava	<ul style="list-style-type: none"> ▪ Yield: increase from 15MT/Ha to 30MT/Ha. ▪ Production: increase from 49million MT to 100million MT annually ▪ Attain 10% cassava flour in bread making. 	100% 104%
Rice	<ul style="list-style-type: none"> ▪ Increase production from 2.8 million metric tonnes of paddy to 5.6 million metric tonnes paddy rice per annum. 	100%
Millet	<ul style="list-style-type: none"> ▪ Attain 6.5 million metric tonnes of millet through improved farm inputs, and irrigation from 4.0 million MT/annum 	62.5%
Wheat	<ul style="list-style-type: none"> ▪ Attain 500,000 metric tonnes of local production to replace excessive dependence on wheat importation from the current 70,000 MT/annum 	714%
Sugar	<ul style="list-style-type: none"> ▪ National demand for sugar is 2.2 million metric tonnes. Current local production is 194,000 mt per annum. With a current 10,000 ha commercial plus 50,000 ha under local producers of sugarcane, the country needs to increase cultivation of sugar cane by 230,000 ha to attain self sufficiency. 	1134%
Tomato	<ul style="list-style-type: none"> ▪ Attain production potential of 20 tonnes/ hectare and from 1.1million MT to 2.2 million MT annually. 	100%
Cotton	<ul style="list-style-type: none"> ▪ Attain increase in cotton production from 350,000mt to 1 million mt 	186%
Cocoa	<ul style="list-style-type: none"> ▪ Attain 700,000 metric tonnes of production by 2011from current 380, 000 MT per year 	84%
Palm Oil	<ul style="list-style-type: none"> ▪ Attain 1.26million metric tonnes of oil palm and 600,000mt of palm kernel from current 840,000mt palm oil and 400,000mt palm kernel 	50%
Rubber	<ul style="list-style-type: none"> ▪ Attain 300,000mt of rubber from the current 200,000mt (pa) 	50%

Livestock and Fishery

Livestock & Fisheries	Targets: 2008 -2011	% Increase
Poultry	<ul style="list-style-type: none"> ▪ Attain a population of 249 million from current 166 million 	50%
Goat	<ul style="list-style-type: none"> ▪ Attain a population of 67.6 million from the current 52 million 	30%
Sheep	<ul style="list-style-type: none"> ▪ Attain a population of 42.9 million from the current 33 million. 	30%
Cattle	<ul style="list-style-type: none"> ▪ Attain a population of 20 million from the current 16 million 	25%
Pig	<ul style="list-style-type: none"> ▪ Attain a population of 8.25 million from the current 6.6 million 	25%
Fisheries	<ul style="list-style-type: none"> ▪ Attain production target of 1.5 million metric tonnes from the current 0.5 million MT 	200%

STRATEGIES FOR ACHIEVING TARGETS

Public Sector Budget Initiatives (Appropriation)

- Strengthening of agricultural research and development capacity for improved crops and seed varieties, breeding stock and fingerlings.
- Provision of seed capital grant towards enhancing extension service delivery.
- Development of subsidy framework on harvested commodities
- Establishment of a comprehensive market information system.
- Establishment of a guaranteed minimum price on select commodities to protect farmers from product price fluctuations.
- Institution of buyer-of-last resort framework to encourage farmers' continuous participation in farming activities.
- Investment in dams and irrigation infrastructure development and rehabilitation to increase cropping hectareage and productivity.

Special Intervention Fund Programmes (Natural Resources Fund/ADF)

- Enhancing the national strategic food reserve programme by completing on-going silos, construction of specialized warehouse and establishment of conditioning and processing centers.
- Promotion of massive market infrastructural development in partnership with State Governments.
- Support for agricultural research and training through research system development, strengthening of Research Institutes and Federal Colleges/Universities of Agriculture and other components of the national agricultural research system.
- Development of an effective and efficient credit system for agribusiness through the development and use of micro-finance institutions.
- Development of an agricultural land mapping programme that would facilitate certification of farmlands.
- Facilitation of land clearing and development activities for factory driven commercial farming in selected commodities.

Private Sector Development Programmes

- Promotion of private sector driven initiative on establishment of Agro-Industrial Parks and other agro-industries and farm service centers.
- Establishment of a Private Sector warehousing programme to complement government storage programmes.
- Promotion of large scale factory driven agriculture in identified areas of crops, livestock and fisheries.
- This is to be pursued by a credit vehicle at a concessionary rate with Federal and State Government Equity participation of between 20% - 30%.

Administration of credit

The availability of credit has been a major hindering factor to agricultural development. Consequently, this intervention project will ensure clear cut framework for the delivery of credit to all categories of farmers.

Small Scale Farms

- These are farms below 5 ha in area or with a poultry population of less than 500 birds or a herd of 20 sheep and goats or 5 heads of cattle.
- Credit for small scale farms will be funded by State Governments with 20% matching grants from the Federal Government and delivered through Micro Finance Institutions (MFIs) to eligible farmers properly cleared by their Cooperative Societies.

Large Scale Farms

- These are farms above 10 hectares, 10,000 birds, 50 sheep and goats or 20 heads of cattle shall be classified as large scale farms.
- Credit for large scale farms shall be funded by the Federal Government through the floating of a N200 billion Bond through the Debt Management Office (DMO) and delivered through Commercial Banks at single digit, long term interest rate. Such funds could be articulated from operational surpluses of the Central Bank of Nigeria, Pensions Funds and Tele-communication Funds.

Funding

The Programme will be funded from a variety of sources:

Government Funding

- Federal and State Governments: At least 10% of annual budget.
- The Federal Government: dedication of 1.68% of its Federation Account as the Natural Resources Fund (NRF) to the intervention.
- Agricultural Development Fund (ADF)

- (i) **Organised Private Sector:** PPP will prevail.
- (ii) **Development Partners:** Mutual beneficial funding of programmes.

PHASING OF PROJECTS INTERVENTION

The several interventions/initiatives will be implemented in designed phases as follows:

Table 5: Phasing of Interventions

Short Term (May-Dec. 2008)	Medium Term (2009-2011)	Long Term (2011-2020)
1. Enhancement of fertilizer availability to farmers (650,000 MT in 2008 as against 150,000 MT in 2007)	1. Deregulation of fertilizers and farm inputs.	1. Sustenance of Public-Private Partnership (PPP) in Agriculture
2. Rehabilitation of dilapidated irrigation infrastructure(14,548ha) and expansion of existing irrigation schemes (25,000ha)	2. Rehabilitation of dilapidated irrigation infrastructure (32,455ha) and expansion of existing irrigation schemes (275,000ha)	2. Continue the rehabilitation and expansion of existing and new irrigation schemes
3. Registration of specialized cooperatives in production, credit, processing and marketing	3. Implementation of private sector led community/cooperatives tractor hiring scheme.	3. Strengthening of the Commodity Market System
4. Elaboration of framework for professionalizing extension work	4. Implementation of the States driven micro credit scheme for small scale farmers <u>and</u> concessionary credit scheme for large scale farming scheme from Federal Government.	
5. Kick off of Tractor provision service scheme	5. Sustain the tractor provision service scheme.	5. Manufacturing of tractors and agricultural implements
6. Completion and rehabilitation of 28 silos by the FGN; construction of additional silos and warehouses by states and installation of on-farm storage facilities by farmers'	6.(a) Substantial enhancement of strategic food reserves	6. Construction of additional silos and warehouses by FGN and States
	6. (b) Completion and rehabilitation of silos	
7. Elaboration of subsidy framework	7. Development of Agro Industrial Parks (1 in each geo-political zone)	7. Development of additional Agro Industrial Parks in each geo-political zone
8. Initiation of framework for strategic breeder seed development	8. Establishment of 1,000-capacity Community Farm Centres: (a) 1/LGC to be provided by each State of the Federation (b) 1/Senatorial District by the FGN	8. Establishment of additional Community Farm Centres all States

Short Term (May-Dec. 2008)	Medium Term (2009-2011)	Long Term (2011-2020)
9. Establishment of Conditioning Centres (2 per geo-political zone)	9. Sustain establishment of additional storage and conditioning centres (2 per geo-political zone)	9. Establishment of new additional storage and conditioning centres in the States.
10. Initiate the upgrading of research and teaching facilities in Research Institutes and Universities/Colleges.	10. Upgrading of research and teaching facilities in research institutes and Universities/ colleges	10. Continue upgrading of research and teaching facilities in research institutes and Universities/ colleges
11. Extensive production of foundation seeds of strategic crops	11. Implementation of "Buyer of Last Resort" scheme	11. Generation and development of improved seeds, brood stocks and fingerlings
12. Farmland Cadastral Survey for land certification and farmers registry	12. Sustain Farmland cadastral survey (for agric-land certification and registry)	12. Farmland cadastral survey and certification continues
13. Kick off of the implementation of the Guaranteed Minimum Price (GMP) scheme and buyers of last resort scheme. (stock exchange, buying agent, networking and exporting community, warehousing scheme)	13. Up-scaling the implementation of Guaranteed Minimum Price (GMP) system	13. Development of new irrigation schemes in the Niger-Benue Valley
14. Confirmation of commodities of strategic importance by states and elaboration of formalities for engagement	14. Institute an effective Policy analysis and research programme	
15. Removal of duties and tariffs on rice up to October 31, 2008	15. Maintenance of a strict tariff regime for rice.	
16. Training of first batch of 10,000 extension workers (through an annual seed capital grant)	16. Training of 10, 000 extension workers annually for 3 years.	
17. Expression of Interest for Commercial Banks and Micro-Finance Institutions to participate in the funding network for the Food Security program	17. Establishment of farm service centres (1 per LGA by States and 1 per State by FGN.	
18. Establishment of legal framework and regulation for strategy implementation (legal draft bills approval). The bills include: National Food Reserve Agency, Nigeria Agricultural Quarantine Service, Nigeria Integrated Water Resources Management Agency, Gurara Water Management Authority, Nigeria Hydrological Services Agency and National Agricultural Development Fund. National Ag. Seed Act No. 72 of 1992 establishes NASC. It is undergoing amendment along with the Acts of the new Agencies.	18. Special partnership project with NDDC and other development partners	

Short Term (May-Dec. 2008)	Medium Term (2009-2011)	Long Term (2011-2020)
19. Restructure the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) for greater efficiency and effectiveness		
20. Re-certification of Cooperative Societies with minimum capitalization of N250,000 and effective governance structure		
21. Registration of large scale farmers by the States and coordinated by the NFRA		
22. Institutionalize Monitoring and Evaluation		
23. Establish appropriate agencies to implement the interventions.		

Table 6: Phasing of Intervention: Livestock

Short Term (May-Dec. 2008)	Medium Term (2009-2011)	Long Term (2011-2020)
1. Establish smallholder fattening schemes for large and small ruminants	1. Development of broiler parent stock.	1. Employment of open nucleus breeding system in breed development of ruminants
2. Support the development of abattoirs and livestock product market infrastructure	2. Rehabilitation of dilapidated livestock improvement and breeding centres and policy	2. Sustenance of Artificial Insemination (AI) and embryo transfer for enhanced dairy productivity
3. Strengthen the capacity of NAPRI in producing enough parent stocks for hatcheries nationwide.	3. Expansion of peri-urban milk Cooperatives	3. Continued upgrading of research and teaching facilities in research institutes and Universities/ colleges
4. Support inputs and equipment in the local development and provision of supplementary feeds and pre-mixes for livestock and poultry	4. Rehabilitate and concession out to the private sector state owned poultry production farms/units.	4. Continue support for NVRI in vaccine production for the different classes of livestock
5. Support the establishment of 1 hatchery in each geo-political zone	5. Support further extension of "Shika Brown" across the nation	5. Support for local feed and pre-mix production for livestock continues

Phasing of Intervention: Livestock

Short Term (May-Dec. 2008)	Medium Term (2009-2011)	Long Term (2011-2020)
6. Establishment of infrastructures and good pastures in Grazing Reserves	6. Continue establishment of infrastructures in Grazing Reserves.	6. Support for value chain for livestock production, storage, processing, transportation and marketing
7. Establishment of smallholder poultry and pig farms	7. Continue smallholder fattening programmes	
8. Revitalization of Artificial Insemination (AI) for enhanced dairy productivity	8. Development of higher yielding disease resistant dairy, beef and other livestock.	
9. Support NVRI in vaccine production for the different classes of livestock diseases	9. Continue Artificial Insemination (AI) and embryo transfer for enhanced dairy productivity	
	10. Upgrading of research and teaching facilities in research institutes, Universities and colleges of agriculture	
	11. Sustain support NVRI in vaccine production for the different classes of livestock	
	12. Sustain support for value chain systems for livestock production, storage, processing, transportation and marketing	

Phasing of Interventions: Fisheries

Short Term (May-Dec. 2008)	Medium Term (2009-2011)	Long Term (2011-2020)
1. Support local feed and pre-mix production for fish	1. Sustain support for local feed and pre-mix production for fish	1. Support for local feed and pre-mix production for fish continues
2. Support deep sea fishing for Tuna and processing	2. Sustain support for deep sea fishing for Tuna	2. Continued support for deep sea fishing for Tuna
3. Support value chain systems for livestock and fish production, storage, processing, transportation and marketing	3. Sustain support for value chain systems for livestock and fish production, storage, processing, transportation and marketing	3. Continued support for value chain for fish production, storage, processing, transportation and marketing
4. Support homestead/aquaculture fish production	4. Development of higher yielding disease resistant fish stock	
	5. Upgrading of research and teaching facilities in research institutes, Universities and colleges of agriculture	

EXPECTED GROWTH RATES

Following the above interventions, it is expected that in the indicated periods agriculture will grow at the following average rates:

•	Short Term	(2008):	-	8%
•	Medium Term	(2009-2011):	-	10% – 15%
•	Long Term	(2011-2020):	-	12%

The projected rates take cognizance of the fact that the growth rate for agriculture in 2007 was 7%. With the threat of a food crisis in 2008, the overriding interest that agriculture has generated in recent times, the keen interest of the private sector backed by well resourced banks as well as the significant support elicited in government interventions, growth rate in the short term should in fact be high. However, because of the late take off of the interventions in the year, growth rate has been estimated at only 8%.

In the medium term, the benefits of the interventions will become more real and with efficient implementation and continued political will, growth rate is estimated at between 10% - 15%. With the consolidation of the interventions and a strong private sector leadership in the sector, growth rate in agriculture is expected to stabilize at about 12% in the long term.

CONCLUSION

The journey towards Nigeria's industrialization should be led by the agricultural sector if the country is expected to be among the 20 most developed countries by the year 2020. Implementation of the articulated intervention programmes as enunciated in the food security strategy document will lead to a projected increased growth of between 10 – 13%, increased employment generation, reduced poverty and attainment of sustainable food security in the long run.

This document is not finalized, but is intended to stimulate stakeholder contribution on the way forward for Nigeria's agricultural sector. We therefore welcome contributions, criticisms and or corrections to any of the proffered interventions in the National Food Security Programme.

NATIONAL PROGRAMME FOR FOOD SECURITY

1. INTRODUCTION

In 1996, the representatives of 1,200 organizations and governments of 80 countries at the World Food Summit held in Rome, Italy agreed that:

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

Food insecurity therefore exists when an individual or group of people are undernourished as a result of the physical unavailability of food, lack of access to, and/or inability to use food effectively due to infection or disease. There are a full range of factors that place people at risk of becoming food-insecure, from unrestrained population growth to political instability. There is no doubt that, of all these factors, the underlining and most important one is the agricultural productivity of the society in question or that of another society it depends on for food supply.

There is a strong correlation between food security and economic growth. Any nation nurturing the objective of strong economic growth must therefore ensure sustainable food security for its people. This has become even more important in the face of current global food crises.

The Federal Government of Nigeria, having sensed the urgency of ensuring food security in Nigeria as well as the strategic opportunities current global trends may confer on Nigeria as a nation with significant agricultural potential, has initiated a strategic intervention program aimed at achieving food security in Nigeria. The intervention is in the form of the appropriation of an additional 1.8% of total government revenue to the Federal Ministry of Agriculture and Water Resources in achieving this intent.

The purpose of this paper is to therefore propose the strategic approach and action plans as well as the required participations, roles and responsibilities for ensuring sustainable food security in Nigeria based on this intervention program.

2. SITUATION ANALYSIS

2.1. THE GLOBAL SITUATION

Food insecurity has been a global phenomenon with varying degrees of severity by international regions, with Sub-Saharan Africa (SSA) being worst hit. 31% of the population in SSA (203.5 million individuals) are classified as being under-nourished.

Table 1: Food Insecurity by International Region

% under-nourished by Region	1990 - 1992	1995 – 1997	2001 – 2003	2015 Target
Sub-Sahara Africa	33	34	31	18
Southern Asia	25	23	21	14
CIS*, Asia	16	NA	20	9
Eastern Asia	16	12	12	9
South East Asia	18	14	12	10
Oceania	15	14	12	8
Latin America and Caribbean	13	11	10	7
Western Asia	6	9	9	4
Northern Africa	4	4	4	3
CIS, Europe	4	NA	3	2.8

Source: FAO 2008

Recently, however, key trends have emerged that are severely worsening the global food situation. These include the following:

- High population growth especially in Asia (primarily China and India) and the pressure this exerts on the world's food supply.
- Loss of agricultural land to residential and industrial development as well as to increasing desertification arising from global warming.
- The shifting balance between the use of food for human consumption and generation of bio fuel to fuel ever-increasing global energy demands.

2.2 THE NIGERIAN SITUATION

The Nigerian food situation is especially vulnerable to these global trends, the country being a net importer of major food items. These trends suggest a need to quickly address this vulnerability by enhancing the entire agricultural system in the country.

Agriculture remains a key component of the Nigerian economy; currently contributing about 41% of the Nigerian GDP and employing about 70% of the active population. The sector has however significantly underperformed its potential.

Nigeria has 79 million hectares of fertile land. However, only 32 million hectares (46%) of these are cultivated. More than 90% of agricultural output is accounted for by households with less than 2 hectares under cropping. Typical farm sizes range from 0.5 hectares in the south to 4 hectares in the north.

Supply of agricultural inputs has also been generally sub-optimal. Nigerian fertilizer consumption at 7kg/hectare is one of the lowest in sub-Saharan Africa. Less than 10% of irrigable land is under irrigation. Farmers have limited access to credit and the existing extension services are grossly inadequate. There is currently 1 extension worker for 25,000 in Nigeria compared to best practice of 1 to 500-1,000. Mechanized assistance is also grossly inadequate. There are only about 30,000 tractors for all 14 million farming groups/ families in Nigeria. On the processing front, Nigeria loses significant value of between 15% - 40% of products from its inability to process most of its agricultural production.

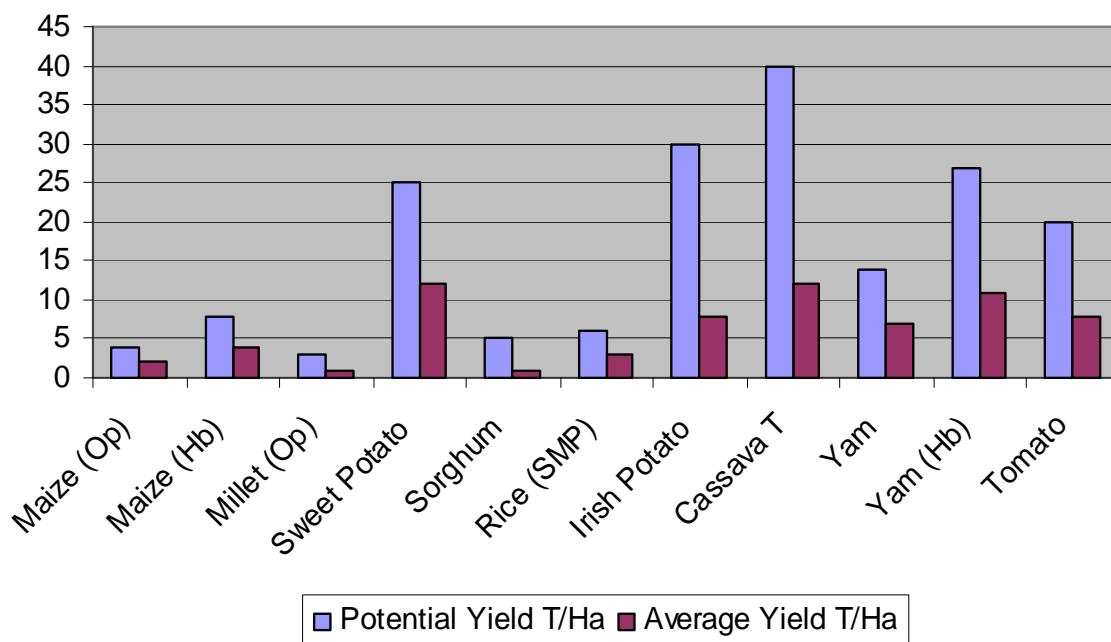
In livestock production, local supplies have been inadequate with an estimated 30% of livestock slaughters imported from neighbouring countries. The daily animal protein intake per head per day is currently at 10 grams compared to FAO recommended 36 grams. Factors contributing to this performance in livestock include the following:

- Increased pressure on grazing land
- Trans-boundary Animal Diseases (TADs)
- Ineffective Livestock Marketing System
- Lack of efficient and hygienic Livestock Processing facilities
- Poor genetic quality (slow growth & low milk yield)

Fish supply in Nigeria has continued to be in short supply relative to demand. Current national demand in 2008 is estimated to be 2.6m mt while local supply is only about 600,000 mts. Attempts have continued to be made to bridge the demand/supply gap by importing about 700,000 mts of fish annually at a staggering cost of US\$500.0m to the nation's foreign exchange. The shortfall in fish supply could have substantially addressed if the 1.7m hectares of available inland water bodies have be utilized for fish production and aquaculture, while also ensuring value addition in the entire production chain.

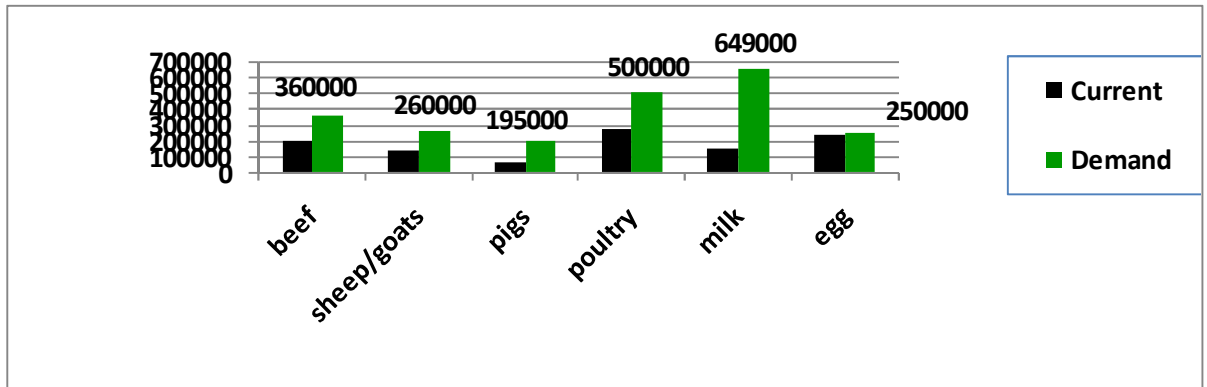
It is easy to imagine the state of agricultural output with the situation painted above. Though arable land in Nigeria is suitable for cultivating most crop types, crop yields are far below potential as clearly demonstrated in Figures 1 and 2. Consequently, Nigeria records on the overall average about 4 tonnes of agricultural product/ hectare compared to about 13-14 tonnes/ hectare in some other countries. Figure 3 also indicates the capacity utilization of the fishery potentials of the country. In fact, the preponderance of peasant farmers produces at far below average yield. Consequently, 40% of household income is spent on food in a country where, according to the World Bank, 54% of the population lives on 1 dollar per day.

Figure 1: Crop Yield in Nigeria versus Potential Yield



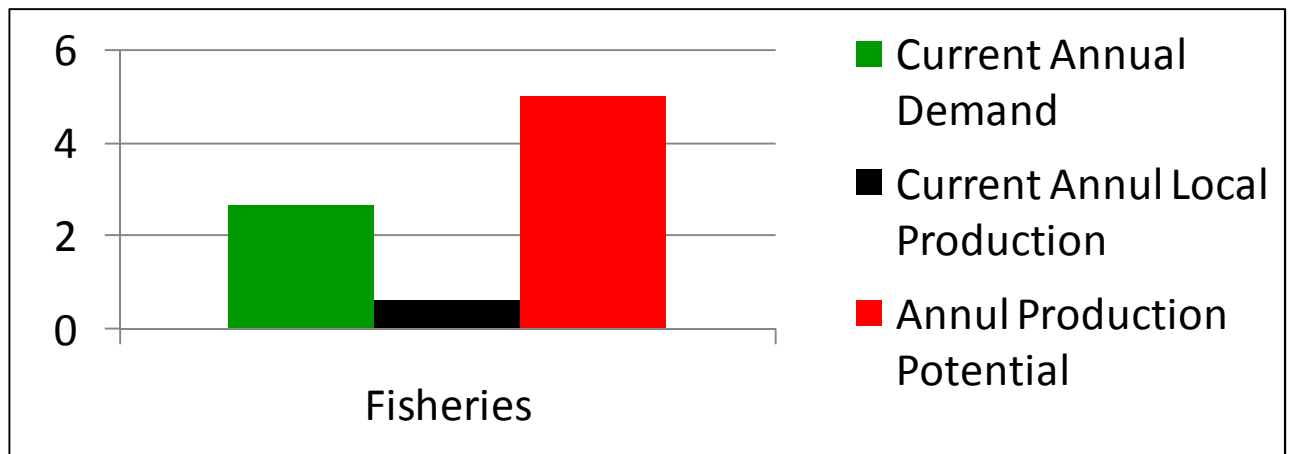
Source: FMA&WR Analysis 2008

Figure 2: Livestock Production Levels (MT)



Source: ILCA, NISER, Animal Science Dept. UI, FDLPCS between (1992–1999)

Figure 3: Fisheries Production (million metric tonnes)



Source:FMA & WR

It is obvious that the current situation requires an urgent and concerted effort with all stakeholders pledging their unwavering commitment. It is the responsibility of government to chart a course of action. However, success can only be guaranteed by ensuring the full involvement of the private sector in the development of an effective mechanism for guaranteeing food security in Nigeria

INSTITUTIONAL MEMORY: PAST POLICY OF GOVERNMENT

It must be appreciated that the nation had tried several initiatives in the effort to contend with the problem of food provision for its citizens. These interventions which are summarized in the table below have been taken into consideration in the articulation of this intervention program.

Table 2: Agricultural Development Initiatives Implemented by Past Governments

S/NO.	Projects/Program	Description	Weaknesses
1.	Cooperatives (1935 to Date)	The Nigerian Cooperatives Ordinance was promulgated in 1935 to regulate Cooperative activities in the country. In 1974 a law was enacted which established the Department of Cooperatives in 1974.	Policy inconsistency and administrative dislocations of the Federal Department in charge of Cooperatives.
2.	Commodity Boards (1947 to 1986)	Commodity Marketing Boards started during the colonial era with the establishment of first generation marketing Boards as follows: Cocoa Marketing Board in 1947, Palm Produce, Groundnut and Cotton Marketing Boards 1949. The second generation established in 1954 were the regional marketing boards. They served as buyers of last resort, at fixed prices and held strategic or buffer stock.	Inability to pay farmers the subsisting market price then. Scrapped in 1986 under Structural Adjustment Programme.
3.	Agricultural Research Institutes (1964 to Date)	Four research institutes namely: Cocoa, Oil Palm, Rubber and Trypanosomiasis were established by Nigerian Research Institute Act in 1964. In 1975 the Agricultural Research Institute Decree came into effect where additional Research Institutes were established to conduct research in various crop, livestock and fisheries.	Instability of the Research Institutes as a result of constant movement of the agricultural research institutes from one Ministry to another. There was also a major problem with funding of these Institutes.
4.	National Accelerated Food Production Project (NAFPP) (1970s)	Objectives were to increase the yields of seed varieties and enhanced fertilizers use and promoted extension and credit services as well as adaptive research and staff training. A number of national crop centres were established at different locations e.g. Ibadan for rice and maize Zaria for sorghum, millet and wheat and Umudike for Cassava.	Started very well but the wheat programme was affected by a basic withdrawal of political support and lifting of the ban on wheat import.
5.	Nigerian Agricultural Cooperative Bank, NACB (1973 to Date)	The main specialised institution for agricultural credit delivery in the country.	Directed to provide subsidized credit at single digit interest rate without the corresponding subsidy provided by government. Needs to be reformed for greater efficiency and effectiveness in resource mobilization and credit delivery.
6.	Agricultural Development Projects (ADPs) (1975 to Date)	World Bank funded at inception. ADP revolution started in 1974 with the establishment of Gombe, Funtua and Gusau ADPs. They were set up to provide extension services, technical input support and rural infrastructure services. Though they were set up to perform a temporary role in providing advisory services, the ADPs have literally assumed a permanent status. They are now recognized as the major agricultural development institutions in the state	The decline in oil prices that started in 1982 had a substantial fiscal effect in Nigeria and led to shortages of counterpart funds for these projects. The emphasis on modern technology in the ADPs led their agricultural research and extension services to focus on relatively high input technology for sole cropping systems. These systems were not used by the majority of smallholders who used mixed/relay cropping systems as a rational strategy to reduce risks Extension Methods: The change from the training and demonstration system to the T&V system was slow resulting in top down rather than responsive recommendations to farmers.

S/NO.	Projects/Program	Description	Weaknesses
7.	River Basin Development Authorities (RBDAs) (1977 to Date)	The major instrument of the water resources and irrigation policy was the establishment of 11 RBDAs in 1977 to develop and take advantage of available water bodies in the country for agriculture, fishing and other purposes.	1) The failure of the RBRDAS was due to unnecessary political interference and managerial problems resulting from socioeconomic cleavages which permeated the nations socio-political, economic and cultural Institutions. 2) Lack of qualified manpower to provide effective leadership at the departmental levels.
8.	Operation Feed the Nation (1976 to 1979)	This was a mass mobilization and mass awareness program created in 1976 through 1979 in reaction to the first real food crises in the country.	The lack of continuity and shift in approach by successive governments were the reasons for the failure of the poverty alleviation programmes.
9.	Green Revolution (1979 to 1983)	The program focused on food production, input supply and subsidy, special commodity development, review of agricultural credit guarantee scheme and increased resource allocation to RBDAs.	The lack of continuity and shift in approach by successive governments were the reasons for the failure of the poverty alleviation programmes.
10.	Directorate of Foods and Rural Infrastructure (DFFRI) (1986 to 1993)	DFFRI was established in late 1986 to accelerate the rate of infrastructure development in the rural areas. It was originally designed as supra-ministerial body for channelling the proceeds of the liberalized foreign exchange market for rural development.	The lack of funds and commitment limited the extent of infrastructural provision in the rural areas. The government rural infrastructural programmes were embarked upon without effective programme of action and appropriate institutional arrangements for their execution.
11.	National Agricultural Land Development Authority (NALDA) (1991 to 1999)	The objectives of the Authority include providing strategic public support for land development, promoting and supporting optimum utilization of Nigeria's rural land resources, providing gainful employment opportunities for rural people as well as raising incomes and improving general living standards in rural areas.	The NALDA approach increased rather than reduce the direct public provision of goods and services which could be provided by the private sector instead. Many of NALDAs' services were duplications, albeit on a more intensive basis of services provided by the ADPs.
12	Presidential Initiatives on Cocoa, Cassava, Rice, Livestock, Fisheries, Vegetables (1999 to 2007)	These were initiated by the last administration in an effort to improve Nigeria's food production in line with vision 2020. The strategy is to attract the attention of the highest level of political authority for special intervention in the commodity sector.	Weaknesses were poor funding and lack of institutional arrangements for implementation.

3. OBJECTIVE & POLICY THRUST

3.1. VISION

The overall vision of the Intervention Program is:

“To ensure sustainable Access, Availability and Affordability of quality food to all Nigerians and to be a significant net provider of food to the global community”

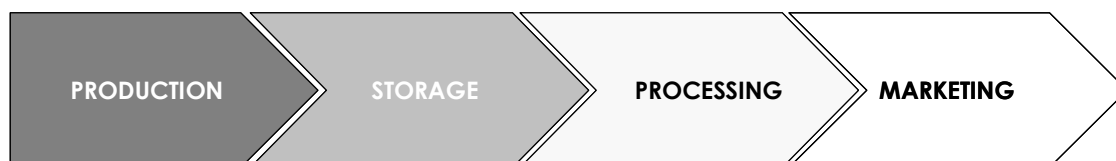
In this context, government has set the following objectives:

- **Short-term:** Significantly improving Nigeria's agricultural production
- **Medium-term:** Improved productivity, expanded large-scale production and improved storage/ processing capacity as well as required market infrastructure to achieve food stability

3.2. PROPOSED APPROACH

In order to be successful, the proposed approach must address every component of the entire agriculture value chain for **Crops, Livestock and Fisheries**:

Figure 4: Agriculture Value Chain



The approach must also be collaborative, with the intent of stimulating food production through private sector participation and market development. The Federal Government will set the direction, while the organized private sector as well as the State and Local Governments will drive execution.

Key challenges, strategic objective, high-impact strategic initiatives, key stakeholders involvement, supporting governance structures and the required linkages for the successful execution of have been defined for each component of the agriculture value chain for **Crops, Livestock and Fisheries** and presented in the following sections of this document.

3.3. OVERALL POLICY THRUST

Vision: "To ensure sustainable Access, Availability and Affordability of quality food to all Nigerians and to be a significant net provider of food to the global community"

Objectives: Short-term objective of significantly improving Nigeria's agriculture productivity
 Medium-term objectives of expanded large-scale production and improved storage/ processing capacity as well as required market infrastructure to achieve food stability

Farmer Cateoory	Sponsorship/ Policy Making	Technical Assistance	Input Providers	Specific Strategies	Generic Strategies
Small-scale Farming	Local Govt	<ul style="list-style-type: none"> ▪ Agric. Consultancy ▪ Fed Univs ▪ Local Govt. MA&WR ▪ Int'l Research Institutes/ NGOs/ Donor Agencies e.g. FAO, IITA e.t.c. 	<ul style="list-style-type: none"> ▪ Local Govt ▪ Micro-credit orgs ▪ Nat. Seed Council ▪ Int'l Fert. Devt. Centre ▪ Nat. Special Prog. for Food Sec. ▪ NGOs/Donor Agencies e.g. FAO, IITA e.t.c. 	<p>Objectives:</p> <ul style="list-style-type: none"> • Additional 10m small-scale farmers (2 ha of farmland each) • 1 tractor/ 500-1,000 farmers <p>Actions:</p> <ul style="list-style-type: none"> • Aggressive recruitment of farmers • Seed funding scheme • Expanded quality extension services • Farm Support Centres/ farmers' cooperatives • Mechanization Program 	<p>Objectives:</p> <ul style="list-style-type: none"> • 74 hectares of cultivated farmland • 3.14 million hectares of irrigated land • 10 tonnes/ hectare of agriculture products • 10% of household income spent on food • Increase in food storage capacity by 500 metric tonnes by 2008 year-end • Improve local processing capacity for local and international consumption • Viable market infrastructure to drive links between producers and processors/ traders • Exploit biofuel/ carbon credit potential <p>Actions:</p> <ul style="list-style-type: none"> • Focus on product/ crop of comparative advantage • Revitalized, private sector-driven fertilization program • Enhanced Irrigation Program • Build 2 strategic food storage facilities per geopolitical zone (private-sector driven) • Institute warehouse receipt system • Build processing parks in each 36 states and the FCT (Private sector-led) • Revitalize Commodity Exchange • Establish guaranteed minimum pricing/ Commodity Boards/ Marketing Commission • Cultivate non-food crops (jatropha) and utilize crop by-product for biofuel/ Accrue and sell carbon credit
Medium-scale Farming	State MA&WR Local Govt.	<ul style="list-style-type: none"> ▪ Agric. Consultancy ▪ Fed Univs ▪ State MA&WR ▪ NGOs/Donor Agencies e.g. FAO, IITA e.t.c. 	<ul style="list-style-type: none"> ▪ State MA&WR ▪ Commercial Banks ▪ Nat. Seed Council ▪ Int'l Fert. Devt. Centre ▪ Nat. Special Prog. for Food Sec. ▪ NGOs/Donor Agencies e.g. FAO, IITA e.t.c. 	<p>Objectives:</p> <ul style="list-style-type: none"> • Empower small-scale farmers to medium – scale farming <p>Actions:</p> <ul style="list-style-type: none"> • Seed funding scheme • Expanded quality extension services • Farm Support Centres/ farmers' cooperatives • Mechanization Program 	
Large-scale Farming	FMA&WR State MA&WR	<ul style="list-style-type: none"> ▪ Fed Univs ▪ State MA&WR ▪ NGOs/Donor Agencies e.g. FAO, IITA e.t.c. 	<ul style="list-style-type: none"> ▪ FMA&WR ▪ State MA&WR ▪ Commercial Banks ▪ Nat. Seed Council ▪ NGOs/Donor Agencies e.g. FAO, IITA e.t.c. 	<p>Objectives:</p> <ul style="list-style-type: none"> • Promote/ facilitate the influx of large-scale farmers in Nigeria <p>Actions:</p> <ul style="list-style-type: none"> • Fed Govt./ State Govt/ commercial banks' special migration program • Equity participation framework for private sector involvement 	

Linkages: The Land Use Act
 • Other Fiscal Policies
 • Energy and Industrial Capacity

• Microfinance
 • Education
 • Rural Access & Road Network

• Enabling Market Policies

4. CROPS

4.1. CONSTRAINTS

Nigeria has 79 million hectares of fertile land. However, only 32 million hectares (46%) of these are cultivated. More than 90% of agricultural output is accounted for by households with less than 2 hectares under cropping. Typical farm sizes range from 0.5 hectares in the south to 4 hectares in the north.

Supply of inputs for crop production has also been generally sub-optimal. Nigerian fertilizer consumption at 7kg/hectare is one of the lowest in sub-Saharan Africa while less than 10% of irrigable land is under irrigation. Farmers have limited access to credit and the existing extension services are grossly inadequate. There is currently 1 extension worker for 25,000 in Nigeria compared to best practice of 1 to 500-1,000. Mechanized assistance is also grossly inadequate. There are only about 30,000 tractors for all 14 million farming groups/ families in Nigeria. On the processing front, Nigeria loses significant value of between 15% - 40% of products from its inability to process most of its agricultural production.

It is easy to imagine the state of agricultural output with the situation painted above. Though arable land in Nigeria is suitable for cultivating most crop types, crop yields are far below potential as clearly demonstrated in Figures 5. Consequently, Nigeria records on the overall average about 4 tonnes of crop production/ hectare compared to about 13-14 tonnes/ hectare in some other countries.

4.2. STRATEGIC OBJECTIVES

In order to ensure the highest impact from the Intervention Program, 13 crops will be emphasised as being of strategic importance and will attract primary attention in the quest for food security in Nigeria. These are:

- Cassava
- Rice
- Millet
- Sorghum
- Wheat
- Maize
- Sugar
- Cow peas
- Soya beans
- Tomato

- Cotton
- Cocoa
- Oil Palm

Specific production objectives have been defined for these crops. These are contained in the table below:

Table 3: Crops

Crop	Targets: 2008 -2011	% Increase
Cassava	<ul style="list-style-type: none"> ▪ Yield: increase from 15MT/Ha to 30MT/Ha. ▪ Production: increase from 49million MT to 100million MT annually ▪ Attain 10% cassava flour in bread making. 	100% 104%
Rice	<ul style="list-style-type: none"> ▪ Increase production from 2.8 million metric tonnes of paddy to 5.6 million metric tonnes paddy rice per annum. 	100%
Millet	<ul style="list-style-type: none"> ▪ Attain 6.5 million metric tonnes of millet through improved farm inputs, and irrigation from 4.0 million MT/annum 	62.5%
Wheat	<ul style="list-style-type: none"> ▪ Attain 500,000 metric tonnes of local production to replace excessive dependence on wheat importation from the current 70,000 MT/annum 	714%
Sugar	<ul style="list-style-type: none"> ▪ National demand for sugar is 2.2 million metric tonnes. Current local production is 194,000 mt per annum. With a current 10,000 ha commercial plus 50,000 ha under local producers of sugarcane, the country needs to increase cultivation of sugar cane by 230,000 ha to attain self sufficiency. 	1134%
Tomato	<ul style="list-style-type: none"> ▪ Attain production potential of 20 tonnes/ hectare and from 1.1million MT to 2.2 million MT annually. 	100%
Cotton	<ul style="list-style-type: none"> ▪ Attain increase in cotton production from 350,000mt to 1 million mt 	186%
Cocoa	<ul style="list-style-type: none"> ▪ Attain 700,000 metric tonnes of production by 2011from current 380, 000 MT per year 	84%
Palm Oil	<ul style="list-style-type: none"> ▪ Attain 1.26million metric tonnes of oil palm and 600,000mt of palm kernel from current 840,000mt palm oil and 400,000mt palm kernel 	50%
Rubber	<ul style="list-style-type: none"> ▪ Attain 300,000mt of rubber from the current 200,000mt (pa) 	50%

Table 4: Livestock and Fishery

Livestock & Fisheries	Targets: 2008 -2011	% Increase
Poultry	<ul style="list-style-type: none"> ▪ Attain a population of 249 million from current 166 million 	50%
Goat	<ul style="list-style-type: none"> ▪ Attain a population of 67.6 million from the current 52 million 	30%
Sheep	<ul style="list-style-type: none"> ▪ Attain a population of 42.9 million from the current 33 million. 	30%
Cattle	<ul style="list-style-type: none"> ▪ Attain a population of 20 million from the current 16 million 	25%
Pig	<ul style="list-style-type: none"> ▪ Attain a population of 8.25 million from the current 6.6 million 	25%
Fisheries	<ul style="list-style-type: none"> ▪ Attain production target of 1.5 million metric tonnes from the current 0.5 million MT 	200%

Other key objectives for crop production is major improvement in irrigation as well as the enhancement of extension services provision to small and medium scale farmers

For irrigation, the target is to achieve a total of 454,021 hectares of irrigated land in addition to the existing areas under irrigation. The requirements are not crop specific; however estimated required irrigation hectareage for some selected crops are:

- o Rice /Sugar: 60,000 hectares
- o Wheat: 50,000 hectares
- o Cotton: 40,000 hectares

The objective for the enhancement of extension services is to achieve a ratio of one extension worker to 350 small-scale farmers. Beyond crop production, key objectives have also been defined for crop storage and processing. The target is to achieve 625,000 metric tonnes of Strategic Food Reserves as well as an additional 200,000 metric tonnes of crop storage nation-wide. We also aim to set up Agro-industrial parks in every senatorial district of the country with the objective of optimizing value-addition to our crops

PRODUCTION

There are several levers that can be pulled to influence increase in crop production in Nigeria either directly or indirectly. The interplay of these levers for increased production is depicted in the schematic below:

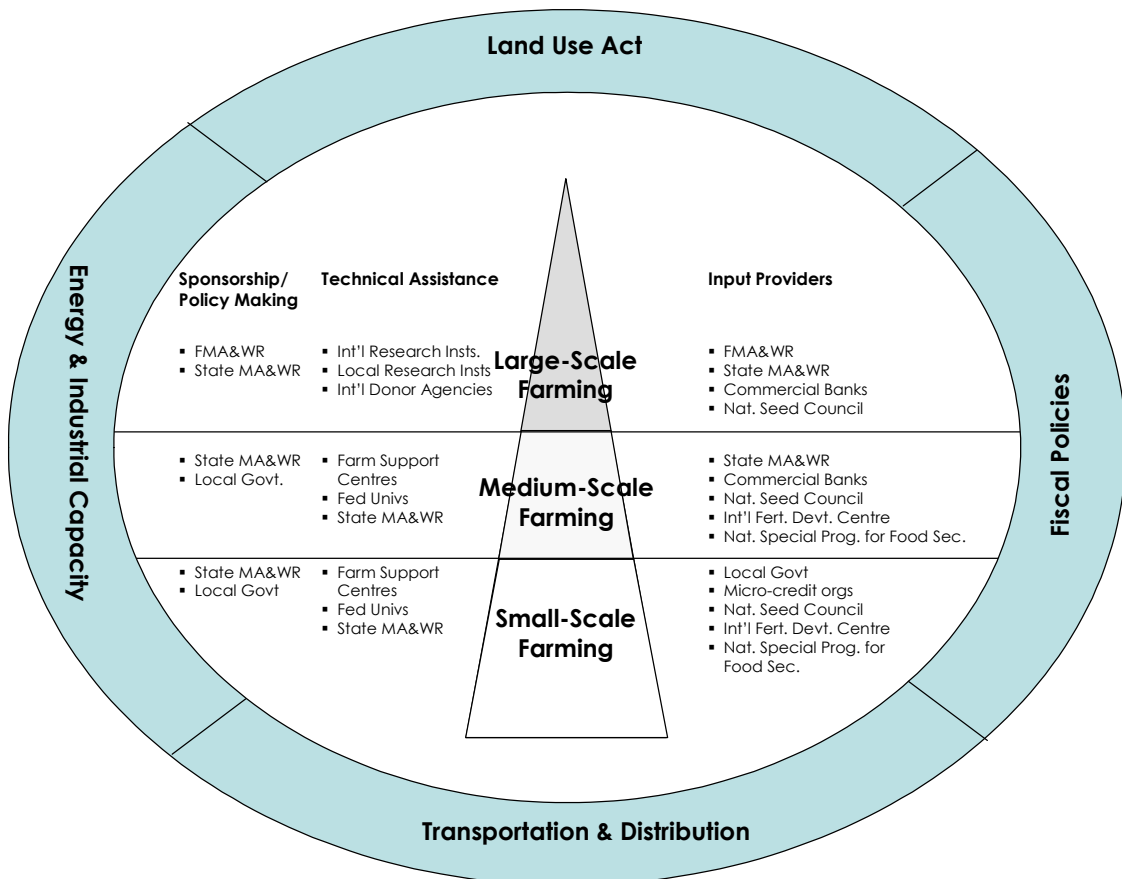


Figure 5: Levers for Increased Agriculture Production in Nigeria

4.2.1. STRATEGIC INITIATIVES

4.2.1.1. Recruitment of Farmers

The current scenario recognises that existing farmers in most parts of the country are ageing. Initial actions on the Intervention Program will be directed at the attraction and recruitment of new farmers. Different incentive programs will be drawn up targeted at each of the three (3) different categories of farmers required to drive the Nigerian Agricultural production base:

Large-Scale Farming

Land Acquisition and Preparation Schemes will be created in specific locations nation-wide to attract large-scale farmers into Nigeria as well as catalyse the up-scaling of the operations of medium-scale farmers into large-scale farming. Government will provide fiscal incentives, such as tax credit schemes on agricultural inputs, to incentivise large-scale operations. Collaborating with commercial banks, seed funding will be provided to support these schemes. Actions that will be taken in this regard include:

- Federal government will float a N200 billion bond for on-lending to commercial farmers to fund farm set-up on the basis of soft loans
- Large-scale farmers will be recruited through private-sector partnerships to produce strategic crops
- Each State will develop and present large-scale farming proposals to the Federal Ministry of Agriculture & Water Resources to attract Federal Government's counterpart funding and support
- State government will provide land and at least 15% equity in the cost of set-up
- State and local governments will also provide support and infrastructure e.g. power, access roads, e.t.c.
- Federal government will be responsible for the construction of large dams and associated irrigation facilities. State governments should take responsibility for small dams and wash bores.
- Commercial banks will provide Federal Government-guaranteed funding for farm operations
- The Federal Government will drive the fight against desert encroachment in collaboration with state governments.

Medium-scale Farming

Special collaborative programs will be established to support medium-scale farmers with features such as machinery leasing schemes, increased access to funding, agribusiness support e.t.c. These programs will be funded and managed by the private sector.

Small-scale Farming

An aggressive program will be pursued to recruit a new breed of small-scale farmers through the process of driving a complete overhaul of the support system for small scale farming in Nigeria. Young, educated and knowledgeable individuals will be encouraged to take up farming through the provision of seed funding, guaranteed minimum pricing for products and provision of continuous technical support.

The sheer number of small-scale farmers in Nigeria suggests that a collaborative approach be adopted in their recruitment. Farmers' cooperative societies will therefore be promoted through which technical and funding support will be provided to these farmers.

4.2.1.2. Land Acquisition/ Cadastral Mapping

To effectively manage and coordinate the utilization of all land in Nigeria, the Federal Government in collaboration with the states will commission a land mapping/ cadastral exercise in every state of the country.

It is recommended that the Land Use Act be reviewed to enable farmers use farm lands as collateral and thereby significantly reduce constraints in access to funding for farmers.

In line with the Land Use Act, state governors are the custodians of land in the state and therefore have the responsibilities for the different level of certification for land use.

State government will therefore facilitate access of land to farmers:

Land Management:

The era of blanket application of fertilizer should be over. Application should be area specific and based on recommendations. The media will be encouraged to educate farmers on fertilizer recommendations and applications.

Soil testing and fertility status will be done for all soils in the country.

Reclamation of degraded agricultural lands will be conducted for acidic and salt affected soils.

Cadastral Mapping: all agricultural lands of farmers will be mapped and title deeds (C of O) will be given to them for use as collateral for loans etc. In this direction therefore, a Farmers Registry will be established.

Large-scale Farmers

State government will facilitate land acquisition and clearing

Small-Scale Farmers

State governments will encourage local government to provide land for small farmers for which the state government in partnership with the local government will assist with land preparation and parcelling as well as provide infrastructure. Community-based farm settlement schemes will be established through this means at the local government and community-levels.

4.2.1.3. Focus on Strategic Crops

In order to ensure the highest impact from the Intervention Program, 12 crops have been identified as being of strategic importance and will attract primary attention in specific locations in the quest for food security in Nigeria. These are:

Table 5: Locations Known to Grow Strategic Crops

	North East	North Central	North West	South West	South East	South South
Crops	Wheat Rice Maize Millet Sorghum Vegetables Sugar Cane Cassava Cow pea Tomato Cotton	Rice Maize Millet Sorghum Yam Vegetables Sugar Cane Cassava Cow pea Tomato Cotton	Wheat Rice Maize Millet Sorghum Vegetables Sugar cane Cassava Cow pea Tomato Cotton Ginger	Rice Yam Vegetables Cassava Cowpea Cocoa Oil Palm	Rice Yam Vegetables Cassava Cocoa Oil Palm	Rice Yam Cassava Vegetables Cocoa Oil Palm

The objective is to encourage specific locations to focus on the production of specific crops (at least 2 crops per state, Table 2 above)

for which it has comparative advantages with the goal of achieving optimal productivity. Centres of excellence (Farmer Support Centres) for these crops will be established in selected locations to serve as demonstration, research and support centres. Centres for fishery and livestock will also be created in strategic locations across the country. Detailed action plans for each of these crops are contained in the Action Plan section of this document.

4.2.1.4. Expansion of 'One-Stop' Agric Extension Services

Agricultural extension service will be professionalized by State governments establishing farm support centres as “one-stop” facilities in each local government in partnership with the private sector to train and teach new farming techniques with the objective of achieving best practices in agricultural production. The Centres will also be used to provide inputs. (See Figure 7: Extension Services Provision & Supervision).

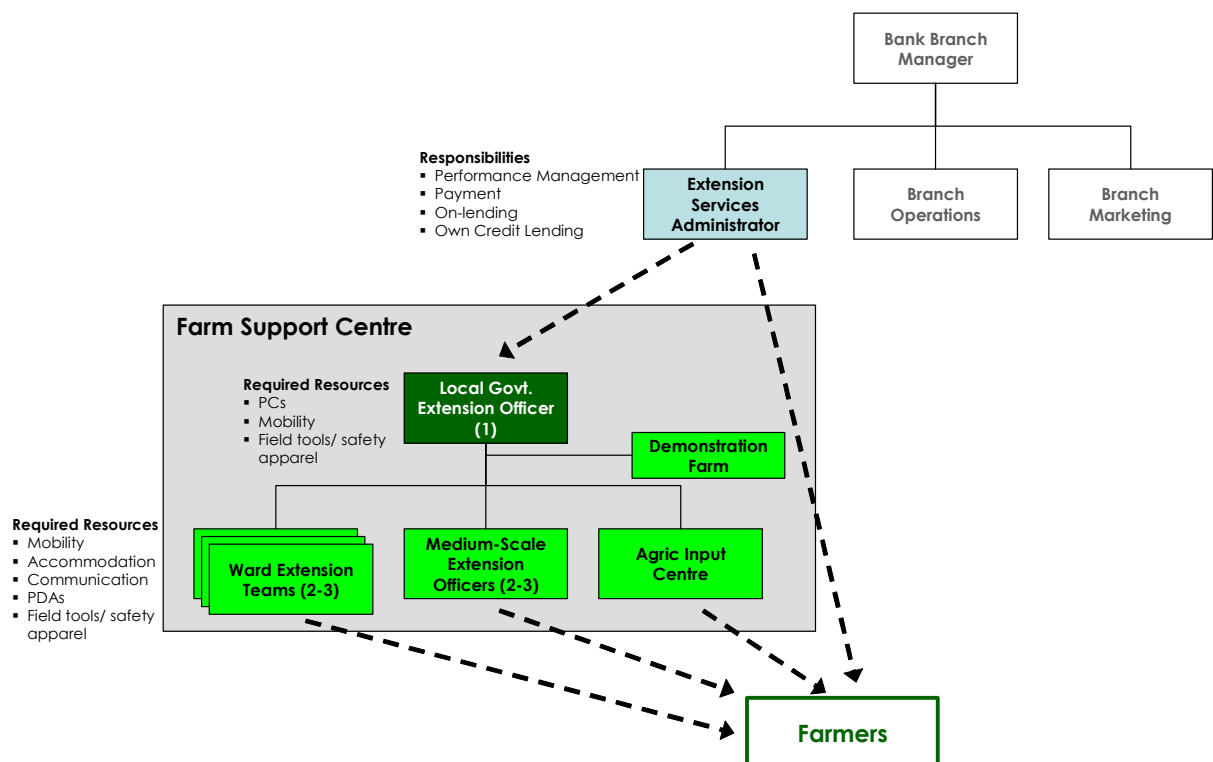


Figure 6: Private Sector-led Extension Services Provision & Supervision

10,000 highly competent extension workers will be recruited per year with the objective of achieving a ratio of at least one extension worker to 350 small-scale farmers.

Each Farm Support Centre will be funded by the State government and managed by private firms working as consultants. The centre will provide a number of services including, education and training for farmers, demonstration farms, technological support, farm input supplies and other related technical services.

Consultants in each centre will account for government spending on farmers within their jurisdiction in order to ensure that public expenditure produces optimum results.

Emphasis will be placed on yield as a key performance indicator for all extension service providers

- Targets per hectare will be set based on the level of input provided i.e. lower yield targets for manual inputs compared to higher yield targets for mechanized farming

The performance of these Farm Support Centres themselves will be monitored by an independent private entity such as commercial banks (through Extension Service Administrators), who will also assist with payment for extension services delivered based on set targets.

The same Extension Services Administrator can be used to provide on-lending/ lending services and supervise activities of farmers, stores/ conditioning centres and processing centres within the same locality

4.2.1.5. Irrigation for Enhanced Agricultural Production

A private sector-driven initiative will be commissioned to significantly enhance the irrigation system in Nigeria. The objective is to ultimately convert the 3.14 million hectares of irrigation potential beyond the current 220,000 hectares of irrigated land by tapping into the huge 60 billion cubic meter of underground water along with the 267.7 billion cubic meter surface water in the country. In specific terms, the objectives of the irrigation plan are:

- Raise overall irrigation productivity in all public and private initiatives
- Achieve a strategic balance between irrigated and rain-fed production
- Improve water service to all irrigation farmers and work toward full O&M cost recovery from the users

- Improve and sustain irrigation efficiencies at all schemes, provide extension services and facilitate the provision of inputs and the marketing of outputs
- Stabilise the public irrigation sector and transfer O&M to the beneficiaries/private sector
- Remove constraints to private sector engagement and expand the capability of the private sector in both equipment manufacture and supply and in development activities including direct project operation and management.

Key principles that will guide the Irrigation Program are:

- Equitable allocation of water rights and land ownership;
- Optimise beneficial use of water within the agricultural sector, including use of stored water and the transfer of rights to use water and land;
- Functional inter-sectoral management of water across river basins, predicated on high quality information generation and exchange;
- Environmental responsibility in irrigation and drainage;
- Clear operation and regulatory roles between agriculture in production and water in supply and the establishment of a working interface between them;
- Facilitate performance of private and public sector agencies in those activities where they have comparative advantage;
- Ensure coherence of policies, planning and budgets within FMA&WR and FMEv&HD;
- Appropriate scaling of technology and institutions to fit their purpose.

To achieve objectives, strategies will be put in place to:

- streamline existing institutions and move toward a smarter regulatory model – separate operator and regulator and as much as possible combine all public sector irrigation;
- review and evaluate the existing legislation and introduce appropriate reform as may be required or introduce new laws on land ownership/tenure, water rights and farmer organisations;
- review and evaluate the socio-economic value of existing irrigation schemes and consider the discarding of those that are unworkable and rehabilitate and expand those that are viable;
- promote the development of a private sector (including irrigation companies and farmer organisations) to work hand in hand with the FGN in developing and managing irrigation schemes;
- rehabilitate existing schemes identified in ROPISIN report(Review of the Public Irrigation Sector in Nigeria)
- plan and develop all new irrigation on a farmer- or farmer group-managed basis;
- transfer the operation, maintenance and management of public sector irrigation, as far as is possible, to the beneficiaries and to community-based service providers;

4.2.1.6. Provision of Strategic Inputs for Production

Key elements undermining the productivity of the Nigerian agriculture sector is the inadequacy of strategic inputs. There are four (4) key inputs that once addressed, will significantly transform the production base of the sector:

- **Seed Development and Distribution:**

The National Seeds Council (NSC) will be strengthened to ensure the production and distribution of high yielding, high resistant certified foundation seeds for crops as identified above.

The research and partnership frameworks for the council will therefore be enhanced to perform these roles.

State governments will subsidize the supply of the certified seeds/ seedlings to farmers

- **Soil Analysis & Agro-climatological Services**

FMA & WR will facilitate soil analysis across the entire nation to determine the national soil profile and fertility picture to ensure the fertilizers used in specific locations address the deficient mineral requirements in the location

Agro-climatological centres will be established by each state to provide agro-related weather information including informing farmers of the appropriate time for the start of planting and harvesting seasons

- **Fertilizer Production & Distribution**

The national production capacity for fertilizer will be significantly improved with the objective of ensuring 100% local production by 2011. Focus will be on significantly improving the capacity utilization of existing plants while also commissioning the establishment of new ones (large, medium and small-scale plants) with the objective of achieving self sufficiency in the next three years. These initiatives will be private sector-led through Public-Private Partnership (PPP) vehicles.

The option of organic fertilizer as a more viable complement to inorganic fertilizer should be explored.

▪ **Increased mechanization**

Flexible purchase and leasing programs will be designed to support farmers at low cost. The projects will be financed by government through commercial banks, but completely managed by the private sector.

A private sector-led agric mechanization services program will be commissioned with the following equity participation:

- 10% equity participation from the Federal Government
- 20% equity participation from State Government
- 70% equity participation from Private Sector (through on-lending from commercial banks)
- 100% funding for operations should be provided by the private sector
- Program should include provision of tractor and bulldozer services in land clearing, preparation e.t.c.

▪ **Mechanism for input Service Delivery**

All identified strategic inputs for production will be channelled primarily through the proposed Extension Service Systems. The efficiency of the mechanism will be enhanced through the establishment of farmers' input delivery cooperatives, which will be at the community, local government area and state levels. State and local governments should then facilitate and encourage the establishment of these farm community cooperatives. Membership of cooperatives should be mandatory for farmers to benefit from government schemes being recommended.

4.2.2. STAKEHOLDER ROLES

The general approach will be PPP frameworks to support production schemes and programs. Each party will have specific roles to play:

4.2.2.1. Federal Government:

- The Federal Ministry of Agriculture and Water Resources (FMA&WR) will play the planning, coordination and facilitative role in the overall scheme.
- The Federal Government will provide financing for large scale farming through the floating of a N200bn bond.

- They will also provide subsidy for various inputs including livestock feeds and supplement/ premixes as well as required funding for research effort/ initiatives

4.2.2.2. State and Local Governments

- The state government will also play a financing role by funding Farm Support Centres and providing credit to commercial banks and microfinance institutions for on-lending to small and medium scale farmers
- State governments will subsidize the supply of the certified seeds/ seedlings, to farmers
- Target production for each crop per state will be determined and achievement monitored
 - Target strategic crops include Cassava, maize, sorghum, millet, rice and beans(cowpeas)/ soya beans
- Local governments, with the assistance of State Governments, will provide basic infrastructure required in the rural areas and farming communities including access roads, power, and water and market e.t.c.

4.2.2.3. Private Sector

Private sector participants will include commercial banks, microfinance institutions, private agribusiness companies, major users of agro-products, construction companies; Non-governmental organisations e.t.c. Private sector will collaborate with various tiers of government to finance and execute and operate major programs and projects in these schemes. These will include farm support centres, irrigation systems, fertilizer plants, mechanization (tractor program), and extension services e.t.c.

4.2.3. REQUIRED LINKAGES

There are several dependencies to the production enhancement strategies outlined above that must be paid special attention to ensure success. These include:

4.2.3.1. The Land Use Act

It is recommended that the Land Use Act be reviewed to enable farmers use farm lands as collateral and thereby significantly reduce constraint in access to funding for farmers.

4.2.3.2. Other Fiscal Policies

An enabling fiscal environment will be required to support the schemes. Duty waivers for importation of agricultural inputs, for example, will have a major impact on success. Other considerations are tax credits and waiver of levies for agricultural activities.

4.2.3.3. Energy and Industrial Capacity:

The viability of the schemes described above is highly dependent on the effectiveness and operating cost of the industrial base of the country. Local fertilizer production, for example will only be commercially viable if current inefficiencies in power and supply of raw materials (petrochemicals, steel e.t.c.) are addressed.

4.2.3.4. Microfinance:

Poverty is probably the most significant constraint to agricultural development in Nigeria today, given the large involvement of peasant farmers. To effectively tackle this issue, existing microfinance arrangements must be reviewed to ensure adequate support for financing poor small-scale farmers.

4.2.3.5. Education:

The quality of farmers and extension workers recruited will be highly dependent on the effectiveness of basic education as well as the agricultural programs delivered in tertiary institutions across the nation.

4.2.3.6. Rural Access

A major constraint to the viability of the schemes described above may be the accessibility of rural areas. Good rural road networks, telephony and information systems will significantly improve the effectiveness of these schemes

4.2.4. STORAGE

The overall objectives of improving food storage in Nigeria as a means of guaranteeing food security is to ensure stability in food supply and avoid price volatility post-production, improved food quality and adequate local supply of products for industrial processing, local and international.

There are key levers that will be pulled to achieve these objectives as depicted in the schematic below:

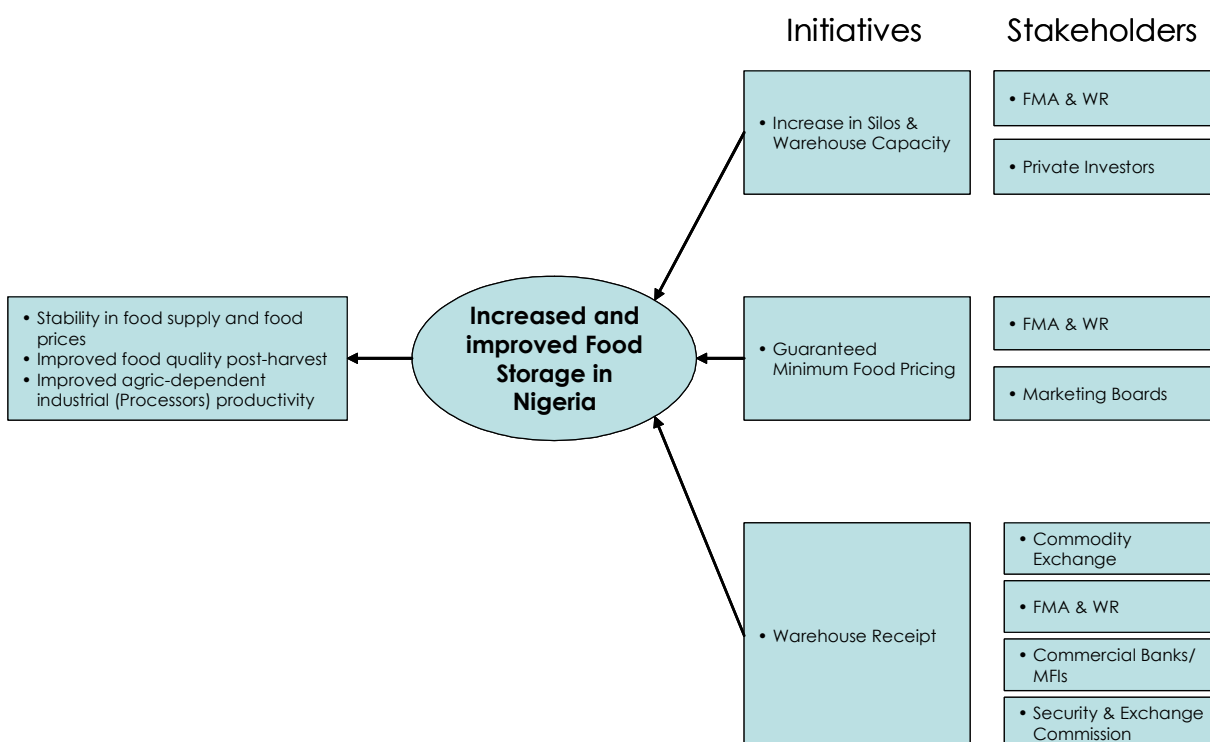


Figure 7: Paths to improvement in Food Storage in Nigeria

4.2.5. STRATEGIC INITIATIVES

4.2.5.1. Improving the Nation's Strategic Food Reserve

An initiative will be commissioned to significantly improve the storage capacity of the National Food Reserves through the completion of the ongoing construction of 28 new silos. The objective is to achieve a storage capacity of 1 million metric tonnes by 2008 year-end. Federal government will keep 5% of the annual production of the strategic crops as national strategic reserves. Similarly, state governments will construct new silos and warehouses to hold 10% of annual production as buffer stock within their states. PPP concessions will be explored to finance and manage the new silos. Quality objectives and targets will be agreed with the concessionaries.

4.2.5.2. Improving Farmers' Warehousing Capacity

To improve quality and shelf life of products, farmers/ warehouse keepers will be trained in harvesting and storage techniques.

A Private Sector-led initiative will be pursued to build an additional 200,000 metric tonnes capacity of product warehouses as well as capacities for silos and conditioning centres in Nigeria. The conditioning centres will be built as near points of evacuation as possible. Adequate special purpose vans will be procured for use in transporting perishable products from points of production to these conditioning centres. In addition, a warehousing licensing and monitoring framework will be established to set financial, operational and quality standards for warehouses and monitor compliance through licensed warehouse inspectors.

Licensed warehouses, silos and conditioning centres will be mandated to provide performance guarantees for the products stored with them.

4.2.5.3. Warehouse Receipt System

In conjunction with the proposed improvement in warehousing capacity in the nation, a Warehouse Receipt System will also be established. This is the scheme whereby a farmer uses his products held in storage as collateral for accessing credit thereby encouraging the farmers to store their products post-harvest. A warrant backed by legal provisions guaranteeing quality are given to farmers for their stored products, and these warrants can then be used as collaterals or

traded on commodity exchanges for liquidity. The scheme bears several advantages:

- Significantly improves farmers' access to credit
- Reduces the volatility in the supply of farm products
- Creates a means for investors' play in the commodities market
- Deepens and stabilises the economic and financial systems

To be operational, the appropriate legal environment will need to be created to allow warrants to be acceptable as bank collaterals, and legal tenderable security documents as well as allow free trading of warrants and also provide a guaranteed minimum pricing of stored products for farmers.

The scheme also requires a commodities market information system that will provide real-time information on product prices and crop forecasting. The information will enable farmers, traders and processors determine sell/ buy positions while also enabling financial institutions to assess value of commodity securities.

4.2.6. STAKEHOLDER ROLES

4.2.6.1. Government:

There will be a significant shift in the role of government from management and price determination to regulatory and financing.

Key roles of government include:

- Ownership of the Strategic Food Reserves across the country. Management of the infrastructure will be commissioned out to private sector experts in food preservation and storage
- Federal government will keep 10% of the national production of strategic crops
- State governments will construct new silos to hold 5% of annual production as strategic food reserves within their states
- Legislation of the enabling legal and regulatory environment for warehouse receipt systems, warehouse licensing and inspection systems, performance guarantee systems and commodity trading and information systems
- Government will provide soft loans through commercial banks for the construction of privately-owned and operated storage facilities
- Government will also explore BOT arrangements for financing these facilities

4.2.6.2. Banks:

- Commercial banks and microfinance will be involved early in the process of setting up warehouse receipt systems to ensure their confidence in the scheme and ultimately accept warrants as collaterals for agric loans.
- Major commercial bank financing will also be required for the achievement of the envisaged storage capacity in Nigeria
- On-lending to privately-owned and operated storage facilities

4.2.6.3. Farmers and Processors

Farmers and processors will be encouraged via communications and training to ensure they understand the advantages of the new storage approaches and fully embrace the schemes. This will enable a viable balance between supply and demand for stored products.

4.2.7. REQUIRED LINKAGES

4.2.7.1. Energy and Industrial Capacity:

There will be significant dependence on the power supply for the success of the storage schemes described above. Food storage is highly technical and requires very stable operating environment which might be difficult or costly given the current constraints of the power sector

4.2.7.2. Market Supervision

The Securities and Exchange Commission will need to improve its understanding and capabilities at monitoring the nascent commodities market to avoid speculative market manipulations.

4.3. PROCESSING

The role of processors in achieving food security cannot be over-emphasized, especially in ensuring the availability and affordability of food. Key initiatives will be commissioned to improve the food processing capacity in Nigeria. The schematic below describes these initiatives and the stakeholder involvements:

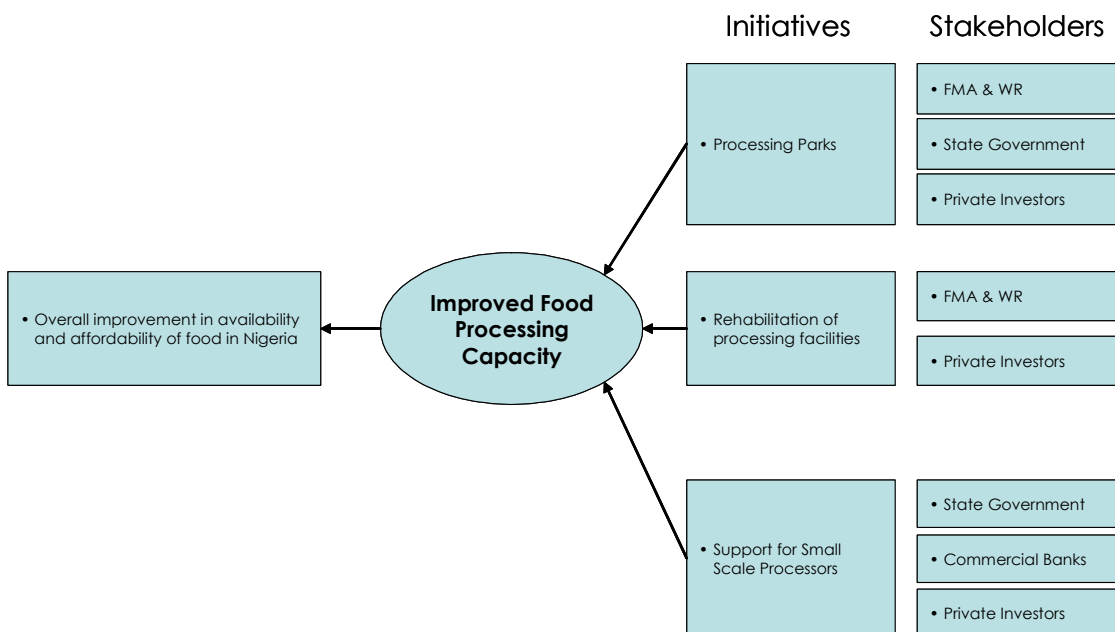


Figure 8: Paths to improvement in Food Processing in Nigeria

4.3.1. STRATEGIC INITIATIVES

Nigeria loses significant value of between 15% - 40% of products from its inability to process most of its agricultural production. This has placed the country in the position of being a net importer of food items. Focus will therefore be placed on improving the processing capacity within the country towards achieving self-sustainability

4.3.1.1. Agro-Industrial Parks

States and Federal Government will collaborate to establish Agro-industrial parks which will be established in every senatorial district nation-wide and will be private sector-managed. Each will house industries, which in total will employ up to 20,000 workers in each state. It will include well structured modern factories and processing plants with grading systems and standards, quality controls, quarantine

services, power security and water. These agro-industrial parks will be situated as near the production areas as possible to reduce the logistical constraints distance may pose.

The short-term approach to improving processing will be to import processing equipment while the long-term approach is to encourage the set-up of assembly plants for processing equipment in Nigeria

Special emphasis will be placed on processing the key crops targeted for production in this intervention.

4.3.1.2. Support for Small-scale Processors

Financing for small scale processors will be provided in partnerships with commercial banks and government will provide fiscal incentives for importation of processing machines and technologies into the country

4.3.1.3. Rehabilitation of Existing Processing Facilities

Government owned processing companies requiring rehabilitation will be revitalised to achieve to full operations using the Rehabilitate, Operate and Transfer (ROT) scheme.

4.3.2. STAKEHOLDER ROLES

4.3.2.1. Government:

- Federal government will initiate Agro-industrial projects and part-finance by 30%, while state governments will provide the rest of the fund.
- The Federal government will also identify private sector firms to assist with implementation early in the process
- Provision of fiscal incentives for processors including tax credits, duty waivers e.t.c.
- Promulgation of enabling policies to ensure the competitiveness of local processing outputs and thereby protect the fledgling industry from external competition
- Government will ensure the involvement of appropriate regulatory and other essential agencies to ensure operational and quality standards for processing centres

4.3.2.2. Banks/ Financial Institutions:

- Banks/ financial institutions will provide financing for Agro-industrial processing parks as required
- Microfinance institution

4.3.2.3. Agro-park Concessionaires

- The agro-park concessionaires will be responsible for the provision and maintenance of the appropriate facilities for the effective operations of processors
- The concessionaires will provide technical and marketing assistance to processors within the park
- Processors will be encouraged via communications and training to ensure they benefit from new processing arrangements, improved access to financing and minimum operational and quality standards required from operators.

4.3.3. REQUIRED LINKAGES

4.3.3.1. Energy and Industrial Capacity:

There will be significant dependence on a reliable infrastructure base to effectively support the processing centres and ensure cost-effective operations. This includes power supply, water, logistics and access road networks.

4.3.3.2. Education

Also the availability of technical expertise required to support increased agricultural processing may be an issue. Technical education will need to be augmented to keep the supply of technical skills adequate.

5. LIVESTOCK and FISHERIES

5.1. THE NIGERIAN SITUATION

In livestock and fisheries production, local supplies have been inadequate with an estimated 30% of livestock slaughters imported from neighbouring countries.

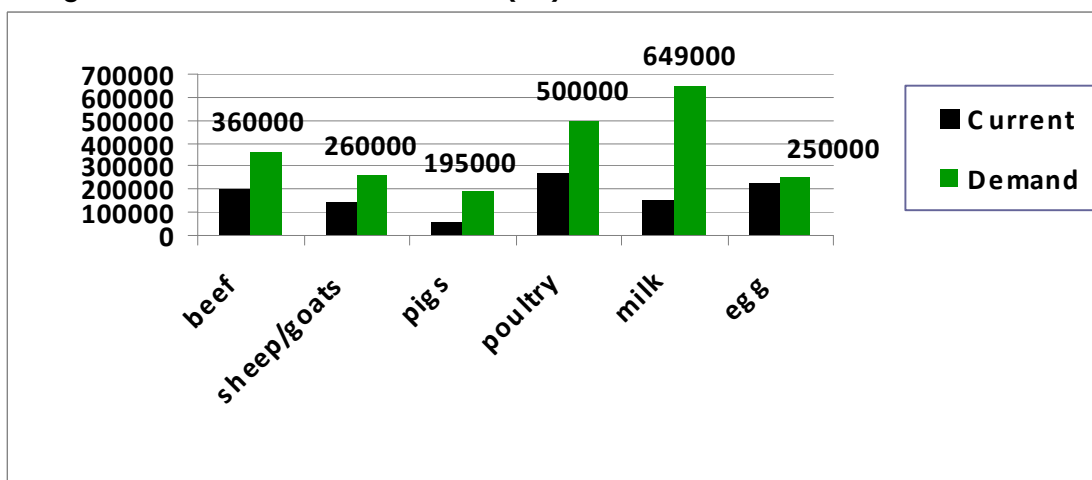
The current Livestock Population in Nigeria is Cattle 16million, Sheep 33million, Goats 52.4million, Pigs 6.64million and Poultry, 166million. Meanwhile, current estimates of Poultry & Milk supply are 0.27million metric tones and 0.15million metric tonnes respectively while Demand estimates are 0.5 million metric tonnes and 0.65m million metric tonnes. This scenario creates an annual shortfall of shortfall of 0.23m million tonnes for Poultry and 0.4million metric tonnes for milk.

The daily animal protein intake per head per day is currently at 10 grams compared to FAO recommended 36 grams.

Factors contributing to poor performance in livestock include the following:

- Poor genetic quality (slow growth & low milk yield)
- Extensive production systems
- Limited input quality and supply
- Increased pressure on grazing land
- Trans-boundary Animal Diseases (TADs)
- Lack of efficient and hygienic Livestock Processing facilities
- Uncoordinated Livestock Marketing System

Figure 9: Livestock Production Levels (MT)



Source: ILCA, NISER, Animal Science Dept. UI, FDLPCS between (1992–1999)

Table 6: Livestock Population in Nigeria 2001 – 2007

Species	2001	2003	2005	2007
Cattle	15,334,618	15,602,601	15,875,267	16,152,698
Goats	45,260,430	47,551,739	49,959,046	52,488,222
Sheep	28,692,632	30,086,406	31,547,883	33,080,353
Pigs	5,249,538	5,677,901	6,141,217	6,642,341
Poultry	123,966,884	136,673,490	150,682,522	166,127,481

Source: Federal Department of Livestock

Table 7: Livestock management systems in Nigeria

Species	Total	Traditionally Managed (%)	Commercially Managed (%)
Cattle	13,885,813	99.50	0.50
Goats	34,453,724	99.97	0.03
Sheep	22,092,602	99.84	0.16
Pigs	3,406,381	96.76	3.24
Chicken	72,400,850	86.17	13.83

Source: Federal Department of Livestock

Table 8: Major areas of Poultry and Livestock distribution in Nigeria

Species	Zones	% Concentration
Cattle	NE/NW/NC	85
Goats	NW/NE/NC	80
Sheep	NE/NW/NC	70
Pigs	NC/SW/SE	80
Poultry	SW/SE/SS	85

Source: Njoku 2007

Pest Control ; A chapter on this.

5.2. CONSTRAINTS

Factors limiting livestock production in Nigeria include:

SEED STOCK

Most of the local livestock in Nigeria have poor genetic potentials and consequently have low meat and milk yield. Also, artificial insemination (AI) is almost exclusive to the few large ranches and a few research stations. In poultry, the availability of good quality day old chicks and turkey poults is limited.

MANAGEMENT (EXTENSIVE VS INTENSIVE)

Over 90% of Nigerian livestock are extensive managed except for some 13% of intensive poultry production (Table 2). This consequently exposes the animals to inclement weather and high predation.

FEED

Consequent on limited supply of grains and lack of standards, animal feed is expensive and of poor quality. For ruminant animals, there is limited access to good pastures; efforts at developing grazing reserves have been unrealized. Consequently, most animals are usually underfed.

Inadequate quantity of good quality feeds all year round.

DISEASES AND PESTS

As a result of high ambient temperature, there are varied diseases and pests. Recent bad experiences with Avian Influenza and with similar Trans-boundary Animal Diseases (TADS) have resulted in coordinated and concerted efforts at eliminating the diseases. However, the effect of their previous occurrences decimated poultry and livestock in sad proportion. Veterinary drugs are expensive and generally of uncertain quality.

PROCESSING TECHNOLOGY AND MEAT HANDLING

Meat processing in Nigeria is generally conducted in unsanitary environments. Most abattoirs in urban centres have limited supply of water and technology is very rudimentary. Meat handling methods are unhygienic. There are very few milk processing plants; so most dairy products are imported.

CREDIT

Consequent on the long gestation period for most livestock species, financial institutions are usually unwilling to grant credit to livestock farmers.

EXTENSION SERVICES

In general, the current extension system has become ineffective with poorly resourced staff. Typically, extension staff are not primarily livestock specialists and consequently are limited in their capacities to deal with farm problems.

The extension services delivery system is also poor.

MARKETING STRUCTURE

The livestock marketing structure is under-developed. Animals for slaughter are inefficiently trucked and in most cases trekked over long distances and in most with significant loss of value and quality. Meat sales outlets are open and unsanitary

Other problems attendant on the livestock industry include the following:

- Inconsistent agricultural policies
- Dearth of reliable planning statistics
- Poor research uptake
- Seasonal rainfall, low irrigated land area
- Extension (poorly resourced, multi-commodity, low morale)
- Lack interest in livestock farming because it is not considered as a lucrative enterprise
- Low land area per farmer, value of rural land (non-collateralizable)
- Credit – access and management
- Poor rural infrastructure

5.3. STRATEGIC OBJECTIVES

The primary objective is to close the supply-demand gap in livestock production and related products by 2011

Table 9: Livestock & Fisheries Production Target

Livestock	Current Population, 2008	Target Population, 2011
Poultry	166,000,000	249,000,000
Goat	52,400,000	67,600,000
Sheep	33,000,000	42,900,000
Cattle	16,000,000	20,000,000
Pig	6,640,000	8,250,000
	Current Production, MT	Target Production, MT
Fish	635,379	1,500,000

5.3.1. Recruitment of Livestock Farmers

The current scenario recognises that existing farmers in most parts of the country are ageing. Initial actions on the Intervention Programme will be directed at the attraction and recruitment of new farmers. Different incentive Programmes will be drawn up targeted at each of the three (3) different categories of farmers required to drive the Nigerian Agricultural production base:

Large-Scale Livestock Farming

Land Acquisition and Preparation, as well as Ranch Facilities Development Schemes will be introduced by government in specific locations nationwide to attract large-scale livestock farmers as well as catalyse the up-scaling of the operations of medium-scale farmers into large-scale farming. Government will provide fiscal incentives, such as tax credit schemes on agricultural inputs, to incentivise large-scale operations.

Collaborating with commercial banks, seed funding will be provided to support these schemes.

- Federal government will float a N200 billion bond for on-lending to commercial farmers to fund farm set-up interest free
- Large-scale farmers will be recruited through private-sector partnerships to produce strategic crops for livestock
- Each State will develop and present large-scale livestock farming proposals to the Federal Ministry of Agriculture & Water Resources to attract Federal Government's counterpart funding and support
- State governments will provide land and at least 15% equity in the cost of set-up of large-scale livestock farms
- State and local governments will also provide support and infrastructure e.g. power, access roads, e.t.c.
- Commercial banks will provide Federal Government-guaranteed funding facilities for livestock farm operations
- The Federal Government will drive the fight against desert encroachment in collaboration with state governments.

Medium-scale Farming

Special collaborative Programmes will be established to support medium-scale farmers with features similar to those for large-scale livestock farmers above. In this case however, micro-finance institutions will also provide government-guaranteed funding facilities to farmers.

Small-scale Farming

An aggressive Programme will be pursued to recruit a new breed of small-scale farmers through the process of driving a complete overhaul of the support system for small scale farming in Nigeria. Young, educated and knowledgeable individuals will be encouraged to take up livestock farming through the provision of soft loans, and continuous technical support.

The sheer number of small-scale farmers in Nigeria suggests that a collaborative approach be adopted in their recruitment. Farmers' cooperative societies will therefore be promoted through which technical and funding support will be provided to these farmers.

Trans-humance Livestock Production (Nomadic Pastoralists)

Trans-humans livestock production is the predominant form of ruminant livestock rearing in Nigeria, and indeed in the West African region, by the nomadic Fulanis, who own at least 90% of the cattle population in Nigeria.

They are however constrained by the following:

- The seasonality and availability of grazing material along the stock routes
- Dwindling grazing areas from over-grazing, desert encroachment, and human population growth and urbanization
- Limited watering points along the stock routes
- Non use or lack of feed supplements
- Lack or unaffordable veterinary services
- Gradual shift from the present predominant transhumance pastoralism to semi-intensive and finally intensive system of production

Therefore, the following broad strategies are recommended:

- Gazetted grazing reserves should be developed and provided with essential infrastructure, such as earth dams, nomadic schools, and improved pasture
- Demarcating appropriate stock routes
- Provision of animal health facilities and livestock extension services in the grazing reserves and along the stock routes

5.3.2. Focus on Strategic Animal Commodities

In order to ensure the highest impact from the Intervention Programme, livestock and fisheries have been identified as being of strategic importance and will attract primary attention in the quest for food security in Nigeria. Strategic livestock, poultry and fish commodities are:

Table 10: Strategic Livestock Commodities

	North East	North Central	North West	South West	South East	South South
Livestock & Fisheries	Beef Milk Poultry Egg Pork Mutton Fish	Beef Milk Poultry Egg Pork Mutton Fish	Beef Milk Poultry Egg Pork Mutton Fish	Beef Milk Poultry Egg Pork Mutton Fish	Beef Milk Poultry Egg Pork Mutton Fish	Beef Milk Poultry Egg Pork Mutton Fish

The objective is to encourage specific states to focus on the production of specific livestock commodities (at least 2 commodities, Table 2 above) for which it has comparative advantage with the goal of achieving optimal productivity. Detailed operational plans for each of these animals are contained in the Action Plan section of this document.

5.3.3. Expansion of 'One-Stop' Agric Extension Services

Similar to crop agriculture, livestock extension service will be professionalised and state governments will establish farm support centres as “one-stop” facilities in each local government in partnership with the private sector to train and teach new farming techniques with the objective of achieving best practices in livestock production. The Centres will also be used to provide inputs. (See Figure 7: Extension Services Provision & Supervision).

5.3.4. Provision of Strategic Inputs for Livestock and Fisheries Production

A key factor undermining the productivity of the Nigerian livestock sector is the inadequacy of strategic inputs. There are four (4) key inputs that, once addressed, will significantly transform the production base of the sector:

- **Brood Stock and Fingerlings Development and Distribution:**

The National Animal Production Research Institute (NAPRI) as well as the National Institute for Fresh Water Fishery Research (NIFFR) will be strengthened to provide high yield, high resistant certified brood stock and fingerlings for livestock and fisheries. The research and partnership frameworks for the council and these institutes will therefore be enhanced to perform these roles.

The Federal government will support the establishment of hatcheries in each geo-political zone while state governments will subsidize the supply of the day-old chicks, brood stocks and fingerlings to farmers

- **Soil Analysis & Agro-climatological Services**

In line with provision for crop agriculture also, FMA & WR will facilitate soil analysis across the entire nation to determine the national soil profile and fertility picture. Results of analysis will be used to advise livestock and fish farmers.

- **Livestock/Fish Feed production & distribution**

The national production capacity for livestock/fish feed and pre-mix will be significantly improved with the objective of ensuring 100% local production by 2011. Focus will be on defining feed quality standards, significantly improving the quality of livestock feed as well as enhancing the capacity utilization of existing feed plants. Also, new plants (large, medium and small-scale) for livestock, poultry and fish feed will be established with the objective of achieving self sufficiency in the next three years. Incentives and flexible financing will be provided to local feed supplement and premix manufacturers to enhance availability and quality of livestock and fish feed. These initiatives will be private sector-led through Public-Private Partnership (PPP).

- **A Shift Towards Intensive Livestock/Fish production**

The general management practice in Nigerian livestock production is extensive. A conscious drive will be made to effect a shift intensive production. This will reduce predation, disease, as well as predispose the animals to better feeding and care. PPP will also be used to drive increased mechanisation and intensive production. Flexible purchase and leasing Programmes will be designed to support livestock farmers at low cost. Soft loans will be provided by government through commercial banks for large-scale farms and micro-finance institutions for medium and small scale farms.

A private sector-led livestock value-chain system (i.e. production, processing, transportation, storage and sales outlets) will be established with the following equity participation:

- 10% equity participation from the Federal Government
- 20% equity participation from State Government
- 70% equity participation from Private Sector (through on-lending from commercial banks)
- 100% funding for operations should be provided by the private sector

- **Mechanism for input Service Delivery**

All identified strategic inputs for livestock and fish commodities production and delivery for small and medium scale production will be channelled primarily through the proposed extension service systems. The efficiency of the mechanism will be enhanced through the establishment of farmers' input delivery cooperatives, which will be at the community, local government area and state levels. State and local governments will facilitate and encourage the establishment of these cooperatives.

5.4. OTHER KEY STRATEGIES

Other critical strategies for the improvement of livestock/fisheries production include:

- Definition and implementation of standards for livestock species, feeds and processing
- Promotion of "Shika Brown" egg birds. Promote establishment of one additional hatchery in each geo-political area
- Support research and training in livestock production including on livestock statistics
- Extensive monitoring and control of livestock diseases and pests
- Provide support and promote expansion of livestock value chain to incorporate modern production, private healthcare delivery; transportation and processing; including the establishment of modern abattoirs and sanitary sales outlets across the states
- Support establishment of new livestock facilities/farms or improvements with 30% subsidy
- Support establishment of peri-urban dairy plants in 12 centres per annum
- Re-establishment of grazing reserves and stock routes

5.5. STAKEHOLDER ROLES

The general approach will be PPP frameworks to support production schemes and Programmes. Each stakeholder will have specific roles to play thus:

5.5.1. Federal Government (FGN):

- The Federal Ministry of Agriculture and Water Resources (FMA&WR) will play the planning, coordination and facilitative role in the overall scheme.
- FGN will provide financing for large scale farming (crops, livestock and fish) through the floating of a N200bn bond.
- FGN will also provide subsidy for various inputs including livestock feeds and supplement/ premixes, drugs as well as required funding for research efforts/ initiatives

5.5.2. State and Local Governments

- State governments will also play a financing role by funding the proposed Farm Support Centres and providing funds to commercial banks and micro-finance institutions for on-lending to small and medium scale farmers
- State governments will subsidize the supply of day-old chicks, brood stock and fingerlings to farmers
- State governments will set annual target production levels for each species of strategic importance in the state

5.5.3. Private Sector

Private sector participants will include private agri-business companies, major users of agro-products, commercial banks, micro-finance institutions, construction companies, non-governmental organisations e.t.c. Private sector will collaborate with various tiers of government to finance and execute and operate major Programmes and projects in these schemes.

5.6. REQUIRED LINKAGES

There are several dependencies to the production enhancement strategies outlined above that must be paid special attention to ensure success. These include:

5.6.1. Crop-Livestock Interaction

Livestock significantly depends on crop products, by-products and residues. Consequently, a direct relationship will exist between growth in crop production and the success of the proposed livestock programmes. Also, innovative efforts should be made to take advantage of local food sources, for example, excess cassava production.

5.6.2. Other Fiscal Policies

An enabling fiscal environment will be required to support the schemes. Duty waivers for importation of agricultural inputs, for example, will have a major impact on success. Other considerations are tax credits and waiver of levies for agricultural activities.

5.6.3. Energy and Industrial Capacity:

The viability of the schemes, particularly storage and processing facilities, will be highly dependent on the effectiveness and operating cost of the industrial base of the country. Most mechanized production systems, for example will only be commercially viable if current inefficiencies in power and supply of raw materials (petrochemicals, steel e.t.c.) are addressed.

5.6.4. Microfinance:

Poverty is probably the most significant constraint to agricultural development in Nigeria today, given the large involvement of peasant farmers. To effectively tackle this issue, existing microfinance arrangements must be reviewed to ensure adequate support for financing poor small-scale farmers.

5.6.5. Education:

The quality of farmers and extension workers recruited will be highly dependent on the effectiveness of basic education as well as the agricultural Programmes delivered in tertiary institutions across the nation. Livestock extension staff, who shall be professional practitioners, will be required to undergo professional continuing education on a regular basis to ensure razor-sharp sensitivity to needs of the livestock farmer.

5.7. STORAGE

The overall objectives of improving food storage in Nigeria as a means of guaranteeing food security is to ensure stability in food supply and avoid price volatility post-production, improved food quality and adequate local supply of products for industrial processing, local and international. Livestock storage requires a relatively different approach from crops. Because of the wetness of most livestock and fish products, it will be necessary to promptly condition the environment of the products post-slaughter or capture to eliminate possibilities of contamination.

Consequently, appropriate meat, fish and other livestock products preservation facilities will be set up proximal to abattoirs and fish-handling ports and near eventual sales outlets. Because of the disperse nature of animal slaughter across the country, it will be necessary for local governments with the assistance of states to set up meat and fish stores with appropriate infrastructure. Livestock and fish products retailers can source their stock from these stores for eventual disposal at the conditioned sales outlets.

5.7.1. Distribution Systems

Distribution of livestock products shall be in appropriate refrigerated vans for meat, fish and eggs as well as well aired vans for live birds. The current transportation of live large animals by truck is inefficient and results in a loss of at least 2% of live weight and quality of meat. The intervention in this scheme will drive for the establishment of a veritable value chain which will promote the localization of animal processing at the points of production, transportation in refrigerated vehicles, and storage in conditioned facilities and sold from hygienic outlets.

5.7.2. Stakeholder Roles

5.7.2.1. Government:

There will be a significant shift in the role of government from management and price determination to regulatory and financing.

Key roles of government include:

- Establishment of feed and operational standards
- Legislation of the enabling legal and regulatory framework for warehouse receipt systems, warehouse licensing and inspection systems, performance guarantee systems and commodity trading and information systems

- Government will provide soft loans through commercial banks for the establishment and/ or construction of privately-owned and operated value chain facilities
- Government will also explore BOT arrangements for financing these facilities

5.7.2.2. Banks:

The role of banks shall be the same as indicated for crops

5.7.3. Required linkages

5.7.3.1. Energy and Industrial Capacity:

There will be significant dependence on the power supply for the success of the storage schemes described above. The storage of livestock and fish products is highly technical and requires very stable operating environment which all stakeholders must endeavour to sustain.

5.8. PROCESSING

The role of processors in achieving food security is critical to ensuring the quality/wholesomeness, availability and affordability of food. Key initiatives will be commissioned to improve the livestock processing capacity in Nigeria. The schematic below describes these initiatives and the stakeholder involvements:

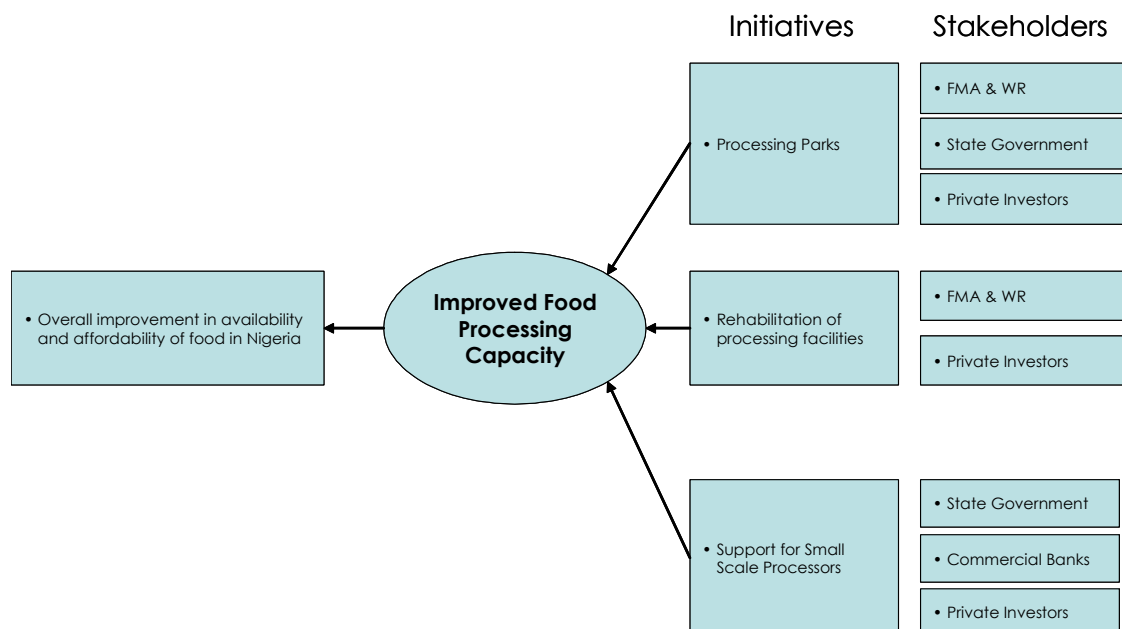


Figure 10: Paths to improvement in Livestock Processing in Nigeria

The processing and distribution value chain is illustrated in **Fig. 11** below:

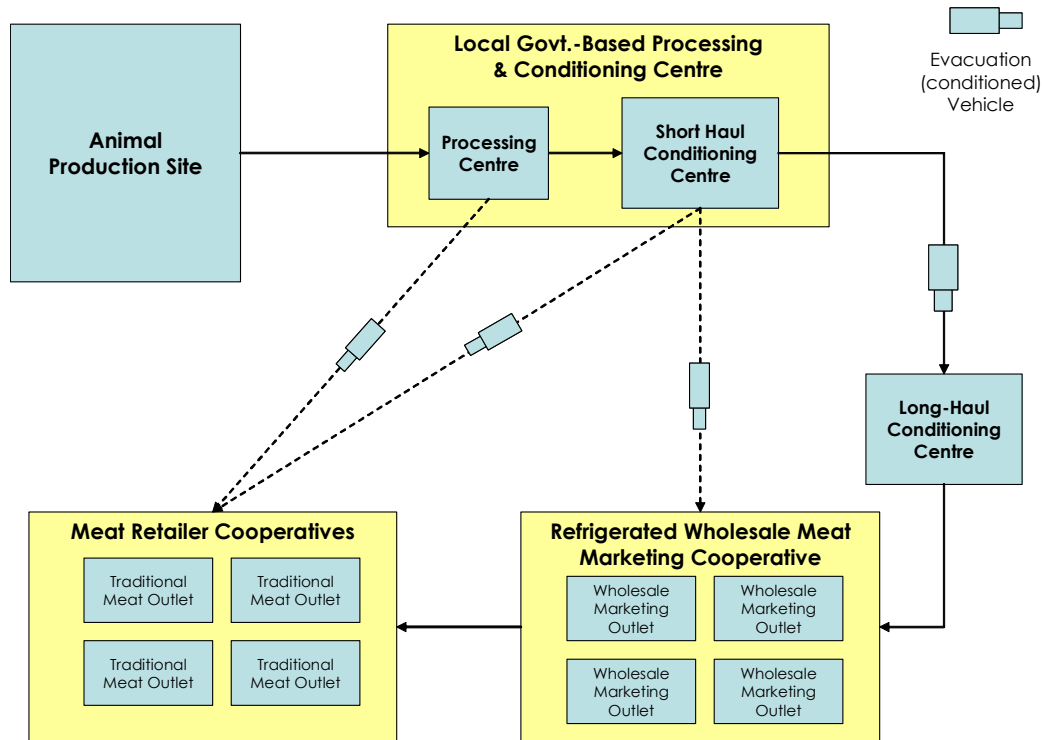


Figure 11: Livestock Processing/Distribution Value Chain

In this model, Livestock is processed at appropriately sized abattoirs, located in areas of high concentration. The abattoir will have adjoining refrigerated space to ensure a quick drop in the temperature of the meat. From the storage facility, commercial wholesalers/retailers pick up livestock/poultry/fish products for distribution in their catchment areas in refrigerated vans/ trucks. Meat is subsequently sold through meat outlets that are conditioned.

Responsible regulatory agencies will set appropriate processing/hygiene standards for the various units of the value chain.

5.9. STRATEGIC INITIATIVES

Nigeria loses significant value of between 15% - 40% of products from its inability to process most of its agricultural production. This has placed the country in the position of being a net importer of food items. Focus will therefore be placed on improving the processing capacity within the country towards achieving self-sustainability

5.9.1. Processing Parks

States and Federal Government will collaborate to establish Agro-industrial parks which will be established in every senatorial district nationwide and will be private sector-managed. Each will house industries, which in total will employ up to 20,000 workers in each state. It will include well structured modern factories and processing plants with grading systems and standards, quality controls, quarantine services, power security and water. These agro-industrial parks will be situated as near the production areas as possible to reduce the logistical constraints distance may pose.

The short-term approach to improving processing will be to import processing equipment while the long-term approach is to encourage the set-up of assembly plants for processing equipment in Nigeria

Special emphasis will be placed on processing the key crops targeted for production in this intervention.

5.9.2. Support for Small-scale Processors

Financing for small scale processors will be provided in partnerships with commercial banks and government will provide fiscal incentives for importation of processing machines and technologies into the country

5.9.3. Rehabilitation of processing facilities

Government owned processing companies requiring rehabilitation will be revitalised to achieve to full operations using the Rehabilitate, Operate and Transfer (ROT) scheme.

5.10. STAKEHOLDER ROLES

5.10.1. Government:

- Federal government will initiate Agro-industrial projects and part-finance by 30%, while state governments will provide the rest of the fund.
- The Federal government will also identify private sector firms to assist with implementation early in the process
- Provision of fiscal incentives for processors including tax credits, duty waivers e.t.c.

- Promulgation of enabling policies to ensure the competitiveness of local processing outputs and thereby protect the fledgling industry from external competition
- Government will ensure the involvement of appropriate regulatory and other essential agencies to ensure operational and quality standards for processing centres

5.10.2. Banks/ Financial Institutions:

- Banks/ financial institutions will provide financing for Agro-industrial processing parks as required
- Microfinance institution

5.10.3. Agro-park Concessionaires

- The agro-park concessionaires will be responsible for the provision and maintenance of the appropriate facilities for the effective operations of processors
- The concessionaires will provide technical and marketing assistance to processors within the park
- Processors will be encouraged via communications and training to ensure they benefit from new processing arrangements, improved access to financing and minimum operational and quality standards required from operators.

5.11. REQUIRED LINKAGES

5.11.1. Energy and Industrial Capacity:

There will be significant dependence on a reliable infrastructure base to effectively support the processing centres and ensure cost-effective operations. This includes power supply, water, logistics and access road networks.

6. MARKETING

The agriculture policy would be incomplete without a coherent strategy for developing efficient infrastructure for the marketing of agricultural products. An efficient market infrastructure is a precondition for improved agricultural output, by providing better prices to producers and fairly priced products to consumers (See below figure **13**: Improvement in Marketing)

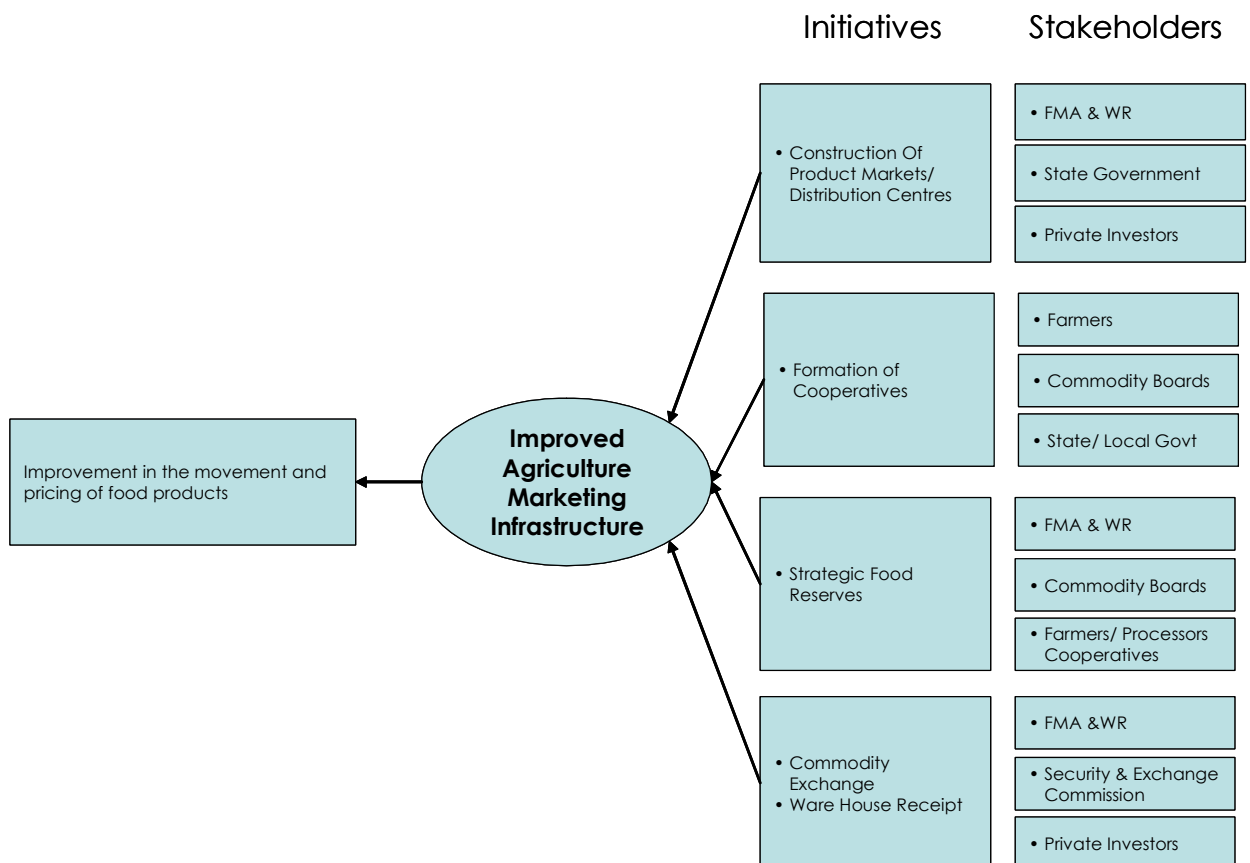


Figure 12: Improvements in Agriculture Marketing

The marketing strategy will focus on two broad areas:

- Market needs of producers for the assembly and marketing of surplus product in the local market
- Market needs of wholesalers and retailers for the distribution of agricultural products, locally and abroad

6.1. KEY PLAYERS

Key Players in the marketing network include:

- Farmers/producer cooperatives
- Local Govt. distribution/ marketing centres
- Independent traders
- The Government through National Food Reserve Agency (NFRA)
- Commodities Boards
- Commodity Exchange

6.2. GUARANTEED MINIMUM PRICING

In the bid to encourage optimal productivity of the supply side of agriculture production, State Governments will institute “Guaranteed Minimum Pricing” as well as the “Buyer-of-Last-Resort” strategies especially for identified strategic agric commodities. In this bid, Licensed Buying Agents will be reinstated while the roles of the three commodity companies will be reviewed as Buyers of Last Resort.

Moreover, state governments will facilitate the establishment of three forms of farmers’ cooperatives in order to ensure sustainability and improved access to the market:

- Input Delivery Cooperatives
- Production Cooperatives
- Marketing Cooperatives

Enabling policies and proper mechanisms to ensure full adherence will also be put in place to encourage the market uptake of agriculture products such as the policy enforcing the inclusion of 10% cassava flour in bread production.

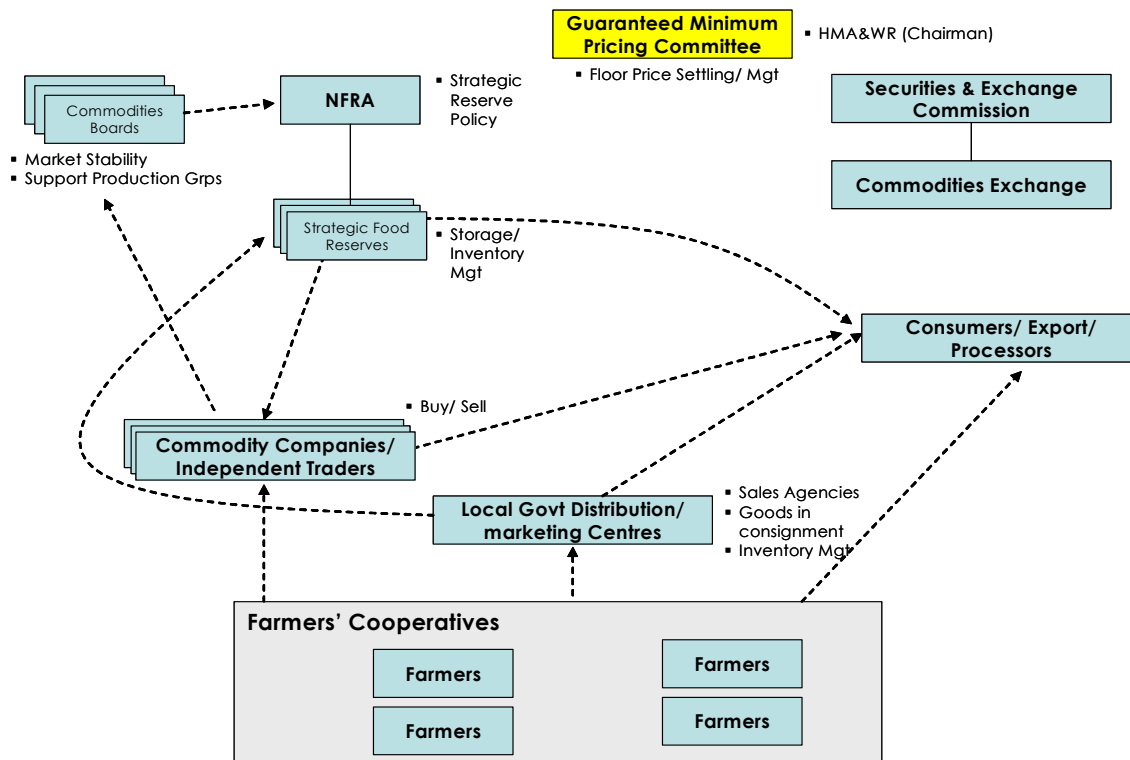


Figure 13: Food Reserve Marketing Framework

6.3. CONSTRUCTION OF PRODUCT DISTRIBUTION / MARKETS CENTRES

Product markets or distribution centres will be set up in each local government. The distribution centres shall be sited in locations that are easily accessible to buyers and sellers. There shall be appropriate storage facilities around every distribution centre.

6.4. INVESTMENT IN TRANSPORT NETWORK

In order to make it easy for rural and smallholder farmers to take their product to the nearest product market, there will be strategic investment in the rehabilitation of roads and other transport network, especially around areas where there is significant agricultural activities.

6.5. STRENGTHENING OF THE NATIONAL FOOD RESERVE AGENCY (NFRA)

The NFRA shall be under the Federal Ministry of Agriculture & Water Resources. It will have overall responsibility for regulating the different agriculture marketing boards that will be set up to coordinate the marketing of farm products in Nigeria and beyond. The NFRA shall facilitate stakeholder discussions on agriculture marketing plans and ensure the marketing boards operate according to their mandates. In conjunction with the respective marketing boards, the NFRA will play key roles in developing export market for agricultural product.

6.6. ESTABLISHMENT OF AGRICULTURE COMMODITIES BOARDS

Commodities boards will be set up for select products. The Boards will coordinate the marketing of the product of members. Specific roles for a marketing board shall be determined by each board's mandates, operating procedures, and marketing plan. The marketing plans will vary depending on the degree to which the board influences how producers sell their commodities and how companies that purchase agricultural commodities (i.e. food processors, dealers) source and purchase their requirements.

Depending on their operating procedures, some boards may simply provide market information to their producer members and support research and promotion, while others could also negotiate with buyers to determine the price that will be paid to farmers.

In consultation with the NFRA, marketing boards may recommend minimum price for some farm product that would be guaranteed by the government under a farm product insurance scheme.

6.7. COMMODITY EXCHANGE

The operations of the Abuja commodity exchange market will be re-engineered in preparation for full operations to support full trading of agricultural products as well as warehouse receipts/ warrants as securities. The right legal and regulatory environment will be established to facilitate its operations.

- Federal Government should put proper mechanisms in place to enforce full adherence to the inclusion of 10% cassava flour in bread production

7. THE CASE FOR BIOFUEL AND CARBON CREDITS

7.1. INTRODUCTION

Biofuels are the solids, liquids and gases derived from living organisms and used as 'clean' fuels in place of traditional fuels like petrol, coal and nuclear derived sources. Biofuels are environmentally friendly and renewable as they are based on the carbon-cycle. The biofuel resulting from burning bioethanol is equal to what would be soaked up from the plants used to produce it, so it would not increase Green House Gases (GHG) in the atmosphere like fossil fuels do.

The most commonly used biofuels are vegetable oil, methanol, ethanol and butanol. In the Western nations; UK, US, Europe etc biofuels are used to power machines, generate electricity and transport vehicles. Of recent, biofuels have gained more popularity globally as a result of concerns over the environment, Oil's peaking price and instability in the Middle East. The USA has stated that it will replace 75% of its oil import from the Middle East (its main source of oil importation over 50%) by the year 2025.

Raw materials for making biofuels include: corn, cassava, sugar cane, soya beans, etc these are now increasingly unpopular due the global outcry against food shortages. Other raw materials include non-edible sources such as Jatropha plant and the waste from Sweet Sorghum, which do not impact on the food chain.

7.2. ARGUMENTS FOR BIO FUELS PRODUCTION IN NIGERIA:

Price of traditional Fuels is going up: The price of Crude is now well over USD110/barrel. These levels are considered uncompetitive for the World's largest economies and have had a catalytic effect on the drive for alternative fuels.

Cleaner Fuels are required to Combat Global Warming: The growth of the trend toward cleaner non-polluting sources of energy, the Kyoto protocol and worries over global warming have also driven the market for Biofuels as less polluting sources of energy for running cars and industry.

Increased demand for Fuel and Energy: The growth of new industrial nations like China and India, growth of industry in Western nations, and the increasing scarcity of traditional sources of fuels and energy have led to the World's major powers seeking alternative sources of energy. Biofuels are being increasingly demanded as an acceptable substitute for traditional sources of energy

Crops are used for Bio fuels: Crops including edible crops such as Maize, Cassava, Rice, Oil palm, Jatropha, Sweet Sorghum, Sugar Cane, Millet are all used to generate Biofuels, Nigeria can produce a number of these. But of course as a result of global food scarcity the use of food crops for generating Biofuels is not a good policy to follow in a developing nation, even if it will earn revenues from Biofuel production that can then be exported to Western nations. Though countries like Brazil argue that they have successfully used sugar cane for Biofuel production since the 1970's, and stated that this is an area of competitive advantage for them so they want to continue to produce biofuel from this food crop.

Use of Non-food Crops for Bio fuel and Bio diesel production: A number of countries including China, India, Malaysia, Thailand, Brazil and South Africa are already at the forefront of biodiesel production from non-food crops like Jatropha and the waste from food crops such as Sweet Sorghum.

Nigeria's Competitive Advantage in the Use of Jatropha for Bio fuels Production: Jatropha is a tropical and semi-tropical plant that does well even in soils that cannot be used for food production. Jatropha has grown well in Nigeria for many years even though it has remained largely uncultivated, it has grown in the wild without us knowing the value of the crop or its use for Biofuel production until recently. Jatropha is known locally all over Nigeria it is called **Lapa-Lapa in Yoruba; Ncheogba in Igbo** and **Binidazugu in Hausa**.

Jatropha as a Source of Revenue for Nigerian Farmers: Nigeria has an excellent climate and 'non-edible crop growing land' availability, for the growth of Jatropha to use in Biofuel production in commercial quantities. Jatropha will form an excellent source of revenue for Nigerian farmers who will be able to grow the crop with very minimal assistance by way of fertilizers and other inputs etc to support its growth, due to the ideal growing conditions for this crop that exist naturally in this nation. Jatropha needs 18 months for the seedlings to take root and 3 years in total to mature, then continues to be productive for another 30 years with little or no support from irrigation.

A number of companies in the West are already searching for ways of sourcing commercially available quantities of Jatropha for biofuel production, a UK based company called D1 Oils plc, which designs, builds, operates, markets and refines its own biofuels is working closely with the governments of South Africa, Swaziland, Zambia and Madagascar to roll out production of non-edible energy crops. BP has undertaken to invest USD100m in a joint venture with D1 Oils plc. An Australian company called Mission Biofuels Ltd has raised more than USD80m from investors and is signing up farmers in India to grow non-edible energy crops.

Carbon Credits as a large Additional Source of Revenue for Biofuel Producers:

Due to the clean nature of biofuels as a non polluting source of energy, the process for production and sale of biofuels will lead to generation of carbon credits in line with the Clean Development Mechanism (CDM) of the Kyoto protocol. The carbon credits will be earned as a result of the displacement of GHG fuels as a result of the use of biofuels. The benefits from this additional source of revenue will best accrue to biofuel producers who undertake the production and sale of biofuels from the farmers of the crop.

There are already a number of integrated projects being conceptualized in Nigeria where non-food crops including *Jatropha* and waste from Sweet Sorghum will be used to produce bio-fuels which can then be sold in commercial quantities either locally or to international companies such as D1 Oils plc.

Leading banks in Nigeria have created alternative energy desks in order to facilitate the process of earning carbon credit revenues for biofuels production businesses. These banks will assist the project owners in identifying suitable projects to qualify for carbon credits, take the project owners through the documentation process, and then finally structure the carbon credit transaction and sell the carbon credits derived for the project owner into the global market in order to generate the revenues. The benefits of such additional earnings will accrue to the farmers of the crops who will have a ready offtaker for their produce in what is a growing market, with the potential for increased demand for the non-food crop for biofuel production in the future.

7.3. HOW CAN GOVERNMENT USE FUNDS TO SUPPORT BIOFUELS PRODUCERS?:

All projects for Biofuels production should be assessed and must stand alone on their own merits. The most effective and efficient way of this assessment process being carried out is through the use of a banking institution who will assess the viability of each project based on their usual criteria of viability, sustainability, infrastructural support, input finance, equity finance, cashflow, revenue and profit generation etc. Each project which is deemed credit worthy from the point of view of the bank can then be put forward for access to government funding in support of relevant start up costs of the project, whether this is for input finance, for machinery, technical support etc. Or for single-digit interest rate loans granted by the banks but subsidized by the government.

7.4. GOVERNMENT FUNDING AND SUPPORT FOR THE PROCESS OF CARBON CREDIT REVENUE GENERATION FROM BIOFUEL PRODUCTION:

The carbon credit origination process has standard and relatively inexpensive costs which must be borne by the project owner. These costs mainly consist of those for hiring a technical consultant who must be employed to write up the project briefs in line with set criteria and methodology laid down by the UN under the Kyoto protocol, which can amount to some USD150,000. The project then needs to be verified by the Nigerian regulator for a minimal fee. Then there is the separate cost of independently verifying the project's viability as a carbon displacement or reduction project which needs to be undertaken by an external UN certified Technical consultant, this can amount to another EUR150,000. Lastly there is the cost of registration which can amount to USD10,000. The total cost of circa USD300,000-450,000 can be prohibitive for a project owner. But such a project can then realize additional revenues of up to USD2.5M and above per annum for a period of 10 Years i.e. USD25M in carbon credit revenues for the project owner.

- **Government Funding Support of carbon Credit projects:** The costs of the consulting and registration process should be funded for the project owner by the government, where a bank that has the relevant expertise in the area of carbon credit origination has assessed that a project appears viable enough to qualify for carbon credits. The government should provide a form of refundable grant which will be paid back in the event that revenues are achieved from a qualifying and registered project that generates revenues from carbon credits.
- **Government Support of carbon Credit Projects in Other Areas:** The policy on Carbon Emissions should be supported (currently being finalized in conjunction with the Presidential Implementation Committee on CDM (the PICCDM chaired by Dr Gardner) and finalized in order to ensure Nigeria has a robust, enabling and transparent policy in place that assists our projects to qualify for CDM registration.

Government should also ensure that all efforts are made to highlight the case of Nigeria and Nigerian CDM projects at the UN, as this will help to ensure that our projects are looked at favourably, and that the general negative feeling toward edible biofuel derived projects does not impact negatively on what should be Nigeria's well supported non-edible derived biofuels projects as this should then ensure an easy passage of qualification at the UNFCCC (United Nations Framework Convention for Climate Change), the body that registers all CDM projects.

8. RESEARCH

Research will be critical in generating new technologies and protocols for all segments of the value-chain. There will be a deliberate effort in improving the operational frameworks of all our 15 existing research institutes. These institutes include:

Table 11: List of Nigerian Agricultural Research Institutes

	Research Institute	Mandate
1	National Veterinary Research Institute	<ul style="list-style-type: none"> ▪ Research into all aspects of animal diseases, their treatment and control. ▪ Development and production of animal vaccines and sera .
2	Lake Chad Research Institute	<ul style="list-style-type: none"> ▪ Research into genetic improvement of millet, wheat, barley and massakwa sorghum ; and ▪ Total farming system for the North East agro-ecological zones covered by Borno, Jigawa, Yobe, Gombe, Bauchi and Adamawa states
3	National Animal Production Research Institute (NAPRI)	<ul style="list-style-type: none"> ▪ Research into genetic improvement of all animals (poultry, cattle, sheep, goats, pigs, donkey, horses, production and animal products. ▪ Research into genetic improvement, management and development of pastures and rangelands
4	Institute of Agricultural Research & Training	<ul style="list-style-type: none"> ▪ Research into genetic improvement of kenaf, jute and soil & water management; and ▪ Research into the total farming systems for the South – West agro- ecological zones covered by Lagos, Ogun, Oyo, Osun, Ondo, Ekiti, Edo and Delta states
5	National Agriculture Extension Research Liaison Services	<ul style="list-style-type: none"> ▪ Development, collation and dissemination of appropriate agricultural technologies. ▪ Monitoring and evaluation of Agricultural technology and its dissemination ▪ collation and evaluation of agricultural information
6	National Cereal Research Institute	<ul style="list-style-type: none"> ▪ Research into the genetic improvement of rice, soyabean, benniseed and sugarcane. ▪ Total farming systems for the ecological zone covered by Kwara, Kogi, Niger, Plateau, Nassarawa, Taraba, Benue states and the Federal Capital Territory.

	Research Institute	Mandate
7	National Root Crop Research Institute	<ul style="list-style-type: none"> ▪ Research into the genetic improvement of cassava, yam, coco-yams, Irish potato, ginger and sweet potato. ▪ Research into the total farming systems for the south-east agro-ecological zone covered by Anambra, Enugu, Cross River, Imo, Abia and Rivers states.
8	Rubber Research Institute	<ul style="list-style-type: none"> ▪ Research into the genetic improvement, production and processing of rubber, gum arabic and other latex producing plants
9	National Institute for Oil Palm Research	<ul style="list-style-type: none"> ▪ Research into the genetic improvement, production and processing of oil, raphia, date, and ornamental palms, coconut and shea tree.
10	Cocoa Research Institute of Nigeria	<ul style="list-style-type: none"> ▪ Research into genetic improvement of Cocoa, cashew, tea, coffee and kola.
11	National Institute for Horticultural Research	<ul style="list-style-type: none"> ▪ Research into genetic improvement and production of fruits and vegetables as well as ornamental plants nationwide
12	Institute for Agricultural Research	<ul style="list-style-type: none"> ▪ Research into genetic improvement of sorghum, groundnut, cowpea, cotton, sunflower; and ▪ Research into the total farming systems for the North-West agro-ecological zones covered by kano, sokoto, katsina, kaduna, kebbi and zamfara states
13	Nigeria Stored Product Research Institute	<ul style="list-style-type: none"> ▪ Research into the improvement of storage of major food and industrial crops. ▪ Research studies on stored product and pests, and ▪ Research into pesticide formulation and residue analysis.
14	National Institute for Fresh Water Fisheries Research	<ul style="list-style-type: none"> ▪ Research into the genetic improvement of freshwater fish species and their production in Nigeria. ▪ Research into long term effects of man-made lakes on the ecology and environment.
15	National Institute for Oceanographic and Marine Research	<ul style="list-style-type: none"> ▪ Research into the resource and physical characteristics of the Nigerian territorial waters and the high sea beyond ▪ Research into the genetic improvement of marine and brackish water fish species and aquatic resources, their production and processing.

Other required research institutes may be established as may be defined by the Agriculture Research Council.

All research institutes will be mandated to maximize the benefits from research outputs of corresponding international research institutes through more effective collaboration. These institutes include:

Table 12: List of Relevant International Agricultural Research Centres

	International Research Centres	Mandate
1	International Livestock Research Institute (ILRI)	To carry out research on animal agriculture to reduce poverty, hunger and environmental degradation in developing countries
2	West African Rice Development Association (WARDA)	To contribute to poverty alleviation and food security in Africa through research, development and partnership activities aimed at increasing the productivity and profitability of the rice sector in ways that ensures sustainability of the farming environment
3	International Institute for Tropical agriculture (IITA)	To carry out global research on cowpea, soybeans, banana, plantain and yam and research on cassava and maize in sub-Saharan Africa

Emphasis will be given to collaborative efforts towards clearly defined national agricultural priorities through:

- Nationally coordinated research projects
- Competitive research grant schemes

Researchers will be incentivised through patent rights for striking research outputs/ new productions.

The National Food Security Programme recognizes the need for substantial increased funding of existing research institutes to improve their effectiveness in supporting farmers and other end-users such as processors and marketers.

The Agriculture Research Council will establish a performance management system to hold research institutes accountable for the effective execution of their mandates.

9. FINANCING STRUCTURE

A key consideration for the National Programme for Food Security Program is the immense financing requirements, both in the short and medium term. There are 3 main sources of financing for the intervention. These are:

9.1. FEDERAL GOVERNMENT FUNDING

- **The Supplementary Budget for 2008 Financial Year**
Beside the budgetary allocation to agriculture, supplementary budget will be sourced and aligned to the achievement of the objectives of the program
- **Natural Resource Fund**
The Natural Resource Fund (current balance of N80bn; estimated contribution of N50bn per annum) will be utilized to fund the food security program
- **Agriculture Development Fund (ADF)**
A special Intervention Fund will be established to finance short/medium term government obligations in areas such as Guaranteed Minimum Pricing and other subsidies. ADF will also be utilized for the establishment of micro finance institutions to provide cheap credit to small scale farmers.
- **Federal Government Intervention Bond Issue (Two hundred billion naira)**
Objective is to provide long term credit to private sector entering into partnership with the FMA&WR. Focus of credit facilities will be on large scale farming in the areas of land acquisition, input supply services, specifically Storage, Transportation & Quality assurance for food production e.t.c. Disbursement of the fund is to be through commercial banks.
Target date: June 2008.
- **Agriculture Insurance**
The government will subsidize insurance cover for agricultural production through the National Agriculture Insurance Corporation (NAIC)

9.2. STATE & LOCAL GOVERNMENT FUNDING

- State governments will subsidize the input services (including seeds; brood stocks, fingerlings, fertilizers, extension services e.t.c.) for medium

and small scale farming, as well as cheap financing for small scale processors through banks/ financial institutions.

- State governments will also provide 20% equity for mechanization programs
- State Governments will provide cheap credit to small-scale farmers through microfinance institutions/ similar institutions
- Local governments will fund the provision of required infrastructure e.g. feeder roads, power distribution, etc to farming communities in rural areas

9.3. COMMERCIAL BANK FUNDING

Commercial banks will grant farmers access to credit through special lending schemes (single-digit interest rates) with support from the Federal Ministry of Finance.

9.4. INTERNATIONAL DONOR AGENCIES

Government will actively lobby international donor agencies to partner with local stakeholders to support specific programs.

9.5. SUBSIDIES

Subsidies will be reviewed continuously to ensure effectiveness and desired impact. However, the general direction is to move away from subsidization of direct farm input prone to abuse towards the subsidization of farm output deliveries e.g. land clearing and preparation, seeds and brood stocks, e.t.c. Current subsidy levels are:

▪ Seeds & Brood Stock:	50%
▪ Fertilizer	25%
▪ Agrochemical:	25%
▪ Tractors and equipment/ implements:	25%
▪ Processing equipment:	25%

These subsidies will be applied through established channels especially cooperatives.

9.6. GOVERNANCE

To ensure the effective execution of the Food Security Program, the implementation responsibilities at the Federal, State and Local Government levels for all programs and projects under the overall program and accountabilities will be defined. Implementation monitoring mechanisms will be established through existing governance structures (including the Federal

Executive Council, the Senate Committee on Agriculture, and the FMA & WR) and a consultative forum made up of the members of the civil society, State Government representatives from the six geopolitical zones, Farmers' Cooperatives and the FMA&WR. Independent assessors will be commissioned to assess and report on implementation progress on a periodic basis.

10. ACTION PLANS.

A systematic approach will be adopted in the execution of the Intervention program with specific short-term and medium term measures. The implementation approach is also the key driver to the expenditure plan for the program.

10.1. KEY PRODUCTS & STATES WITH COMPARATIVE ADVANTAGE

10.1.1. CASSAVA

States with comparative advantage for cassava: All States

Target for production for 2008 season is 50.3 million metric tonnes

SHORT-TERM INITIATIVES (2008)

Production Arrangements

- Government Procurement and Distribution of basic inputs for cassava production in all states.
Target date: September 2008
- Extension support by private sector for enhancement of productivity per unit area
Start date July 2008
- Engagement of Private Sector for Value addition emphasis on production, processing and marketing.
Start date September 2008
- Engagement of private sector to provide Training and Capacity building for the stakeholders.
Start date July 2008
- Provide farm power and machinery for land clearing and preparation
Target date November 2008

Finance & Price Support Strategy

- Securing Guaranteed Minimum price
Target date June 2008
- Sustenance of Federal Government price support policy for seeds/ Seedlings at 50%
Target date July 2008
- Sustenance of Federal Government price support for agrochemical and fertilizer at 25%
Target date July 2008
- Sustenance of price support for Tractors and processing equipment at 25%
Target date July 2008
- Attracting Private Sector participation using credit support and financial incentives through FGN Bond.
Target date September 2008

MEDIUM-TERM INITIATIVES (2009 – 2011)

- Develop farm land cadastral survey system that will improve access to credit.
Target date February 2009
- Build and maintain irrigation infrastructure for farmland
Target date March 2009
- Provide for community ownership of thresher hammer mills for processing cassava into flour
Target date September 2009
- Support The National Root Crops Research Institute for genetic improvement of Cassava
Target date: Long Term

10.1.2. RICE

States with comparative advantage in rice production based on hectarage under cultivation include Anambra, Bayelsa, Benue, Delta, Ebonyi, Edo, Kano, Kebbi, Kogi, Kwara, Niger, Ogun, Rivers and Taraba.

Production Target for 2008 Season is 3.4 million Tonnes.

New area to be brought under cultivation in 2008 is 300,000 ha

Strategic Reserves Target is 200,000 metric tonnes of paddy

SHORT-TERM INITIATIVES (2008)

Production Arrangements

- Government Procurement and Distribution of basic inputs for selected crops in selected states.
Target date: September 2008
- Extension support by private sector for enhancement of productivity per unit area
Start date July 2008
- Massive publicity and sensitization of farming communities through radio and road shows.
Start date September 2008
- Engagement of Private Sector for Value addition emphasis on production, processing and marketing.
Start date September 2008
- Engagement of private sector to provide Training and Capacity building for the stakeholders.
Start date July 2008
- Provide farm power and machinery for land clearing and preparation
Target date November 2008

Finance & Price Support Strategy

- Securing Guaranteed Minimum price
Target date June 2008
- Sustenance of Federal Government price support policy for seeds/ Seedlings at 50%
Target date July 2008
- Sustenance of Federal Government price support for agrochemical and fertilizer at 25%
Target date July 2008
- Sustenance of price support for Tractors and processing equipment at 25%

Target date July 2008

- Attracting Private Sector participation using credit support and financial incentives through FG Bond.

Target date September 2008

MEDIUM-TERM INITIATIVES (2009 – 2011)

- Engage private sector to set up commercial farms.
Target date May 2009
- Develop farm land cadastral survey system that will improve access to credit.
Target date February 2009
- Build and maintain irrigation infrastructure for farmland
Target date March 2009
- Support The National Cereal Research Institute for genetic improvement of Rice
Target date February 2009

10.1.3. WHEAT

States with comparative advantage are Bauchi, Borno, Jigawa, Kano, Katsina, Kebbi, Yobe, and Zamfara.

Production target for 2008/2009 season is 75,000 metric tones

SHORT-TERM INITIATIVES (2008)

Production Arrangements

- Increase in output/hectare by introducing the semi-dwarf early maturing varieties of wheat that are more resistant to lodging, more responsive to fertilizer and with yield potential of 3.5 – 4.5mt/hectare.
Target date November 2008
- Agree with selected states on modalities for engaging commercial farmers to cooperate with small farmers to increase area under cultivation during the period 2008/2009
Target date November 2008
- Develop monthly programs with clear targets for River Basin Authorities

Target date July 2008

- Provide improved and adequate inputs such as seeds, fertilizers, agro-chemicals at subsidized rates;
Target date October 2008
- Immediate procurement of certified seed, fertilizers and crop protection chemicals;
Target date October 2008
- Put in place new tractorization scheme in River Basin Development Authorities of selected states for timely land preparation
Target date July 2008
- Train farmers on the use of improved agronomic practices such as correct spacing, timeliness of planting and harvesting
Target date September 2008
- Support for Extension staff to promote Wheat Development Strategies and Training for Farmers and Extension Agents
Target date September 2008
- Publicity and Sensitization will be handled by NAERLS, ABU/Zaria and the Lake Chad Research Institute (LCRI), Maiduguri to promote the Wheat Development Programme
Target date July 2008

Medium term strategy 2009-2011

- Engage private sector to set up commercial farms.
Target date May 2009
- Collaborate with flour millers to provide guaranteed market.
Target date February 2009
- Develop farm land cadastral survey system that will improve access to credit.
Target date February 2009
- Provide farm power and machinery for land clearing and preparation
Target date March 2009
- Rehabilitation of abandoned/damaged irrigation schemes through Public –Private Participation to enhance productivity and accessibility to farmers
Target date March 2009
- Provide for community ownership of thresher hammer mills for processing wheat into flour

Target date September 2009

- Support The Lake Chad Research Institute for genetic improvement of wheat

Target date February 2009

10.1.4. SUGAR

States with comparative advantage are Adamawa, Kano, Kogi, Kwara, Niger, Taraba and Zamfara

Production target for 2008 season is 192,000 metric tones

SHORT TERM INITIATIVES 2008

- Review and effective monitoring of sponsor/farmer relationships within well defined legal framework to protect interest of small farmers
Target date July 2008
- Provide subsidies on sugar production inputs (50% on seeds, 25% on fertilizer, 25% subsidy on agrochemical)
Target date September 2008
- Mobilization/Sensitization of farmers/ out-growers using FBOs (Farmer Based Organisations)
Target date November 2008

MEDIUM TERM INITIATIVES (2009 – 2011)

- Provide framework for commercial sugar farming through land acquisition and clearing schemes
Target date March 2009
- Establish machinery acquisition and leasing program for sugar farming
Target date February 2009
- Rehabilitation of abandoned/damaged irrigation schemes through Public –Private Participation to enhance productivity and accessibility to farmers
Target date March 2009
- Establishment of small and large-scale sugar processing mills in selected locations
Target date June 2009

10.1.5. TOMATO

States with comparative advantage are Adamawa, Kano, Katsina, Kogi, Kwara, Niger, Taraba and Zamfara

Production target for 2008 season is 192,000 metric tones

SHORT TERM INITIATIVES 2008

- Utilize the factory-driven, cooperative model for tomato production
Target date November 2008
- Ensure production and use of good quality seeds through tomato research support and breeder seed production
Target date July 2008
- Adequate provision for storage requirements and conditioning centres to curb waste on produce and guarantee self sufficiency
Target date November 2008

MEDIUM TERM INITIATIVES (2009 – 2011)

- Provide incentives for private sector to set up tomatoes processing and canning plants
Target date May 2009

10.1.6. COTTON

States with comparative advantage are Kano, Jigawa, Katsina, Zamfara, Gombe, Ogun and Oyo states

Production target for 2008 season is 100,000 metric tones

SHORT TERM INITIATIVES 2008

- Provide 30% Export Expansion Grant (EEG) to boost cotton production and trade
Target date September 2008
- Provide subsidized inputs to cotton production including seeds, agrochemicals, fertilizer, and machinery e.t.c.
Target date July 2008

- Ensure production and use of good quality seeds through cotton/ fibre research support and breeder seed production
Target date September 2008
- Set up a regulatory mechanism (body) to define commercial standards and provide quality assurance.
Target date July 2008

MEDIUM TERM INITIATIVES (2009-2011)

- Establish 23 new ginneries each with about 5,000 farm families of about 1 hectare
Target date May 2009

10.1.7. LIVESTOCK

States with comparative advantage include Maiduguri, Yobe, Bauchi, Taraba, Adamawa, Gombe, and Sokoto.

SHORT TERM INITIATIVES 2008

- Promote short term fattening programmes for large and small ruminant animals through provision of good feedstuff and water.
- Promote dairy livestock farming
- Establish smallholder fattening schemes for large and small ruminant animals
- Promote peri- urban Livestock production
- Promote livestock farmers cooperatives
- Provide supporting infrastructure for existing grazing reserve such as boreholes, earth dams e.t.c.(currently 2.2 million hectares)
- Provision of feed for poultry and other livestock
- Support the establishment of hatcheries for Poultry
- Provide disease control & extension services as well as vet care services. (outsourcing).
- Government needs to intervene in provision of qualitative livestock feeds and in sanitary livestock processing.

MEDIUM TERM INITIATIVES (2009 – 2011)

- Settlement of Fulani Pastoralist in the grazing reserves based on Agro pastoralist Development Concept
- Support the development of abattoirs and livestock product market infrastructure
- Upgrade the Kaduna Dairy Plant and its operations

- Model the centralized milk processing as currently obtains for pastoral producers at Kaduna Federation of Milk Producers Cooperative across the nation
- Establish peri-urban milk cooperatives with cooling plants and cottage dairies.
- Provide about N15 billion with maturity by year 2010 to actualize self sufficiency in dairy
- Promote large scale commercial producers
 - Facilitation of land acquisition
 - Free importation of live breeding animals
 - Rehabilitation of decapitated livestock breeding and improvement centres/ poultry production units – leasing to prospective farmers
 - Provision of production infrastructure at subsidized rates.

10.1.8. POULTRY

States with Comparative advantage: All states

SHORT TERM INITIATIVES 2008-:

- Support poultry farmers and feed millers. Excess grains could be diverted to feeds.
Target date Sept 2008
- Open Nucleus Breeding System. Modify breeding systems to improve the genes. Select proper breeds with good tolerance against diseases.
Target date October 2008
- Promote the distribution of “Shika Brown” egg bird and Support the establishment of hatcheries in each geo-political zone
Target date July 2008
- Extension support by private sector for enhancement of productivity per unit area
Start date July 2008
- Provide subsidies on poultry production inputs (50% on brood stocks, 25% on feeds, 25% subsidy on agrochemicals)
Target date September 2008

SHORT TERM INITIATIVES 2008-:

- Establishment of poultry storage facilities with conditioning centres
Target date May 2009

10.1.9. FISHERIES

States with Comparative Advantage (Aquaculture)

- Nationwide.

States with Comparative Advantage (Artisanal i.e. capture fisheries)

- All coastal States, Anambra, Benue, Borno, Bauchi, Kebbi, Kano, Katsina, Kogi, Niger, Nasarawa, Taraba, Jigawa, Yobe and the FCT.

States with Comparative Advantage (Industrial)

- Akwa-Ibom, Bayelsa, Cross River, Delta, Lagos, Ondo, Ogun and Rivers.

SHORT TERM INITIATIVES (2008)

- Private hatchery operators will be sensitized, mobilized and commissioned to produce about 1.0 billion Tilapia, Catfish, Carp and Heterotis fingerlings.
- Existing Federal Dams and Reservoirs will be stocked and fishermen cooperative members registered and trained to use and manage the fish resources of the water bodies.
- Provision of fishing inputs comprising nets, hooks, twine, outboard engines (OBE), ropes, floats and sinkers to fisher folks through the NACRDB to increase fish landing and catch per unit effort (CPUE).
- Popularization and promotion of three major fish smoking ovens namely, Chorkor kiln, Burkinabe oven and improved metal/steel oven nationwide.
- Sensitization of Nigerians to the various fish farming production systems through the media and other mass information facilities.
- Fingerlings will be distributed to small scale fish farmers free while large scale farmers will get fingerlings at 50% subsidized rate.
- Government will establish linkages between fish feed producers and large scale farmers while small scale farmers will be encouraged and trained to produce high quality feed using available raw materials within their localities.
- Establishment of flow through fish production technology in all the 774 local Government Headquarters nationwide.
- Partnership between the Federal Government and Coastal States to provide security to fishers operating within the coastal inshore area.

Assist fishers with linkage to credit and market.

MEDIUM TERM STRATEGY (2009 – 2011): Develop Industrial Fishing Capability

- Development of Nigeria's fish meal and fish feed industry.
- Utilization of the Lagos Fishery Terminal.
- It is expected that 1.0 million tons of fish will be produced using much of the 1.7 ml hectares of available water bodies in addition to the 60,000 hectares currently deployed.
- Provision of fishing inputs through soft loans granted by the NACRDB.
- Development of adequate processing, preservation and packaging methods.
- Manpower development to suit the industry needs.
- Encourage and empower the co-operative societies to embark on fish transportation venture to ease problems encountered by fishermen and fish traders in moving fish and fisheries products from one place to another.
- Complete taking over of the management of water bodies by the fishers organisations.
- Harvesting of Underexploited species.
- Underexploited species utilisation.
- International markets access

LONG TERM STRATEGY:

Aquaculture

- General adoption and utilisation of concrete and GRP tanks for fish culture.
- Development of an acceptable local fish feed production technology using locally available raw materials.
- Commercialisation of fish seed production.
- Utilisation of all the federally owned dams and water bodies for fish production.
- General adoption of water re-circulatory system as means of commercial fish production.
- Adoption of improved fish processing and preservation technologies as means of increasing product acceptability and marketing.
- Provision and development of fresh fish storage and marketing centres.
- Development of a nationwide fresh fish transportation and marketing system.

Artisanal

- Development of sustainable means of harvesting the resources in the coastal and inland water resources.
- Institution of a production value chain to reduce post harvest loss, preservation and products development as well as marketing strategies
- Training and adoption of the FAO Code of Conduct for Responsible Fisheries (CCRF) by fishers in the utilisation of the inland water bodies for fish production.
- Development of Fisheries Service Centres (FSC) in major fish production centres nationwide.
- Development of Beach Management Centres in major coastal and inland fish landing centres.

Industrial

- Development and completion of the Lagos Fisheries Terminal.
- Ability of the Fishing Companies to import AGO for their operations.
- Development and harvesting of Nigeria's Tuna resources.
- Development of the means of harvesting the lantern fishery resources for fish meal production.
- Implementation of a Vessels Monitoring System (VMS) for the sustainable management of the nation's marine resources.

10.2. IRRIGATION ACTION PLANS

Over the period 2008 to 2012, a total of 454,021 hectares will be brought under irrigation in addition to the existing areas under irrigation. The sum of N462.533 billion will be required to execute the programme

Table 13: Rehabilitation and Expansion of Irrigation Scheme for 2008 - 2012

Year	2008		2009		2010		2011		2012	
	Ha (x 000)	Cost N bn	ha (x 000)	Cost N bn	ha (x 000)	Cost (Nbn)	ha (X 000)	Cost (Nbn)	Ha (x 000)	Cost (Nbn)
Rehabilitation	14.5	8.2	16.1	8.5	16.4	7.4	7.0	0.0	0.0	0.0
Expansion	25	29.9	25.0	29.6	150.0	166.1	100.0	110.4	100.0	102.5
Total	39.5	38.1	41.1	38.1	166.4	173.4	107.0	110.4	100.0	102.5

Table 14: Phasing interventions: Crops, fertilizers, tractors, cooperatives, seeds etc

Short Term (May-Dec. 2008)	Medium Term (2009-2011)	Long Term (2011-2020)
1. Enhancement of fertilizer availability to farmers (650,000 MT in 2008 as against 150,000 MT in 2007)	1. Deregulation of fertilizers and farm inputs.	1. Sustenance of Public-Private Partnership (PPP) in Agriculture
2. Rehabilitation of dilapidated irrigation infrastructure(14,548ha) and expansion of existing irrigation schemes (25,000ha)	2. Rehabilitation of dilapidated irrigation infrastructure (32,455ha) and expansion of existing irrigation schemes (275,000ha)	2. Continue the rehabilitation and expansion of existing and new irrigation schemes
3. Registration of specialized cooperatives in production, credit, processing and marketing	3. Implementation of private sector led community/cooperatives tractor hiring scheme.	3. Strengthening of the Commodity Market System
4. Elaboration of framework for professionalizing extension work	4. Implementation of the States driven micro credit scheme for small scale farmers <u>and</u> concessionary credit scheme for large scale farming scheme from Federal Government.	
5. Kick off of Tractor provision service scheme	5. Sustain the tractor provision service scheme.	5. Manufacturing of tractors and agricultural implements
6. Completion and rehabilitation of 28 silos by the FGN; construction of additional silos and warehouses by states and installation of on-farm storage facilities by farmers'	6.(a) Substantial enhancement of strategic food reserves	6. Construction of additional silos and warehouses by FGN and States
	6. (b) Completion and rehabilitation of silos	
7. Elaboration of subsidy framework	7. Development of Agro Industrial Parks (1 in each geo-political zone)	7. Development of additional Agro Industrial Parks in each geo-political zone
8. Initiation of framework for strategic breeder seed development	8. Establishment of 1,000-capacity Community Farm Centres: (a) 1/LGC to be provided by each State of the Federation (b) 1/Senatorial District by the FGN	8. Establishment of additional Community Farm Centres all States
Short Term (May-Dec. 2008)	Medium Term (2009-2011)	Long Term (2011-2020)

9. Establishment of Conditioning Centres (2 per geo-political zone)	9. Sustain establishment of additional storage and conditioning centres (2 per geo-political zone)	9. Establishment of new additional storage and conditioning centres in the States.
10. Initiate the upgrading of research and teaching facilities in Research Institutes and Universities/Colleges.	10. Upgrading of research and teaching facilities in research institutes and Universities/ colleges	10. Continue upgrading of research and teaching facilities in research institutes and Universities/ colleges
11. Extensive production of foundation seeds of strategic crops	11. Implementation of "Buyer of Last Resort" scheme	11. Generation and development of improved seeds, brood stocks and fingerlings
12. Farmland Cadastral Survey for land certification and farmers registry	12. Sustain Farmland cadastral survey (for agric-land certification and registry)	12. Farmland cadastral survey and certification continues
13. Kick off of the implementation of the Guaranteed Minimum Price (GMP) scheme and buyers of last resort scheme. (stock exchange, buying agent, networking and exporting community, warehousing scheme)	13. Up-scaling the implementation of Guaranteed Minimum Price (GMP) system	13. Development of new irrigation schemes in the Niger-Benue Valley
14. Confirmation of commodities of strategic importance by states and elaboration of formalities for engagement	14. Institute an effective Policy analysis and research programme	
15. Removal of duties and tariffs on rice up to October 31, 2008	15. Maintenance of a strict tariff regime for rice.	
16. Training of first batch of 10,000 extension workers (through an annual seed capital grant)	16. Training of 10, 000 extension workers annually for 3 years.	
17. Expression of Interest for Commercial Banks and Micro-Finance Institutions to participate in the funding network for the Food Security program	17. Establishment of farm service centres (1 per LGA by States and 1 per State by FGN)	
18. Establishment of legal framework and regulation for strategy implementation (legal draft bills approval). The bills include: National Food Reserve Agency, Nigeria Agricultural Quarantine Service, Nigeria Integrated Water Resources Management Agency, Gurara Water Management Authority, Nigeria Hydrological Services Agency and National Agricultural Development Fund. National Ag. Seed Act No. 72 of 1992 establishes NASC. It is undergoing amendment along with the Acts of the new Agencies.	18. Special partnership project with NDDC and other development partners.	

Short Term (May-Dec. 2008)	Medium Term (2009-2011)	Long Term (2011-2020)
19. Restructure the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB) for greater efficiency and effectiveness		
20. Re-certification of Cooperative Societies with minimum capitalization of N250,000 and effective governance structure		
21. Registration of large scale farmers by the States and coordinated by the NFRA		
22. Institutionalize Monitoring and Evaluation		
23. Establish appropriate agencies to implement the interventions.		

Table 6: Phasing of Intervention: Livestock

Short Term (May-Dec. 2008)	Medium Term (2009-2011)	Long Term (2011-2020)
1. Establish smallholder fattening schemes for large and small ruminants	1. Development of broiler parent stock.	1. Employment of open nucleus breeding system in breed development of ruminants
2. Support the development of abattoirs and livestock product market infrastructure	2. Rehabilitation of dilapidated livestock improvement and breeding centres and policy	2. Sustenance of Artificial Insemination (AI) and embryo transfer for enhanced dairy productivity
3. Strengthen the capacity of NAPRI in producing enough parent stocks for hatcheries nationwide.	3. Expansion of peri-urban milk Cooperatives	3. Continued upgrading of research and teaching facilities in research institutes and Universities/ colleges
4. Support inputs and equipment in the local development and provision of supplementary feeds and pre-mixes for livestock and poultry	4. Rehabilitate and concession out to the private sector state owned poultry production farms/units.	4. Continue support for NVRI in vaccine production for the different classes of livestock
5. Support the establishment of 1 hatchery in each geo-political zone	5. Support further extension of "Shika Brown" across the nation	5. Support for local feed and pre-mix production for livestock continues

Phasing of Intervention: Livestock

Short Term (May-Dec. 2008)	Medium Term (2009-2011)	Long Term (2011-2020)
6. Establishment of infrastructures and good pastures in Grazing Reserves	6. Continue establishment of infrastructures in Grazing Reserves.	6. Support for value chain for livestock production, storage, processing, transportation and marketing
7. Establishment of smallholder poultry and pig farms	7. Continue smallholder fattening programmes	
8. Revitalization of Artificial Insemination (AI) for enhanced dairy productivity	8. Development of higher yielding disease resistant dairy, beef and other livestock.	
9. Support NVRI in vaccine production for the different classes of livestock diseases	9. Continue Artificial Insemination (AI) and embryo transfer for enhanced dairy productivity	
	10. Upgrading of research and teaching facilities in research institutes, Universities and colleges of agriculture	
	11. Sustain support NVRI in vaccine production for the different classes of livestock	
	12. Sustain support for value chain systems for livestock production, storage, processing, transportation and marketing	

Phasing of Interventions: Fisheries

Short Term (May-Dec. 2008)	Medium Term (2009-2011)	Long Term (2011-2020)
1. Support local feed and pre-mix production for fish	1. Sustain support for local feed and pre-mix production for fish	1. Support for local feed and pre-mix production for fish continues
2. Support deep sea fishing for Tuna and processing	2. Sustain support for deep sea fishing for Tuna	2. Continued support for deep sea fishing for Tuna
3. Support value chain systems for livestock and fish production, storage, processing, transportation and marketing	3. Sustain support for value chain systems for livestock and fish production, storage, processing, transportation and marketing	3. Continued support for value chain for fish production, storage, processing, transportation and marketing
4. Support homestead/aquaculture fish production	4. Development of higher yielding disease resistant fish stock	
	5. Upgrading of research and teaching facilities in research institutes, Universities and colleges of agriculture	

10.3. COST IMPLICATION TO GOVERNMENT FOR 2008

Table 16: Cost Implication to Government for 2008

S/ N	Description	Cost (N b)
1	Cost of PPPs	90
2	Completion of 25 Silos	4
3	Construction of 25 warehouses	1.2
4	Implementation of guaranteed minimum Price	10
5	Training of Extension Workers	4
6	Fertilizer Subsidy	23
7	Seeds, chick, bulls & Fingerlings	1.8
8	Support for Donor Assisted projects	4
9	Commodity Board Reform	5
10	Small scale rural infrastructure	2.2
11	Development of Boreholes, earth dams	4
12	Crop Development	4
13	Agriculture Development Fund (year1)	50
	Total	319

Table 17: Funding Required Over a 4 Year Period to Achieve Food Security

S/No	Description	Total Project Cost Nb	Required Government Funding Nb
1.	PPP INITIATIVES	Total PPP cost	30% of PPP cost
	a. Rehabilitation of Irrigation Facilities	159.51	47.86
	b. Increased Production of Selected Commodities		
	• Rice	200.00	60.00
	• Sugar	11.70	3.51
	• Wheat	33.90	10.17
	• Tomatoes	5.00	1.50
	• Cassava	40.00	12.00
	• Livestock	97.00	29.10
	• Fisheries	25.60	7.68
	c. Tractor Service Scheme (80,000 @ N5m)	400.00	120.006
	d. Agro-Industrial Parks (6 @ N30b)	180.00	54.00
	e. Cottage Industries (*774 @ N25m)	19.35	5.80
	f. Agro-Service Centres (*774 @ N20m)	15.40	4.62
	Sub Total of PPP Costs	1,187.50	356.24
2.	Completion of 25 silos(2008) – (capacity 25000 MT per Silo)	25.00	25.00
3.	Construction of 100 Ware houses (2,000MT per warehouse)	4.50	4.50
4.	Implementation of Guaranteed Minimum Price.	15.00	15.00
5.	Research & Development	60.00	60.00
6.	Training of 10,000 Extension workers per Annum	4.00	4.00
7.	Subsidy to Farmers for fertilizer & other farm input	50.00	50.00
8.	Seeds & fingerlings	15.00	15.00
9.	Support to Donor assisted projects	12.00	12.00
10.	Commodity Boards Reform & Establishment	20.00	20.00
12.	Agricultural land cadastral mapping & certification	150.00	150.00
13.	Soil testing/National water Base	4.00	4.00
14.	Conditioning Centres	4.20	4.20
15.	Cooperatives Development/Aggressive awareness programme	15.00	15.00
16.	Setting up of Agricultural Development Fund	200.00	200.00
	Sub Total for Other Costs (100% Government funding)	578.70	578.70
	GRAND TOTAL	1,766.20	934.94

*1 per local government area Source: FMA & WR

Table 18: Key Initiatives for National Food Security

KEY INITIATIVES TOWARDS ACHIEVING FOOD SECURITY & AGRICULTURAL DEVELOPMENT

No	Initiatives	Activities	Description	Remarks	Cost (Nbn) 2008	Total Cost 4 Yrs
1	Land Reforms	Land Mapping & Certification	Land ownership system does not confer ability of use land as collateral for obtaining credit		27.5	150
		Rehabilitation of 55,700 hectares of land for Irrigation for large scale farming	Expand land for commercial production of Rice, Wheat etc		40	159
2	Production	Input supplies: fertilizer supply & other agro inputs.	Fertiliser supply for 2008 is 650,000 Metric Tonnes at a total cost of N64.3bn with Government contribution 25%. Next year, subsidy will be applied to production, end user purchase or price support to produced commodities. Government will start to disengage from fertilizer importation and distribution starting from 2009	Budget provision for 2008 is 3 Billion. Rice levy 4.85, & 3.2 Amount in Revolving fertilizer account. Total available N11.05bn. Current deficit N5bn. Expecting 2.8 from sugar levy	16.5 representing 25% subsidy	91

No	Initiatives	Activities	Description	Remarks	Cost (Nbn) 2008	Total Cost 4 Yrs
		Organize annual workshops on food security including soil analysis and agro-climatological research	Workshops to enable interaction of research experts, farmers, technocrats, government officials to chart direction and strategies for food security in Nigeria		0.1	0.2
3	Production of Selected Products for self sufficiency (Rice, wheat, millet, sorghum, sugar, cassava, maize, cow pea, soya, tomatoes, cotton, cocoa, oil palm) Output & Market Development	Includes special attention to inputs, land preparation and other costs.	Includes Seeds, Fertilizer, Tractors Extension services, rural infrastructure	Focus on states with comparative advantage based on production records, irrigation facilities etc	30.7	123
Seed & Seed Development		Programme for production and supply of certified seeds for major cereals at 50% subsidy to farmers	To be handled by National Seeds Council	1.5	6	
Irrigation		Rehabilitation of existing dams 55,716 hectares largely under the Chad	Management and operations by Private Sector	80	159	

No	Initiatives	Activities	Description	Remarks	Cost (Nbn) 2008	Total Cost 4 Yrs
			Basin, Hadeja Jamare, Sokoto Rima, Upper Benue, Upper Niger, Benin Owena Road Basin, Cross River, Anambra Imo River Basin Authority			
		Mechanisation	Acquisition of 80,000 Tractors under PPP over 4 yr period at N5 million naira per tractor and implement	Goal is to reach 1 Million tractors in the county by 2011, With Private sector established, government may exit	120 For 20,000 at 30% Government subsidy	400 (120 Govt subsidy)
		Capacity Building and Extension services for Farmers	Training of Extension workers 10,000 for 2008 increase of 10,000 per year	This will be outsourced to private sector	4	16
		Cooperative Development and Establishment of Agro Enterprise Development Centres	Empower and development of cooperative groups in the area of Production, processing & Marketing.	To be established in all local government centres	3.75	15
		Small scale Rural infrastructure development	Rural linkage roads, Small market infrastructures, earth dams & boreholes	Will be located in specific project areas	2.25	9

No	Initiatives	Activities	Description	Remarks	Cost (Nbn) 2008	Total Cost 4 Yrs
		Storage	Completion of 25 silos, 25mt tonnes per silo as well as new silos for state governments	For Strategic Food Reserves	8 (for 12 Silos in 2008)	16
		Private sector-managed Warehouse, silos, conditioning centres	200,000 metric tonnes capacity @N45m and more capacity from private sector storage facilities		10	40.5
		Guaranteed Minimum price & Review & Revival of the Commodity Marketing Board system	limited to grains in the first instance includes: Rice, Wheat, Maize, sorghum millet & cassava	To ensure recovery of cost of production plus 10% profit.	20	80
		Establish a warehouse Receipt System	Develop policies for the take-off and operation of a warehouse receipt system to give producers increased access to credit		0.25	0.5
		Establish product marketing/ distribution centres	Development and resourcing of product marketing and distribution centres through concessions	State Govt will finance and concession out to private sector managers	4 (at N20 million per centre) per year	15.5

No	Initiatives	Activities	Description	Remarks	Cost (Nbn) 2008	Total Cost 4 Yrs
	Processing	109 Agro Industrial Parks, one in each senatorial districts	To house industries, employing up to 20,000 workers per state. Includes well structured modern factories and processing plants with grades & standards, quality controls, quarantine services, power security & water.	Federal Government to finance 20%, State Govt. 30%, private sector to provide 50%. Management & Operations by private sector	Federal govt provision of about N30bn	120
		12 conditioning centres	Storage and preservation of perishable products for domestic and export market Two per each geo political zone	Operations by private sector.	1.25	4.2
	Total Cost (indicative)				400	1,443

Appendix 1: Determination of the Number of Extension Workers Requirement

# of Local Government Areas (LGA) in Nigeria:	774
Assumed # of Wards per LGA in Nigeria:	20
Assumed # of Extension Worker per Ward:	3
Total # of Ward-based Extension Workers:	~46,500

Assumed # of Medium-Scale Extension Workers/ LGA:	3
Assumed # of Demonstration Farm Officers/ LGA:	10
Assumed # of Input Centre Officer/ LGA:	3
Leadership for Farm Training & Service Centre:	1
Total # of LGA-based Extension Workers:	13,500

Total # of Extension Worker Requirements: **60,000**

Assumed # of Existing Extension Worker/ State & FCT:	500
Assumed Total # of Existing Workers:	18,500

Extension Worker Short-fall: 41,500

Required Recruitment/ Yr for 4 Yrs to Meet Reqt: **~10,000**