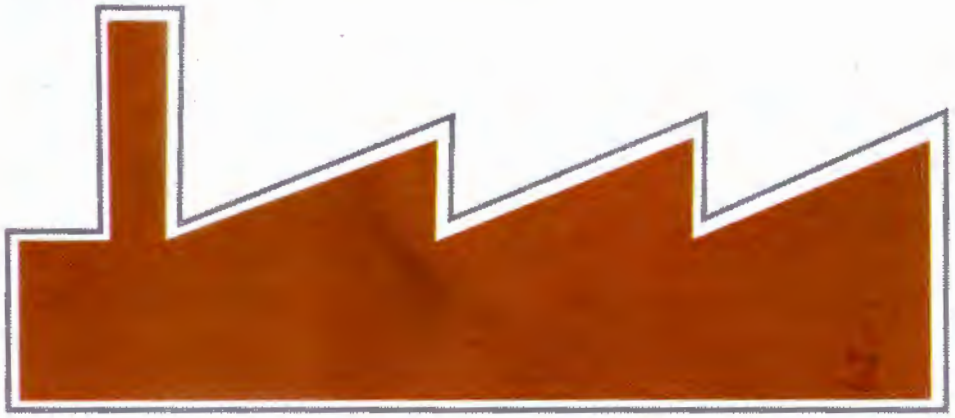
NATIONAL STRATEGY FOR COMPETITIVENESS IN RAW MATERIALS AND PRODUCTS DEVELOPMENT IN NIGERIA



IMPLEMENTATION PLAN

RAW MATERIALS RESEARCH AND DEVELOPMENT COUNCIL
FEDERAL MINISTRY OF SCIENCE AND TECHNOLOGY

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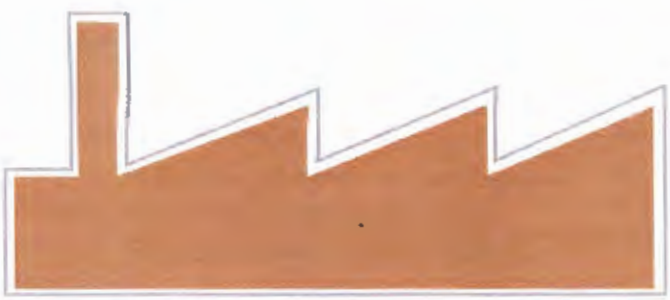

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FOREWORD

Global competitiveness is never based on mono-economy. Most countries, even those in Africa are formulating policies that will make their economies competitive globally. This is imperative as diversification of the economy and broad-based economic development are critical for long-term sustainable development in resource-rich developing countries for two reasons: First, high level of export concentration makes these economies vulnerable to commodity price fluctuations that can result in abrupt contraction of public resources and/or create negative spill-over effect in the rest of economy as it is currently experienced in Nigeria. Second, extractive sectors are generally capital-intensive, attract weak investments and have low impact on the growth and productivity of other industries and on job creation.

Natural Resource-dependent countries (especially in crude oil) face a number of challenges in achieving economic diversification. Fast growth in export revenues from resource extraction is invariably accompanied by exchange rate appreciation pressures or the so-called 'Dutch Disease' that reduces competitiveness of the traded sectors of the economy. To counteract the Dutch Disease, countries need to increase productivity and promote investments in non-extractive sectors to spur growth. There are no clear measures that are necessary to achieve economic diversification, but a few general principles are widely accepted. First, investments in infrastructure such as, improving road network, access to power are the most often critical challenges in developing countries. These investments are important for reducing the cost of doing business and improving competitiveness. Second, support for agriculture is imperative as it usually the sector that employs the largest proportion of the labour force. The sector faces pressure from exchange rate appreciation and from increasing price mechanism as wages are pushed up. Improving agricultural productivity and commercialization through value-chain development and linking producers to market are some of the important measures in this regard. Third, it is important to promote private investments through improvement of the business and regulatory environments providing access to finance and supporting entrepreneurship and skills development. Many governments have also attempted a proactive industrial policy through a system targeted subsidies and incentives.

It is important to stress that economic diversification is not new in the Nigerian lexicon. Diversification from mono-economy has become imperative if Nigeria must achieve and maintain a solid and sustainable economic base. Developed economies are

characterized by diverse and many different types of industries inter-linked by mutual suppliers and consumers. These economies often export goods and services to other countries. They are more resilient, stable and self-sufficient; as well as less vulnerable to the regional and global economic fluctuations.

It is also important to consider the development of other critical sectors to supplement and eventually replace oil, should the oil wells dry up or international prices become grossly unprofitable, as is the case today. Diversification will also help to build competitive economies that can productively be integrated into the global economy. It is, therefore, a pre-condition, if Nigeria is to register accelerated development and be a major player in global economic affairs. In macro-economic planning, diversification promotes growth and development through the mobilization of savings from the surplus sector to boost the deficit sectors.

The options of diversification available to Nigeria are inexhaustible. However, it is always better to assess areas of competitive advantage. For Nigeria, such areas include:

- Agriculture and Forestry;
- Solid Minerals and Mining;
- Manufacturing, Processing and Packaging;
- Energy;
- Entertainment;
- Tourism and Services;
- Petroleum (down-stream), etc.

The global economic crisis presents attractive prospects for the Nigerian economy, if we plan well, demonstrate the political will and show determination to convert economic loss to gain as well as convert comparative advantage in terms of resource endowments to competitive advantage in terms of exports of manufactured goods and income generation.

For nations to compete favourably in the long-term, they must innovate. Innovating entails building new competences, new capabilities and new knowledge. One of the weakest aspects of Nigeria's Science, Technology and Innovation System has been its inability to assimilate and commercialize research and development results. In the light of rising global competitiveness, Nigeria needs renewed emphasis on commercialization of viable R&D results to achieve raw materials and products development.

The way forward lies in using Science Technology and Innovation (STI) to drive key sectors of the economy. As such, and in addition to the existing STI policy and National Innovation System (NSI), government is committed to facilitate commercialization of Research and Development results and to encourage inventions and innovations. This

will require effective resource industry linkage and re-investment of resource rents in the wider national economy.

Dr. Ogbonnaya Onu
Honourable Minister
Federal Ministry of Science and Technology
Abuja, Nigeria.

PREFACE

The Implementation Plan of the National Strategy on Competitiveness in Raw Materials and Products Development is a systematic roadmap involving activities, programmes, projects and modalities leading to a successful realisation of the lofty objectives of an appreciable import reduction. It is also an approach towards competitiveness in raw materials and products development in Nigeria within a short-term period of five years.

The rationale for the implementation plan is to provide a clear, unambiguous, robust and realistic direction through the adoption of a well-defined model that engages relevant stakeholders, institutional and policy frameworks towards national competitiveness in raw materials and products development. The plan delineates 12 key strategic focus elements/areas and adopts the UN Harmonized System Code (HS Code) for 97 raw materials and products. It also identifies and classifies raw materials, products and projects along the ten (10) sectoral groupings of the Manufacturers' Association of Nigeria (MAN).

The information presented in this plan is evidence-based having been obtained from such reliable sources as National Bureau of Statistics (NBS), Central Bank of Nigeria (CBN), and relevant Organised Private Sector (OPS), etc. This was used to draw up the initial short-term (5 years) implementation plan as contained in the Executive Summary. In addition, the details have been succinctly captured in seven chapters:

- The first chapter deals with Introduction of the Nigerian situation and the Model to drive competitiveness in raw materials and products development looking at the 11 strategic focal elements;
- The second chapter presents the Institutional Framework and guiding principles of the Implementation plan as well as critical stakeholders, their roles and distribution of identified projects by agencies and according to the summarised 21 commodity classification schemes with embedded UN 97 HS code system.
- The third chapter examines potential levels of percentage import reduction across items under the 21 classification schemes of the 97 HS code classification and the 10 industrial sectors of MAN taking into consideration suggested projects, raw materials and products that could be targeted.
- The fourth chapter prioritizes and sequences identified projects with special interest on pivotal projects

- The fifth chapter takes a critical look at commercialization of R&D breakthroughs with an overview of the concept of R&D commercialization, the process, challenges and the criteria for commercialization, as well as suggestions on the way forward.

- The sixth chapter covers financing and funding of strategic projects. Funding is expected to come from the Federal Government MDAs, budgetary allocations, State and Local Governments, the Organized Private Sector (OPS) and Development Partners in form of technical assistance, grants, credits and gifts.

- The seventh chapter concludes that if the plan is judiciously implemented, Nigeria will not only be on its way to competitiveness but also reduce imports to about 10.8% in the short-term, saving the country about 3.8 Trillion Naira. This will obviously impact on local content utilization, competitiveness and the overall economic growth and development of Nigeria.

The plan interfaces well with the main strategy document and in the appendices are the names of participants in the validation process, sectoral distribution of breakthroughs, budgets estimates and sample questionnaires to MDAs.

With unflinching political will by government, unalloyed commitment by the stakeholders, consistent monitoring by law makers and judicious implementation by all, the stated objectives set by the strategy would be realized; and make Nigeria competitive in raw materials and products development.

Dr. Hussaini Doko Ibrahim
Director General/CEO, RMRDC

ACKNOWLEDGEMENTS

This Implementation Plan for the National Strategy for Competitiveness in Raw Materials and Products Development in Nigeria was prepared by the Raw Materials Research and Development Council (RMRDC) and reviewed by a committee comprising eight parastatals/agencies under the guidance of the Federal Ministry of Science and Technology (FMST). In preparing the Plan, consultations were undertaken with various stakeholders including the Organised Private Sector, relevant Ministries, Departments and Agencies (MDAs) who made contributions to the development of the Plan.

We appreciate and commend His Excellency, Dr Ogbonnaya Onu, Honourable Minister of Science and Technology for his relentless support in mobilizing human and material resources towards the preparation of the Plan. The guidance and technical support was vital to the successful realization of this project.

We also acknowledge, in particular, the contributions of the Federal Ministry of Agriculture and Rural Development, Federal Ministry of Power, Works and Housing, Federal Ministry of Budget and Planning, Federal Ministry of Finance, Federal Ministry of Justice, National Bureau of Statistics, Nigeria Customs Service and Manufacturers Association of Nigeria (MAN), among others who responded to our call for inputs and in meeting with committee during the preparation of this document.

The Consultant Statistician/Economist, Mr. Henry Eteama deserves our commendation for his special insight, commitment, patience, tact and professional discipline that he brought into this assignment. The contributions of Dr. Obadiah Mailafia, former Deputy Governor of Central Bank of Nigeria is also acknowledged. The efforts of the Management and staff of the Raw Materials Research and Development Council, especially, the Secretariat headed by Dr. Kemjika. B. Ajoku and members of his team, Dr. B. O. Olugbemi, Mr. O. A. Bakare, Engr. Obassi Ettu, Mr. Y. O. Sule and others who worked assiduously to put the document together, are commendable.

It is our ardent hope that this implementation plan will be of immense value to various stakeholders, including policy makers, MDAs, research and development institutions and business community as Nigeria strivse towards diversification of her economy and import reduction through competitiveness in raw materials and products development.

Dr. Hussaini Doko Ibrahim
Director –General/CEO
Raw Materials Research and Development Council (RMRDC)
Abuja, Nigeria.

EXECUTIVE SUMMARY

This implementation plan is the culmination of a process which began with a strategy document, earlier, on competiveness in raw materials and products development. The Plan derives its building blocks from the Strategy document. It considers the set targets on import reduction potentials in the short-term. Poor implementation has been the bane of Nigeria's national development efforts in all ramifications. This derives from poor planning, ineffectual organisational design and inadequate financial, technical and human resources. It is in attempt to avoid these pitfalls of the past that the strategic implementation plan has been developed.

The design of the implementation framework is built on the principles of fact-based considerations, international best practices, verifiable indicators and coefficients of various two-way frequency matrices. It is therefore, a Plan with great potentials to guarantee success going forward and growing Nigeria's economy in the desired direction. The key components include amongst others the following:

(i) Institutional Framework for Implementation of the Strategy

The Implementation Plan's institutional framework has "The Presidency" at the helm for directing the policy thrust and decision-making. Over 17 Ministries, their Departments and Agencies (MDAs) have been identified as major stakeholders with specific mandates to play key roles in the implementation of the strategy and provision of support services. The National Assembly, Federal Executive Council and National Economic Council (representing the sub-national levels of governance) will be involved in providing the much-desired enabling environment for fast-tracking project execution.

The Organized Private Sector (OPS), Development Partners, Non-Governmental Organisations (NGOs) and Community-based Organisations (CBOs) are also expected to play significant roles in providing support, advocacy platforms and independent monitoring on progress in implementation. It is envisaged that technical support, capacity building and funding (grants, credits, and gifts), would be injected by the Development Partners and Multilateral Agencies, among others.

The Federal Ministry of Science and Technology would coordinate and provide a Secretariat for the Strategy Implementation Task Unit (SITU) at the Raw Materials Research and Development Council. SITU would be responsible for coordination of the strategy implementation, including the Monitoring and Evaluation (M&E) activities with relevant stakeholders.

(ii) Strategic Focus

The implementation plan adopts the Result-based Management Logical Framework matrix (refer to Strategy Document). The 11 strategic elements drawn from the strategy document include: Competitiveness Advocacy, Legal and Policy Frameworks, Institutional and Organisational Arrangements, Infrastructural Development and Human Resource Development. Others are: Research and Development (R&D); Industrial & Businesses Development, Monitoring and Evaluation (M&E), Financing, Data Development & Management, and the Strategic Implementation Task Unit.

(iii) Potential Levels of Import Reduction

The 97 Harmonised System Codes (HS Codes) for specific import reduction potentials have been stratified into 21 broad classification schemes as presented in Table 1.1

The potential levels of import reduction on strategy implementation for the short-, medium- and long-terms are revised versions of Table 3.2 on potentials for Local Raw Materials Production (refer to Strategy Document). A short list of examples is given in Table 1.0. The raw materials and products potential import reduction levels which average 10.8 percent in the short-term (5 years), 30.8 percent in the medium-term (10 years) and 49 percent in the long- term (15 years) would be achieved if the Strategy is successfully implemented as envisaged.

(iv) Prioritization and Sequencing of Projects

Project selection is considerably influenced by the control matrix on potential levels of import reduction within the stratification of 97 HS Code classification schemes of 21 strata. In addition, the respective MDAs and OPS, in relation to the commodity classification schemes were identified and captured.

Some commercializable R&D break-throughs that were identified in the strategy document by respective R&D Institutions are included as potential projects for consideration. This is not exhaustive, and a systematic approach would be adopted to subject these break-throughs to certain criteria and screening for proper selection

during implementation. The status of the R&D break-throughs and the institutions responsible are also identified for potential investments.

At this initial stage, four hundred (410) projects were prioritized as specific for each of the 21 classification schemes stratified from the 97 HS Codes. From the identified projects under each of the 21 strata, a matrix of project distribution by strategic project element is constructed (See Table 1 in the strategy document). The matrix on distribution of projects by strategic elements provides scientific linkages between programmes/projects and the MDAs within each of the 21 raw materials and products classification schemes. It should to be noted that the pivotal projects are not exhaustive, but indicative of the core projects that will effectively drive the programmes of Nigeria's competitiveness in raw materials and products development.

Project mapping of MDAs, OPS and Regulatory Agencies are derived from the 21 Raw Materials and Products Classification Schemes. The matrix is presented in Table 2.1 with 17 Ministries and their Agencies, some OPS establishments and Regulatory Agencies. The mapping exercise identified project concentration by Agencies and project areas exposure to different establishments.

(v) Strategy Implementation Budget Estimates

Fact-based budget estimates for the short-term period of five years including the various dimensions of funding and expenditure outlays, representing the in-flows and out-flows components, respectively (See Appendices 3A and 3B). Programmes and projects which are to be funded from normal budgetary provisions will save the country about 3.8 trillion Naira. The implementation plan pre-supposes that about 30 percent of what would have been saved could be used to fund the 5-year projects toward achieving Nigeria's competiveness in raw materials and products development. This would not in any way require setting aside a large pool of funds per se, but as financing from approved budgetary provisions of all the MDAs for the 5-year implementation period.

In every national strategy implementation milestones, potential levels of improvement from current situation are the basis for rational assumption in determining the budget size. A reasonable proportion not exceeding 50 percent to be saved would be considered acceptable. Therefore, the budget provision estimated at 30 percent is therefore reasonable, and prudence would be required in the management of the 5-year budget.

Funding is expected to come from the Federal Government MDAs budgetary allocations, State and Local Governments commitments, the Organized Private Sector (OPS) and

Development Partners' technical assistance, grants, credits and gifts. In essence, no funds will be set aside, apart from the usual budgetary provisions for the MDAs pursuing their mandates and responsibilities. It would only be required that necessary projects in pursuit of this strategy be prioritized and supplementary budget sought from international donor/partners for the realization of objectives of the projects, especially where MDA's provision are not sufficient to invest in technology acquisition, capacity building, commercialization and backward integration.

CHAPTER

ONE

INTRODUCTION

Project implementation has been the bane of public policy in Nigeria. Colossal amounts of money have often been spent on projects, only for them to be abandoned. It has been estimated by the United Nations Industrial Development Organisation (UNIDO), that nearly 60 percent of projects in Nigeria have never been successfully implemented. Some of these failures are linked to poor planning and weak project implementation frameworks. Poor project implementation constitutes a monumental waste of public resources.

It is in this context that this document seeks to provide a more effective framework for the implementation of Nigeria's raw materials and products development strategy. The effective implementation of the strategic elements of this plan is critical to Nigeria's competitiveness index enhancement towards sustainable development. Implementation defines the processes, systems, institutional and legal frameworks for translating aspirations, targets and programmes into action, concrete outcomes and impact. Therefore, for the Nigerian economy to be competitive there has to be faithful implementation of the strategy at all levels (National and Sub-National) and by all stakeholders (Government, Private Sector and Development Partners) towards attainment of set goals of potential levels of import reduction.

1.1 Model to Drive Competitiveness

The implementation plan adheres substantially to the fundamental principles of the model designed to drive competitiveness in raw materials and products (See Figure 1.1) by considering critical factors in the processes and strategic factors within appropriate systems of engagement. The strategy is anchored on the inter-play of three actors:

- Government and Development Partners.
- Academia and R&D Institutions.
- Entrepreneurs, Industries and Businesses.

The interactive process is driven by synergies in which government creates the enabling environment; R&D Institutions and the Academia provide industries with relevant R&D results and innovations for raw materials and products development. It also envisages a critical role for Development Partners, multi-lateral and non-governmental institutions and other stakeholders.

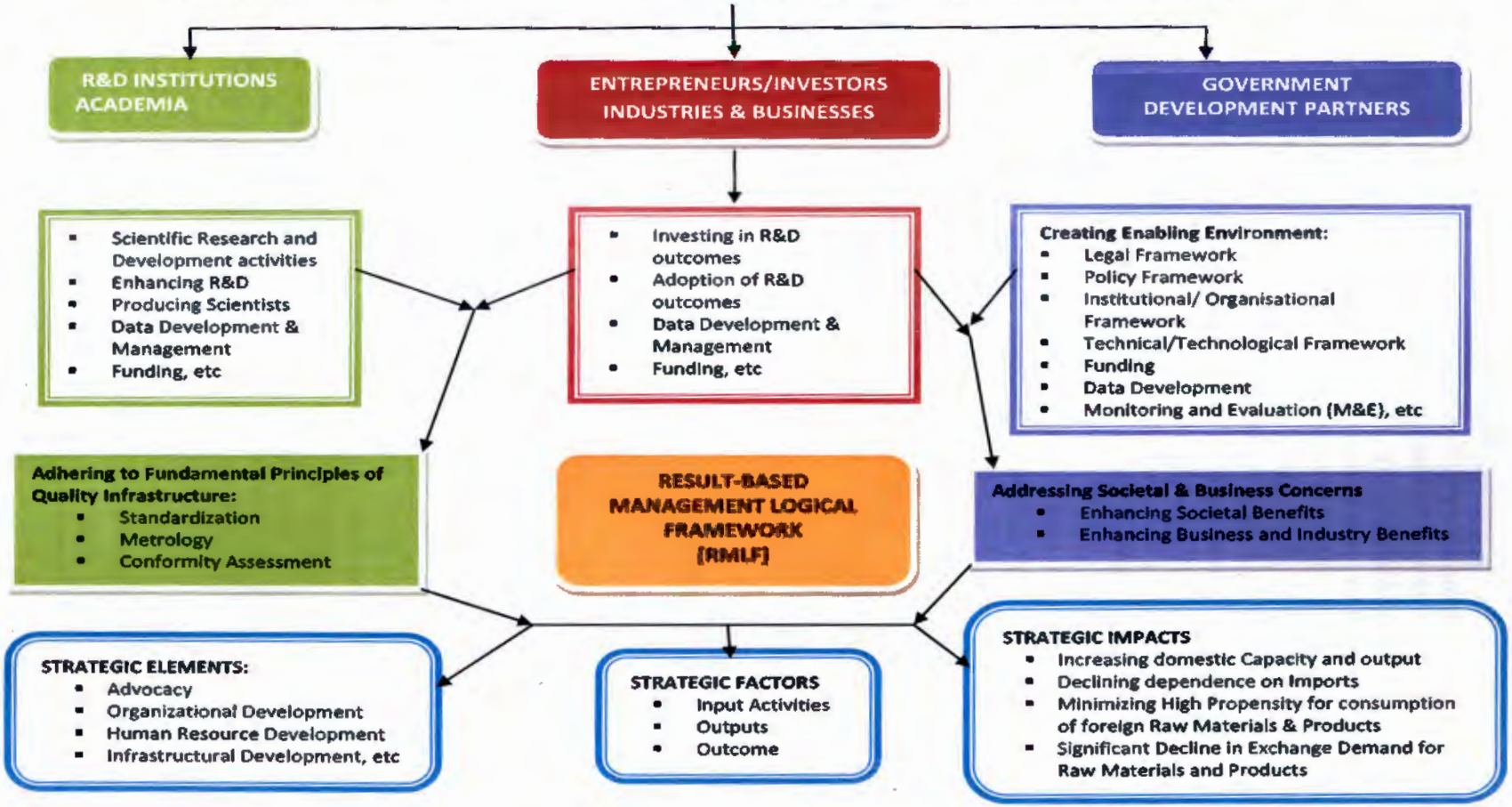
The role of stakeholders, enabling framework and critical infrastructure are encapsulated in the model designed to drive competitiveness towards production of quality raw materials, products and services in an orderly manner that results in improved import reduction.

The flow chart of the model is presented in Figure 1.1 and identifies critical stakeholders, their major roles, how they are linked to fundamental principles of Quality Infrastructure while addressing Societal and Business Concerns. On quality infrastructure, emphasis is placed on raw materials and products Standardization, Metrology and Conformity Assessment. Strict observance of factors enhancing societal and business concerns is recommended as a deliberate national policy.

The Result-Based Management Logical Framework (RMLF) identifies specific projects/activities for each of the 21 raw materials and products classification schemes used for the design and implementation plan. In addition to listing projects/activities by sectoral groupings of raw materials and products targeted for import reduction, attempts have also been made to map projects by the 17 MDAs, some OPS and regulatory agencies against agencies with relevant mandates, institutions and organizations for the successful implementation of the national strategy.

The model requires stakeholders' activities/projects to strictly adhere to the principles of the RMLF) in the implementation of the strategy. The key components of the RMLF include the strategic elements, factors and impacts which are also reflected in the model.

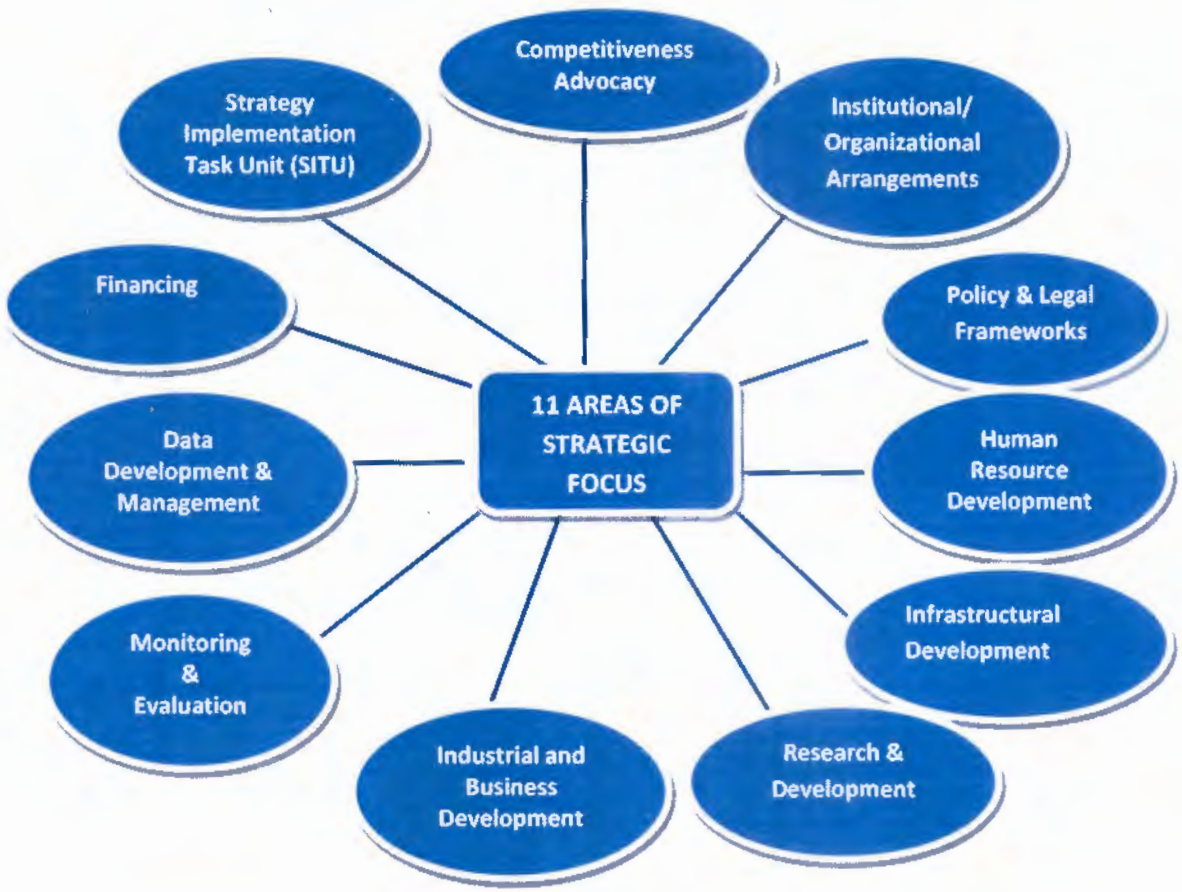
FIGURE 1.1
MODEL TO DRIVE NIGERIA'S COMPETITIVENESS IN RAW MATERIALS AND PRODUCTS DEVELOPMENT



1.2. The Strategic Elements

The National Strategy for Competitiveness in Raw Materials and Products Development in Nigeria provides the implementation guidelines with eleven strategic foci, with consideration to environment and sustainability. These were mostly used in the construction of the Result-based Management Logical Framework of the Strategy. These strategic focal areas constitute the pivot upon which the budget can be developed. The focal areas are regarded as strategic programme elements on which all the specific projects for execution in the 21 raw materials and products classification schemes from the 97 broad categories of Harmonized System Commodity Codes (HS Codes) were based. The successful implementation of the strategy would significantly impact on import reduction potentials towards Nigeria's competitiveness in raw materials and products development. The eleven strategic focus areas guiding implementation plan are shown in Figure1.2.

FIGURE 1.2
THE 11 STRATEGIC FOCUS AREAS



STRATEGIC FOCUS 1:
COMPETITIVENESS ADVOCACY

Sound advocacy is a pre-condition for successful implementation of the strategy in raw materials and products development. The implementation plan addresses how to create a coherent framework at national, State and local levels that are relevant to local endowments. A highly-competitive world economy necessitates the upgrade of economic performance, quality of processes, products and trade which equally require strengthening of competitiveness through the National Innovation System.

Essentially, advocacy programmes will focus on publicity of the fundamental principles of the strategy. Such publicity will be anchored on a seasoned advocacy consultant who will bring on board all stakeholders identified as key in the national competitiveness drive. In essence, this is to mobilize the entire nation on the need to support R&D activities that result in enhancing Made-in-Nigeria Products. The advocacy tools would include print, electronic and social media for national re-orientation of the populace in the direction of reversed preferences of local products against the high propensity for foreign ones.

STRATEGIC FOCUS 2:
INSTITUTIONAL/ORGANIZATIONAL ARRANGEMENTS

Strong institutional and organisational arrangements are imperative for Nigeria's quest for diversification of the economy, especially through the implementation of the strategy. The Plan canvasses establishment of a functional multi-stakeholder consultative group on raw materials and products development as illustrated in Figure1.1. Equally vital is the need to strengthen and empower RMRDC to provide professional leadership and coordination role in concert with relevant MDAs and stakeholders. The role of RMRDC in managing the Strategy Implementation Task Unit would imply comprehensive empowerment via capacity building and technical support.

In addition to the mandatory roles of Governments and Development Partners, the roles of the R&D/Universities and Industries/Businesses would be positioned to build bridges of effective linkages in scientific research and innovation infusion to businesses. Therefore, the goal of building strong and enduring academic and R&D institutions that would support a modern industrial base and infrastructure must be targeted during the implementation of the strategy.

Institutional arrangements also require the establishment of effective linkages amongst relevant institutions as well as the inter-dependence between industry, science, technology and innovation institutions such as Universities, Research and other tertiary institutions and policy makers. This linkage shall be repositioned and strengthened towards active cooperation on win-win partnership platforms.

It should also be noted that scientific and technical knowledge thrives on cooperation; hence the promotion of public-private partnerships across domestic and international divides should be adopted to ensure maximum utilization of raw material resources.

Considering the importance of institutional framework in economic development, corporate bodies would need to strengthen their existing networking strategies and collaboration with relevant stakeholders to ensure stronger and more enduring policies.

STRATEGIC FOCUS 3:
POLICY AND LEGAL FRAMEWORKS

Industrialization is key to development and the State as a facilitator of growth can, through appropriate policy instruments and interventions, correct market failures and complement market successes. Meeting the challenges of sustained industrial growth with positive socio-economic development requires government institutions to comply with appropriate legal and policy frameworks for each strategic element identified in the Result-based Management Logical Framework (RMLF). The plan therefore, emphasises the need to develop appropriate policy and legal frameworks to enhance competitiveness of raw materials and products development in Nigeria. Some of these would include initiation of new policies/laws and review of existing ones. These would also impact on factors influencing investment in businesses and R&D such as fiscal, monetary, environmental and other socio-economic imperatives.

Successful implementation of the competitiveness strategy in raw materials and products development would require clear definitions of legal, regulatory framework and incentives. To promote the development & utilization of raw materials and the production of products, there are challenges, sacrifices, recognitions and rewards to be addressed. Accordingly, the following legal-regulatory frameworks and incentives shall be pursued:

- *Appropriate legal and regulatory frameworks aimed at promoting the development of the industrial sector and encouraging utilization of local raw materials as inputs for manufacturing has to be put in place and reviewed from time to time to suit the situation. The legal and regulatory frameworks are encapsulated in the Acts establishing various parastatals and agencies such as the Raw Materials Research and Development Council (RMRDC), Standards Organization of Nigeria (SON), Consumer Protection Council (CPC), National Agency for Food and Drugs Administration and Control (NAFDAC), Federal Ministries of Agriculture & Rural Development, Mines and Steel Development, Industry Trade and Investment, Health, and Science & Technology. These institutions shall be involved in applying appropriate legal provisions and regulations that affect raw materials and products development and utilization.*

- *Locally-developed technologies shall be encouraged by appropriate legislation on Intellectual Property Rights (IPRs).*

- *Governments at all levels and their agencies shall be compelled, through legislation, to patronize locally-manufactured goods, while the private sector should get tax rebates for purchase of locally-made items.*
- *Indigenous manufacturing companies, which have the capacity to penetrate desired foreign markets, should be supported through appropriate fiscal policies and legislations.*
- *Industrial incentives are elaborated in the Industrial Policy of Nigeria, which include fiscal and non-fiscal measures such as Pioneer Status-Relief through tax concessions for pioneering initiatives in local raw materials development, value-addition, amongst others. There are also tax relief for research & development, under Capital Gains Tax Act for replacement of industrial plants and machinery, for indigenous production of standard parts, machinery and equipment and Export Expansion Grant for processed products including, solid minerals.*
- *Enforcement of appropriate sanctions and rewards will encourage the use of local raw materials which have met international standards as inputs for manufacturing. However, legislation on information disclosure by industries on the extent of utilization of developed raw materials, percentage of local content in manufacturing and support for local research institutions shall be enacted.*
- *Appropriate legislation on contracts vis-a-vis dispute resolution relevant to raw materials supply, utilization, and products development shall be enforced to ensure that quality standards are met. Government shall be committed to the rule of law and enforcement mechanisms to protect local raw material suppliers and industries alike from fraudulent practices and breach of contract rights.*
- *Enterprises that employ a minimum of five Science or Engineering Graduates should be supported by awards, in relation to the value of the raw materials they utilize. The amounts will be given yearly over a maximum period of five years.*
- *Documentation of raw material imports which can be produced locally shall be carried out and individuals who can produce them shall be identified and supported.*
- *Research & Development spending on raw materials development should be increased appreciably.*

Local Raw Materials Content Development Programmes another strong area of the strategy which requires legal and policy backing to achieve certain objectives, namely, identify and develop raw materials which can be produced competitively; explore and promote the use of local raw materials; propose policies for gradual replacement of imported raw materials with local substitutes to conserve foreign exchange; and build up local technological capacity for adding value to raw materials.

From the fore-going, proper implementation of Policy and Legal Frameworks would require the following:

- *Collation of data on Nigeria's resource endowments.*
- *Application of modern technology to boost the outputs of agricultural, mineral, chemical and other raw materials.*

- *Development of capacity for research and value-addition to targeted raw materials.*
- *Development of out-grower schemes for sourcing raw materials.*
- *Development of annually-reviewed time-frame for the Local Raw Materials Content Development Programme.*
- *Application of appropriate fiscal policies to protect raw materials which can be produced competitively.*
- *Conduct up-to-date survey of industrial raw materials.*
- *Development of Nigeria's capacity in the production of petrochemicals to open a wide range of vital raw materials.*
- *Develop award systems in collaboration with other stakeholders to promote competitiveness and increase local production of raw materials.*

It should be noted that some of these activities are already being carried out by some relevant organisations, but would require more synergy and increased efforts.

STRATEGIC FOCUS 4:
HUMAN RESOURCE DEVELOPMENT

Human resource development is a vital component for a successful implementation of raw materials and products development. The Plan suggests how to address skill gaps/shortages and respond to training and skill acquisition in key areas, including R&D on raw materials and products development to meet industrial requirements. It emphasizes the need to link research output to industries.

The Human Capital Development objectives would involve the boosting of necessary human capacity and expertise for raw materials production and utilization; increase available skilled manpower for raw materials research and development and exploitation to promote multiplier effects in backward integration; new business creation and service sector expansion; identification and closure of gaps in skills, knowledge, competences and technologies required for value-addition to raw materials that will enhance global marketability; improvement of capacity of women and youths to participate in raw materials development and utilization; and foster linkage among knowledge institutions and industry for mutual benefits.

These can only happen if the nation works towards:

- *Strengthening relevant training institutions to provide appropriate and emerging technologies for value-addition to raw materials.*
- *Strengthening the national system of innovation to effectively meet the needs of industry.*
- *Creating skill acquisition centres to offer specialized entrepreneurship training programmes for micro- and small- scale raw materials development operators.*
- *Reviewing curricular at all levels of education to enhance development of skills;*

- *Strengthening relevant institutions to establish linkages for utilizing developed technologies and innovations.*
- *Developing human capacity for processing specific raw materials and maintenance of processing machinery and equipment.*
- *Strengthening the mechanisms for establishing and enforcing moral and ethical behaviour.*
- *Providing training programmes to promote capacity building of staff*

In developing human capital, the plan also recommends that:

- *Educational curricular should be reviewed in favour of increased S&T content to support plan implementation.*
- *Talented and skilled people including researchers, inventors and innovators should be appropriately honoured and rewarded to encourage and promote more inventions and innovation in raw materials development and utilization for wealth creation, employment generation, poverty reduction and diversification of the national economy.*
- *Continuous capacity building should be the foundation for global competitiveness. Competent, capable and experienced workforce should be deployed in raw materials research and development*
- *S&T foundation/infrastructure should be targeted and entrepreneurship education encouraged for empowerment and sustainable industrial development.*

The implementation plan would, therefore, focus on the curriculra of tertiary institutions to emphasize skills development for engagement in industrial processes and production. Industrial technology transfer agreement should emphasize Content Management Training (CMT) as a deliberate policy of Nigeria's drive towards competitiveness in raw materials and products development. To this end, plants, machinery, and equipment for industries should not be approved without substantial content management training component.

STRATEGIC FOCUS 5:
INFRASTRUCTURAL DEVELOPMENT

Development is intricately tied to provision of critical infrastructure. Therefore, it becomes necessary to put in place, if the set objectives of the competitiveness strategy must be achieved, efficient infrastructure for manufacturing production, including electricity, good road network, water, communications and transport facilities at competitive cost; improvement in port services as they relate to clearance of goods and raw materials; development of industrial parks and provision of facilities for industrial clusters; and establishment of viable platforms for emergence of resource-based and/or raw materials processing micro enterprises in the rural areas.

To address issues of infrastructure gap, Nigeria must deal with the challenges and embark on:

- *In-depth assessment of state of infrastructure for industrial production.*
- *Developing a strategic plan for the improvement of the infrastructure.*
- *Involving the private sector in infrastructural development under the Public-Private Partnership (PPP) initiatives.*
- *Adopting the concept of Build, Operate and Transfer (BOT) to develop some of the infrastructure.*
- *Revisiting issues of port concessions and appropriate mechanisms put in place to improve port services.*
- *Expanding technology infrastructure to provide facilities for the private sector, especially for technology-intensive industries, through research support, technology incubators, science & technology parks, clusters and knowledge centres.*

The sustenance of raw materials development is conditioned by the status of basic infrastructure such as electricity, water, transportation, communications, etc. The Plan addresses how to create a dynamic response to infrastructure and alternative energy needs while ensuring their efficient management and maintenance. The utilization of national and external resources, especially for infrastructure development: including roads, airports, seaports, energy (electricity supply), and efficient ICT to link up the entire country is critical.

There is hardly any area of human endeavour that cannot be better driven by the application of ICT. The strategy recognizes the importance of ICT in every aspect of human endeavour and considers it a critical tool for self-reliance in raw materials development and utilization. It also ensures that research outputs and related issues are widely disseminated to industry, policy makers, knowledge centres and other stakeholders using ICT Platforms.

Application of ICT would achieve the objectives of information generation, sharing and related services; capability to contribute to productivity-driven growth and industrial competitiveness to take advantage of the opportunities of the emerging borderless economy; improving productivity and competitiveness through increased manpower training that is ICT-focused to meet the demands of a knowledge-based economy; and providing a conducive environment for value-added manufacturing using ICT to enhance competitiveness.

To realize these, Nigeria must:

- *Provide an enabling environment for enterprises to competitively use ICT in every aspect of business activities such as procurement, production, advertising and marketing, e-commerce, e-transactions, etc.*
- *Encourage the implementation of World-wide Manufacturing Web and Borderless Marketing and provide a conducive environment for value-added manufacturing using ICT.*
- *Promote high-technology network across boundaries to allow multi-national corporations and local companies access to integrated on-line business*

operations and enable collaboration among research and technology organisations.

- *Strengthen ICT institutions to promote requisite manpower.*

Inadequate supply of infrastructure is a major weak link in Nigeria's competitiveness index according to the World Economic Forum -- Global Countries Report in 2010/11 and 2014/15 where Nigeria scored only two units out of 7 units mark, respectively as detailed in the Strategy document. The implementation strategy, therefore, provides adequate programmes to deal with current infrastructure deficit and guarantee targeted potential levels of import reduction of raw materials and products within the identified time-frames. The major infrastructural projects have been identified as they would require large budgetary provision. The implementation would address significantly, the key problem of electric power supply, modern railway networks, modern industrial estates, technology parks, ICT infrastructure, scientific equipment and data infrastructure, amongst others.

STRATEGIC FOCUS 6:
RESEARCH AND DEVELOPMENT

The implementation plan recognizes that technology and innovation are imperative to achieve competitiveness (as illustrated in competitiveness model in Figure 1.1). The plan also exemplifies R&D projects in agro-based raw materials and products development, mineral-based raw materials and products development, as well as R&D projects relevant to the environment, including forestry resources and health. The implementation plan articulates a well-focused innovation system that generates the necessary know-how for science, technology and innovation development supportive of industrialisation.

The plan for R&D activities would be required to adopt market-driven R&D programmes in tandem with Raw Materials and Products Mapping of R&D Institutions and Industrial Sectors (by MAN's 10 sector classifications) as enshrined in the strategy document. The innovative approach will integrate new and emerging technologies and conventional R&D activities with a refocused science and technology/industrialization culture; thereby ensuring sustainable competitiveness. This new approach is expected to generate positive outcomes of quality domestic industrial products that would attract local demand and patronages. This would impact on the goals of substantial reduction in import of targeted raw materials and products specified among the 97 Harmonized System (HS) coded commodities in the strategy.

Systems and processes for rapid adoption of the identified R&D breakthroughs from the R&D institutions would be premised on orderly commercialization procedures in line with international best practices. Adequate incentives and protection of scientific break-throughs would impact on the scientists, R&D institutions, investors and economy. Periodic merit awards for scientific breakthroughs and innovations would be guided by appropriate national policies and legal instruments to build confidence and engender sustained interest. The objectives of an articulated R&D would be to develop local raw materials for optimal output,

with quality specifications desired by industries, develop technology upgrade for indigenous or traditional processing techniques and develop new products from local raw materials.

For effective implementation of R&D activities that would be market-driven, the strategy recommends that the nation should:

- *Determine the attributes desired by industry in specific raw materials.*
- *Adapt local raw materials for the production of products for which foreign raw materials are utilized.*
- *Identify institutions with competences in undertaking desired research.*
- *Create a system for linking industry with research institutions and identify sources of funds for research projects.*
- *Upgrade the capacity of identified research institutions to meet the challenge of developing targeted raw materials.*
- *Popularize products of R & D.*
- *Establish Science, Technology and Innovation (STI) parks.*

It is important that R&D should leverage on innovations and inventions within the context of the national system of innovation framework. This would involve networking with the universities, polytechnics and research institutes as well as the private sector in conducting research to improve the quality and supply of local raw materials through the development and regular upgrade of indigenous technological capacity, creation of an enabling environment, such as appropriate incentives for raw material-based businesses especially micro-, small- and medium enterprises and targeting market-driven R&Ds. It is expected that government would ensure that private enterprises drive the raw materials research and development process, while government invests in those areas where private R&D is weak or non-existent but which are regarded as strategic to national development.

International linkages would be required, amongst others, to explore multi-lateral and international opportunities for technological and economic cooperation, while creating an enabling environment for attracting foreign direct investment (FDI) for the exploitation of local raw materials as well as deepen and widen collaboration with global research institutions and development agencies.

Furthermore, R&D should target value-addition along the value-chain of raw materials if the availability of raw materials in the country must translate to economic benefits in diversification. The strategy seeks to:

- *Draw up guidelines and programmes of action for strengthening competitiveness of local industries through improved Manufacturing Value-Added (MVA) initiatives.*
- *Carry out sector specific value-chain analysis of key industrial crops to ensure local processing.*
- *Discourage the export of primary commodities and promote the export of medium-to-high technology manufactured products.*
- *Support the emergence of resource-based manufacturing enterprises.*

- ❖ *Develop processing technologies for value-chain development of raw materials.*

The plan considers that proper value-addition to the country's abundant natural resources would bring enormous benefits, including:

- *Promoting export incentive schemes that will accelerate value-addition to primary commodities.*
- *Supporting the modernization of industries to enhance competitiveness through fiscal policies.*
- *Encouraging industries to invest in R&D locally through the nation's fiscal policies.*
- *Developing value chain for raw materials.*
- *Creating systems for disseminating information on research results and developed products.*
- *Upgrading indigenous products.*
- *Encouraging the establishment of industry clusters.*
- *Creating processing centres for adding value to raw materials.*
- *Developing systems for linking SMEs with market opportunities.*

Research and Development activities would also enhance opportunity for process technology acquisition to fulfil the key objectives of access and adaptation of technologies which may not be available locally for adding value to local raw material. To achieve proper technology acquisition and adaptation, the implementation plan considers the need to:

- *Establish linkages with institutions overseas with capacity in technology development for value-addition to raw materials.*
- *Access patents and other documentation systems for developed technologies.*
- *Establish systems for documenting locally-developed technologies and disseminate information on such technologies to end-users.*
- *Organize study tours to relevant institutions and strengthen manpower exchange programmes to accelerate technology acquisition.*

Part of the major aims which R&D must strive to achieve is to encourage capacity building and development of process machinery and equipment by creating local capacity for their design and fabrication. In this regard, the implementation plan considers the need to:

- ❖ *Facilitate the establishment of engineering workshops for design and fabrication of machinery and equipment.*
- ❖ *Create a special fund for acquisition of engineering infrastructure for fabrication workshops.*
- ❖ *Establish engineering centres in the nation's geo-political zones equipped with facilities which local fabricators can patronize for high capital machinery and equipment and precision engineering.*
- ❖ *Equip engineering workshops in the various universities, polytechnics and technical colleges.*

- ❖ *Re-invigorate and proliferate trade centres for training of middle-level engineering manpower.*
- ❖ *Embark on reverse engineering as a deliberate master plan.*

R&D must also target the development of New and Advanced Materials as part of efforts towards competitiveness in raw materials and products development. Advanced materials will need to be developed from conventional materials to possess specific characteristics which confer on them the ability to perform functions that the conventional materials cannot. These include greater strength, higher strength density ration, greater hardness, corrosion resistance, fracture toughness and superior thermal, electrical, chemical and optical properties. To do this would require to:

- *Initiate appropriate steps to explore the use of new and advanced materials in achieving competitiveness and export of products in industry.*
- *Promote strategic investments in new and advanced materials to support innovation and economic development.*
- *Develop suitable mechanisms and activities to support the emergence of biotechnology products for food security, job creation, health care delivery and safe environment.*
- *Develop appropriate legislation in line with international regulations to protect intellectual property rights.*
- *Develop capacity for the development of priority areas of new and advanced materials.*
- *Forge bi-lateral and multi-lateral cooperation towards technology transfer and training in advanced materials development.*
- *Solicit the support of international funding agencies for funding local raw materials programmes and projects.*

The implementation plan for R&D in new and advanced materials development recommends that the country should:

- *Identify Nigerian expertise for the development of new and advanced materials.*
- *Establish special infrastructure at designated centres for research into new and advanced materials.*
- *Provide support for building human capacity in new and advanced materials research.*
- *Encourage Public-Private Partnerships in investment in research & development for new and advanced materials development.*
- *Establish a data bank on new and advanced materials in collaboration with relevant stakeholders.*
- *Promote commercialization of new and advanced materials and adoption of advanced technology in manufacturing.*

New and advanced technologies are fast becoming trendy in almost all sectors of the industry, including aerospace, transportation, information technology, environmental protection, agriculture, health and building construction.

STRATEGIC FOCUS 7:
INDUSTRIAL AND BUSINESS DEVELOPMENT

Industries and businesses are key to the diversification of Nigeria's economy. To this end, the implementation plan addresses linkage of industries and businesses to R&D and adoption of standards and quality infrastructural principles. The plan emphasizes the promotion of entrepreneurial culture and enterprise development, especially in micro-, small and medium enterprises in the area of raw materials and products development. It also underscores the need for initiatives to institutionalise result-oriented enterprise development and investment promotion as well as facilitate the establishment of innovative-driven and dynamic incubation facilities to support value-addition to raw materials and products development. Emphasis is placed on Public-Private Partnerships as key to successful implementation of the strategy.

The implementation plan identifies the need for strategic and modern industries and businesses as veritable means of enhancing the national competitiveness ranking. The first step is to revive and revitalize moribund strategic industries such as iron and steel plants, aluminium smelting plants, paper mills, fertilizer plants, motor vehicle assembly plants and refineries. The need for new petrochemical industries, modern holdings in agriculture, nuclear power plants, electric speed railway systems and military industrial complexes are also emphasized in the implementation plan.

As a deliberate policy of government, attractive incentives backed by an enabling environment would be created for industries that use significant proportion of local content, especially raw materials and human capital. Local content in its various ramifications will be the hallmark of an emerging nation's drive towards competitiveness in raw materials and product development.

STRATEGIC FOCUS 8:
MONITORING AND EVALUATION

Support on programme and project implementation emanating from the strategy document can only be fulfilled if the quality of design is continuously improved. Projects often suffer from inconsistencies, ineffective monitoring and evaluation and relatively weak indicators. This situation makes it difficult to introduce results-based project management considered as global standard or best practice. This implementation plan aims to address the gap through an effective monitoring and evaluation framework. The overarching goal is to strengthen the foundation of project implementation having a logical and plausible outline of monitoring and evaluation that leads to the desired results and by choosing indicators that best reflect whether or not a project achieves its objectives. The plan therefore emphasises the need for an M&E framework, a task team, activities and report.

During the implementation of the plan, M&E would focus on the following:

- *How far the import of raw materials and products has successfully reduced, as specified in the set targets on potential levels.*
- *Nigeria's overall ranking in subsequent World Economic Forum - Global Countries' Report on Competitiveness Situation. Successful strategy implementation will surely elevate the nation's competitiveness status far better than the current 127 out of 144 countries.*
- *M&E will keep track of the rate of commercialization of R&D break-throughs for industrial adoption and utilization in Nigeria. This will translate to successful re-orientation of future R&D activities towards local industry demand push. It would also confirm that R&D institutions are integrating with industry/business community requirements in raw materials and products development.*
- *Other M&E focus areas would include adherence to implementation guidelines as specified in various project appraisal documents, Terms of Reference (TOR), Request for "No Objection" approval details and financial/audit regulations. M&E are not just for punitive measures but veritable processes of intelligently identifying violations, mistakes, failures and successes in project implementation. M&E enable early warning measures that help avoid wastages and provide data on how to roll back implementation systems on track.*
- *Quality Standard, as a major objective of M&E, must be considered if the nation must be competitive in raw materials and products. It entails building capacity of industries to meet the challenges of improving competiveness through the promotion of quality, standards, accreditation, metrology and testing in raw materials development and utilization; strengthening quality infrastructure support capacities and institutional capacity; a regulatory system for achievement of requirement of quality, standards, accreditation and metrology; and facilitating the upgrading of enterprises to attain quality certification for global market access.*

Quality standard can be achieved by:

- *Embarking on strategic studies and analysis to determine the current state of quality compliance in industries.*
- *Identifying industries with future potential for quality enhancement, taking into account existing competitive advantages.*
- *Strengthening appropriate policy framework and industrial support institutions to harmonize their operations and improve their service delivery.*
- *Promoting sensitization and awareness, international recognition of products, system, and measurement and test certifications.*
- *Supporting industries to build capacity for quality and standards development through upgrading and restructuring of productive capacity.*
- *Subjecting all raw materials on deletion programme to local and international standards before such raw materials are recommended for deletion.*

STRATEGIC FOCUS 9:
DATA DEVELOPMENT AND MANAGEMENT

Data development and management are essential to proper planning and implementation. The country is encumbered by lack of or poor collection of data for strategic planning. In some cases, available data may be insufficient or not in the public domain – a situation that leaves the country with poor national information capture (usually tagged "NA" for Not Available) in the international scene. For this reason, the implementation plan considers data development and management as a vital strategic focus that needs to be addressed.

The key aspects of statistical production in support of competitiveness strategy implementation in the short-, medium- and long- terms are:

- *Compilation of foreign trade data in collaboration with the Nigeria Customs Services (NCS), National Bureau of Statistics (NBS) and Raw Materials Research and Development Council (RMRDC). Quarterly and annual records would be useful for monitoring trends in both the import and export of raw materials and products.*
- *Conduct of the National Agricultural Sample Census (NASC) covering data collection in livestock, crops, fishery, forestry and characteristics of the farming households in formal and modern holdings. The NBS and Federal Ministry of Agriculture and Rural Development are key to Agricultural Census exercises.*
- *Conduct of the National Census of Industries and Businesses (NCIB) that would cover the formal and informal sectors of the activity sectors of the economy. These sectors should be structured as recommended by the UN-Statistics office known as the International Standard Classification of all Economic Activities (ISIC Rev 4).*
  - ✓ *Both NASC and NCIB have not been comprehensively and successfully conducted in Nigeria in the past three decades. That constitutes a weak link and huge gap within the national data eco-system. A successful conduct of these two surveys would provide veritable mass of data on which subsequent estimates for intelligent M&E are based. The structure of the economy in terms of growth rates and relative weights of sectors to overall macro-economic strength of Nigeria can be derived empirically.*
- *Up-scale the System of Administrative Statistics [SAS] of key MDAs involved in competitiveness drive, including the Organised Private Sector establishments. Administrative records in Nigeria hold potentials for over 80 percent of data requirements for planning and managing resources in diverse areas of the economy, including tracking Nigeria's competitiveness in raw materials and products development. If well developed, the SAS could help Nigeria minimize over-dependence on surveys and censuses that are capital-intensive and virtually unaffordable in the current economic dispensation.*

STRATEGIC FOCUS 10: FINANCING

Substantial financial resources would be required to support the implementation of the National Strategy for Competitiveness in Raw Materials and Products Development. If the country is to achieve competitiveness in those areas, financing should be provided by Nigerians with the support of Development Partners to guarantee substantial resource availability for project implementation. Hence, there is the need for a well-functioning financial system in the country that would effectively mobilise resources within and allocate same to the most productive investment opportunities. The implementation plan, therefore, canvasses for multi-faceted domestic mobilization of financial resources to implement the strategy as well as cooperation of Development Partners/Donor Community, including Organized Private Sector support through collaboration and commitments.

STRATEGIC FOCUS 11: STRATEGY IMPLEMENTATION TASK UNIT (SITU)

The Plan provides for RMRDC as the Strategy Implementation Task Unit (SITU) in collaboration with relevant stakeholders, to manage, coordinate and produce documents on routine activities of project implementation through specific committees. The Unit would provide services to internal and external stakeholders while driving the implementation of the strategy; acting as a one-stop-shop for all information relating to it. The Unit would also be required to provide professional services, including project management and evaluation [such as production of Project Appraisal Document (PAD), design of Terms of Reference (TOR) and facilitate 'Requests for No Objections', Project Completion Certification, where necessary.

Environmental sustainability, though not a strategic element/focus area, has been given due consideration as one of the key Societal Concerns on the roles of Quality Infrastructure. It is one of the factors ranked by industries and businesses. Emphasis should be placed on proper management of natural resources to ensure sustainable exploitation of raw materials. While environmental safety and control are necessary for sustainability, the key objectives will be to:

- *Ensure conservation, sustainable development and exploitation of natural resources.*
- *Guarantee environmental safety in raw materials exploitation and utilization, including radio-active raw materials and e-waste (electronic waste).*
- *Establish adequate environmental standards as well as monitor and evaluate impact of industrial activities on the environment.*
- *Encourage optimization of production processes for waste reduction in industry.*
- *Establish a data bank for environmental management.*

- *Ensure the conduct of Environmental Impact Assessment (EIA) of proposed investments in raw materials development.*

The implementation plan incorporates environmental sustainability as key to:

- *Promoting cleaner production principles for sustainable industrial development;*
- *Encouraging the emergence of bio-degradable and environmentally-friendly packaging materials.*
- *Developing technologies for waste management (recycling, utilization, resource recovery, etc.).*
- *Building technological capacity for managing environmental problems.*
- *Encouraging the establishment of waste treatment facilities in industries.*
- *Building capacity for awareness in Environmental Impact Assessment (EIA) and monitoring.*
- *Encouraging entrepreneurs to invest in "environmental businesses' or "eco-business" which are emerging new areas of enterprise development.*
- *Ensuring adequate safety in industrial operations.*
- *Implementing the strategic plan for the development and utilization of renewable energy sources (bio-degradable wastes, wind, solar, etc.).*

1.3. Strategic Factors

The strategic factors are those elements that the strategy for competitiveness would need to get right to succeed with the key stakeholders; that is, the customers, suppliers, employees, owners and any other relevant organization, business unit or individual. These are factors to be used for evaluating the alternatives with regard to the strategy's ability to deliver competitiveness in each of the sectors. The stakeholders use these criteria to evaluate the success factors. In the model, these would be considered as all the inputs and outputs which the strategic focus elements would require to produce the desired impacts.

1.4. Strategic Impacts

Impact analysis is made for each programmes/project (strategic element) by constructing a matrix that integrates the strategic elements with the factors in a logical sequence. The matrix provides both backward- and forward- tracking mechanisms as well as a veritable framework for project appraisal and informed project costing. Every positive impact achieved is expected to lead to enhanced national competitiveness index and subsequent import reduction in raw materials and products within stipulated the time period.

CHAPTER

|TWO|

GOVERNANCE STRUCTURE FOR THE IMPLEMENTATION OF THE STRATEGY

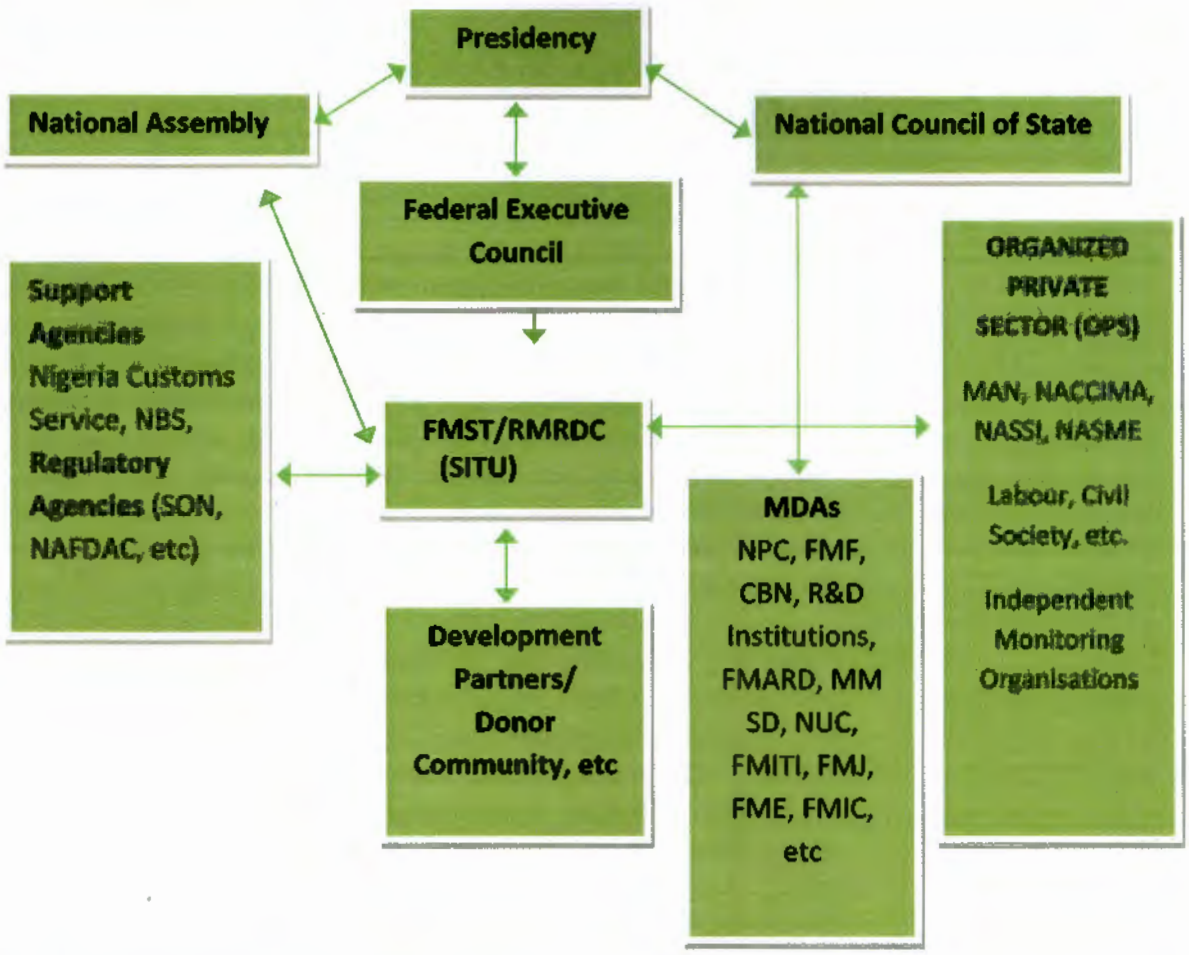
2.1 Background

The importance of the governance structure is critical for the successful implementation of the various policies, programmes and projects of the national strategy on competitiveness. The Strategy would be piloted by the Federal Government through the MDAs, National Assembly, State and Local Government Administrations. The Secretariat for the implementation of the strategy would be the Federal Ministry of Science and Technology with the RMRDC as the Strategy Implementation Task Unit (SITU). A Committee comprising relevant MDAs and other stakeholders shall be constituted as part of the Secretariat.

Figure 2.1 shows the key stakeholders of mainly support agencies, independent monitors, relevant MDAs, Organized Private Sector (OPS), Civil Society Organizations (CSOs), Non-Governmental organisations (NGOs), Community-Based Organizations (CBOs), Faith-Based Organisations (FBOs), Development Partners and Donor Agencies, among others. These are expected to provide technical, financial and other support required to ensure orderly and successful implementation of the strategy.

Stakeholders' support will require effective partnership arrangements that would guarantee coordination of all efforts and activities within the framework of well-defined roles and responsibilities which may be facilitated, where necessary, by adopting Memoranda of Understanding (MOUs) and agreements.

FIGURE 2.1
GOVERNANCE STRUCTURE FOR THE IMPLEMENTATION OF THE STRATEGY



2.2. Principles Guiding the Implementation Plan

The Plan would be guided by the following principles:

- *Developing specific quantifiable indicators for strategic programmes, and projects and activities with time-bound and well-defined milestones.*
- *Establishing clear institutional arrangements and target groups for implementation, with clarity as to who does what, when and how, etc.*
- *Ensuring broad-based participation and ownership by MDAs, Organised Private Sector, Development Partners and other relevant stakeholders.*
- *Providing realistic assessment of the resource utilization situations.*
- *Leveraging private sector engagement, as a means of maximizing resource mobilisation by promoting public-private sector costs-sharing arrangement in programme and project implementation..*

- *Considering incentives for attracting innovative sources of financing and resource mobilization.*
- *Establishing appropriate monitoring, reporting and evaluation mechanisms, etc*

2.3. Critical Stakeholders

The model designed to drive Nigeria's competitiveness in Raw Materials and Products Development identifies three sets of stakeholders whose involvement in specific aspects of implementation is very critical. They are R&D Institutions/Academia, Entrepreneurs/Investors/ Industry/Businesses and Governments/Development partners:

2.3.1 Research and Development Institutions and Academia: The key R&D institutions are mostly under the Federal Ministries of Agriculture & Rural Development, Science & Technology, Industry, Trade & Investment, Power, Health and Environment. About forty (40) R&D institutions were identified, sensitized and engaged during the strategy and implementation plan development. The academia includes the Universities, Polytechnics, Monotechnics and other tertiary institutions. This set of stakeholders is expected to play pivotal roles of producing scientists, enhancing R&D activities and conducting market-driven scientific R&D projects. They are also expected to engage in development and management of data/statistics related to their mandates. It should be noted that the capacity to generate and manage the funding for scientific research and development is of great importance towards competitiveness in raw materials and products development.

2.3.2 Entrepreneurs/Investors and Industries/Businesses: The entrepreneurs and industries are important stakeholders who engage in the real sector of the economy through investment in businesses related to raw materials and products development. They are the business risk-bearers who adopt R&D outcomes in the production process, thereby limiting national dependence on massive importation of raw materials and products. The high demand for imported raw materials and products by industries and businesses is a clear reflection of the country's poor position in world competitiveness index ranking. The strategy seeks to reverse the abnormal situation where R&D activities are not driven by the needs of industries and businesses. Thus, one of the main objectives of this plan is to link R&D activities with industry and businesses. The major role of the Entrepreneurs/Investors and Industries//Businesses towards the attainment of these goals would include investment in R&D outputs and supporting commercialization of viable R&D break-throughs. Other roles are data development and management through authentic business information and records keeping, analysis and sharing, funding for industrial development and investment in R&D activities which will help enhance national competitiveness in raw materials and products development.

2.3.3 Governments and Development Partners: Government at all levels is involved in all aspects of driving Nigeria's competitiveness in raw materials and products development. The Federal, State and Local Governments will work in consonance according to their respective constitutional mandate over issues related to the key strategic elements, especially legal and policy formulation, institutionalization and organizational arrangements, among others. The model which is designed to drive Nigeria's competitiveness in raw materials and products

development recognized governments, especially the Federal Government in collaboration with Development Partners/Donor Community as formidable stakeholders. Government, working with them, would ensure that the enabling environment is created to fast-track the implementation plan in an orderly manner.

In essence, the main role of government as a key stakeholder is to create an enabling environment for industries/businesses and R&D activities; and in collaboration with the private sector and Development Partners to fast-track the implementation of the strategy. Other roles of government and development partners include: development of strong and efficient institutional and organizational arrangements that are enduring and which activities are consistent with the fundamental principles of providing appropriate quality infrastructure for raw materials and products development.

Government is also expected to play a role in data development and management, especially in scheduled tracking of foreign trade statistics, agricultural production/activities data, industries and businesses record- keeping and general development of the System of Administrative Statistics [SAS] of governments and non-governmental establishments. Facts-based decision-making, evaluation and resource allocation are fundamental in striving towards enhanced competitiveness, production and innovation. The issues of policy implementation plan revolve around a strong and efficient monitoring and evaluation platform that requires regular reporting of progress and in-built quick intervention processes and responses to observed derailment in the implementation guidelines.

Development Partners such as the World Bank, DfID, USAID, European Union, Commonwealth, UNDP and UNIDO, would provide technical assistance/support and ensure conformity to international best practices.

To succeed, there is need for innovative financing arrangements as stipulated in the budgetary outlays which would entail a private sector-driven approach, Public-Private Partnerships (PPPs) and massive incentives to attract Foreign Direct Investments (FDIs), supported by appropriate policy and legal frameworks.

For the implementation of this plan, a 5-year budgetary estimate on financing based on the four broad categories of sources of funding [Federal government MDAs, State & LGAs, Organized Private Sector (OPS) and Development Partners/Donor Community] should provide the budgetary allocations, fiscal stimulus packages and favourable monetary policy frameworks specifically for projects or activities towards Nigeria's drive for competiveness in raw materials and products development.

2.4. Periodic Review of the Strategy Implementation

Constant review of the strategy is a vital activity component for orderly implementation of the programmes and projects. The periodic review of this plan would be on quarterly, half yearly and annual bases. This would involve meetings of the implementing agencies and stakeholders who would prepare and present progress on achievements, constraints and recommendations. This would result in orderliness, accountability and efficiency.

2.5. Project Mapping of Relevant MDAs and the OPS

It is required that projects listed in of each the 21 classification schemes are mapped against MDAs, relevant OPS and Regulatory Agencies. The MDAs include not only the Federal Ministries and their agencies, but also those of the States, LGAs and other stakeholders that would play complementary roles in terms of ensuring the necessary synergy, cooperation and collaboration in the implementation of some of the projects. This explains the importance of the Strategy Implementation Task Unit (SITU) for the effective coordination that guarantees project implementation. The SITU, with the mandate to produce appraisal documents for each project, needs to collaborate and ensure implementation in an orderly manner. Hence, the Unit would engage relevant stakeholders to assign responsibilities, roles and expected deliverables as and when due.

It should be noted that, for the purposes of establishments' mapping, 21 project-focused areas (based on raw materials and products classification schemes), 17 MDAs, Organized Private Sector (MAN, NACCIMA, NASME, NASSI, etc.) and key regulatory agencies such as NAFDAC, SON, COREN, etc. are pivotal to the strategy implementation. The mapping exercise would, therefore, be a suitable guide for project implementation. Table 2.1 shows the general mapping and distribution of projects by some MDAs according to the 21 commodity classification schemes as a broad basis for implementation of the competitiveness strategy.

It is also important to re-emphasize that, to be successful, a national strategy of this nature has to be driven with commitments from the very top of governance (The Presidency) giving full support and backing to the Federal Ministry of Science and Technology with the RMRDC providing the Secretariat and Strategy Implementation Task Unit in tandem with its statutory mandate on raw materials development and utilization.

Projects/activities proposed to enable the implementation strategy attain expected levels of success in import reduction for each of the 21 commodity classification schemes requiring interventions are distributed as strategic programme elements. These projects are identified based on the strategic focus areas and have been grouped according to manufacturing sector components of MAN.

The matrix describing the spread and concentration of projects can be assessed by programme and activity areas for each of the 21 commodity classification schemes and by the 11 strategic focus areas. It is instructive to note that some of these programme areas are cross-cutting such as Competitiveness Advocacy, Financing and Data Development and Management. However, efforts were made to highlight them majorly in areas of great significance. The source of the primary data used on Table 2.1 is from projects identified under the 21 commodity classification schemes associated with the sectors.

TABLE 2.1
NUMBER OF PROJECTS BASED ON 21 CLASSIFICATION SCHEMES & STRATEGIC FOCUS ELEMENTS

ELEMENTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	TOTAL
Competitiveness Advocacy	4	5	10	2	1	1	2	5	2	3	1	3	1	2	2	1	2	1	1	1	3	53
Legal & Policy Formulation /Review	4	-	1	4	3	5	2	5	2	1	4	3	1	1	4	5	5	2	4		4	60
Institutional/ Organizational Arrangement	-	-	-	-	1	1		2	1		1	3	-	-	1	3	3	1	1		1	19
Infrastructural Development	4	-	-	3	1	3	3	2	1	1	3	1	2	1	3	2	5	1	-	1	1	38
Human Resource Development	2	2	-	-	3	4	3	2	3	-	2	2	1	1	1	5	5	2	2	1	-	41
Research & Development (R &D) Activities	3	4	4	1	2	5	2	2	2	1	2	3	2	-	1	2	-	1	2	1	1	41
Industries & Business Development	7	6	6	6	4	4	2	5	3	4	6	4	3	3	5	2	2	4	2	3	4	85
Monitoring & Evaluation (M & E) Activities	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	1	5
Financial Activities	3	5	4	3	2	3	1	4	2	3	4	1	3	2	2	4	2	1	1	2	1	53
Data Development & Management	2		2	1	3	1	2	1	1	-	-	-	2	1	-	-	1	-	-	-	-	17
TOTAL	31	22	27	20	20	27	17	29	17	13	23	20	15	11	19	24	26	13	13	9	16	412

Note: *Number of Projects/Activities to be executed in the next five years are based on the 21 sectoral commodity classified schemes.*

*KEY TO THE 21 RAW MATERIALS AND PRODUCTS CLASSIFICATION SCHEME BY HS CODE(S)

S/N	HS Code(s)	Sections Description	S/No	HS Code(s)	Sections Description	S/No	HS Code(s)	Sections Description
1	01-05	Live animals; animal products	8	41-43	Raw hides and skins, otter than furskins and leather	15	72-83	Iron and Steel
2	06-14	Live tree & other plant; bulb. Root, cut flowers, etc.	9	44-46	Wood and articles of wood; wood charcoal;	16	84-85	Nuclear Reactors Boilers Machy & Appliance; parts
3	15	Animal or vegetable fats and oils and their cleavage products	10	47 - 49	Pulp of wood or of other fibrous cellulosic Material; wastes, etc.	17	86-89	Rail, Tramw Locom; Rolling-stock & Parts thereof; etc.
4	16-24	Prepared of meat, fish or crustaceans, Molluscs, etc.	11	50-63	Textile such as Silk, wool, cotton etc & products thereof	18	90-92	Optical, Photographic, Cinematographic, measuring, checking precision
5	25-27	Salt; Sulphur, earth & stone; plastering mat; lime & chem.	12	64-67	Footwear, Gaiters and the Like; parts of such Articles	19	93	Arms and ammunition; parts and accessories thereof
6	28-38	Inorganic chem; composts of prec Met Radioact Elements, etc.	13	68-70	Art of Stone, plaster, cement, asbestos, mica or similar Materials;	20	94-96	Furniture; Bedding, Mattress; Mattress support, cushion, etc.
7	39-40	Plastics and articles thereof;	14	71	Natural or cultured pearls, cement, asbestos, mica or similar materials;	21	97	Work of art, collectors' pieces and antiques

2.6 Institutional Arrangements for the Implementation Plan

The MDAs identified in collaboration with non-governmental organizations would be directly involved in the implementation of the over 400 specific projects identified. The roles of these establishments are to be effectively coordinated within the framework of the Strategy Implementation Task Unit (SITU) at the RMRDC under the auspices of the Federal Ministry of Science and Technology. Each establishment will be required to direct efforts at project implementation tangential to their mandate. In tandem with the model designed to drive Nigeria's competitiveness in raw materials and products development, the broad categories of institutional responsibilities would include: research and development projects, manufacturing and industrial production projects and legal and policy-related projects.

Table 2.2 shows the distribution of projects/activities by Agencies according to 21 Commodity Classification Schemes. The proposed institutions for implementation of the projects/activities include the following:

2.6.1 Federal and State Ministries

- Agriculture & Rural Development and its relevant Agencies.
- Industry, Trade & Investment and its relevant Agencies.
- Justice.
- Science & Technology and its relevant Agencies.
- Budget & National Planning.
- Mines and Steel Development and its relevant Agencies.
- Environment and its relevant Agencies.
- Finance.
- Health and its relevant Agencies.
- Petroleum Resources & its relevant Agencies.
- Power, Works & Housing & Power and its relevant Agencies.
- Education.
- Information and Culture (FMIC) and its relevant Agencies.
- Transportation and its relevant Agencies.
- Ministry of Aviation and its agencies
- Defense and its relevant Agencies.
- Foreign Affairs.

2.6.2. Departments and Agencies under Ministries

- National Bureau of Statistics (NBS).
- National Agency for Food and Drugs and Administration and Control (NAFDAC).
- Standards Organization of Nigeria (SON).
- Central Bank of Nigeria (CBN).
- National Planning Commission (NPC).
- Industrial Training Fund (ITF).
- Infrastructure Concession Regulatory Commission (ICRC)
- National Automotive Design and Development Council (NADDC).
- Defence Industries Corporation (DICON).
- Tertiary Education Trust Fund (TETFUND).

- Petroleum Technology Development Fund (PTDF).
- National Economic Summit Group (NESG).
- All Government R&D Institutions under FMST, FMARD, FMITI, MMSD, etc.

- **Research Institutions**
  - All relevant Research Institutions.
  - Agricultural Research Council/All Agricultural Research Institutes
  - Health Research Institutions
  - Investment and Trade-related institutions
  - Energy and Environment-related institutions.
  - Universities.

FEDERAL MINISTRY OF SCIENCE &TECHNOLOGY	
1	RMRDC, Abuja
2	NASENI, Abuja
3	NITR, Kaduna
4	NILEST, Kaduna
5	NBTI, Abuja
6	ECN, Abuja
7	NABDA, Abuja
8	FIIRO, Lagos
9	NNMA, Lagos
10	SHESTCO, Abuja
11	NOTAP, Abuja
12	NACETEM, Osun
13	NBRRI, Abuja
15	NARICT, Kaduna
16	NACGRAB, Oyo
17	NISLT, Kaduna

FEDERAL MINISTRY OF AGRICULTURE& RURAL DEVELOPMENT	
1	IAR, Zaria
2	NAPRI, Kaduna
3	NIFFR, Niger
4	IAR&T, Oyo
5	NAERLS, Kaduna
6	NIOMR, Lagos
7	CRIN, Oyo
8	NIHORT, Oyo
9	RRIN, Edo
10	RRIN, Edo
11	NIFOR, Edo
12	NRCRI, Niger
13	NCAM Ilorin
14	LCRI, Abuja
15	ARCN, Abuja
16	NVRI, Vom

FEDERAL MINISTRY OF HEALTH	
1	NAPRID, Abuja

FEDERAL MINISTRY OF ENVIRONMENT	
1	FRIN, Ibadan, Oyo

MINISTRY OF BUDGET & NATIONAL PLANNING	
1	NISER, Ibadan

MINISTRY OF MINES & DEVELOPMENT	
1	NMDC, Jos, National Steel Raw Materials Dev Agency

FEDERAL MINISTRY OF INDUSTRY, TRADE & INVESTMENT	
1	NAC, Abuja

UNIVERSITIES AND OTHER TERTIARY INSTITUTIONS	

2.6.3 Financing and Development Finance Institutions

- Central Bank of Nigeria (CBN).
- Bank of Industries (BOI).
- Bank of Agriculture (BOA).
- National Economic Reconstruction (NERFUND).
- Development Bank of Nigeria (DBN).
- Nigerian Export-Import Bank (NEXIM).

2.6.4 Relevant Organized Private Sector (OPS)

- Manufacturers' Association of Nigeria (MAN).
- Nigerian Association of Chambers of Commerce, Industry, Mines and Agriculture (NACCIMA).
- National Association of Small Scale Industries (NASSI).
- National Association of Small and Medium Scale Enterprises (NASME).
- Miners' Association of Nigeria (MAN).
- Association of Small and Artisanal Scale Miners.
- Relevant Professional Associations (COREN, NSE, ICAN, NBA, NMA, etc.).

2.6.5 Development Partners/Donor Agencies

- United Nations (UN) and its Organs (UNIDO, UNDP, UNESCO, etc.).
- United States Agency for International Development, USAID.
- British Department for International Development, DFID.
- Korea International Cooperation Agency, KOICA.
- Canadian International Development Agency, CIDA.
- Swedish International Development Agency, SIDA.
- World Bank, WB.
- African Development Bank, AfDB.
- Islamic Development Bank, IDB.

TABLE 2.2
DISTRIBUTION OF PROJECTS BY AGENCIES ACCORDING TO 21 COMMODITY CLASSIFICATION SCHEMES

S/N	MDAs, OPS & Reg Agencies	PROJECT AREAS ACCORDING TO COMMODITY CLASSIFICATION SCHEME **																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Federal Ministry of Agriculture and Rural Development	*	*	*			*	*	*	*	*	*										
2	Federal Ministry of Industry, Trade and Investment	*	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*	*	*	*	*
3	Federal Ministry of Justice	*	*	*		*	*		*			*			*	*		*	*	*		*
4	Federal Ministry of Science and Technology	*	*	*	*	*	*		*				*	*			*	*	*	*		*
5	National Bureau of Statistics, NBS	*	*	*	*		*							*								
6	Ministry of Budget and National Planning	*	*	*											*			*	*		*	
7	Federal Ministry of Finance					*			*								*		*			
8	Federal Ministry of Mines and Steel Development					*								*	*	*						
9	Federal Ministry of Petroleum Resources					*		*	*				*								*	
10	Federal Ministry of Environment					*				*				*		*						
11	Federal Ministry of Health						*															
12	Federal Ministry of Power, Works and Housing									*								*				
13	Federal Ministry of Transport and Aviation															*		*				
14	Federal Ministry of Education											*					*	*				
15	Ministry of Defence																			*		
16	Federal Ministry of Foreign Affairs																					*
17	Federal Ministry of Information and National Orientation																					*
18	Organised Private Sectors (OPS) +				*		*						*	*	*			*	*	*	*	*
19	Regulatory Agencies ++				*						*						*	*				
20	Project Implementation Task Unit	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Note +: *Organized Private Sector (MAN, NACCIMA, NASSI, NASME)*
++: Regulatory Agencies such as NAFDAC, SON, COREN, etc.+++: HS Code; (NOTE: interpretation key is same as earlier shown).

Note: * Projects to be executed in the next five years are based on the 21 sectoral commodity classified scheme
*Raw Materials and Products Classification Schemes by HS Code(s)

CHAPTER

| THREE |

POTENTIAL LEVELS OF IMPORT REDUCTION

3.1 Background

Raw materials and products are classified according to the Harmonised System (HS) codes as specified and further summarised into the 21 classification schemes of the Harmonised Commodity Description and Coding System. The potential levels of import reduction are established for each of the 97 broad (double digit) HS code category of raw materials and products. The short-, medium- and long- terms and the average percentage reduction of imports has been determined for each of the 21 Classification Schemes on Table 3.1. The short-, medium- and long- terms represent specified strategy implementation time lines (0<5, 5<10, 10<15) respectively. The corresponding matrix on potential levels of import reduction is derived from the implementation as shown on Table 3.1.

However, the HS codes 01, 02,03,04 & 05 have been grouped into single classification (01–05), reflecting Live Animals and Animal products with corresponding average percentage reduction in import level at 19 per cent, 40 per cent and 70 per cent for the short-, medium- and long-terms, respectively. Similar derivations are established for each of the 21 classification groups and the overall total reduction of 10.8 per cent, 30.8 per cent and 49 per cent of imports that would be achieved in the short-, medium- and long- terms respectively.

The analogy from the matrix provides pivotal Monitoring and Evaluation (M&E) elements for the implementation progress or otherwise and also in determining the size of the budget and other financial requirements.

3.2 Potential Levels of Raw Materials and Products Import Reduction

Implementation efforts and activities must impact on raw materials and products import reduction as stipulated in the strategy for each of the 97 HS Code commodity classifications now stratified into 21 classification schemes. The set target reduction levels are derived from Table 3.2 of the Strategy document ["Potentials for Local Raw Materials Production in the Short-, Medium- and Long-Terms"]. The implementation plan is designed to ensure that, on the whole, the country should attain at least 10.8% reduction in import of raw materials and products in the short-term (5 years), with improved performance at 30.8% in the medium-term (10 years) and 49% in the long-term (15 years). A detailed break-down of set performance levels is contained on Table 3.1 and provide milestones for monitoring and evaluation activities during implementation.

TABLE 3.1
POTENTIALS FOR PERCENTAGE IMPORT REDUCTION OF RAW MATERIALS AND PRODUCTS IN THE SHORT-, MEDIUM-AND LONG- TERMS

HS CODE	BROAD CATEGORY OF RAW MATERIALS & PRODUCTS.	% Reduction in Imports					
		Short Term 0 < 5Years	Avg.	Medium Term 5 < 10years	Avg.	Long Term 10 years & Over	Avg.
01	Live animals	25		40		80	
02	Meat and edible meat offal	30		50		85	
03	Fish & crustacean, mollusc & other aquatic invertebrate	15		45		75	
04	Dairy prod; birds' eggs; natural honey; edible prod nes	10		30		50	
05	Products of animal origin, nes or included	15		35		60	
(01-05)	**LIVE ANIMALS, ANIMAL PRODUCT**	**95**	**19**	**200**	**40**	**350**	**70**
06	Live tree & other plant; bulb, root; cut flowers	15		40		70	
07	Edible vegetables and certain roots and tubers	20		45		75	
08	Edible fruit and nuts; peel of citrus fruit or melons	15		50		80	
09	Coffee, tea, mate and spices	15		45		75	
10	Cereals	30		65		85	
11	Prod mill indust; malt; starches; insulin; wheat gluten	25		50		75	
12	Oil seed, oleagi fruits; miscell grain, seed, fruit etc	15		45		75	
13	Lac; gums, resins & other vegetable saps & extracts	10		40		65	
14	Vegetable plaiting materials; vegetable products nes	15		55		80	
(06-14)	**LIVE TREE & OTHER PLANTS; BULB, ROOT, CUT FLOWERS, ETC**	**160**	**17.8**	**435**	**48.3**	**680**	**75.6**
15	Animal/veg fats & oil & their cleavage products; etc	15		50		70	

15	Animal/veg fats & oil & their cleavage products; etc	15	15	50	50	70	70
16	Prep of meat, fish or crustaceans, molluscs etc	10		45		60	
17	Sugars and sugar confectionery	20		60		80	
18	Cocoa and cocoa preparations	25		65		85	
19	Prep of cereal, flour, starch/milk; pastrycooks' prod	20		65		80	
20	Prep of vegetable, fruit, nuts or other parts of plants	30		60		80	
21	Miscellaneous edible preparations	20		50		70	
22	Beverages, spirits and vinegar	10		30		50	
23	Residues & waste from the food indust; prepr ani fodder	10		40		60	
24	Tobacco and manufactured tobacco substitutes	10		30		45	
(16-24)	**PREPARED OF MEAT, FISH OR CRUSTACEANS, MOLLUSES ETC**	**145**	**16.1**	**415**	**46.1**	**565**	**62.8**
25	Salt; sulphur; earth & stone; plastering mat; lime & cement	20		65		80	
26	Ores, slag and ash	25		60		75	
27	Mineral fuels, oils & product of their distillation; etc	25		55		80	
(25-27)	**SALT; SULPHUR, EARTH & STONE;PLASTERING MAT; LIME & CHEM.**	**70**	**23.3**	**180**	**60**	**235**	**78.3**
28	Inorgn chem; compds of prec met, radioact elements etc	10		30		50	
29	Organic chemicals	10		25		45	
30	Pharmaceutical products	15		40		60	
31	Fertilisers	32		65		87	
32	Tanning/dyeing extract; tannins & derivs; pigm etc	15		35		55	
33	Essential oils & resinoids; perf, cosmetic/toilet prep	20		45		65	

34	Soap, organic surface-active agents, washing prep, etc	30		50		75	
35	Albuminoidal subs; modified starches; glues; enzymes	10		45		60	
36	Explosives; pyrotechnic prod; matches; pyro alloy	5		20		40	
37	Photographic or cinematographic goods	5		15		35	
38	Miscellaneous chemical products	5		10		25	
(28-38)	**INORGN CHEM; COMPOSTS OF PRECIOUS METAL RADIOACT ELEMENTS**	**125**	**11.4**	**315**	**28.6**	**510**	**46.4**
39	Plastics and articles thereof	10		30		50	
40	Rubber and articles thereof	5		35		60	
(39-40)	**PLASTICS AND ARTICLES THEREOF**	**15**	**7.5**	**65**	**32.5**	**110**	**55**
41	Raw hides and skins (other than furskins) and leather	25		50		65	
42	Articles of leather; saddlery/harness; travel goods etc	20		45		60	
43	Furskins and artificial fur; manufactures thereof	15		35		60	
(41-43)	**RAW HIDES, OTHER THAN FURSKIN AND LEADER**	**60**	**20**	**130**	**43.3**	**185**	**61.7**
44	Wood and articles of wood; wood charcoal	10		40		75	
45	Cork and articles of cork	5		25		40	
46	Manufactures os straw, esparto/other plaiting mat; etc	5		35		45	
(44-46)	**WOOD AND ARTICLES OF WOOD; WOOD CHARCOAL**	**20**	**6.7**	**100**	**33.3**	**160**	**53.3**
47	Pulp of wood/of other fibrous cellulosic mat; waste etc	5		25		40	
48	Paper & paperboard; art of paper pulp, paper/paperboard	5		30		50	
49	Printed books, newspapers, pictures & other product etc	10		35		65	

(47-49)	**PULP OF WOOD OR OF OTHER FIBROUS CELLULOSIC MAT; WASTE ETC**	**20**	**6.7**	**90**	**30**	**155**	**51.7**
50	Silk	10		20		35	
51	Wool, fine/coarse animal hair, horsehair yarn & woven fabric	5	5	20	20	30	30
52	Cotton	30		65		85	
53	Other vegetable textile fibres; paper yarn & woven fab	15		35		55	
54	Man-made filaments	10		30		50	
55	Man-made staple fibres	10		30		45	
56	Wadding, felt & nonwoven; yarns; twine, cordage, etc	5		25		65	
57	Carpets and other textile floor coverings	10		30		50	
58	Special woven fabric; tufted textile fabric; lace; tapestries etc	5		25		45	
59	Impregnated, coated, cover/laminated textile fabric etc	5		20		50	
60	Knitted or crocheted fabrics	10		25		50	
61	Art of apparel & clothing access, knitted or crocheted	5		25		50	
62	Art of apparel & clothing access, not knitted/crocheted	10		30		65	
63	Other made up textile articles; sets; worn clothing etc	10		35		60	
(50-63)	**TEXTILE SUCH AS SILK, WOOL, COTTON ETC & PRODUCTS THEREOF**	**110**	**7.9**	**350**	**25**	**650**	**46.4**
64	Footwear, gaiters and the like; parts of such articles	15		40		70	
65	Headgear and parts thereof	10		30		60	
66	Umbrellas/sun-umbrellas, walking/seat sticks, whips, riding crop	10		40		60	

67	Prepared feathers & down; artificial flower; articles human hair	5		25		40	
(64-67)	**FOOTWEAR,GAITERS AND THE LIKE; PARTS OF SUCH ARTICLES**	**40**	**10**	**135**	**33.8**	**230**	**57.5**
68	Art of stone, plaster, cement, asbestos, mica/similar material	5		30		60	
69	Ceramic products	15		55		70	
70	Glass and glassware	5		25		40	
(68-70)	**ART OF STONE, PLASTER, CEMENT, ASBESTOS, MICA OR SIMILAR MATERIALS**	**25**	**8.3**	**110**	**36.7**	**170**	**56.7**
71	Natural or cultured pearls, cement, asbestos, mica or similar material	10	10	30	30	45	45
(71)	**NATURAL OR CULTURED PEARLS, CEMENT, ASBESTOS, MICA OR SIMILAR MATERIAL**	**10**	**10**	**30**	**30**	**45**	**45**
72	Coin of legal tender	5		25		30	
73	Articles of iron and steel	5		10		25	
74	Copper and articles thereof	5		10		20	
75	Nickel and articles thereof	5		10		15	
76	Aluminum and articles thereof	10		25		45	
78	Lead and articles thereof	5		10		15	
79	Zinc and articles thereof	5		20		30	
80	Tin and articles thereof	10		15		20	
81	Other base metals; cermets; articles thereof	10		30		40	
82	Tool, implement, cutlery, spoon & fork, of base met etc	10		25		40	
83	Miscellaneous articles of base metal	5		25		40	
(72-83)	**IRON AND STEEL & ARTICLES THEREOF**	**95**	**8.6**	**265**	**24.1**	**410**	**37.3**
84	Nuclear reactors, boilers, machinery & mech appliance; parts	5		15		25	

85	Electrical machinery equip parts thereof; sound recorder etc	5		10		20	
(84-85)	**NUCLEAR REACTORS, BOILERS, MECHINERY & APPLIANCES; PARTS**	**10**	**5**	**25**	**12.5**	**45**	**22.5**
86	Railw/tramway locom, rolling-stock & parts thereof; etc	2.5		5		10	
87	Vehicles o/t railw/tranw rool-stock, pts & accessories	2.5		5		7.5	
88	Aircraft, spacecraft, and parts of	0		2.5		2.5	
89	Ships, boats and floating structures	0		2.5		5	
(86-89)	**RAIL, TRAMWAY LOCOM; ROLLING-STOCK & PARTS THEREOF, ETC.**	**5**	**1.3**	**15**	**3.75**	**25**	**6.25**
90	Optical, photo, cine, meas, checking, precision, etc.	0		2.5		5	
91	Clocks and watches and parts thereof	0		2.5		5	
92	Musical instruments; parts and access of such articles	2.5		5		10	
(90-92)	**OPTICAL, PHOTOGRAPIC, CINEMATOGRAPHIC, MEASURING, CHECKING PRECISION**	**2.5**	**0.83**	**10**	**3.3**	**20**	**6.7**
93	Arms and ammunition; parts and accessories thereof	0	0	2.5	2.5	5	5
(93)	Arms and ammunition; parts and accessories thereof	0	0	2.5	2.5	5	5
94	Furniture; bedding, mattress, matt support, cushion etc	5		20		45	
95	Toys, games & sports requisites; parts & access thereof	5		15		40	
96	Miscellaneous manufactured articles	5		10		30	
(94-96)	**FURNITURE; BEDDING, MATTRESS; MATTRESS SUPPORT, CUSHION**	**15**	**5**	**45**	**15**	**115**	**38.3**
97	Works of art, collectors' pieces and antiques	10	10	15	15	20	20

(97)	WORKS OF ART, COLLECTORS' PIECES AND ANTIQUES	10	10	15	15	20	20
	GRAND TOTAL	1037.5	10.8	2952.5	30.8	4710	49

Budgeting for successful implementation of the strategy would be painstakingly detailed as various sources of funding and expenditure patterns are established. Expenditures will be undertaken only when approvals are granted to requests for No Objections, given that appropriate project approval documents and adequate Terms of Reference (TOR) evaluation exercises are concluded. It should be noted that the country would save three (3) trillion Naira in foreign exchange if the strategy is implemented as detailed; i.e, the 10.8% import reduction potential is achieved in the first 5-years of implementation.

3.3 Driving Competitiveness in Raw Materials and Products Development

The National Strategy for Competiveness in Raw Materials and Products Development draws from already published National Raw Materials Development Master Plan [RMDMAP] as a critical framework to drive the implementation of the strategy.

The competitiveness implementation plan articulates strategic issues that will help in the country's efforts toward reducing the importation of raw materials and products to save the huge foreign exchange being expended. It equally canvasses for the adoption of local content in manufacturing as a veritable strategy to achieve competitiveness. In essence, the master plan and the competitiveness strategy are aimed at promoting productivity and increased sourcing of raw materials by industries to create employment opportunities, and provide the requisite platform for diversification of the economy into resourced-based economic growth trajectory now and in the future. It also emphasizes the guiding principles, need for plan, enabling framework involving leveraging innovations and inventions, developing infrastructure, establishing linkages, ensuring environmental sustainability, developing human capital, applying information and communication technologies, etc. which are based on the following:

- *Continued commitment to a stable and supportive macro-economic environment.*
- *Strengthening the institutional framework for the implementation of the Raw Materials Development Master Plan.*
- *Development of resource-based industries and products value-chain.*
- *Building the necessary human resource development for industrial raw materials transformation.*
- *Promotion of efficient utilization of raw materials and waste management in the context of environmentally-sustainable industrialization.*
- *Strengthening and exploiting the master plan synergies with other national policies, especially, Industrial policy, Trade policy, S&T policy, Agricultural policy, Solid Mineral policy, etc.*
- *Promoting the competitiveness of industries through local sourcing of raw materials.*

In line with the plan, the implementation of the strategy shall:

- *Promote effective and efficient utilization of identified raw materials through strategic value-chain development by actively facilitating research and industry linkages.*
- *Create an enabling environment for innovative application of technology and the development of skilled manpower for beneficial exploitation of raw materials in the country.*

3.4 Target Items According to HS Codes and Projects along the 10 Industrial Sectors of MAN

The implementation plan takes into account the needs of the various sectors of Manufacturers' Association of Nigeria (MAN), thus highlighting some targeted items with their HS Code which could further be looked at and delineated for the purpose of implementation into: "Immediate (1-3years), Short-Term (3-5years), Medium-Term (5-10years) and Long-Term (10 years and above)". This further deepens the periodic delineation of the implementation plan by identifying raw materials and product items which can be dealt with in the immediate-, short-, medium- and long- terms. It is important to target certain key raw materials and products where the country has some comparative and competitive advantages and make some impact within the delineated time-frame.
In as much as each of the MDAs has its mandate, there is the need for synergy especially in the face of dwindling resources for relevant agencies to execute those target areas of interest in the development and competitiveness of the country. For this reason, the plan has also aggregated some implementing institutions amongst the many stakeholders for achieving the desired levels of success in local content and competitiveness. The sectoral plan targets potential projects, raw materials and products which are by no means exhaustive but intended to provide a guide on what the country should be targeting in the immediate-long terms.

It is instructive that to make any meaningful progress, the country will have to depend on massive R&D efforts, target prospective investors and where necessary, initiate not only well-articulated activities that can bring together producers, processors, importers/exporters and other relevant stakeholders in the public and private sectors, but also a viable backward-integration strategy that can impact on competitiveness in raw materials and products development. It is also necessary to create effective linkages amongst R&D institutions and the manufacturing sector with strong government support, especially in providing an enabling business environment in terms of policy, infrastructure, security, etc.

Energy for the productive sector is a major challenge that needs government urgent intervention. The country also needs to address the challenges of machine tools, petrochemical industry and the steel sector as panacea for engendering key manufacturing activity and in providing the necessary raw materials for heavy industries.

3.5 Sectoral Implementation Plans

It is also important for the implementation plan to consider sectoral plan approach to achieving the objectives of the competitiveness strategy in raw materials and products development.

3.5.1 Food, Beverage and Tobacco Sector

The raw materials for the industry are classified into:

- *Crops (tropical and temperate).*
- *Dairy.*
- *Meat, poultry and fish.*
- *Additives, chemicals, oils and fat.*
- *Strategic cereals such as maize, rice, cassava, etc.*

The Food and Beverage sectoral plan seeks to:

- *Develop and produce additives from local raw materials.*
- *Produce improved, high yielding and disease resistant crop varieties.*
- *Develop appropriate technology to:*
  - ✓ *Produce enzymes, modified starch, essential oils.*
  - ✓ *Process food crops into usable and consumable forms.*
  - ✓ *Produce animal feed components such as methionine, lysine, etc.*
  - ✓ *Produce fruit and vegetable juices and other auxiliary products.*
  - ✓ *Utilize fruit processing wastes in the production of useful materials such as pectin, and organic fertilizer.*
  - ✓ *Upgrade indigenous processing system.*
  - ✓ *Develop and produce local herbs as substitute to hops in beer brewing.*
  - ✓ *Improve the production and processing of agro-raw materials.*
  - ✓ *Undertake R & D on non-conventional local fruits and vegetables.*

The implementation strategy aims to:

- *Boost the production of tropical and temperate crops and other agro-based raw materials.*
- *Encourage local manufacturers to improve the quality of their agro-raw material products.*
- *Fund and support for agricultural production and processing projects.*
- *Supply and timely deliver agro-inputs to end-users.*
- *Support the private sector to take advantage of investment opportunities that exist for the production of intermediate products, which constitute vital inputs for industries in the sector.*
- *Provide logistic support (credit, inputs and extension services) to farmers to ensure production of specified raw materials.*

- *Collaborate with appropriate agencies to reduce the raw material demand-supply gap.*
- *Support a dynamic local raw materials content programme.*

Recommended Areas of Food, Beverage and Tobacco Sector include the following:

- *Promote Public-Private Partnerships in the business of the grazing reserves.*
- *Artificial insemination, cross-breeding and development of improved species for meat and milk.*
- *Promote PPPs in the livestock industry.*
- *Establish modern Distribution and Marketing Systems for vegetable products.*
- *Supply inputs for high-yielding, drought- and disease- resistant crop varieties.*
- *Develop new and existing centres and nurseries for production of high-yielding varieties of fruits, vegetables, cereals, nuts and other crops.*
- *Boost local production of high-yielding varieties of cereals.*
- *Develop high-yield varieties that can grow with the development of plantations in the North Central geo-political zones;*
- *Promote the development of industries to produce hydro-genated vegetable oil from oil seeds.*
- *Promote value-addition to food stuff, beverages, spirit, etc.*
- *Promote investment in processing of sugar cane, cocoa and major cereals, palm produce, and major edible products.*
- *Invest in modern fishing practices/development in areas of comparative advantage using fishing trawling in coastal areas and fish farming.*
- *Upgrade industries engaged in the production of prepared foodstuff (beverages, spirit, vinegar, tobacco, etc.).*
- *Develop the market and creating linkages for total Utilization of wastes/residues emanating.*
- *Restructure and upgrade industries dealing with cocoa, sugar and confectionary, fruit and vegetable products and other edible preparations.*
- *Develop abattoirs and dairy processing facilities and other related cottage industries.*
- *Develop modern Systems of Preservation, Processing, Packaging and Markets Control.*
- *Establish financial support through grants and loans for live animal development.*
- *Establish Special Funding Schemes via loans, grants, credits to Organized Private Sector (OPS) in vegetables production for local and international markets.*
- *Boost high-yielding fruits for juice and concentrate production for domestic and export market.*
- *Identify and develop catchment areas for specific crops existing in the country for plantation development.*
- *Conduct National Agricultural Sample Census (NASC).*

TABLE 3.2(A)
POTENTIAL TARGETS IN RAW MATERIALS AND PRODUCTS FOR THE FOOD AND BEVERAGE SECTOR

S/N	HS CODE	TARIFF DESCRIPTION
1	0201100000	Carcasses and half carcasses of bovine animals, fresh or chilled.
2	0201200000	Meat of bovine fresh or chilled, other cut with bone Boneless meat of bovine, fresh or chilled.
3	0201300000	
4	0203110000	Or swine, fresh chilled, frozen, hams and other frozen meat of
5	0203290000	swine not mentioned in this heading.
6	0205000000	Meat of horses, asses, mules or hinnies, fresh chilled or frozen
7	0407110000	Fertilized eggs of fowls- Gallus domesticus-spp
8	0407210000	Non-fertilized eggs of fowls Gallus domesticus-spp Dried egg yolk.
9	0702000000	Tomatoes, fresh or chilled
10	0804300000	Pineapple, fresh or dried
11	0804501000	Mangoes, fresh or dried
12	0805100000	Oranges, fresh or dried
13	0712200000	Onions
14	0703200000	Garlic
15	0803101000	Fresh plantain
16	1006.3010.31	Rice
17	1006.3010.39	
18	1508909000	Groundnut oil in retail packs of less than 5litres.
19	1511909100	Refined palm oil in retail packs
20	1511909900	Refined soya bean oil
21	1507900000	
22	1901909100	Cassava food preparations including gari.
23	2402200000	Tobacco, cigarettes contain tobacco.
24	0402912000	Liquid milk/cream in packaging less than 25kg
25	0402990000	Other milk contain sweetener
26	0403102000	Yoghurt containing fruit.
27	1001.1100.00	Wheat
28	1001.1900.00	Other
29	1005.1000.00	Maize (Seed)
30	1008.2100.00	Millet (Seed)
31	1007.1000.00	Sorghum (Seed)
32	0101210000	Live purchased breeding horses
33	0102210000	Live pure breed breeding cattle
34	0105111000	Live breeding fowls-gallus domesticus spp
35	1006200029	Husked(brown)rice import by rice millers for BIP
36	1511.10.00.00	Crude palm oil
37	1511901000	Fractions of palm oil not fit for human consumptions
38	0401100000	Milk and cream not concentrated.
39	0401500000	Sugarless of fat content ranging between 1%-10%
40	0806100000	Fresh grapes

41	0808100000	Apples
42	0809300000	Peaches including nectarines
43	0302710000	Tilapia, meat, fresh or chilled
44	0302720000	Catfish
45	0303130000	Atlantic salmon and Danube salmon meat, frozen.
46	0302430000	Sardines
47	0302440000	mackerel
48	0302510000	cod
49	3101000000	Fertilizer
50	1001000000	Wheat
51	0710210000	Cowpea

3.5.2 Chemicals and Pharmaceuticals Sector

This sectoral group has the most diversified raw material needs for industries. The raw materials are broadly divided into four:

- *Agro-based chemicals and medicinal plants.*
- *Petroleum-based chemicals.*
- *Non-metallic mineral-based chemicals.*
- *Allied chemicals.*

In this sector, the objective is to:

- *Promote the development of raw materials for chemical and pharmaceutical industries.*
- *Develop local herbs as sources of alternative raw materials for the industries.*
- *Promote investment in local production of chemicals.*
- The plan suggests the following implementation strategy for the sector:
- *Ensure sustained operation of the nation's refineries and petrochemicals plants to provide the needed raw materials for the sector.*
- *Periodic review of tariffs on chemical and pharmaceutical raw materials to make locally-produced finished goods competitive and thereby avoid dumping of goods from other countries.*
- *Encourage the establishment of small-scale/intermediate industries to feed the larger production lines.*
- *Strengthen linkages between research and industry for the development of chemicals and pharmaceuticals*

Recommended Areas of Focus for Chemicals and Pharmaceutical Sector include:

- *Develop mineral fuels, oil gas for diversification and expansion of the next generation of LNG Train to petro-chemical project, gas expansion and utilization.*
- *Promote the procurement and patronage of the local pharmaceutical industries.*
- *Investment in local production of inputs such as adhesives, colourants, printing inks, etc.*

- *Identify, recognize and organize informal distillers of crude oil into association and regulate them to build their capacity to contribute to the economy.*
- *Restructure and upgrade existing fertilizer plants in the country.*
- *Local production of Active Pharmaceutical Ingredients (APIs) through partnership.*
- *Develop essential drugs taking advantage of the flexibility of WTO Trade-Related Intellectual Property Rights (TRIPR).*
- *Establish Bio-equivalent Centres in Nigeria.*
- *Promote the procurement and patronage of the local pharmaceutical industries.*
- *Identify, recognize and organize informal distillers of crude oil into an association and regulate them to build their capacity to contribute to the economy.*
- *Develop petrochemical industries to provide inputs for manufacture of items in the sector.*
- *Promote development of industries to produce hydrogenated vegetable oil from oil seeds.*
- *Invest in R&D for the development of animal fats and oils through incentives.*
- *Invest in the down-stream sector of the petrochemical industries.*
- *Develop organic chemicals and pharmaceuticals from locally-available plant resources.*

TABLE 3.2 (B)
POTENTIAL TARGETS IN RAW MATERIALS & PRODUCTS FOR THE CHEMICALS AND PHARMACEUTICAL SECTOR

S/N	HS CODE	TARIFF DESCRIPTION
1.	3506.9900.00	Prepared Glues and other Adhesives
2	2803.0000.00	Carbon (carbonblacks and other forms of carbon not elsewhere specified or included)
3	1108.1490.00	Manioc (cassava) starch not Pharmaceutical grade
4	2505.1000.00	Silicasands and quartz sands
5	1511.1000.00	Crude Palm Oil
6	1513.2100.00	Crude Palm Kernel Oil
7	2833.1900.00	Other Sodium Sulphate
8	2710.1931.00	Base Oil
9	1515.3000.00	Castor oil
10	2802.0000.00	Sulphur, sublimed or precipitated; colloidal sulphur.
11	2839.1100.00	Sodium Silicate
12	2905.4500.00	Glycerine
13.	2825.9000.00	Other inorganic bases; other metal oxides, hydroxides and peroxides not specified (Caustic Soda)
14.	2712.9000.00	Petroleum Jelly
15.	1108.1290.00	Maize (corn) starch excluding Pharmaceutical grade
16	2207.2000.00	Ethyl alcohol and other spirits, denatured, of any strength
17	1701.9990.00	Other cane or beet sugar and chemically pure sucrose, in solid form

18	3823.1100.00	Stearic Acid
19	3910.0000.00	Silicon Oil
20.	2713.9000.00	Mineral Oil
21.	2530900000	Other Mineral Substances not elsewhere specified or included, Soda Ash (Sodium Carbonate)
22.	1806901000	Other confectionery containing cocoa and chocolate (Chocolate Flavour)

3.5.3 Textiles, Wearing Apparel, Leather and Leather Products Sector

This sector is further classified into five sub-sectors:

- **Textiles** - These are industries involved in processing natural raw materials such as cotton, jute, flax, silk, wool, and synthetic fibres, to semi-finished or finished products, through spinning, weaving, bleaching, drying and printing, resulting in the production of fabrics or cloths for human wears, medicals, household and industrial applications.

- **Carpets** - These are industries that specialize in the production of domestic and/or industrial carpets and rugs, using either purely synthetic fibres or a blend of synthetic and natural fibres. They could either be woven or laminated.

- **Wearing Apparel** - These are the garment industries that are involved in the value-added processes of producing wears for men, women, children, household and industrial purposes.

- **Leather** - These are the indigenous and mechanized tanneries that are involved in the value-added process of tanning animal hides and skins to wet blue, crust and finished leathers of varying specifications and for various applications. This sub-sector also depends on livestock processing and synthetic leather industries.

- **Leather Products** - This sub-sector comprises industries involved in the production of leather products such as shoes, bags, suits, belts, wallets, etc. The plan objective is to produce raw materials for textile, carpet, wearing apparel, leather and leather goods industries such as:

  - *Long staple and high-yielding cotton fibres, jute fibres, flax, kenaf, silk and synthetic fibres such as polyester, nylon, acrylics, etc.*
  - *High-quality hides and skins, semi-finished and finished leather and synthetic leather.*
  - *High-quality woven and non-woven fabrics and other wearing apparel inputs such as linings, gum stays, buttons, zippers, elastics, ribbons, etc.*
  - *Textiles and finishing chemicals for tanning such as dye-stuff, caustic soda, bleaching agents, starches, tannings, fat-liquor, chromes, etc.*

- Develop and upgrade indigenous technologies for processing local raw materials for the sector.
- Increase export earnings of the sector.
- Attract Foreign Direct Investment (FDI) into the sector.

The plan for the Textiles, Wearing Apparel, Leather and Leather Products Sector would be implemented by:

i. Designing and fabricating efficient spinning, weaving, dyeing, printing, tanning machinery and equipment to upgrade indigenous process technologies of the sector.
ii. Encouraging patronage of locally-made textiles, garments, foot-wears, fibres and clothing.
iii. Promoting investment in the garment sub-sector.
iv. Improving traditional processing technologies for hides and skins, fibres and clothing.
v. Boosting production of long staple cotton, kenaf, jute fibre, silk, hides and skins.
vi. Promoting investment in the production of dyes and chemicals.
vii. Supporting development of down-stream industries for synthetic fibre production from petrochemicals.
viii. Improving the quality of the Nigerian cotton.
ix. Protecting the local market against dumping and other trade malpractices.
x. Providing affordable sources of funds to support upgrading of technology.

Recommended Areas of Attention for Textiles, Wearing Apparel, Leather and Leather Products Sector include the following:

- *Organize SMEs for collections of raw hides and skins, especially for local tanneries.*
- *Develop grazing sites and associated abattoirs to be engaged in harnessing animal skins.*
- *Intensive advocacy to minimize animal skin consumption ("Pomo").*
- *Organize associations and establishment of modern common facilities for tanning and preliminary processing with attention to address effluence in the environment.*
- *Develop incentives and motivation framework in the production of quality leather and leather products for domestic and export markets.*
- *Revamp and boost cotton production through appropriate incentives to SMEs.*
- *Create market incentives for foot-wears, head-gears and related articles through enhanced official domestic demands for finished products.*
- *Promote investment in production of petrochemical raw materials for foot-wears, head-gears and related articles.*
- *Revive existing ginneries through incentives and logistic support.*
- *Upgrade existing textile mills through deliberate policies;*
- *Attract Foreign Direct Investment in Nigeria Textile industry.*

- *Policy and Institutional framework on animal skin management.*
  - *Build capacity in quality garment and other finished textile products through quality certification and standardization.*
  - *Conduct R&D and build capacity for animal skin quality management.*
  - *Revamp existing tannery industries and encourage the establishment of new ones to guarantee production of quality finished leather for manufacturers of finished leather.*
  - *Develop synthetic textile raw materials from petrochemical inputs.*
  - *Upgrade the Nigerian Foot-wear, Head-gear and related products manufacture to conform to standards and quality requirements of certification agencies/organizations.*

TABLE 3.2 (C)
POTENTIAL TARGETS IN RAW MATERIALS AND PRODUCTS FOR THE TEXTILE, WEARING APPARELS, LEATHER AND LEATHER PRODUCTS

S/N	HS CODE	TARIFF DESCRIPTION
1	4101.2000.00	Whole hides and skins, unsplit, of a weight per skin not 16 kg
2	4101.5000.00	Whole hides and skins, of a weight exceeding 16 kg
3	4104.1900.00	Tanned or crust hides and skins of bovine Other[wet in state(including wetblue]
4	4104.4900.00	Tanned or crust hides and skins of bovine and Other[dry state (crust)
5	4107.1900.00	Other Whole hides and skins not specified.
6	4107.9900.00	Other hides and skins not specified.
7	130120000	Gum Arabic
8	5202.9900.00	Cotton waste (including yarn waste)
9	5207.9090.00	Other cottonyarn not specified.
10	6305.1000.00	Jute Sack
11	5202100000	Long staple fibre
12	5202990000	Short staple fibre
13	5202100000	Cotton Yarn
14	5103.2000.00	Wool waste
15	5402.2000.00	Polyester yarn
16		Synthetic Tow of Acrylic
17		Nylon fishing yarn
18	5509.1200.00	Multiple cable yarn
19		Spun Bonded Non-woven
20		Viscose Rayon Yarn
21	9606.2100.00	Buttons

3.5.4 Wood and Wood Products Sector

Three major sub-sectors are recognized within the wood and wood products sector. These include:

- Sawmilling.
- Furniture.
- Wood-based panel.

Saw-milling Sub-sector

The saw-milling sub-sector is constituted by the log converters. It has been active in the development of lesser-known wood species and the conversion of smaller diameter logs.

Furniture Sub-sector

This is one of the major secondary wood processing industries in Nigeria. Wooden furniture is the major market for wood in Nigeria.

Wood-based Panel Sub-sector

Current production output of the wood panel mills is less than 20% of installed capacity; compelling the nation to depend on imported items.

The materials required in this sub-sector include:

- Logs.
- Lumber.
- Veneers.
- Poles.
- Plywood.
- Particle board.
- Overlays.
- Adhesives.
- Industrial chemicals.
- Fittings/upholstery materials.
- Sand paper.
- Decoratives.
- Craft papers.

Generally, in the Wood and Wood Products Sector, the plan intends to address the following objectives:

- ✓ *To develop genetically-improved planting materials of indigenous crops and other economic tree species, through vegetative propagation for the promotion of agro-forestry practices. Examples of such trees are Acacia Senegalense, Acacia nilotica, Irvingia gabonensis, Gacinia cola, Treculia Africana.*
- ✓ *To develop genetically improved seedlings and viable propagation methods for endangered species such as Mahoganies, Irokos, Obeches and Mansonia.*
- ✓ *To develop processes for increased utilization of wood wastes such as slabs, saw dust, flakes and other agricultural wastes to perform the functions of solid wood.*

The implementation strategy for the wood and wood products sector would be by:

- *Encouraging extensive establishment of forest plantations.*
- *Developing machinery and equipment for wood conversion and wood-work activities.*

- *Research to identify and develop conventional and alternative sources of wood-based raw materials.*
- *Promoting the utilization of adequately treated wood.*
- *Coordinating exploration, exploitation and management of forests, wood and wood products on a sustainable basis.*
- *Supporting forest and wood research to enable the nation keep abreast with modern scientific results and standards on utilization and processing of wood.*

Recommended Areas for consideration in the Wood and Wood Products Sector include the following:

- *Reforestation and deliberate tree planting projects to provide wood and article of wood industries.*
- *Promote investment in Bamboo, Kenaf and other related non-wood fibre plants as well as Gmelina aborea.*
- *Revive existing wood plantations and establish new areas for resuscitation of paper mills (Iwopin, Oku-Iboku, Jebba, etc.) and newsprint industries.*
- *Invest in coordinated projects for mapping and conservation of forest reserves for economic value, through strengthening Nigeria's Forestry Department.*
- *Invest in R&D inputs for production of low gestation tree species.*

TABLE 3.2 (D)
POTENTIAL TARGETS IN RAW MATERIALS & PRODUCTS FOR THE WOOD AND WOOD PRODUCTS SECTOR

Sax need

S/N	HS CODE	TARIFF DESCRIPTION
1	4421909100	Tooth pick
2	4401990000	Lumber
3	4401300000	Saw dust, wood waste and scrap
4	4421909000	Poles
5	4403491000	Logs
6	3506101090	Adhesives
7	6805200000	Sand paper
8	4412940000	Vaneer sheet and laminated wood
9	4421909100	Match splint
10	4410190000	Particle board of wood
11	4401210000	Coniferous woods in chips or particles
12	3904409000	Polyvinyl formaldehyde resin
13	3909402000	Phenol formaldehyde

3.5.5. Pulp, Paper and Paper Products, Printing, Publishing and Packaging Sector

The sector is divided into four sub-sectors on output basis as follows:

- **Primary Paper Manufacturing Sub-sector**
  This sub-sector consists mainly of the three integrated pulp and paper mills in Nigeria. The mills convert wood materials with large quantities of cellulose in

the presence of chemical or mechanical energy to pulp for subsequent transformation into various grades of papers.

- **Stationery and Tissue Paper Sub-sector**
  The products of this sub-sector include: stationery, tissue paper, duplicating paper, typing sheets, tracing paper, exercise books, envelopes, sanitary towels that are mainly utilized by educational institutions, government and private organizations.

- **Light/Heavy Packaging Sub-sector**
  These are mainly the producers of corrugated boxes, packets, cartons, cement, bags, paper bags, etc. The products are mainly consumed by industries, such as cement, textiles, soaps, food and beverages.

- **Printing and Publishing Sub-sector**
  The products of this sub-sector include: documents, booklets, cards and labels. The document types include: newspapers, pamphlets/programmes, textbooks, magazines, serials, diaries, gazettes, etc. The booklets types are calendars, bank forms, etc., while cards and labels include invitation cards, assorted cards, etc.

In the plan, the objectives would include to:

- *Enhance the production of core raw materials and chemicals (kaolin, gum arabic, soda ash, pigments, etc.) from local sources.*
- *Develop and produce high-quality paper and allied products from non-wood sources such as cotton, bagass, rice husks and other agricultural wastes.*
- *Develop alternative sources of long fibre pulp e.g. water hyacinth, bamboo, kenaf, raffia, cotton and sisal for the production of high-quality paper.*
- *Develop local capacity for fabrication of pulping machineries and spare parts.*

The implementation strategy for the pulp, paper and paper products, printing, publishing and packaging sector would be geared to:

- *Provide farmers with incentives to plant tree crops.*
- *Encourage local industries to utilize R&D results such as pulping of long fibre sourced from kenaf, jute wastes, bamboos, etc.*
- *Strengthen linkages between the pulp and paper sector and the universities, polytechnics and research institutes in the country to address the raw materials problems of the sector.*
- *Invest in training of the human resource needs of the sector by the public and private sectors.*
- *Develop and promote mini-scale paper production technology in the country.*
- *Intensify the campaign for afforestation to sustain the growth of the pulp and paper industry.*
- *Promote private sector participation in primary pulp and paper production.*

Recommended Areas of Focus for Pulp, Paper and Paper Products, Printing, Publishing and Packaging Sector include the following:

- *Promote investment of alternative fast-growing weed plants and non-wood fibre plants for pulping to produce newsprints and papers for book printing.*
- *Invest in security and quality printing within the country.*
- *Promote investment in Bamboo, Kenaf and other related non-wood fibre plants as well as Gmelina aborea.*
- *Revive existing wood plantations and establish new areas for resuscitation of paper mills (Iwopin, Okun Ibokun, Jebba etc) and newsprint industries.*
- *Invest in local production of inputs such as adhesives, colourants, printing inks, etc.*

TABLE 3.2 (E)
POTENTIAL TARGETS IN RAW MATERIALS AND PROJECTS FOR THE PULP, PAPER AND PAPER PRODUCTS SECTOR

S/N	HS CODE	TARIFF DESCRIPTION
1	4706200000	Pulp of fibres recovered from (wastes and scrap) paper or paper board(pulp of other cellulosic materials)
2	4707300000	Paper or paper board made of mainly mechanical pulp(for example newspapers, journal and similar printed matter)(recovered waste and scrap of paper or paperboard)
3	4707900000	Other, including unsorted waste and scrap)(recovered waste and scrap of paper or paperboard)
4	4803000019	Other tissue paper
5	3505100000	Modified starch
6	3505200000	Glue/gum
7	3506910000	adhesives
8	4803000000	Toilet or facial tissue stock, towel or napkin stock and similar paper of a kind used for household or sanitary purposes, cellulose waddings and webs of cellulose fibre, whether or not creped, crinkled or embossed, perforated or surface coloured, surface decorated or printed, in rolls or sheets
9	4803190019	Tissue paper in jumbo rolls
10	4703110000	Semi bleached Coniferous chemical wood pulp, soda or sulphate other than dissolving grades
11	4703190000	Non coniferous chemical wood pulp, soda or sulphate other than dissolving grades
12	4703210000	Unbleached or bleached Coniferous chemical wood pulp, soda or sulphate other than dissolving grades
13	4801000000	Newsprint, in rolls or sheets
14	32151190000	Printing ink, writing or drawing ink and other inks whether or not concentrated or solid

3.5.6. Domestic and Industrial Plastics, Rubber and Foam Sector

The raw materials required by rubber industry include:

- ❖ Natural rubber.
- ❖ Polymer products.
- ❖ Colourings (dyestuff and pigment).
- ❖ Colour master batches.

The raw materials for the plastic industry include:

- Petrochemical-based products/materials.
- Additives.

The raw materials for the foam industries include:

- Petroleum-based chemicals.
- Additives.
- Textile materials.

The objectives which the plan targets for the Domestic and Industrial Plastics, Rubber and Foam Sector are to:

- ❖ *Produce raw materials for the sector.*
- ❖ *Develop new products by optimal use of scraps, new production technologies and substitution of imported raw materials with locally-available ones.*
- ❖ *Promote the development of sustainable rubber production and utilization.*

The implementation plan for Domestic and Industrial Plastics, Rubber and Foam Sector, is geared towards:

- *Encouraging the petrochemical industries to supply the basic raw materials such as polypropylene, polyvinyl chloride (PVC), polyvinyl acetate, master batches, lubricants, pigments, etc.*
- *Encouraging the private sector to invest in small-scale petrochemical plants in Nigeria.*
- *The RMRDC in collaboration with the Rubber Research Institute of Nigeria (RRIN) to promote the establishment of down-stream rubber processing industries, rubber plantations and regulate the exportation of unprocessed rubber.*
- *Intensifying R&D through funding of RRIN by the private sector.*
- *Encouraging replanting of old rubber plantations and establishment of new ones.*
- *Encouraging in-plant R&D by operators in the sector.*

Recommended Areas of Focus for the Domestic and Industrial Plastics, Rubber and Foam Sector include the following:

- ➢ *Resuscitate old and aging rubber plantations and establish new ones.*

- *Develop high-yielding varieties of rubber and improve extension services.*
- *Upgrade existing rubber research institutions to develop improved varieties, new products and technologies..*

TABLE 3.2 (F)
POTENTIAL TARGETS IN RAW MATERIALS AND PRODUCTS FOR THE DOMESTIC AND INDUSTRIAL PLASTIC, RUBBER AND FOAM SECTOR

S/N	HS CODE	TARIFF DESCRIPTION
1	4001.1000.00	Natural rubber latex, whether or not pre-vulcanised
2	4001.2200.00	Technically specified natural rubber (TSNR)
3	4001.2900.00	Other natural rubber in primary forms or in plates etc,
5	2507.0000.00	Kaolin and other kaolin clays, whether or not calcined.
6	2511.1000.00	Barium Sulphate
7	2503.0000.00	Sulphur
8	2836.5000.00	Calcium Carbonate
9	3902.1000.00	Polypropylene
10	3301.2990.00	Essential Oils
11	3904.1000.00	Poly Vinyl Chloride
12	4002.1900.00	Synthetic Rubber
13	3909.3000.00	Amino resins
14	3907.5000.00	Alkyd Resins
15	5501.4000.00	Polypropylene
16	3910.0000.00	Silicon in Primary form
17		Polymer of Polypropylene
18	3909.5000.00	Polyurethanes

3.5.7. Non-metallic Minerals Sector

Five sub-sectors identified are:

- Cement.
- Glass.
- Ceramics.
- Asbestos products.
- School chalk and crayon.

The non-metallic Minerals Sector in the plan targets objectives such as:

- *Assess quality, group deposits into grades and determine the suitability of each mineral for specific industrial use.*
- *Research into full exploration, improved ore recovery method and processing of local sources of non-metallic and mineral raw materials towards effective local sourcing and development.*

- *Develop processing technologies and machinery for the improvement of some non-metallic minerals like feldspar, silica, mica etc.*
- *Improve and mass produce processes for zincon, chromite, sand and fluorspar.*
- *Develop silica ramming and special refractory.*
- *Promote production of wax, colorants and binders for use in the manufacture of chalk, pencil, crayon, candle, lithographic transfers, etc.*
- As part of the implementation Strategies for the non-metallic Minerals Sector, the following are recommended:
- *Establish improved small-scale non-metallic mineral processing units.*
- *Invest in the training of the manpower needs of the sector.*
- *Grant of soft loans to investors in the sector.*
- *Establish catalytic and model factories.*
- *Establish of Risk Fund for mineral processors.*
- *Encourage more local fabricators in the design and fabrication of processing machinery.*
- *Collaborate with the Ministry of Mines and Steel Development in survey and publication of the relevant results.*

Recommended Areas for consideration for Non-metallic Minerals Sector includes:

- *Exploration and geo-referencing programmes for identification of commercial deposits of solid minerals where Nigeria has comparative advantage (e.g. the 7 strategic minerals like Iron ore, Gold, Lead/Zinc Ore, Limestone, Barytes, Coal and Bitumen).*
- *Upgrading of existing glass and glassware industries and the establishment of new ones.*
- *Expansion of exploration activities on the mining pearls, precious and semi-precious stones/metals and their exploitation.*
- *Investment in R&D projects of new and advanced materials products on POP, Cement, Ceramics, Glass, etc.*
- *Build capacity in areas of intricate skills of mining and processing, cutting, polishing of pearls, precious and semi-precious stones.*
- *Mining of identified strategic minerals using artisanal miners and mining associations.*
- *Expansion of mining and quarrying of appropriate solid minerals to support new and existing industries.*
- *Revival of Ceramics, Marble and Granite, etc. Industries for tiling, plumbing and sanitary ware production.*
- *Support local SMEs and large-scale industries in improvements and processing.*
- *Promote processing and diversification in the entire precious and semi-precious stones value-chain.*
- *Conduct baseline, geo-sciences studies on major minerals resources and build a national mineral data base on GIS platform to support investment.*
- *Conduct a study on the collapse or failure of existing industries;*

TABLE 3.2 (G)

POTENTIAL TARGETS IN RAW MATERIALS AND PRODUCT FOR THE NON-METALLIC SECTOR

S/N	HS CODE	TARIFF DESCRIPTION
1 2 3 4	6810110000 6810190000 6811810000 6811891000	Cement
5 6	6800000000 2500000000	Other non-metallic mineral ores (Extenders): ❖ Gypsum ❖ Calcium Carbonate ❖ Kaolin ❖ Mica ❖ Barytes ❖ Talc ❖ Asbestos ❖ Salt
7	9506910000	School chalk
8	9609100000	Crayon and Pencil
9	6810110000 2515000000	Building Bricks and Blocks Marbles and Granite and other Calcareous monumental and building stones
10 11 12 13 14 15	7002100000 7003120000 7005100000 7007190000 7008000000 7010100000	Glass
16 17 18 19 20	6800000000 6810110000 8546100000 6901000000 6908100000	Ceramics Refractory bricks Porcelain insulators unglazed ceramic tiles glazed ceramic tiles
21	2520109000	Plaster of Paris (POP)
22	6909110000	Ceramics wares for laboratory
23 24	6302100000 6911100000	Ceramic toilet wares Table/kitchen ware
25	2701000000	Coal
26	6811401000	Fibre cement
27 28 29 30 31	7002100000 7003120000 7005100000 7008000000 7010100000	Silica Sand for white tumblers and for coloured and tinted glasses
32	6800000000	Baryte for medicals and Drilling mud
32	6800000000	Mica and Asbestos

3.5.8. Motor Vehicles and Miscellaneous Sector

The Motor Vehicle and Miscellaneous Sector is an area that had progressed significantly in the past with the establishment of assembly facilities by Peugeot, Volkswagen, and the like, but collapsed due to unfavourable business climate. The current foci for the sector are to:

- *Develop auto-components such as engine blocks, single-stroke engines, fuel pumps, piston, connecting rods, coil springs, valves, brake drums, shock absorbers, etc., from locally-available raw materials.*
- *Develop Composite Matrix, Polymer Matrix Composite (PMC) and Metal Matrix Composite (MMC).*
- *Promote production of engineering plastics for auto-parts applications.*
- *Accelerate technological and industrial development to facilitate the production of a Nigeria-made vehicle.*
- *Provide automotive vehicles for urban and rural areas and thereby facilitate growth in the agricultural and other sectors.*

The implementation strategy in the plan include to:

- *Establish industries such as specialized injection moulding, blow moulding, extrusion plants, and pattern-making shops, foundries for automotive sector, and forge and stamping shops.*
- *Acquire technology for auto-components.*
- *Establish auto-engineering courses in tertiary institutions and encourage research on auto components.*
- *Develop skills through improving the educational curricular of primary and secondary schools.*
- *Streamline the makes and ages of vehicles imported into the country.*
- *Establish auto-components test centres.*
- *Promote investments in the sector*
- *Revive the sector through appropriate policies.*
- *Build local capacity for the sector.*

Recommended Areas of focus for the Motor Vehicles and Miscellaneous Sector include:

- Revive and support existing auto industries in the country.
- Promote assembly plants and develop local capacity.
- Promote engagement with friendly countries with good military technology for development in the country.
- Develop and promote of local industries in the manufacture of miscellaneous articles.
- Introduce local and international certifications for aircraft maintenance and training.
- Embrace/Invest in the modern fast/speed electric train system and target linking major cities in the country.
- Establish Industry Support Enterprises to encourage local content in the automotive industry.

TABLE 3.2 (H)
POTENTIAL TARGETS IN RAW MATERIALS AND PRODUCTS FOR THE MOTOR VEHICLE AND MISCELLANEOUS SECTOR

S/N	HS CODE	TARIFF DESCRIPTION
1	8707000000	Bodies of carriers trucks and Tanker bodies
2	8708100000	Parts and Accessories including, bumpers, Seat Covers
3	8708990000	Brake pads and linings of motor vehicles
4	8708920000	Silencers (mufflers) and exhaust pipes parts thereof of motor vehicle.
5	8711000000	Motorcycles, Tricycles , Bicycles and accessories
6	8708210000	Safety seat belts of the motor vehicles.
7	8708700000	Road wheels and parts and accessories thereof of motor vehicle
8	8708910000	Radiators and parts thereof motor vehicles
9	8714919000	Frames and forks and parts for motorcycle thereof not for assembly
10	8714929000	Wheel rims and spokes for motorcycle not for assembly industry
11	8714969000	Pedals and crank gear and part thereof not for assembly industry
12	8714991000	Other parts not specified for assembly industry – (Tyres and Tubes, Mudguard and so on)
13	8702100000	Motor vehicles for transport such as buses
14	8708800000	Suspension systems and parts thereof.
15	8704000000	Motor vehicles for transport of goods and farm produce
16	8706000000	Chassis , engines, chassis fitted with engines
17	8701100000	Tractors and other earth moving equipments
18	8701100000	Tractors and other such vehicles
19	8703100000	Motor Cars and personal vehicles
20	8709000000	Special work trucks, self propelled without fitted handling or lifting equipment
21	87.10.000000	Tanks and other Amour fighting

3.5.9. Base Metal, Iron and Steel, Engineering Services Sector

The Base Metal, Iron and Steel and Engineering Services Sector have been classified into five sub-sectors by the Manufacturers' Association of Nigeria (MAN):

- **Metallic Sub-sector**

  - **Base Metals**
    These are industries that produce non-ferrous metals such as aluminium, lead and zinc, copper, tin, etc. Some of these metals are used in their pure state/primary form, while others are used as base metals and alloys. They are important because they are utilized for specialized hardware products.

  - **Iron and Steel**
    The production and consumption of iron and steel are used as yard-sticks for the level of industrialization of a country. Consequently, there is the need for

development and sustenance of a stable iron and steel industry in Nigeria, especially with the high level of her endowments of iron ore and allied minerals.

❖ **Engineering Services**

- **Foundries**

The foundry sub-sector provides the base for the production of industrial components, spares, equipment and machinery. It is vital to the development of the engineering industry, which is still at a low level in Nigeria in spite of the vast opportunities.

- **Metal Works**

The metal works industry is classified into the following groups:

- Equipment manufacturing and fabrication.
- Galvanized iron sheet production.
- Nails- and wire-making.
- Metal packaging.
- Sheet pipe production.
- Aluminium product.

- **Welding Electrodes**

Industrial development is to a large extent dependent on the welding industry. A lot of structures and processes require welding technology.

In the Base Metal, Iron and Steel, Engineering Services Sector, the plan seeks to achieve, objectives such as:

- *Source and develop critical raw material inputs such as titanium dioxide, silica, refractoriness, lead and zinc ingots, zinc oxide, pig iron, ferro-alloys, fluxes, etc., which are presently being imported.*
- *Encourage and facilitate the manufacture of engineering products and prime movers (electric motors, petrol engines, diesel engines, etc.) for the operation of locally-fabricated industrial machines.*
- *Develop local capacity for welding technology.*

The implementation plan of the sector is focused on the need to:

- *Establish a data bank of existing relevant exploration and mining organizations, industrial establishments, raw material requirements and availability of local raw materials (including ore deposits) in the sector.*
- *Establish foundries, machine and fabrication shops for engineering products manufacture.*
- *Explore, evaluate and develop strategic base metals to produce basic raw materials for the relevant industries, e.g. iron, zinc, tin, copper, etc.*
- *Facilitate the provision of infrastructure by government that will aid the smooth operation of the steel plants, e.g. railway network, dredging of the River Niger, etc.*

- *Place minimal or zero duty on iron and steel for local fabricators.*
- *Sustain appropriate tariffs on scrap metal and ban the exportation of same. Organized scrap metal dealership should be encouraged.*
- *Maintain appropriate tariffs on non-ferrous alloys to encourage local manufacturers.*
- *Use effectively the reverse engineering approach to indigenous capacity building.*
- *Facilitate the importation of essential equipment, machinery and spares to make them readily available and affordable.*
- *Link relevant professionally-qualified personnel, institutions and industries for mutual benefit to the industry.*
- *Support small- and medium- scale enterprises in the sector.*
- *Sponsor the development of proto-types of appropriate processing technologies and encourage their advancement to commercial scale.*
- *Support organized private sector participation in research.*
- *Encourage joint venture participation in the area.*

Recommended Areas of Focus for the Base Metal, Iron and Steel, Engineering Services Sector includes:

- *Expand mining and quarrying of appropriate solid minerals to support new and existing industries.*
- *Review inherent Land Use Act to facilitate participation of States, Local Government Areas and the private sector in the mining of precious stones and metals.*
- *Promote processing and diversification in the entire precious and semi-precious stones value-chain.*
- *Promote the development of Iron, Steel and Base-metal smelting plants in relevant parts of the country.*
- *Promote recycling of scraps of Aluminium, Tin, Zinc and Lead as secondary raw materials for industries.*
- *Explore and geo-reference programmes for identification of commercial deposits of solid minerals where Nigeria has comparative advantage (e.g. the 7 strategic minerals like Iron ore, Gold, Lead/Zinc Ore, Limestone, Barytes, Cal and Bitumen).*
- *Resolve all legal issues related to ALSCON through deliberate policy and resuscitate the plant.*
- *Invest in processing, standardization and conformity of metal, steel and base-metals products.*
- *Encourage and support a system for Content Management Training as part of procurement in heavy and modern industry development.*
- *Introduce local and international certifications for aircraft maintenance and training.*
- *Invest in vigorous capacity building via partnerships and collaborative efforts with world-renowned aviation centres.*

- *Dredge the Imo River to enable movement of raw materials like Bauxite to ALSCON.*
- *Resuscitate and upgrade all the rolling mills and completion of Ajaokuta Steel Complex.*
- *Encourage investments in heavy and modern industries (e.g. Nuclear Technology, Robotics and Mechatronics, etc.).*
- *Review and strengthen tertiary R&D activities towards heavy modern equipment development.*
- *Conduct baseline, geo-sciences studies on major mineral resources and building of a national mineral data base on GIS platform to support investments.*

TABLE 3.2 (I)
POTENTIAL TARGETS IN RAW MATERIALS AND PRODUCTS FOR THE BASE METAL, IRON & STEEL SECTOR

S/N	HS CODE	TARIFF DESCRIPTION
1	7200000000	Iron ore exploration and mining as related to production with NIOMCO revitalization
2	7600000000	Aluminium ore and scraps - exploration and ascertaining sources , quantity and quality
3	7800000000 7900000000	Lead ore -exploration and ascertaining sources , quantity and quality Zinc ore- exploration and ascertaining sources , quantity and quality
4	8000000000	Tin ore – reactivation of mining and smelting activities in Jos
5	7200000000	Iron Steel materials - and articles thereof as related to Ajaokuta and the Steel rolling mills coming up stream
6	7600000000	Aluminium products and Articles thereof: (Bars, Rods and Profiles, Wire, Plates, Sheets and Strips >0.2mm, Foils and as related to production in ALSCOM
7 8	7800000000 7900000000	Lead and Articles thereof: (pellets) Zinc and articles thereof (unwrought Zinc)
9	8000000000	Tin and articles thereof – for tin cans and foils
10	7400000000	Copper and articles thereof – for cables, wire, alloys, etc
11	8100000000	Other base metals of need and articles thereof
12	7213 TO 7216	Bars and rods of hot rolled, cooled rolled of various shapes, angles and sections – U,L,H, I, T, ETC
13 14 15	7317000000 7217000000 7314000000	Nails and Wires
16		Welding Electrode production
17	851511	Brazing or soldering machines and apparatus; soldering irons and guns, whether or not capable of cutting
18	851519	Brazing or soldering machines and apparatus; other than soldering irons and guns, whether or not capable of cutting
19	8200000000	Tools and Implements of base metals
20	8300000000	Other miscellaneous articles of Base Metals

21 22 23 24 25	7201000000 7202000000 7203000000 7204000000 7205000000	Products of primary materials in granular or powder (pig irons, ferro-alloy, Ferrous products, ferrous scraps, granules.
26 27 28 29 30	7303000000 7304000000 7305000000 7306000000 7307000000	Pipe production, Tubes and hollow profiles
31	851521	Welding machines and apparatus; for resistance welding of metal, fully or partly automatic, whether or not capable of cutting
32	851529	Welding machines and apparatus; for resistance welding of metal, other than fully or partly automatic, whether or not capable of cutting
33	851531	Welding machines and apparatus; for arc (including plasma arc) welding of metals, fully or partly automatic, whether or not capable of cutting
34	851539	Welding machines and apparatus; for arc (including plasma arc) welding of metals, other than fully or partly automatic, whether or not capable of cutting
35	851580	Welding machines and apparatus; n.e.c. in heading no. 8515, whether or not capable of cutting
36	851590	Welding, brazing or soldering machines; parts of the machines of heading no. 8515

3.5.10. Electrical and Electronics Sector

Basically, there are two main categories of raw materials inputs:

- *Basic raw materials, which serve as inputs needed by the manufacturers in the sector to produce intermediate materials or components. All the basic raw materials such as silica, copper, aluminium, plastic, rubber, mica, ceramics, tin, soot, various metal components can be locally sourced.*
- *Raw materials or components which are in turn used by manufacturers to produce finished products.*

The objectives of the plan for the electrical &electronics sector is to develop the required raw materials and local content for the sector, including technologies, machinery and equipment needed to support utilization of locally-available raw materials.
The implementation plan suggests the identification of areas of comparative advantage for raw materials development in the States, and creation of awareness to facilitate private sector participation and enhancement of capacity to develop and process raw materials, including chemicals and components used in this sector.

Recommended Areas of attention for the Electrical and Electronics Sector include:

- *Explore and develop ore minerals for the electrical and electronics industry.*
- *Encourage sustenance of efforts already recorded by Nigerian cable industries.*
- *Develop raw materials for electrical and heat insulations (porcelain, rubber, etc.).*
- *Establish Printed Circuit Board (PCB) industries and allied electrical components.*
- *Encourage the establishment of SMEs for the production of electrical components (diodes, fuses, switches, etc.).*
- *Produce solar panels and accessories for rural electrification projects.*
- *Facilitate the establishment of independent power-generating plants to feed into the national grid.*
- *Invest in R&D and business ventures into drone and other electronic delivery technologies and electrical electronic machinery and accessories.*

TABLE 3.2 (J)
POTENTIAL TARGETS IN RAW MATERIALS AND PRODUCTS FOR THE ELECTRICAL & ELECTRONICS SECTOR

S/N	HS CODE	TARIFF DESCRIPTION
1	38101000	Capping cement
2	29032200	Trichloroethylene
3	32159000	Stamping ink
4	7210.500000	Tin
5	7301100000	Iron ore
6	68040000	Ceramics
7	85399000	Parts of Lamps
8	74071000	Insulators
9	76012000	Aluminum strip
10	7408.110000	Copper wire
11	7605.110000	Aluminum wire
12	85362000	Circuit breaker
13	84150000	Fans & Fan Blades
14	3903.190000	Polystyrene
15	3907.100000	Polyacetals
16	85361000	Fuses & Fuse Links
17	39079910	Polyester molding compound
18	90303900	Ammeters
19	85321000	Capacitors
20	85321000	Contactors
21	83017000	Keys
22	85399000	Fluorescent power
23	91030000	Clocks
24	84150000	Evaporator

25	84150000	Thermostat
26	84150000	Drier
27	84150000	Electric motor
28	85321000	Resistors
29	85321000	Capacitors
30	85399000	Filament
31	80030000	Soldering Tins
32	85366100	Lamp holders
33	85321000	Igniters
34	76052900	Molybdenum wire
35	85353000	Starter switches
36	3903.190000	Polystyrene
37	3907.100000	Polyacetals
38	74072100	Brass section
39	74092900	Brass sheet 2mm
40	72092600	Round steel Rod 4mm
41	74082900	Round copper wire 0.125mm diam.
42	72091700	Cold roll steel sheet
43	84419000	Knives for slitting machines
44	85399000	Fluorescent power
45	7011100000	Glass shells/tubes
46	7002310000	Exhaust Glass
47	2716000000	Electric Cookers
48	8509400000	Mixers, Blenders
49	8415000000	Immersion Heaters
50	3904.220000	PVC Compound
51	3901.110000	Polyethylene (PE) compounds and Granules
52	7301200000	Cabinet (Steel sheet & Rods)
53	8415000000	Compressors and Aluminum pipes
54	8415000000	Refrigerators/Freezers
55	2844000000	Radios
56	8525000000	Televisions
57	8524000000	Computers
58	8415000000	Air-conditioners
59	8516400000	Electric Irons
60	8504310000	Current transformers
61	4011000000	Sewing Machines
62	7408.110000	Copper and Aluminum Smelter
63	8477.100000	Injection Moulding Machine
64	9024800000	Machinery
65	7408.110000	Copper and Aluminium Smelter

3.5.11. New and Advanced Materials Sector

The foci of the plan in the area of new and advanced materials are to:

- *Develop ceramic reactors for energy generation, material synthesis and environmental purification.*
- *Develop high-efficiency manufacturing technologies for ceramics, to reduce use of resources, energy inputs and processing time.*
- *Develop advanced corrosion-resistant and wear-resistant structural components, by integrating the inherent high hardness, chemical stability and heat resistance of ceramic materials.*
- *Develop functional crystal materials in the field of energy and environmental technologies.*
- *Develop low temperature synthetic route through Ion-exchange method, ozone oxidation process, and single crystal growth techniques at low temperatures.*
- *Develop forming processes for high performance materials using advanced powder metallurgy and plastic forming processes.*
- *Develop functional inorganic film materials in the field of energy and information technologies.*
- *Develop porous materials to replace traditional catalysts and absorbents.*
- *Develop composite and bio-polymers for applications in packaging, food, medical and pharmaceutical industries.*
- *Develop bio-sensors and other bio-analytical devices.*

The implementation plan for the development of new and advanced materials is to:

- *Provide support for exposure of indigenous researchers to contemporary development in new and advanced materials research.*
- *Establish specialized centres for R&D in new and advanced materials.*
- *Encourage potential users of new and advanced materials to invest in R&D.*
- *Establish a database on new and advanced materials, in collaboration with relevant stakeholders.*
- *Promote commercialization of new materials and adoption of advanced technology in manufacturing.*
- *Sponsor research in material synthesis, coatings, components, plasma surface modification, artificial photosynthesis, catalysts, pollution sensors, environmental remediation, chemical recycling, etc.*
- *Promote the development of some raw materials through tissue culture.*
- *Identify expertise within Nigeria on new and advanced materials.*
- *Promote contract research between industry and researchers.*
- *Encourage special infrastructure at designated centres for research into new and advanced materials.*

Recommended Areas for consideration for New and Advanced Materials include:

- *Build and upgrade Materials Institute and allied laboratories in tertiary institutions across the country*
- *Encourage massive R&D in new and advanced materials (for smart materials of the future, nano-structure materials and nano-technology, polymers, catalysis, electronics, instrumentation, composites, advanced ceramics, etc.).*
- *Encourage and devise rewards and award systems for scientists and researchers that can develop advanced materials for use industries from traditional raw materials for industrial uses.*
- *Encourage massive investment in bio-technology, robotics and mechatronics.*
- *Capacity building for researchers in new and advanced materials technologies.*

CHAPTER

FOUR

PRIORITIZATION AND SEQUENCING OF PROJECTS

4.1 Background

The implementation plan identifies the projects to be executed, and they would be prioritized for a short-term period of five years. This prioritization is predicated on their logical sequencing and prospects in mobilizing resources for their implementation. Table 4.1 shows the pivotal projects by strategic programme elements, inferring the total number of projects identified and the necessary activities required.

TABLE 4.1
PIVOTAL PROJECTS BY STRATEGIC PROGRAMME ELEMENTS

S/N	Strategic Programmes Elements	Number of Projects	Pivotal Projects/Activities
1	Competitiveness Advocacy	53	- Publicity of the strategy fundamentals (Radio and TV placements) - Advocacy visitations and meetings with Stakeholders - Media education and consultative workshops, (workshops for journalists) - Sensitizations through electronic and print media
2	Legal and Policy Frameworks	60	- Land policy - Land use Act - Public Procurement Act - Monetary and fiscal policies
3	Institutional/Organizational Arrangements	19	- Public Private Partnership - Linking Research & Development and Industries/Businesses
4	Infrastructural Development	38	- Road development and rehabilitation - Bold Project on Nuclear Power - Fast rail System - Inland Water Development

5	Human Resource Development	41	- Tertiary Curriculum development to match Industries - Content Management Training
6	Research & Development (R&D)	41	- Demand-driven Research and Development - Patent on Intellectual Property Rights (IPRs), branding copyrights. - Annual award on science, technology and innovation break-throughs
7	Industrial & Business Development	85	- Heavy industry revived - New investment - Private sector partnerships in military and arms development - Recognise and empower informal mining & refining of minerals
8	Monitoring & Evaluation (M&E)	5	- To be guided by potential import reduction levels - Enhanced Nigeria competitiveness index - Increased number of commercialized R&D break-throughs
9	Financing	53	- Budgetary allocations - Grants, credits, gifts - Fiscal stimulus packages - Interest rates discrimination and tax holidays - Discriminatory tariff, tax.
10	Data Development & Management	17	- Upgrade System of Administrative Statistics (SAS) - Conduct NCIB, NASC & Upscale Foreign Trade Statistics to include tracking trade in services statistics
11	Strategy Implementation Task Team		- Project team under FMST (RMRDC) with coordinating units in the various MDAs
Total Number of Projects		412	

4.2 Percentage Reduction in Imports in the Short-Term along the 97 HS Code

A total of about 412projects/activities were identified and catalogued under the sectoral groupings based on their potentials to bring about significant reduction in import of raw materials and products in the short-term; according to the 21 classification s of the 97 HS Codes as stratified into 21 classification schemes listed on Tables 4.2 to 4.22.The process of project identification considered inputs from some MDAs that responded to the questionnaires sent to them (refer to examples in Appendix IV).

The institutional arrangements for implementing the projects are articulated based on their mandates as they relate to the raw materials and products classified within the broad categories of the commodity HS Code. In allocating the responsibilities, efforts were made to, in the first instance, map out the number of projects and their pivotal activities against the strategic programme element as shown on Table 4.1.
The second instance involves the classification of the 21 Commodity Classification Schemes under the relevant HS Code and the projected percentage import reduction, followed by possible projects under each of those schemes

TABLE 4.2
PERCENTAGE REDUCTION IN IMPORTS FOR LIVE ANIMALS AND ANIMAL PRODUCTS (HS CODES 01-05)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	01	Live Animals	25
2	02	Meat and Edible Meat Offal	30
3	03	Fish & Crustacean, Mollusc and Other Aquatic Invertebrate	15

Project Areas for Consideration

- **Live Animals**
  - Development of the 331 grazing reserves across the country, through:
    - Topographic mapping, geo-references and land improvements.
    - Promoting Public-Private Partnerships in the business of the grazing reserves
    - Developing abattoirs, dairy processing facilities and other related cottage industries
    - Investing in R&D to guarantee quality conformity and standardization.
    - Creating market access across the value-chains for products and services.
    - Establishing financial support through grants and loans for live animal development.
  - Artificial insemination, cross-breeding and development of improved space for meat and milk.
  - Promote PPPs in the livestock industry.

- **Fish, Crustacean and Related Products**
  - Invest in modern fishing practices/development in areas of comparative advantage using fishing trawling in coastal areas and fish farming.

- ❖ Development of modern systems of preservation, processing, packaging and marketing.

TABLE 4.3
PERCENTAGE REDUCTION IN IMPORTS OF VEGETABLE PRODUCTS (HS CODES 06-14)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	06	Live Tree & Other Plant; Bulb, Root; Cut Flowers	15
2	07	Edible Vegetables And Certain Roots And Tubers	20
3	08	Edible Fruit And Nuts; Peel Of Citrus Fruit Or Melons	15
4	09	Coffee, Tea, Mate and Spices	15
5	10	Cereals	30
6	11	Prod Mill Indust; Malt; Starches; Insulin; Wheat Gluten	25
7	12	Oil Seed, Oleagi Fruits; Miscell Grain, Seed, Fruit Etc	15
8	13	Lac; Gums, Resins & Other Vegetable Saps & Extracts	10
9	14	Vegetable Plaiting Materials; Vegetable Products not elsewhere specified or included.	15

➢ **Project Areas for Implementation**

- ❖ Identify and develop catchment areas for specific crops existing in the country for plantation development.
- ❖ Modernize and upgrade existing preservation, processing and packaging systems for vegetable products.
- ❖ Establish modern distribution and marketing systems and upgrade existing processing, preservation and packaging systems for vegetable products.
- ❖ Establish special funding schemes via loans, grants, credits for the Organized Private Sector (OPS) in vegetables production for local and international markets.
- ❖ Supply inputs for high-yielding, drought- and disease- resistant crop varieties.
- ❖ Boost high yielding fruits for juice and concentrate production for domestic and export markets.
- ❖ Develop new and existing centres and nurseries for production of high-yielding varieties of fruits, vegetables, cereals, nuts and other crops.
- ❖ Boost local production of high-yielding varieties of cereals

TABLE 4.4

PERCENTAGE REDUCTION IN IMPORTS OF ANIMAL & VEGETABLE FATS AND OILS AND OTHER CLEAVAGE PRODUCTS (HS CODE 15)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	15	Animal/Veg Fats & Oil & their Cleavage Products; Etc	15
2	1501	Lard, other Pig Fat and Poultry Fat, rendered	
3	1502	Fats of Bovine Animals, Sheep or Goats, Raw or rendered	
4	1503	Lard Stearin, Lard oil, Oleostearin, Oleo-Oil and Tallow Oil	
5	1504	Fats and Oils and their Fractions, of Fish or Marine Mammals	
6	1505	Wool Grease and Fatty Subs-Derived Therefrom (Incl. Lanolin)	
7	1506	Other Animal Fats and Oils and their Fractions	
8	1507	Soya-Bean Oil and its Fractions	
9	1508	Ground-Nut Oil and its Fractions	
10	1509	Olive Oil and its Fractions	
11	1510	Other Oils & Their Fractions, Obtained Solely from Olives, Nes	
12	1511	Palm Oil and its Fractions	
13	1512	Sunflower-Seed, Safflower Or Cotton-Seed Oil & their Fractions	
14	1514	Rape, Colza or Mustard Oil and Their Fractions	
15	1515	Other Fixed Veg. Fats And Oils (Incl. Jojoba Oil) & Fractions	
16	1516	Animal Or Veg. Fats And Oils And Fractions, Hydrogenated, Etc	

➢ **Project Areas for Implementation**

Nigeria is not strong in animal oil production, but in terms of vegetable oils, it has comparative advantage. It is, therefore, important to address post-harvest losses through processing and value-addition by:

- ❖ Determining and investing in vegetable oil in areas of comparative advantage like palm oil, groundnut oil, soya-bean oil, sunflower oil, cotton seed and beniseed oil.

- ❖ Developing existing oil palm plantations/facilities and new ones using the results of viable R&D.
- ❖ Developing of high-yield varieties that can grow with the establishment of plantations in the North Central geo-political zone.
- ❖ Organizing Farmers' Cooperatives and Associations for central seed collection in modern holdings and markets.
- ❖ Promoting the development of industries to produce hydrogenated vegetable oil from oil seeds.
- ❖ Investing in R&D for the development of animal fats and oil through incentives.
- ❖ Conducting a National Agricultural Sample Census (NASC).

TABLE 4.5
PERCENTAGE REDUCTION IN IMPORTS OF PREPARED FOOD-STUFF: BEVERAGES, SPIRITS AND VINEGAR, TOBACCO (HS CODES 16-24)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	16	Prep of meat, fish or crustaceans, molluscs, etc	10
2	17	Sugars and sugar confectionery	20
3	18	Cocoa and cocoa preparations	25
4	19	Prep of cereal, flour, starch/milk; pastry cooks' prod	20
5	20	Prep of vegetable, fruit, nuts or other parts of plants	30
6	21	Miscellaneous edible preparations	20
7	22	Beverages, spirits and vinegar	10
8	23	Residues and wastes from the food indust; preparation of animal fodder	10
9	24	Tobacco and manufactured tobacco substitutes	10

➢ **Some Project Areas for Implementation**

- ❖ Promote value-addition to foodstuff, beverages, spirits and vinegar.
- ❖ Promote investments in the processing of sugar cane, cocoa, major cereals, palm produce, and other edible products.
- ❖ Upgrade of industries engaged in the production of prepared food stuff (beverages, spirit, vinegar, tobacco, etc.).
- ❖ Develop the market and create linkages for optimum utilization of waste/residues.
- ❖ Restructure and upgrade industries dealing with cocoa, sugar and confectioneries, fruit and vegetable products and other edible preparations.
- ❖ Promote the development of alternative sources of sugar or sweeteners from such crops as sweet sorghum and *Thermacoccus Danielli.*

TABLE 4.6
PERCENTAGE REDUCTION IN IMPORTS OF MINERAL PRODUCTS (HS CODES 25-27)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	25	Salt; sulphur; earth and stone; plastering mat; lime and cement	20
2	26	Ores, slag and ash	25
3	27	Mineral fuels, oils and product of their distillation; etc	25

➢ **Project Areas for Implementation**

- ❖ Exploration and geo-referencing for identification of commercial deposits of solid minerals where the country has comparative advantage (e.g. the 7 strategic minerals - Iron ore, Gold, Lead/Zinc Ore, Limestone, Barytes, Coal and Bitumen).
- ❖ Mining of identified strategic minerals using artisanal miners and mining associations.
- ❖ Conduct baseline, geo-sciences studies on major mineral resources and build a national mineral data base on GIS platform to support investments.
- ❖ Develop mineral fuels, oil gas for diversification and expansion of the next generation of LNG Train to petrochemical projects, gas expansion and utilization.
- ❖ Identify, recognize and organize informal distillers of crude oil into associations and regulate them to build their capacity to contribute to the economy.

TABLE 4.7
PERCENTAGE REDUCTION IN IMPORT OF PRODUCTS OF CHEMICAL AND ALLIED INDUSTRIES (HS CODES 28-38)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	28	Inorganic chemicals; compounds of precious metals, radioactive elements etc	10
2	29	Organic chemicals	10
3	30	Pharmaceutical products	15
4	31	Fertilisers	32
5	32	Tanning/dyeing extract; tannins and derivatives; pigments, etc	15
6	33	Essential oils and resinoids; perfumes, cosmetic/toilet prep	20
7	34	Soap, organic surface-active agents, washing prep, etc	30
8	35	Albuminoidal subs; modified starches; glues; enzymes	10
9	36	Explosives; pyrotechnic prod; matches; pyro alloy	5
10	37	Photographic or cinematographic goods	
11	38	Miscellaneous chemical products	5

➢ **Some Project Areas for Implementation**

- ❖ Restructuring and upgrading of existing fertilizer plants in the country.
- ❖ Local production of Active Pharmaceutical Ingredients (API) through partnerships.
- ❖ Investment in the down-stream sector of the petrochemical industry.
- ❖ Establishment of laboratories for testing quality of chemical raw materials and the development of standards.
- ❖ Development of organic chemicals and pharmaceuticals from locally-available plant resources.
- ❖ Development of essential drugs taking advantage of the flexibility of WTO Trade-Related Intellectual Property Rights (TRIPs).
- ❖ Establishment of Bio-equivalent Centres in Nigeria.
- ❖ Promotion of the procurement and patronage of local pharmaceutical products.
- ❖ Conducting a National Census of Industries and Businesses.

TABLE 4.8
PERCENTAGE REDUCTION IN IMPORT OF PLASTICS, RUBBER AND ARTICLES THEREOF (HS CODES 39-40)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	39	Plastics and articles thereof	10
2	40	Rubber and articles thereof	5

➢ **Some Project Areas for Implementation**

- ❖ Resuscitate old and aging rubber plantations and establish new ones.
- ❖ Develop high-yielding varieties of rubber and improve extension services.
- ❖ Utilize products of petrochemical industries and establish new industries targeted at plastics and foam production.
- ❖ Upgrade the Rubber Research Institute to develop improved varieties, new products and technologies.

TABLE 4.9
PERCENTAGE REDUCTION IN IMPORTS OF RAW HIDES AND SKINS, LEATHER, FURSKINS ETC., SADDLERY (HS CODES 41-43)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	41	Raw hides and skins (other than furskins) and leather	25
2	42	Articles of leather; saddlery/harness; travel goods etc	20
3	43	Furskins and artificial fur; manufactures thereof	15

➢ **Some Project Areas for Implementation**

- ❖ Organize SMEs for collection of raw hides and skins, especially for local tanneries.
- ❖ Develop grazing sites and associated abattoirs to be engaged in harnessing animal skins.
- ❖ Revamp existing tanneries and encourage the establishment of new ones to guarantee production of quality finished leather for manufacturers of leather products.
- ❖ Undertake intensive advocacy to minimize animal skin consumptions ["Pomo"].
- ❖ Effective policies and institutional framework on animal skin management.
- ❖ Conduct R&D and build capacity for animal skin quality management.
- ❖ Promote associations of farmers and establish modern common facilities for tanning and preliminary processing to address effluent discharge in the environment.
- ❖ Develop incentives and motivation frameworks in the production of quality leather and leather products for domestic and export markets.

TABLE 4.10
PERCENTAGE REDUCTION IN IMPORTS OF WOOD AND ARTICLES OF WOOD, WOOD CHARCOAL AND ARTICLES (HS CODES 44-46)

S/N	HS Code(s)	Item Specific	% Reduction in Imports
1	44	Wood and articles of wood; wood charcoal	10
2	45	Cork and articles of cork	5
3	46	Manufactures of straw, esparto/other plaiting mat; etc	5
44-46 Average (%) Reduction in Imports			6.7

➢ **Some Project Areas for Implementation**

- ❖ Reforestation and deliberate tree planting to provide wood and article of wood industries.
- ❖ Invest in R&D for production of low gestation tree species.
- ❖ Invest in coordinated projects for mapping and conservation of forest reserves for economic value, through strengthening Nigeria's Forestry Department.
- ❖ Promote investments in Bamboo, Kenaf and other related non-wood fibre plants as well as *Gmelina aborea*.

TABLE 4.11
PERCENTAGE REDUCTION IN IMPORTS OF PAPER MAKING MATERIAL; PAPERBOARD, ARTICLES (HS CODES 47-49)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	47	pulp of wood/of other fibrous cellulosic mat; waste etc	5
2	48	paper & paperboard; art of paper pulp, paper/paperboard	5
3	49	printed books, newspapers, pictures & other product, etc	10

➢ **Some Project Areas for Implementation**

- ❖ Revive existing wood plantations and establish new ones for resuscitation of paper mills (Iwopin, Oku-Iboku and Jebba) and newsprint industries.
- ❖ Investments in local production of inputs such as adhesives, colourants and printing inks.
- ❖ Promote investments in alternative fast-growing wood plants and non-wood fibre plants for pulping to produce newsprint and paper for book printing.
- ❖ Invest in security and quality printing within the country.

TABLE 4.12
PERCENTAGE REDUCTION IN IMPORTS OF TEXTILES AND TEXTILE ARTICLES (HS CODES 50-63)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	50	Silk	10
2	51	Wool, fine/coarse animal hair, horsehair yarn & woven fabric	5
3	52	Cotton	30
4	53	Other vegetable textile fibres; paper yarn & woven fab	15
5	54	Man-made filaments	10
6	55	Man-made staple fibres	10
7	56	Wadding, felt & nonwoven; yarns; twine, cordage, etc.	5
8	57	Carpets and other textile floor coverings	10
9	58	Special woven fabrics; tufted textile fabrics; lace; tapestries etc.	5
10	59	Impregnated, coated, cover/laminated textile fabric etc.	5
11	60	Knitted or crocheted fabrics	10

12	61	Art of apparel & clothing access, knitted or crocheted	5
13	62	Art of apparel and clothing access, not knitted/crocheted	10
14	63	Other made up textile articles; sets; worn clothing etc.	10

➢ **Some Project Areas for Implementation**

- ❖ Revamp and boost cotton production through appropriate incentives to SMEs.
- ❖ Revive existing ginneries through incentives and logistic support.
- ❖ Upgrade existing textile mills through deliberate policy interventions.
- ❖ Develop synthetic textile raw materials from petrochemical inputs.
- ❖ Attract Foreign Direct Investment in the Nigerian textile industry.
- ❖ Build capacity in quality garment and other finished textile products through quality certification and standardization.

TABLE 4.13
PERCENTAGE REDUCTION IN IMPORTS OF FOOTWEAR, HEADGEAR, UMBRELLAS, SUNSHADES, WHIPS, ETC. (HS CODES 64-67)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	64	Footwear, gaiters and the like; parts of such articles	15
2	65	Headgear and parts thereof	10
3	66	Umbrellas/sun-umbrellas, walking/seat sticks, whips, riding crop	10
4	67	Preparations of feathers & down; arti flower; articles human hair	5

➢ **Some Project Areas for Implementation**

- ❖ Upgrade the Nigerian Foot-wear, Head-gear and related products manufacture to conform to standards and quality requirements of certification agencies/organizations.
- ❖ Create market incentives for foot-wears, head-gears and related articles through enhanced domestic demand for finished products.
- ❖ Create linkages between R&D institutions and SMEs to encourage innovation & competitiveness.
- ❖ Promote investments in production of petrochemical raw materials for foot-wears, head-gears and related articles.
- ❖ Establish common facility centres to ensure productivity and competitiveness.

TABLE 4.14
PERCENTAGE REDUCTION IN IMPORTS OF ARTICLES OF STONES, PLASTERS, CEMENT, ASBESTOS, MICA AND CERAMICS (HS CODES 68-70)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	68	Art of stone, plaster, cement, asbestos, mica/sim mat	5
2	69	Ceramic products	15
3	70	Glass and glassware	5
68-70 Average (%)Reduction in Imports			8.3

➢ **Some Project Areas for Implementation**

- ❖ Expansion of mining and quarrying of appropriate solid minerals to support new and existing industries.
- ❖ Revival of ceramics, marble and granite, etc. industries for tiling, plumbing and sanitary ware production.
- ❖ Upgrade existing glass and glassware industries and establish new ones.
- ❖ Conduct a study on the collapse or failure of existing ceramic and related industries.
- ❖ Invest in R&D projects on new and advanced material products, POP, Ceramics and Glass, etc.
- ❖ Promote local production of POP from local gypsum.

TABLE 4.15
PERCENTAGE REDUCTION IN IMPORTS OF PEARLS, PRECIOUS AND SEMI PRECIOUS STONES, PRECIOUS METALS (HS CODE 71)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	7101	Natural/cultured pearls, precious stones and metals, coin etc	10
2	7102	Worked cultured pearls, (excl. Strung, mounted or set)	10
3	7103	Precious stones other than diamond and semi precious stones not mounted or set , etc.	10
4	7104	Other precious stones (other than diamonds) otherwise worked	10
5	7105	Synthetic... Precious or semi-precious stones, worked but not set...	10
6	7106	Other dust and powder of natural or synthetic	10

		precious or semi-precious stones	
7	7107	Semi-manufactured silver (incl. Silver plated with gold or platinum)	10
8	7108	Base metals clad with silver, not further worked then semi-manufactured	10
9	7109	Monetary gold	10
10	7110	Base metals or silver, clad with gold, up to semi-manufactured	10
11	7111	Iridium, osmium and ruthenium, in semi-manufactured forms	10
12	7112	Base metals, silver or gold, clad with platinum, up to semi-manufactured	10
13	7113	Articles of jewelry of prec. Metal or clad with prec. Metal	10
14	7114	Articles of jewelry... of base metal clad with precious metal	10
15	7115	Articles of goldsmiths'... Wares of base metal clad with precious metal	10
16	7116	Articles of metal clad with precious metal, nes	10
17	7117	Articles of precious or semi-precious stones (excl. Pearls)	10
18	7118	Imitation jewelry (excl. Of base metal)	10

➢ **Some Project Areas for Implementation**

- ❖ Expansion of exploration activities on the mining of pearls, precious and semi-precious stones/metals and their exploitation.
- ❖ Review the Land Use Act to facilitate participation of States, Local Government Areas and the private sector in the mining of precious stones and metals.
- ❖ Support local SMEs and large-scale industries in mineral improvements and processing.
- ❖ Promote processing and diversification in the precious and semi-precious stones value-chains.
- ❖ Build capacity in areas of intricate skills of mining and processing, cutting, polishing of pearls, precious and semi-precious stones.

TABLE 4.16
PERCENTAGE REDUCTION IN IMPORTS OF BASE METALS AND ARTICLES OF BASE METALS (HS CODES 72-83)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	72	Coin of legal tender	5
2	73	Articles of iron and steel	5
3	74	Copper and articles thereof	5
4	75	Nickel and articles thereof	5
5	76	Aluminum and articles thereof	10
6	78	Lead and articles thereof	5
7	79	Zinc and articles thereof	5
8	80	Tin and articles thereof	10
9	81	Other base metals; cements; articles thereof	10
10	82	Tool, implement, cutlery, spoon & fork, of base met etc	10
11	83	Miscellaneous articles of base metal	5

➢ **Some Project Areas for Implementation**

- ❖ Promote the development of Iron, Steel and Base metal smelting plants in relevant parts of the country.
- ❖ Invest in processing, standardization and conformity of metal, steel and base metal products.
- ❖ Promote the recycling of scraps of Aluminium, Tin, Zinc and Lead as secondary raw materials for industries.
- ❖ Resolve all legal issues related to ALSCON through deliberate policy and resuscitate the plant.
- ❖ Dredge the Imo River to enable movement of raw materials like Bauxite to ALSCON.
- ❖ Resuscitate and upgrade all the rolling mills and completion of Ajaokuta Steel Complex.

TABLE 4.17
PERCENTAGE REDUCTION IN IMPORTS OF BOILERS, MACHINERY AND CHEMICAL APPLIANCES, PARTS THEREOF (HS CODES 84-85)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	84	Nuclear reactors, boilers, machinery & mechanical appliance; parts	5
2	85	Electrical machinery, equip parts thereof; sound recorder, etc.	5

➢ **Some Project Areas for Implementation**

This is an area of heavy imports for Nigeria because the nation has low capacity to develop the specific items such as, nuclear reactors, boilers, heavy and modern industries. It requires targeted R&D and collaboration with Government, R&D institutions, Businesses and international partners;
The projects identified include the following:

- ❖ Increased collaboration amongst R&D Institutions, industries and businesses.
- ❖ Focused and intensive industrial attachment to yield the desired results and build capacity.
- ❖ Capacity building through training with the involvement of professional associations.
- ❖ Support to domestic investors by providing long gestation loan amortization incentives.
- ❖ Encourage and support a system for Content Management Training as part of procurement in heavy and modern industry development.
- ❖ Review and strengthen tertiary R&D activities towards heavy modern equipment development.
- ❖ Encourage investment in heavy and modern industries (e.g. nuclear technology, robotics and mechatronics, etc.).

TABLE 4.18
PERCENTAGE REDUCTION IN IMPORTS OF VEHICLE, AIRCRAFT AND PARTS THEREOF; VESSELS, ETC. (HS CODES 86-89)

S/N	HS Code(s)	Item Specific	% Reduction in Imports
1	86	Railway/tramway locomotive, rolling-stock and parts thereof; etc	2.5
2	87	Vehicles o/t railway/tramway roil-stock, parts & accessories	2.5
3	88	Aircraft, spacecraft, and parts of	0
4	89	Ships, boats and floating structures	0

➢ **Some Project Areas for Implementation**

- ❖ Revive and support existing auto industries in the country.
- ❖ Evolve deliberate government policy on capacity building through tertiary institution attachment schemes to industries and plants.
- ❖ Establish Industry Support Enterprises to encourage local content in the industry.
- ❖ Invest in logistics and infrastructure like power, rail, water, roads, communications, etc.

- ❖ Revive the Naval Dockyard, ship-building and also attract Foreign Direct Investment.
- ❖ Introduce local and international certifications for aircraft maintenance and training.
- ❖ Invest in vigorous capacity building via partnership and collaborative efforts with world-renowned aviation centres.
- ❖ Embrace/Invest in modern fast/speed electric train system and target linking major cities in the country.

TABLE 4.19
PERCENTAGE REDUCTION IN IMPORTS OF OPTICAL, PHOTOGRAPHIC, CINEMATOGRAPHIC, MEASURING APPLIANCES (HS CODES 90-92)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	90	Optical, photo, cinematographic, measuring, checking, precision, etc	0
2	91	Clocks and watches and parts thereof	0
3	92	Musical instruments; parts and access of such articles	2.5

These are areas of sensitive and precision equipment, where the country is lacking in capability.

➢ **Some Project Areas for Implementation**

- ❖ Attract Foreign Direct Investment and partnerships in related industries.
- ❖ Encourage and invest in R&D activities though linkages to industries and businesses.
- ❖ Provide incentives to support SMEs and large enterprises to invest in this area.
- ❖ Promote assembly plant and develop local capacity.

TABLE 4.20
PERCENTAGE REDUCTION IN IMPORTS OF ARMS AND AMMUNITION, PARTS AND ACCESSORIES THEREOF (HS CODE 93)

HS Code(s)	Specific Items	% Reduction in Imports	Remarks
From 9300 to 9307	Arms and ammunition; parts and accessories thereof Military weapons, other than revolvers, pistols and arms of	0	It should be noted that the Defence Industry Corporation (DICON) was established to achieve part of her mandate in this sector .However not much has been achieved as such a

	93.07 Revolvers and pistols, other than those of 93.03 or 93.04 Other Firearms which operate by firing an explosive charge, etc Other Arms (e.g spring, air or gas guns and pistols, truncheons) Parts and accessories of articles of 93.01 to 93.04 Bombs, grenades, etc; cartridges & other ammunition & parts.... Words, cutlasses, bayonets, lances & similar Arms and parts thereof		zero percent reduction here is envisaged which is a reflection of the fact that Nigeria imports 100% of its arms and ammunition, parts and accessories thereof. The reason for this is that the capability, capacity and technology is still lacking. Thus, the efforts to build capacity in the manufacturing of small arms should be initiated sustained and encouraged. The vision is to increase R&D activities in this area by developing indigenous technology and partnering with friendly nations for modern technology in the production of arms and ammunition for security and peace-keeping.

➢ **Some Project Areas for Implementation**

- ❖ Develop indigenous technology in areas of arms and ammunition and accessories.
- ❖ Promote engagement with friendly countries with good military technologies for development in the country.
- ❖ Invest in R&D in the development of arms and ammunition through collaboration with R&D Institution and the military.
- ❖ Strengthen existing arms and ammunitions industries/institutions (e.g. DICON) and encourage private sector participation.
- ❖ Establish Military Venture Capital Fund for military commercialization investment opportunities.
- ❖ Promote military industrial enterprises as well as upgrade the military-industrial structure.
- ❖ Build a dynamic innovation system for defence-related sciences, technologies and industries.

TABLE 4.21
PERCENTAGE REDUCTION IN IMPORTS OF MISCELLANEOUS MANUFACTURED ARTICLES (HS CODES 94-96)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	94	Furniture; bedding, mattress, matt support, cushion, etc	5
2	95	Toys, games & sports requisites; parts & access thereof	5
3	96	Miscellaneous manufactured articles	5

➢ **Some Project Areas for Implementation**

- ❖ Develop and promote local industries in manufacture of miscellaneous articles.
- ❖ Develop petrochemical industries to provide inputs for manufacture of items in the sector.
- ❖ Upgrade existing SMEs to produce quality products.

TABLE 4.22
PERCENTAGE REDUCTION IN IMPORTS OF WORKS OF ART, COLLECTORS' PIECES AND ANTIQUES (HS CODE 97)

S/N	HS Code(s)	Specific Items	% Reduction in Imports
1	97	Works of art, collectors' pieces and antiques	10
2	9701	Paintings, drawings, pastels, collages, etc, done entirely by hand	10
3	9702	Original engravings, prints and lithographs	10
4	9703	Original sculptures and statuary, in any material	10
5	9704	Collectors' postage or revenue stamps....first-day covers, etc	10
6	9705	Collections and collector's pieces of zoological interest	10
7	9706	Antiques of an age exceeding 100 years	10

➢ **Some Project Areas for Implementation**

- ❖ Promote investments in cooperative enterprises.
- ❖ Enterprise development to attain current market and tourism demands.
- ❖ Invest in zoological gardens, museums, etc. (through Public-Private Partnership arrangements).

- ❖ Organize periodic expositions/exhibition on antiques, paintings, craft, etc. within and outside the country.
- ❖ Promote Intellectual Property Rights (IPR) through patents.

It should be noted that projects/activities recommended under Tables 4.2 to 4.22 are by no means exhaustive. The suggestions made on them can be reviewed and modified to achieve competitiveness before initiation of projects. In each case the status must be ascertained and support elicited from wherever necessary to ensure completion. While the role of stakeholders must spelt out, achievable targets must be set and effective and articulated efforts and synergy would be desirous to achieving set goals by all concerned. Monitoring and evaluation, including proper documentation, impact assessment/review mechanism & training of personnel will be given priority.

CHAPTER

| FIVE |

COMMERCIALIZABLE R&D BREAK-THROUGHS

5.1 Commercialization of R&D Outputs

For nations to compete favourably in the long-term globally, they must be innovative. Innovating entails building new competencies, new capabilities and new knowledge. One of the weakest aspects of Nigeria's Science, Technology and Innovation System has been its inability to assimilate and commercialize research and development results.

In the light of rising global competitiveness and for Nigeria to achieve this in raw materials and products development, there has to be renewed emphasis on commercialization of viable R&D results developed in the research institutions and universities. In this regard and considering the fact that interaction with industry as well as market knowledge and assessment of the needs of businesses are beyond the current mandate of the R&D institutions, new organizational mechanisms are required to obtain full commercial value from R&D efforts.

In developing the National Strategy for Competitiveness in Raw Materials and Products Development, a study was conducted to examine organizational and policy arrangements for achieving optimum commercial value from science and technology research in Government R&D institutions. The Strategy identifies the absence of linkages between R&D institutions (including universities) and industries & businesses as a critical constraint factor leading to Nigeria's slow pace of industrialization and sustainable development. To attain the objectives of achieving competitiveness, there is the need to promote and encourage adequate and strong research-industry linkages. Based on this recognition, the Strategy mapped R&D institutions with manufacturing sectors and broad categories of raw materials and products (refer to Tables 3.7 A, B, C and 3.8 A, B, C respectively of the Strategy document).

The Strategy also identifies major R&D break-throughs that require commercialization to invariably contribute to import reduction of raw materials and products in Nigeria (see Annex II). The implementation plan considers these R&D break-throughs as potential pilot projects that should be promoted for the country to achieve competitiveness in raw materials and products development. About 87 of such projects have been itemized and profiled. This is by no means exhaustive, and a comprehensive compilation would be undertaken and subjected to certain criteria. It is those break-throughs that meet the set criteria of technical and economic viability that should be pursued.

The plan emphasizes the need to articulate a commercialization model to be adopted. It should be noted that commercialization of R&D results is simply regarded as the process of taking viable research outputs as they emerge from the laboratory and transforming them to marketable products. This linear model of commercialization task is envisioned as:

- Defining the research product.
- Building a proto-type.
- Testing its feasibility.
- Completing product development and design.
- Starting a production phase.
- Passing the manufactured product to the market.

This model is considered very slow and is being replaced by emerging models. Commercialization of the R&D break-throughs identified in the strategy requires development of models predicated on strong institutional capabilities in universities and public research institutions. For Nigeria to achieve competitiveness in raw materials and products development, it is important to combine the institutional and legal support to entrepreneurial channels for commercializing knowledge. This may require the promotion of university start-ups, incubators and accelerators, mentoring and training for academic entrepreneurs, and policies to promote venture and angel capitals, government seed funds or platforms to link angel investors and small and medium enterprises (SMEs). To achieve this may require a review of the mandates of some R&D institutions and universities.

The Implementation Plan seeks to broaden the channels for commercialization of R&D break-throughs by promoting two-way flows between industries, businesses and Science and Technology through public-private partnerships, joint ventures, joint initiatives/centres, outward and inward licensing of intellectual property (IP) by R&D institutions and universities. It will also necessitate the provision of an incentive system for mobility of entrepreneurial researchers/academics. The Plan canvasses national patent systems to be strengthened to reduce risks and promote patenting by start-ups and SMEs.

It equally identifies two means to foster the commercialization of research results which will entail that (a) selection of process of projects must require from the onset information on market opportunities and feed-back of potential users and (b) public authorities must develop a comprehensive package of support services and incentives to facilitate the commercialization process as soon as project results are available.

In the light of the fore-going, it is important to consider, among other issues, the following:

- Selection of the most suitable commercialization strategy, including licensing, patent sales, spin-outs, brokerage tools, etc.
- Development of a business and financial plan and incubation infrastructure if desirable.
- Support for the development of proto-types for investment promotion and commercial production.

- ❖ Support to secure proof-of-concept funding or grants to back the development of a start-up.
- ❖ Possible support in the search for investors (business angels, seed or venture capital funds, risk guarantee fund, etc.).
- ❖ Support in search for up-takers or a first client for R&D break-throughs.

5.2 Challenges of Commercialization of R&D Results

Identifying and understanding the main factors that hinder the commercialisation of research results in Nigeria is important and have been the subjects of discourse at many fora. Among the main issues identified are:

- ❖ *Inadequate research orientations whereby more than 75% of research projects executed in the educational institutions/research institutes are not demand-driven.*
- ❖ *Non-availability of information on commercializable inventions and R&D results to the intended user-industries.*
- ❖ *Poor technological entrepreneurial culture.*
- ❖ *Inadequate infrastructure.*
- ❖ *Inadequate motivation for the commercialization of inventions/research results.*
- ❖ *Lack of funding and inefficient funding structure for innovation;*
- ❖ *Inadequate patent education.*
- ❖ *Absence of effective linkages between research organizations and industries.*
- ❖ *Preference for foreign technology.*

For deeper insights into the gravity of the problems that discourage the translation of research results into innovations within the system, it is observed, among other things, that a severe information gap exists and interactions among the elements are too weak to bring about innovations and knowledge-based industrial development in the country.
R&D activities are present but are either not effectively managed or adequately funded, and are generally prosecuted in an unfavourable environment. The situation remains the same in the public and private sectors alike.

The study also reveals that about 50% of educational/research institutions and researchers that had some interactions with their colleagues in other local and foreign institutions/institutes, only some 25% of them interacted with industrial firms. These patterns reveal that interactions of Nigerian universities with other local and foreign institutions/institutes have been moderate, but their interactions with industrial firms are low.

Furthermore, industrial organisations were only sparsely involved in formulating and suggesting research ideas to the institutions/institutes and researchers. This indicates gaps between industrial needs and R&D activities of the institutions/institutes. The study further reveals that 80% of the researchers and the institutions/institutes claimed to have some inventions, but less than 30% had patented some of those inventions/research results. Due to

information gap between the Nigerian academia and industrial firms, utilization of research outcomes by industrial firms is minimal.

Research and Development outputs of Nigeria's institutions are not satisfactory enough to the firms, possibly because over 50% of the researchers conducted knowledge-driven studies which are considered ends in themselves, while just about 38% conducted market-driven researches which may be relevant to industrial needs. Furthermore, about 70% of the industrial firms claimed to have R&D laboratories but less than 60% of these employed qualified research staff.

Regarding private sector R&D, findings in a study of Nigerian food companies observed that most of the firms were not active enough in R&D as is reflected in their low funding and inadequate staffing for research. About 40% of these firms devoted less than 0.5% of their annual turnover to R&D, while only 20% devoted between 1.5% and 2.4% of annual turnover to R&D. This is in sharp contrast to the situation in Japan where close to 50% of companies spend at least 5% of their turnover; and in Australia where almost 30% of companies spend more than 5% of their turn-over on R&D.

In spite of its importance in the NIS, the Nigerian university system has lived below expectations, not only in its research functions but also in its capacity building role. University education in Nigeria has declined in quality over the last decade or so, owing to several factors acting in tandem. Key among these factors are:

- *Unstable political situation and declining support from governmental agencies: With declining economic and research facilities, employment opportunities and diminishing value of earned income, the brain and man-power drain from Nigerian universities to universities abroad has been immense.*
- *Lack of cooperation with other actors within and outside African countries: Regional politics, low capacity and lack of coordination amongst African universities have also contributed to declining quality of research in Nigerian universities.*
- *Expanding university enrolment and graduate output: Universities within Nigeria have had expanding enrolments with little or no way of a commensurate increase in academic staff, research funding and other infrastructure.*

Generally, it is identified that three key issues stand out as to why the innovation process remains largely at the level of pre-commercialization in Nigeria. First, there is a significant lack of facilities and financing to move the research to the concluding stages. Second, even in situations where significant research results had been collected, with evidence of possible utility of the process and product, demand by the end-users is almost non-existent. Third, failure to commercialize sometimes results from institutional rigidity which relates to the ways traditional Public Research Institutes (PRIs) and universities are set up. The key questions are: *who initiates the process of commercialization – the PRI/university or a firm/entrepreneur?; and what form of formal or informal contract guides the process?* The

non-availability of clearly-defined answers to these questions is a challenge to the commercialization of research results.

5.3 General Criteria for Commercializing Products and Services

Research and Development are undertaken in most cases for the purpose of commercial benefit through discovering new features or capabilities or reducing costs of existing products or services. Many R&D projects seek to exploit existing commercial-off-the-shelf (COTS) components, or perhaps represent a small increment to an existing product embodiment. Success on the R&D still presents a challenging bridge to cross, when the outcomes from the research work are to be moved into a commercially-viable status. The path of research to market can be quick or slow depending on many factors. Certainly, R&D that proves in the viability of a new product using non-existent or very early-stage components will have a long road ahead. The following seven steps constitute an effective path to a commercial product or service:

Definition of Problem, Opportunity or Goal -- Framing the goal in terms of the problem(s) to be solved for the end-user or customer is key. Specific R&D goals should quote measurable criteria in terms of functionality. The goal must not just be a functional one, but the cost of commercial deployment must be viable as well.

Establishing a Viable Path to a Goal -- R&D proceeds through a structured exploration to achieve certain goals, which include:

- tracking costs associated with the work.
- capturing learning during the process.
- retaining the skills and techniques within the company.
- protecting intellectual property where viable (e.g. patents).

The commercial development of a product or service from R&D must not only benefit in unit revenue-versus-cost, there must also be a means to recover the amortized cost of the associated R&D. Also, retaining the learning and rights that went into development of the product is necessary to maintaining competitive advantage, and to build on success in future product cycles.

Demonstration of Elemental Capabilities -- Before an investment in a proto-type product, system or approach is made, the elements that make up the solution must be evaluated for practical viability. Certain questions need to be asked: *Can these elements potentially function effectively enough to justify combining them into a final product or service? Is each a stable and potentially-economical contributor to the whole? Are there stable and viable sources for, or a means to produce, the pieces that make up the final product?*

Proof of Concept Implementation -- Towards the eventual commercial outcome, the assemblage of the elements or components into a system needs to be successful. There must be proof that the concept is workable and can provide the desired benefits.

Evaluation of Commercial Viability -- With conceptual system viability proven, the next concrete result needs to be a prototype matching the final configuration. This will be intended for pre-manufacturing or pre-deployment testing, field testing, or maybe investor or reseller engagement. It will test the practicality to assemble a final working, commercial assemblage of the validated components. Before embarking on that crucial stage, the commercial evaluation should be based on the previous proof-of-concept implementation and learning. This analysis determines if there can truly be a profitable market for the product or service as defined. In doing that the following questions should be asked: *What are reasonable expectations of cost? Will the end-user experience goals truly be met? Can the components, materials and associated labour be acquired and employed successfully? Can the resulting product or service scale up to numbers that define success in the market?*

Product Proto-type -- With successful outcomes from the evaluation, a product proto-type indicative of the final model is needed before commercial deployment. This will highlight any problems with manufacturing or full-operational deployment. If it is a business process or service, the proto-type is put to work through devised steps, with the tools required, and ensure the outcomes are successful. Working on an electronic product, for instance, a viable circuit, enclosure and basic software functionality are needed to go through the volume production and testing plans. Revisiting the Commercial Evaluation is appropriate upon completion of the proto-type, as much learning will occur during the process.

Commercially-Viable -- With confidence the final product production can commence. Ideally, a trial period is declared with close monitoring. The manufactured product is scrutinized to ensure production is tuned to high quality. Costs are re-evaluated to ensure they are within parameters. Service examples begin to engage customers, and feed-back is openly sought. With success and responsiveness in the trial period, production is ramped to meet the anticipated market demand and revisited based on uptake and success.

At policy level, it might be necessary as part of the renewed approach to encourage long term commitments to R&D by government and industry by enacting Technology Innovation Act. Government may decide that industries should have greater individual involvement with R&D institutions' laboratories and university research.

5.4. The Way Forward for R&D Commercialization

In advanced, developing and highly industrialized countries, two broad types of formal contracts are common, namely: academic entrepreneurship, and spin-off companies from public research or universities. Academic entrepreneurship takes several forms:

- Involvement in large-scale externally-funded research.
- Consultancy to earn supplementary income.
- University-Industry research and transfer of technology.
- Patents and trade secrets.
- Commercialization which might involve holding equity in private enterprises by scientists.

The last three options have been proposed consistently by Nigerian researchers.

A sound scientific and technological base, from which wealth-creating technological innovations and applications can develop, is essential to economic growth in a competitive international environment. This knowledge base should address the full spectrum of economic accumulation covering resource mobilization, effective production, knowledge-based marketing, sales, services and distribution of manufactured products.

From the fore-going, it is obvious that for Nigeria to progress in transforming R&D outputs into tangible products and services, appropriate measures must be taken in the areas of institutional frameworks, support structure, knowledge generation, education and technological entrepreneurship. A review of the selected NICs reveals that education, in particular, technological education, is the strength of wise nations and the single most important key to development and poverty alleviation.

While the academia and industry have their individual and unique roles to play, bringing these actors together is paramount for S&T-led development. It should also be noted that the National Office for Technology Acquisition and Promotion (NOTAP) is a facilitator, catalyst, and information hub in Intellectual Property (IP), technology acquisition & promotion as well as marketing of research results; and with other cognate agencies, should be so structured and strengthened to adequately forge strong research-industry linkages.

The plan also recommends the need to create venture capital for R&D and innovation on the understanding that it plays a critical role in innovation to grow our next economy. Without it there would be huge gaps in the innovation pipeline and the huge risk that Nigeria may not achieve a sustainable future.

Appropriate institutional frameworks must be put in place to coordinate and disseminate information about commercializable inventions to interested entrepreneurs and industrial firms. The relevant government agencies should also strongly promote entrepreneurship, business creation, commercialisation of research, and business development. Effective links must be encouraged among all stakeholders in the NIS.

Conclusively, with a stable political environment, the benefits of the afore-mentioned measures would be channelled to build internal and international competitiveness for growth and development.

CHAPTER

| SIX |

FINANCING AND FUNDING STRATEGIES FOR PROJECTS IN THE PLAN

The National Strategy for Competitiveness in Raw Materials and Products Development is delineated into three stages: short, medium and long terms. However, the current budget and financing arrangements are limited to cover only the 5-year short-term framework. The first component of the framework deals with sources of funds, the magnitude of the budget by size and the distribution of funds over a five - year period.

6.1. Sources of Funding

The source of funds for financing projects considers the following:

- **Normal Budgetary Provisions to MDAs** -- MDAs are drivers and implementers of government's policies and programmes. Without discountenancing other competing needs making demands on government's finances, adequate and timely government funding for relevant institutions should be given priority. Normal budgetary provisions to MDAs for day- to-day running of projects, emoluments, etc is of essence.

- **Special Intervention Funds (from Local and International Donor Agencies)** -- The reality of dwindling revenue to government occasioned by the drop in oil price in the international market makes it imperative for government to source for funding from local and international donor agencies, e.g. AusAID, CIDA, SIDA, USAID, DfID, JICA, etc), for support and trainings.

- **Soft Loans, Venture Capitals, etc. for R&D Results Scale-up, Pilots and Commercialization** -- An important factor for the effective implementation of the National Strategy lies in the ability to generate enough funds for project financing. The present state of the economy makes it difficult to raise enough capital for the implementation of projects. The problem is further compounded by the high interest rate charged by the conventional banks and finance houses. Government support for the granting of soft loans and establishment of private sector-driven venture capital companies should be considered.

- **Revolving Funds targeting Raw Materials and Products Development (from CBN, BOI, BOA, etc.)** -- The National Strategy seeks to ensure sustainable competitiveness for Nigeria's raw materials and products development. It becomes pivotal, therefore, to put in place revolving funds to drive the process. Government institutions such as CBN, NIRSAL, NERFUND, NRIC Fund, MSME fund, Solid Minerals Intervention Fund, BOI, BOA, etc., should be positioned to provide the platform for stakeholders to access the funds for entrepreneurship development in Micro-, Small-, and Medium- Scale enterprises.

- **Capacity building and R&D Infrastructure Development Funds (TETFund, PTDF, etc.) for capacity building and R&D Infrastructure Development** -- It is important to support efforts for local sourcing of raw materials through funded research and development (R&D) activities for exploitation, utilization and strategic investment in the various industrial sectors. R&D activities seek to improve or add value to local raw materials and encourage their utilization in all the industrial sectors of the Manufacturers Association of Nigeria (MAN). R&D activities should be adequately funded through the infrastructure development funds. Creating capacity for entrepreneurial development, investment promotion as well as catalyzing establishment of resource-based industries at micro-, small and medium enterprises (MSMEs) levels should be accorded adequate attention. This will provide the platform to impact skills on raw materials processing, provide technology transfer, and guide stakeholders on how to access finance, manage their businesses and improve the overall living standard of the citizenry.

- **Development Finance Agencies** – The World Bank (WB), African Development Bank (AfDB), International Monetary Fund (IMF), International Fund for Agricultural Development (IFAD), Islamic Development Bank (IDB), United Nations Industrial Development Organization (UNIDO) should be approached for international support for policy framework, technical and management training and investment portfolios, etc.

- **Establishment of the Recommended Foundations/Funds** -- The Nigerian Capital Development Fund (NCDF Group) is an independent social investment financial intermediary institution. This hybrid organization was set up mainly to address the challenges of poverty in low-income rural communities in the country. The institution mobilizes capital from the public and private sectors to invest in projects, businesses and social enterprises with the intention of generating good financial returns and measurable positive social-environmental impact, as well as act as a champion to increase awareness and confidence in the advantages of impact investing.

Furthermore, NCDF works towards actualizing the seventeen (17) United Nations Sustainable Development Goals which include: poverty alleviation; improved education; access to clean water, sanitation, clean energy and good infrastructure; gender and economic equality in Nigeria. To ensure the implementation of these goals, NCDF operates projects in the housing, capacity development, agricultural, financial, and environmental and hospitality sectors in Nigeria.

In October 2004, it was reported that Nigeria was establishing, within UNESCO, a US$1 million Special Funds-in-Trust for Science. This Fund, it was said, will not only benefit Nigeria but assist other African countries in designing project proposals for the reform of their national science systems and in developing managerial capacities. Nigeria is to get a dedicated science fund similar to the US National Science Foundation, to provide support for research in the country.

In 2012, the government further announced and inaugurated the National Research, Technology and Innovation Council (NRIC) to be established and run by an independent board and headed by the President.

Also in the past, research funds have been proposed, such as one in 2006 with a planned endowment of US$5 billion from oil revenues, but none of these proposals was successful. At present, research funds come primarily from the budgets of individual agencies and little from international donors. There is no specific science fund.

Therefore, there is the need to consider and establish the recommended Foundation funds as noted by the National Strategy on Competitiveness document.

- **Venture Capital (VC)** is a type of private equity, a form of financing provided by firms or funds to small, early-stage, emerging firms that are deemed to have high growth potential, or which have demonstrated high growth (in terms of number of employees, annual revenue, or both). Venture capital firms or funds invest in these early-stage companies in exchange for equity -- an ownership stake-in the companies they invest in. Venture capitalists take on the risk of financing risky start-ups, especially in the commercialization of R&D results or innovation with the hope that some of the firms they support will become successful. The start-ups are usually based on an innovative technology or business model. For small businesses, or for up-and-coming businesses in emerging industries, venture capital is generally provided by high net-worth individuals (HNWIs) – also known as 'angel investors' – and venture capital firms. Venture capital can help the Competitiveness of Small and Medium-sized Enterprises, especially in funding viable research results and innovations. It is a dedicated fund meant to absorb risks in early investments and seeks to provide early growth capital for technology companies with break-away momentum on a particular focus of creating innovation hubs.

  Technology is one of the engines for dramatic economic growth and productivity which most nations have experienced over the last several decades. The underlying factor has been the strength of intellectual property which provided the basis for investors to place their resources at risk. Intellectual property is an integral part of value-creation in a technology-based enterprise and is a critical element in obtaining venture capital for SMEs. The appropriate use of the intellectual property system is a powerful tool for competition, stability and mitigation of risks on capital investments. One of the major problems faced by new technology seed and start-up enterprises is

access to the first round of funding, either through debt or venture capital investment.

Some of inquiries of venture capitalists are:

- Where an invention or innovation fits in the marketplace with reference to existing and potential competitors.
- If the invention or innovation offers a dramatic and sustained advantage.
- Whether there is compelling evidence to warrant building a business based on the invention or innovation.
- The strength of an innovation and the ability of the entrepreneur to motivate commercialization.
- If it maximizes returns and minimize risks. The risks in reference to the intellectual property include: market, financial, management and technological.
- If it can devote its money, time and resources to technology development and commercialization.

In essence, the Ministry of Budget and National Planning will be expected to key-in and ensure that budgetary provisions are in tandem with the strategy and are released timely and accordingly. In line with the objectives of the strategy, the Ministry would ensure:

- Increased share for R&D and infrastructure.
- Increased share for business set-ups.
- Increased share for mining and agriculture.
- Support for investment and SMEs.
- Provision for grants and incentives that will encourage ease of doing business.
- Provision of enabling environment for business to thrive, etc.

Appendix III shows the amount of funds expected to be expended by governments (Federal, State/LG) based on normal regular budgetary provisions to its MDAs, the participation of the Organized Private Sector (OPS) and Development Partners on the strategic programme focus areas. It is further expected that more than thrice this amount would be saved if the strategy is successfully implemented -- 10.8% of thirty-six trillion and forty-five billion Naira (N36.045 trillion) import bill in five years' time.

The amount of funding expected from agencies over the 5-year period is broken down in the budgetary matrix in Appendix III. This matrix represents sources of funds or cash in-flow sources for the period under consideration. The main sources of funds include: governments (Federal, State/LG), OPS and Development Partners/Donor Community. Government budgetary allocations to MDAs will constitute part of the sources of funding as well as funding contributions from the OPS. Funding from Development Partners/Donor Community will come inform of technical assistance, credits, grants, gifts, donations, etc. or undertaking of special projects. It is, however, envisaged that special intervention funds would be set up by the Federal Government through development finance institutions and departments (such as

CBN, BOI, BOA, NEXIM Bank, TETFund, PTDF) in form of revolving loans at very enabling rates to partly facilitate the execution of certain aspects of the implementation plan.

6.2. Percentage Resource Distribution According to Strategic Elements and Allocation by Expenditure Outlets

The plan has graphically shown in Figure 6.1, the percentage distribution of expenditure against strategic focus elements with infrastructural development and businesses/industries ranking tops in percentage allocation. Figure 6.2 shows percentage distribution of allocation against expenditure outlets shows that consultancy and construction will carry heavy financial weights during the first five years of the strategy plan implementation.

FIGURE 6.1
PERCENTAGE DISTRIBUTION OF BUDGET ESTIMATES ON EXPENDITURE AGAINST THE STRATEGIC FOCUS AREAS

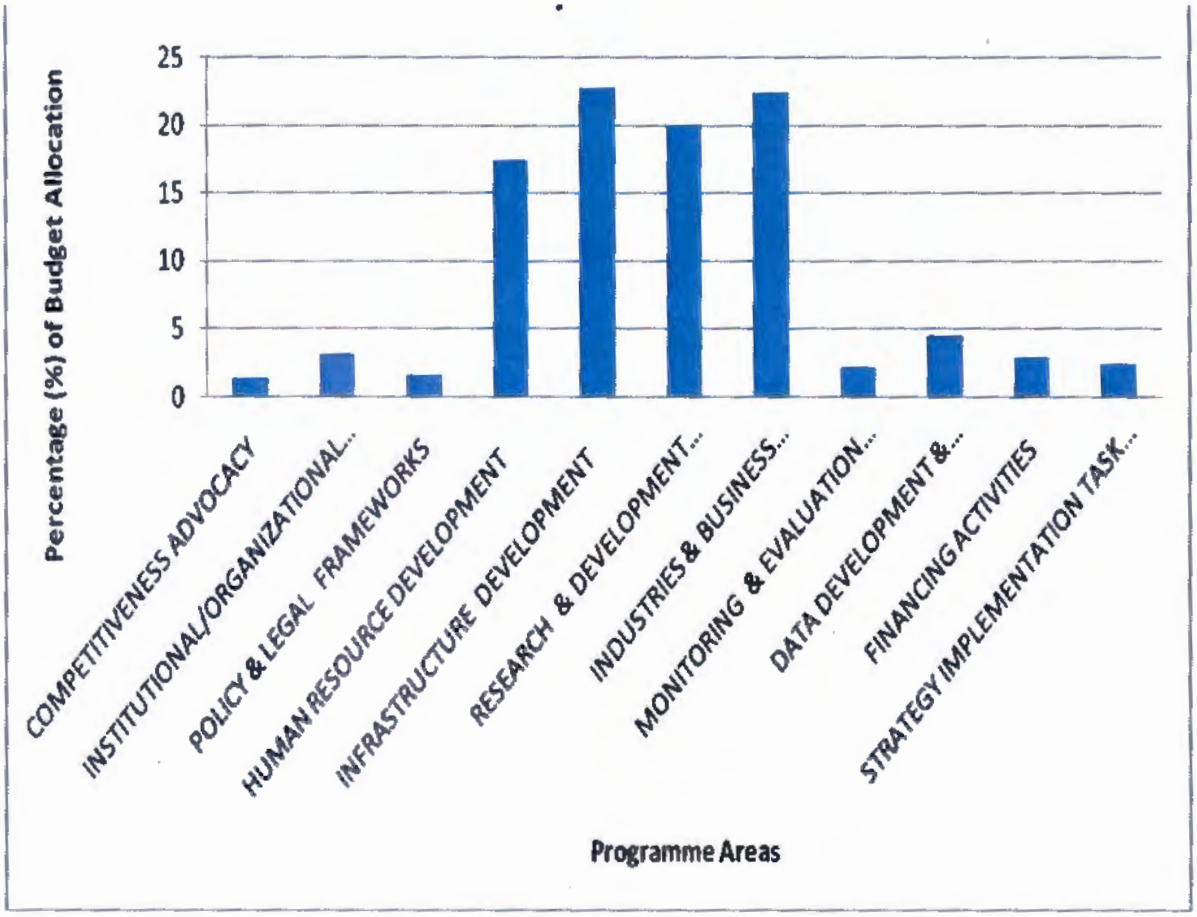
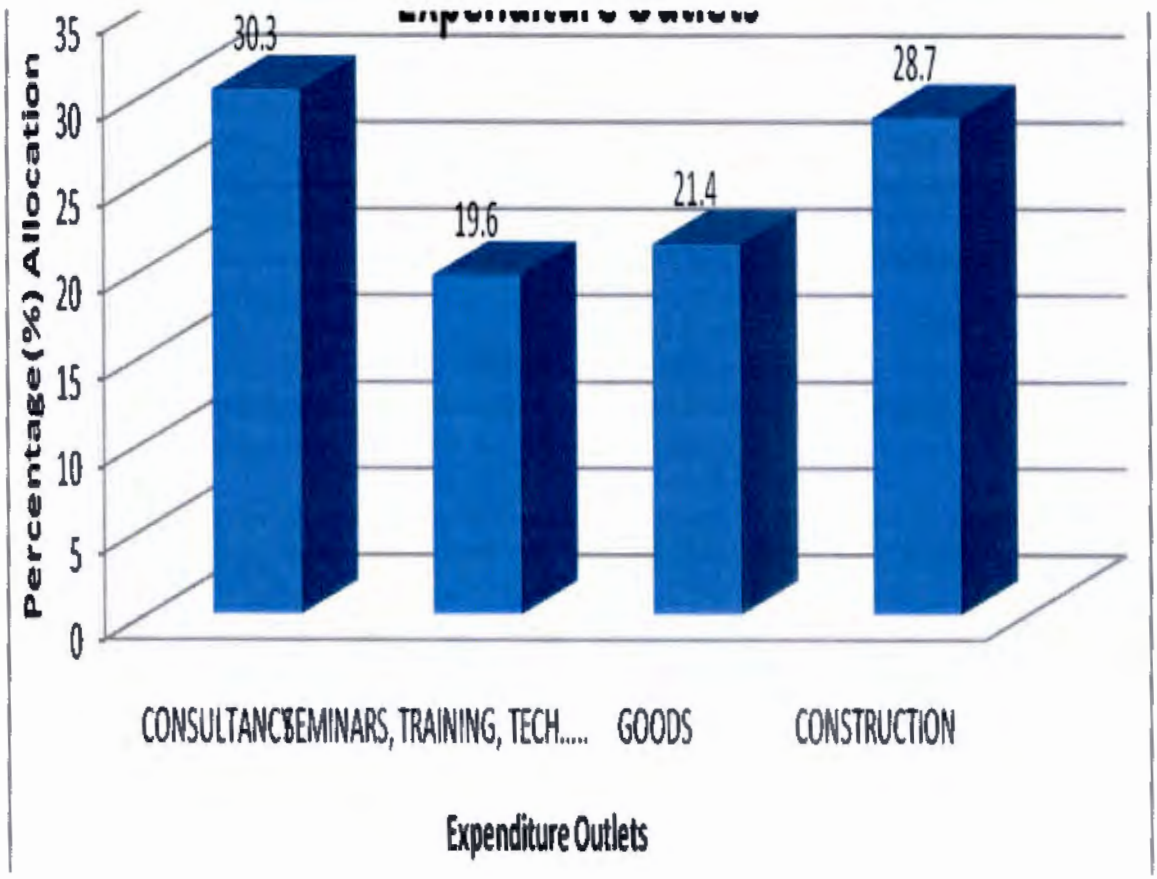


FIGURE 6.2
PERCENTAGE DISTRIBUTION OF ALLOCATION AGAINST EXPENDITURE OUTLETS



CHAPTER

SEVEN

CONCLUSION

The Implementation Plan of the National Strategy for Competitiveness in Raw Materials and Products Development has provided the pathways and milestones for orderly and successful programme and project activities. The plan takes account of international best practices which were adopted to rationalize the broad-based raw materials and products from 97 Harmonised System Codes to manageable 21 classification schemes.

This Plan is capable of guiding successful strategy implementation towards attainment of a level of national self-sufficiency and reliance and targeted import reduction goals based on enhanced scientific innovation and competitiveness. Identification and selection of specific projects for each strategically focused programme area were based on solid understanding of socio-economic imperatives of the situation in Nigeria. It is the current unacceptable poor competitiveness status of Nigeria that resulted in her dependence on massive import of raw materials and products; hence, the recourse to some revolutionary recommendations and choice of specific projects, etc.

The modest five-year expectation is a saving of over three trillion Naira based on 10.8% reduction in import of raw materials and products following a successful implementation as outlined. This Plan will provide Nigeria with a solid foundation for competitiveness and rapid indigenous industrialization that has eluded the nation since independence. The impact would also manifest in quality job creation, resuscitation of moribund industries, establishment of new ones, empowerment of SMEs and creation of an enabling environment for industries and businesses to thrive. The new phenomena of demand- and market-driven research and development by various R&D institutions due to profitable, sustainable and guided linkages between Industries/Businesses and the Universities, will yield unquantifiable and priceless benefits to Nigeria.

All the identified stakeholders are of the view that this Plan would be promoted via effective advocacy and coordination arrangement to be committed and devoted to the fundamental goals of enhancing national competitiveness in raw materials and products development. The plan has made a case for a well-resourced and focused task unit as a pre-requisite to effective implementation of the strategy. Stakeholders' roles have been identified and mapped out in tandem with their statutory mandates to avoid undue overlaps, duplications and clash of responsibilities.

Government should enjoin relevant MDAs, Industries/Businesses, Research and Development institutions/Tertiary Institutions and Development Partners to support early approval and speedy implementation of the strategy. It is recognized that the economic and social benefits associated with successful implementation of the strategy would outweigh whatever is incurred as cost, and usher in genuine diversification of the economy. The national drive to join the league of competitive and developed economies of the world must be premised on the understanding that time is of essence.

In a period of economic recession, made worse by dwindling oil revenues, depreciated Naira and rapidly depleting foreign reserve, it is imperative to 'think outside the box'. The model of import-dependent, petro-Dollar rentier economy is clearly no longer sustainable. Nigeria has the natural resources and the potential to be an advanced, industrial and technological nation supported by a large market and a vigorous, energetic population.

The country must begin immediately to commence implementation of the strategy for competitiveness in raw materials and products development, if she is to overcome its present economic predicaments and reposition to join the rank of advanced industrial nations within the coming decade.

APPENDICES

APPENDIX I

REPRESENTATIVES OF MDAS FOR REVIEW AND VALIDATION AND MEMBERS OF THE IMPLEMENTATION PLAN DRAFTING COMMITTEE

REPRESENTATIVES OF MDAS FOR REVIEW AND VALIDATION OF THE PLAN -- 12-01-2017				
S/N	NAME	ORGANIZATION	PHONE	E-MAIL
1.	Pharm. A. Oguntunde	Federal Ministry of Science & Technology	07039863496	yome-za@yahoo.com
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APPENDIX II
SECTORAL DISTRIBUTION OF MAJOR R&D BREAK-THROUGHS BY R&D INSTITUTIONS IN NIGERIA

S/N	MINISTRY/AGENCY	MAJOR R&D BREAK-THROUGHS	HS CODE	SECTOR
1.	Federal Ministry of Science & Technology/ NILEST	- Laboratory Equipment & Processes: S&T Lab Standard for Post Basic Education and Research Institutes	84, 85, 96	Miscellaneous Manufactured Articles: Machinery & Equipment
2.		Production of B1 Aflatoxin Antibody in detection of contaminants of agricultural products	30, 38	Miscellaneous Chemical Products
3.	NARICT/RMRDC	Products and Process Development - Neem based organic fertilizer	31	Product and Chemical Fertilizer
4.	NARICT/RMRDC	Essential oil extraction Technology	33	Essential Oil
5.	NARICT	Biodiesel from Jatropha seeds	12	Oil Seed
6.		Moringa Bio products	21	Misc. Edible prep
7.	NARICT	Tomato paste production technology	20, 21	Prepared food stuff – Prep of vegetable fruit; Miscellaneous & edible preparation
8.	Federal Ministry of Science & Technology / NBRRI	Building Materials & Equipment Development: - Development of Roller Compactor with vibrating element	87	Vehicle, Aircrafts and Parts
9.		Development of interlocking block-making machine	87	Vehicle
10.		Development of Manual brick-making machine	84	Machinery and Equipment
11.		Production of digitilized sub-grade soil map of states in Nigeria	85	Electrical machinery
12.		Setting up of Pozzolana Pilot Plant in Ota and Bokkos	85	Machinery and Equipment
13.	Federal Ministry of Health / NIPRI	- Pharmaceuticals: - Development of effective anti-sickling phyto-	30	Pharmaceutical Products

		medicine		
14.		Development of pharmaceutical grade starch	30, 35	Pharmaceutical and Starch
15.		Development of a process for the production of microcrystalline cellulose for use in drug formulation	30	Products of Chemical and Allied Industries: Pharmaceutical Products
16.		Development of an effective anti-malaria phyto-medicine	30	Products of Chemical and Allied Industries: Pharmaceutical Products
17.		Development of an effective anti-diabetic phyto-medicine	30	Products of Chemical and Allied Industries: Pharmaceutical Products
18.		Development of an effective anti-fungal phyto-medicine	30	Products of Chemical and Allied Industries: Pharmaceutical Products
19.			33	Products of Chemical and Allied Industries: Pharmaceutical Products
20.		Extraction of pharmaceutical grade Artemisinin from Artemisia plant grown in Nigeria	30	Products of Chemical and Allied Industries: Pharmaceutical Products
21.	FMST/RMRDC	- Development of slow release nitrogen fertiliser based on Urea	31	Fertiliser
22.		Development of phyto drugs for treatment of epilepsy	30	Pharmaceutical Products
23.	NASENI	Integrated Technologies for scientific Processing of Moringa Oleifera for nutritional, medicinal, agricultural and industrial inputs	30, 85	Pharmaceutical Products; Electrical machinery Equipment
24.	FMH/NIPRI	Production of Prodigiosin – on anti- cancer drug	30, 38	Pharmaceutical Products and Miscellaneous Chemical Products
25.	FMST/ NASENI	Development of Vehicle Speed Limiter (VSL)	87	Vehicle
26.		Development of Ultra-cheap Indoor Energy Harvesting Units using Dye-sanitized Solar Cell Array	85	Machinery and Equipment

27.		Fabrication of Light and Humidity sensor	85	Machinery and Equipment
28.		Reversed engineered Spray Pyrolysis Machine	85	Machinery and Equipment
29.	NASENI	Production of Chemical vapour Deposition Machine	85	Machinery and Equipment
30.		Production of medical Diagnostic Blood genotype determinations machines and Bacteria incubators with digital temperature controls and displays	85	Machinery and Equipment
31.		Production of chassis for Point-of-Sales (POS) and vending machines (produced for a local company on demand).	84	Machinery and Equipment
32.		Cargo Tricycle	87	Vehicle
33.		Passenger Tricycle	87	"
34.		Primary Science Kits (PSK)	84, 85, 96	Mechanical & Electrical Machinery and Appliances Miscellaneous Manufactured Article.
35.		Junior Science Kits (JSK)	84, 85, 96	"
36.	RMRDC	Water Borne Paint from blends of natural rubber latex and Poly vinyl Acetate	38	Products of Chemical and Allied Industry. Miscellaneous Chemical Products
37.	RMRDC/NARICT	Tomato Paste Technology	20, 21	Prepared food stuff – Prep of vegetable fruit; Miscellaneous & edible preparation
38.	NARICT	Jatropha Oil Cooking Stoves	84	Mechanical Appliances
39.	NILEST/NARICT	Football Production	42	Articles of leather
40.	RMRDC	High quality cassava flour production using flash dryer technology	84,85	Preparation of flour/Starch
41.		Cassava Starch Production	84, 85	Mechanical Machinery and Equipment ; Electrical Machinery and Equipment "
42	FMST/FIIRO	Mechanical Garri Production	84	Mechanical Machinery and Equipment
43.		Instant Pounded Yam Flour Production	84	"
44.		Soy Gari Production	21, 84	Beverage; Mechanical Machinery and Equipment
45.		Soy-Ogi Production	21, 84	Beverages; Mechanical

		Products		Machinery and Equipment
46.		Sorghum Malt Production Technology	22, 84	Beverage; Mechanical Machinery and Equipment
47.		Palm wine Bottling and Preservation Technology	22	Beverage
48		Groundnut Paste Production Technology	20; 84	Prepared food stuff: Preparation of nuts; Mechanical Machinery and Equipment
49	FIIRO	Body Lotion Production Technology	33	Products of Chemical: Cosmetics
50	Ministry of Agriculture and Rural Development / CRIN	- Cocoa – Early bearing cocoa variety	06	Vegetable Production – Live tree and other plants
51	CRIN	- Coffee – Socio-economically acceptable method of rehabilitating old coffee plantation through cropping at 30cm above ground level to rejuvenate the old plants	09	Vegetable Production – Coffee, tea, mate and spices
52		- Cashew – High yielding seedlings of 25 superior genotypes 10-13kg/tree/year with superior flavour and apply skin/fleshy colour	08	Vegetable Productions – Edible fruits and nuts
53		- Tea – Twenty-four highland clonal tea genotype introduced from Kenya. Germplasm on six at Mambilla Plateau for commercial cultivation	09	Vegetable Production – Coffee, tea, mate and spices
54	Agricultural Research Institute of Nigeria	- Crop Processing and Utilization – Value addition on 60 products from different crops of which 22 have been patented with MITI	18, 19, 20, 21	Prepared food stuff: Beverage, Spirit and Vinegar
55	Crop Research Institute of Nigeria	- Farming System and Extension – Establishment of high yielding Cocoa Seed variety in all the 14 Cocoa Producing States to meet EU Standards	06	Vegetable Production: Live Tree and other plants
56	Ministry of Agriculture and Rural Development	- Cocoa plantlet development generated	06	Vegetable Production – Live trees

		from the flora part (Starminode) of cocoa using biotechnology		
57		- Improved Farm Inputs and Practice through varietal development of maize, cowpea, soya beans and kenaf	10,12, 47	Vegetable Production: Cereals and Paper making materials
58		- Organic/rock fertilizer development	31	Products of chemical and allied in. - fertilizer
59		- Appropriate and improved farming system developed for South West, Nigeria		
60.		- Wheat – Development and release of 6 irrigated and rain-fed wheat with high yielding potential of about 5-6t/ha and 3.5t/ha respectively as against 1.0t/ha	11	Vegetable Production: Wheat Gluten
61.		- Millet – Development of 5 open pollination millet varieties and one hybrid millet with yield potential of about 3.5 to 4.0 t/ha as against 0.8t/ha	12	Vegetable Production: Miscellaneous grains
62.		- Breeder and foundation Seed – Development of adequate and quality breeder and foundation seeds of wheat and millet	10,11,12	Vegetable Production – wheat gluten and Miscellaneous grains
63.		- Value Addition – to sorghum, wheat as livestock feed for ruminants in North-West Zone	10, 21	Prepared Food Stuff: Misc. edible preparation
64.		- Agric Technologies – Wheat and Millet Technologies adaptation for about 30-40% by farms	11, 12	Vegetable Production wheat Gluten & Misc. Grains
65.	Ministry of Agriculture and Rural Development	- Livestock – Improved milk and meat off-take from indigenous cattle through artificial insemination technology	01, 02, 04	Live animals and production meat and edible offal, dairy products
66.		- Livestock Feed – Formulation using industrial food wastes	15, 21	Animal and vegetable fats and oil and other cleavage products
67.		- Veterinary Treatment –	29, 30	Products of chemical

		Use of indigenous natural resource for ethno-veterinary treatment of livestock		and Allied Industries: Organic Chemical Pharmaceuticals
68.		- Animal food product development from cereals and legumes	19, 20	Pre. Food Stuff: Preparation of Cereals and legumes
69.		- Development of Shika Brown layer chicken	01, 02	
70.		- Development of meat-type (broiler) chicken	02	
71.		- Development of feed and animal packages		
72.		- Fish – Fish Genetics and Engineering – Genetic improvement of cultural fish species (spices)	03	Live Animals & Products Fish and Crustaceans
73.		Mass production of fast growing fingerlings	03	"
74.		Improved technology for induced breeding of catfishes	03	"
75.		Development of hand pelletizers, mixers and grinders for feed formulation	82, 83	Base metals and Articles of Base metals: Tools, Implement, Misc. articles
76.		Development of Standard sampling techniques for catch assessment of inland water fishes		
77.		Development of NIFFR fish cake	05	Products of animal organs
78.		Techniques in zoo plankton mass production	03	Fish; Crustacian
79.		Design and fabrication of solar tent for fish drying	84	Machinery & Equipment
80.		Fabrication of Tanks and Polythene bags for live fish transportation	39	Plastics and Articles thereof
81.	Ministry of Agriculture and Rural Development – VOM Vet	Animal Vaccines and Disease Control:	30	Products of chemical and allied industry: Pharmaceutical Products.
82		Development of viral vaccines	30	"
83		Development of Bacterial Vaccines	30	"
84		Rinderpest eradication	30	"
85.		Surveillance, diagnosis and	30	"

		control of major animal diseases of economic importance		
86.		Prompt diagnosis techniques for (rabies, Avian influenza etc)	30	"
87.		Establishment of Biosafety level 3 laboratory for identification of highly pathogenic organisms	38	Misc. Chemical Products

APPENDIX IIIA
FIVE-YEAR BUDGETARY ESTIMATES ON FUNDING (CASH IN-FLOW)
₦ MILLION

S/N	FUNDERS	BUDGETARY OUTLAY (FUNDING)					
		Y1	Y2	Y3	Y4	Y5	TOTAL
1	**GOVERNMENTS**	43,794.60	72,991.10	94,888.50	75,910.70	70,071.50	357,656.40
1.1	Federal Govt. MDAs	35,035.70	58,392.90	72,991.20	58,392.90	52,553.60	277,366.30
1.2	State Government & LGAs	8,758.90	14,598.20	21,897.30	17,517.80	17,517.90	80,290.10
2	**ORGANIZED PRIVATE SECTOR**	8,758.90	14,598.20	21,897.30	17,517.90	17,517.90	80,290.20
3	**DEVELOPMENT PARTNERS:**						
3.1	Competitiveness Advocacy	3,065.63	4,087.50	1,751.79	700.72	437.95	10,043.59
3.2	Institutional/Organizational Arrangements	6,131.26	6,131.27	5,255.36	3,503.57	2,189.74	23,211.20
3.3	Legal & Policy Frameworks	3,065.63	4,087.50	2,627.68	1,401.43	437.95	11,620.19
3.4	Human Resource Development	24,525.02	36,787.53	29,780.38	23,123.59	13,576.35	127,792.87
3.5	Infrastructural Development	27,590.65	45,984.41	39,415.21	31,532.16	20,583.50	165,105.93
3.6	Research & Development (R & D)	19,006.89	40,875.03	35,035.74	30,130.73	19,707.61	144,756.00
3.7	Industrial & Business Development	24,525.02	40,875.03	39,415.21	34,335.02	21,897.34	161,047.62
3.8	Monitoring & Evaluation (M & E)	1,226.25	3,065.63	4,379.47	3,503.57	2,627.68	14,802.60
3.9	Data Development & Management	6,131.26	10,218.76	8,758.94	5,605.72	2,627.68	33,342.36
3.10	Financing	4,291.88	7,153.13	4,379.47	3,503.57	1,751.79	21,079.84
3.11	Strategy Implementation Task Unit	3,065.63	5,109.38	4,379.47	2,802.86	1,751.79	17,109.13
	Sub-Total (3)	**122,625.12**	**204,375.17**	**175,178.72**	**140,142.94**	**87,589.38**	**729,911.33**
4	**GRAND TOTAL**	**175,178.62**	**291,964.47**	**291,964.52**	**233,571.54**	**175,178.78**	**1,167,858**

APPENDIX IIIB
FIVE-YEAR BUDGET ESTIMATES ON EXPENDITURE (OUT-FLOW)
(₦ MILLIONS)

PROGRAMMES	Y1	Y2	Y3	Y4	Y5	TOTAL
COMPETITIVENESS ADVOCACY	4,379.47	5,839.29	2,919.65	1,167.86	875.89	15,182.16
INSTITUTIONAL/ ORGANIZATIONAL ARRANGEMENT	8,758.94	8,758.96	8,758.94	5,839.29	4,379.47	36,495.60
POLICY & LEGAL FRAMEWORKS	4,379.47	5,839.29	4,379.47	2,335.72	875.89	17,809.84
HUMAN RESOURCE DEVELOPMENT	35,035.74	52,553.61	49,633.97	38,539.31	27,152.70	202,915.33
INFRASTRUCTURE DEVELOPMENT	39,415.21	65,692.01	65,692.01	52,553.60	41,166.99	264,519.82
RESEARCH & DEVELOPMENT (R&D) ACTIVITIES	27,152.70	58,392.90	58,392.90	50,217.89	39,415.21	233,571.60
INDUSTRIES & BUSINESS DEVELOPMENT	35,035.74	58,392.90	65,692.01	57,225.04	43,794.68	260,140.37
MONITORING & EVALUATION (M&E) ACTIVITIES	1,751.79	4,379.47	7,299.11	5,839.29	5,255.36	24,525.02
DATA DEVELOPMENT & MANAGEMENT	8,758.94	14,598.23	14,598.23	9,342.86	5,255.36	52,553.62
FINANCING ACTIVITIES	6,131.25	10,218.76	7,299.11	5,839.29	3,503.57	32,991.98
STRATEGY IMPLEMENTATION TASK UNIT	4,379.47	7,299.11	7,299.11	4,671.43	3,503.57	27,152.69
GRAND TOTAL	**175,178.7**	**291,964.5**	**291,964.5**	**233,571.6**	**175,178.7**	**1,167,858.0**

FORMAT 1: PROJECT IDENTIFICATION

Name of Institution: Federal Ministry of Power, Works and Housing (Housing)
Address: Headquarters, Mabushi, Abuja

Contact Officer: Mr I. S. Womiloju (Deputy Director (Lands)
Telephone Line(s): 08035019522
Email Address: iswomiloju2006@yahoo.com

LANDS AND HOUSING DEVELOPMENT DEPARTMENT: DEVELOPMENT OF NATIONAL LAND POLICY

PROGRAMMES	PROJECT	PROJECT DESCRIPTION
Advocacy Advocacy and sensitization activities include: Radio & Television jingles in Federal and State Media Houses; News bulletin in National and State Radio and Television Stations. Drama sketches. Advertorials in national newspapers. Zonal workshops; Validation (National) workshop. Public presentation of the approved National Land Policy; Circulation of the approved National Land Policy.	Development of National Land Policy	Developing National Land Policy (NLP) for the country. A Zero Draft NLP had been developed by a Ministerial Committee. The Zero Draft was subjected to further scrutiny by an Inter-Ministerial Committee, and a Draft National Land Policy had been produced. The process continues
Legal & Policy Formulation The validated (and printed) National Land Policy to be presented to the National Economic Council (NEC), Federal Executive Council (FEC) and National Council of States (NSC).	Development of National Land Policy	Developing National Land Policy (NLP) for the country. A Zero Draft NLP had been developed by a Ministerial Committee. The Zero Draft was subjected to further scrutiny by an Inter-Ministerial Committee, and a Draft National Land Policy had been produced. The process continues.
Institutional/Organisational Arrangement Appointment of Consultant	Development of National Land Policy	Developing National Land Policy (NLP) for the country. A Zero Draft NLP had been developed by a Ministerial Committee. The Zero Draft was subjected to further scrutiny by an Inter-Ministerial Committee, and a Draft National Land Policy had been produced. The process continues.
Infrastructural Development Printing of the Draft National Land Policy. Circulation of printed Draft National Land Policy to all stakeholders; Convening Zonal and Validation Workshops. Printing of validated National Land Policy	Development of National Land Policy	Developing National Land Policy (NLP) for the country. A Zero Draft NLP had been developed by a Ministerial Committee. The Zero Draft was subjected to further scrutiny by an Inter-Ministerial Committee, and a Draft National Land Policy had been produced. The process continues.

FORMAT 2: BUDGET ESTIMATE

Year ( )* (Year 1, 2, 3, 4, 5)

Name of Institution: Federal Ministry of Power, Works and Housing (Housing)
Address: Headquarters, Mabushi, Abuja

Contact Officer: Mr I. S. Womiloju (Deputy Director (Lands)
Telephone Line(s): 08035019522
Email Address: iswomiloju2006@yahoo.com

LANDS AND HOUSING DEVELOPMENT DEPARTMENT: DEVELOPMENT OF NATIONAL LAND POLICY

PROGRAMMES	CONSULTANCY & FACILITATION SERVICES	TRAINING, SEMINARS, WORKSHOPS, STUDY TOUR & INDUSTRIAL ATTACHMENT	GOODS & DEPLOYMENT	CONSTRUCTION & BUILDING	TOTAL AMOUNT ₦m
Advocacy Radio & Television jingles in Federal and State Media Houses; News bulletin in National and State Radio and Television Stations Drama sketches; Advertorials in national newspapers; Zonal workshops; Validation (National) workshop; Public presentation of the approved National Land Policy; Circulation of the approved National Land Policy.	-	-	-	-	700.00
Legal & Policy Review Printing of the validated National Land Policy which will be presented to National Economic Council (NEC), Federal Executive Council (FEC) and National Council of States (NSC)	-	-	-	-	50.00
Institutional/Organisational Arrangement Appointment of Consultant	-	-	-	-	20.00

Human Resource Development					30.00
Infrastructural Development Printing of the Draft National Land Policy; Circulation of printed Draft National Land Policy to **all** stakeholders; Convening Zonal and Validation Workshops; Printing of validated draft National Land Policy	-	-	-	-	100.00
Research & Development (R & D) Activities Periodic review to accommodate challenging trends of the emerging society					100.00
Industries & Business Development					
Monitoring & Evaluation (M & E) Activities					
Strategy Implantation Task Unit					
Grand Total					**1,000.00**

Note: * Indicate the year in reference.
5 years will be required, hence five sheets of budget estimate.

FORMAT 1: PROJECT IDENTIFICATION

Name of Institution: Federal Ministry of Power, Works and Housing (Housing)
Address: Headquarters, Mabushi, Abuja

Contact Officer: Mr I. S. Womiloju (Deputy Director (Lands)
Telephone Line(s): 08035019522
Email Address: iswomiloju2006@yahoo.com

LANDS AND HOUSING DEVELOPMENT DEPARTMENT: REACTIVATION OF FEDERAL LAND INFORMATION SYSTEM

PROGRAMMES	PROJECT	PROJECT DESCRIPTION
Advocacy Printing of handbook on services available in the Department; Printing of leaflets on the processes of accessing the services; Placement of advertorials in National newspapers.	Reactivation of Federal Land Information System, FELIS at the Headquarters and Field Headquarters.	A geographic based information capturing and recording system otherwise known as Federal Land Information System, FELIS was established to capture and record information on all Federal Government lands across the nation. The system is presently deployed to preparation of Certificates of Occupancy.
Legal & Policy Formulation Records of all landholdings, both in the country and outside, in possession of MDAs to be captured in the system	-	-
Institutional/Organisational Arrangement The Field Headquarters to be linked and adequately empowered.	-	-
Infrastructural Development Provision of equipment both at the Headquarters and Field Headquarters	-	-
Human Resource Development Training of personnel	-	-
Research & Development (R & D) Activities	-	-
Industries & Business Development	-	-
Monitoring & Evaluation (M & E) Activities	-	-
Policy & Legal Review	-	-
Data Development & Management	-	-

FORMAT 2: BUDGET ESTIMATE
Year ( )* (Year 1, 2, 3, 4, 5)

Name of Institution: Federal Ministry of Power, Works and Housing (Housing)
Address: Headquarters, Mabushi, Abuja

Contact Officer: Mr I. S. Womiloju (Deputy Director (Lands)
Telephone Line(s): 08035019522
Email Address: iswomiloju2006@yahoo.com

LANDS AND HOUSING DEVELOPMENT DEPARTMENT: REACTIVATION OF FEDERAL LAND INFORMATION SYSTEM, FELIS

PROGRAMMES	CONSULTANCY & FACILITATION SERVICES Nm	TRAINING, SEMINARS, WORKSHOPS, STUDY TOUR & INDUSTRIAL ATTACHMENT (Nm)	GOODS & DEPLOYMENT Nm	CONSTRUCTION & BUILDING Nm	TOTAL AMOUNT Nm
Advocacy Printing of handbook on services available in the Department; Printing of leaflets on the processes of accessing the services; Placement of advertorials in National newspapers.	-	-	-	-	10.00
Legal & Policy Review Records of all landholdings, both in the country and outside, in possession of MDAs to be captured in the system	-	-	-	-	500.00
Institutional/Organisational Arrangement The Field Headquarters to be linked and adequately empowered.	-	-	-	-	500.00
Infrastructural Development Provision of equipment both at the Headquarters and Field Headquarters	-	-	-	-	1,000.00
Human Resource Development Training of personnel	-	30.00	-	-	30.00
Research & Development (R & D) Activities	-	-	-	-	-
Industries & Business Development	-	-	-	-	-
Monitoring & Evaluation (M&E)	-		-	-	-

Activities					
Strategy Implantation Task Unit	-	-	-	-	-
¤ **Grand Total**	-	-	-	-	**2,040.00**

Note: * Indicate the year in reference.
5 years will be required, hence five sheets of budget estimate.

FORMAT 1: PROJECT IDENTIFICATION

Name of Institution: Federal Ministry of Power, Works and Housing (Housing)
Address: Headquarters, Mabushi, Abuja

Contact Officer: Mr I. S. Womiloju (Deputy Director (Lands)
Telephone Line(s): 08035019522
Email Address: iswomiloju2006@yahoo.com

LANDS AND HOUSING DEVELOPMENT DEPARTMENT: HUMAN CAPACITY DEVELOPMENT AND TRAINING

PROGRAMMES	PROJECT	PROJECT DESCRIPTION
Advocacy	Human Capacity Development and Training	Continuous training/retraining of staff to bring them at par with emerging technological development.
Legal & Policy Formulation	-	-
Institutional/Organisational Arrangement The Headquarters and Field Headquarters Staff	-	-
Infrastructural Development Provision of equipment and training manuals for both the Headquarters and Field Headquarters	-	-
Human Resource Development Training of personnel	-	-
Research & Development (R & D) Activities Application of new trends of doing business	-	-
Industries & Business Development	-	-
Monitoring & Evaluation (M & E) Activities	-	-
Policy & Legal Review	-	-
Data Development & Management	-	-

FORMAT 2: BUDGET ESTIMATE
Year ( )* (Year 1, 2, 3, 4, 5)

Name of Institution: Federal Ministry of Power, Works and Housing (Housing)
Address: Headquarters, Mabushi, Abuja

Contact Officer: Mr I. S. Womiloju (Deputy Director (Lands)
Telephone Line(s): 08035019522
Email Address: iswomiloju2006@yahoo.com

LANDS AND HOUSING DEVELOPMENT DEPARTMENT: **HUMAN CAPACITY DEVELOPMENT AND TRAINING**

	FACILITATION SERVICES Nm	WORKSHOPS, STUDY TOUR & INDUSTRIAL ATTACHMENT (Nm)	DEPLOYMENT Nm	CONSTRUCTION & BUILDING Nm	TOTAL AMOUNT Nm
Advocacy	-	-	-	-	-
Legal & Policy Review	-	-	-	-	-
Institutional/Organisational Arrangement The Headquarters and Field Headquarters	20.00	-	-	-	20.00
Infrastructural Development Provision of equipment and training manuals for both the Headquarters and Field Headquarters	30.00	-	1,500.00	-	1,530.00
Human Resource Development Training of personnel	-	50.00	-	-	50.00
Research & Development (R & D) Activities Application of new trends of doing business	20.00	-	-	-	20.00
Industries & Business Development	-	-	-	-	-
Monitoring & Evaluation (M & E) Activities	-	-	-	-	-
Strategy Implantation Task Unit	-	-	-		-
Grand Total	-	-	-	-	**1,620.00**

Note: * Indicate the year in reference.
5 years will be required, hence five sheets of budget estimate.

APPENDIX V

SUBMISSION FROM FEDERAL MINISTRY OF AGRICULTURE & RURAL DEVELOPMENT

FEDERAL MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT

AREA 11, GARKI-ABUJA

PLANNING & POLICY COORDINATION DEPARTMENT

P.M.B. NO. 135

Telegrams.....

Telephone.....

Ref. No. SPD.175/T/31

6th January, 2017

RAW MATERIALS RESEARCH & DEVELOPMENT COUNCIL MAITAMA, AF...
- 9 JAN 2017
RECEIVED

The Director General,
Raw Materials Research & Development Council,
Abuja.

RE: REQUEST FOR INPUT INTO THE IMPLEMENTATION ROADMAP OF THE NATIONAL STRATEGY FOR COMPETITIVENESS IN RAW MATERIALS AND PRODUCTS DEVELOPMENT IN NIGERIA

I am directed to refer to your letter RMRDC/AF/5/SEC/S.18/I dated November 9, 2016 on the above subject and to forward herewith the Ministry's response for appropriate action.

2. Please accept the assurances of the Honourable Minister's high regards.

Musa Alhassan
for: Honourable Minister

APPENDIX VI
IMPLEMENTATION ROAD-MAP OF THE NATIONAL STRATEGY FOR COMPETITIVENESS IN RAW MATERIALS AND PRODUCST DEVELOPMENT IN NIGERIA
[SUBMISSION FROM FEDERAL MINISTRY OF AGRICULTURE & RURAL DEVELOPMENT]

1. **Name of Institution:** FMARD - Department of Fisheries; **Address:** 1 Capital Drive, Area 11, Garki, Abuja; **Contact Officer:** Ibrahim Abubakar; **Email Address:** ibrahimgorafish@yahoo.com; **Telephone line(s):** 08036179683

1A: FISHERIES AND AQUACULTURE: FORMAT 1 - PROJECT IDENTIFICATION

Programmes	Project List	*Project Description
Advocacy	Sustainable Aquaculture Development system for Nigeria	Provision of training to fish farmers on Best Aquaculture Management Practices
	Young Fish Farmers Development Programme	Establishment of cottage fish farms in secondary schools nationwide; Training of secondary school students on fish production and provision of training materials and inputs.
	Aquaculture Empowerment programme for Retirees	Training of retirees on fish production with provision of starter packs
	Climate change mitigation for Artisanal Fishermen	Training/sensitization of fishermen on climate smart (sensitive) fishing
Legal & Policy Formulation	Certification and Standardization of Aquaculture farm Nationwide	Establishment of certifying standards for the effective and sustainable fish farming operation. Validation workshops for the standards. Sensitization of fish farmers on the programme.
Institutional/ Organizational Arrangement	Construction of six (6) carrier boat for Federal Department of Fisheries	Construction of Six (6) carrier boats to monitor Fisheries activities in the coastal States
	Fish Farm Estate Development Programme	Establishment of fish farm clusters with provision of basic infrastructures
Infrastructural Development	Vessel Monitoring System Upgrade	Upgrade of Vessel Monitoring System facilities in Lagos and Cross River for tracking sea vessels to arrest illegal, unreported and unregulated fishing
	Support for production and Quality Assurance- Abuja and Lagos Laboratories	Construction of laboratory in Abuja and purchase of laboratory materials and equipment.
	National Fish Accelerated Fish Production Programme	Rehabilitation of Existing Government farm

Human Resources Development		
Research and Development (R&D) Activities	Carp Value Chain Development	Promotion of Carp seed development; Training and empowerment of farmers on Carp production
	Shrimp Value Chain Development	Promotion of shrimp seed development and management; Training and empowerment of farmers on shrimp production
	Tilapia Value Chain Development	Promotion of Tilapia broodstock development; Promotion of Tilapia seed development; Training and empowerment of farmers on All-Male-Tilapia production
	Clupeid and Lantern Fish Development	Promotion of clupeid and lantern fish production; Assessment of potential water bodies for stocking; Host community sensitization; Stocking of water bodies.
	National Gene Bank Development for Fisheries and Aquaculture	Establishment of centre (Gene Bank) in one of the research institutes to preserve national fish genetic resources and promote research on development of new strains.
Industries and Business Development	Rehabilitation of Federal Fisheries Jetty at Eleke- Lagos	Provision of necessary infrastructure to make the Jetty functional to provide good dockyard for the maintenance of Fishing Vessels
	Establishment of cottage Fish Feed mills Nationwide	Establishment of model cottage fish feed mill. Project will bring down the production costs of Fish Farmers
	Artisanal Fisheries development	Provision of inputs and technical support to fishermen and Fish farmers Nationwide
	Alternative Livelihood support for Fishermen Nationwide	Training of fishermen on alternative sources of income such as net mending, making and use of chokor. Sensitization on Code of Conduct for Responsible Fisheries (CCRF).
	Ecowas Fund Fisheries Development Project Phase II	Provision of counterpart fund for loan subsidy to be provided to fishermenin collaboration with the Bank of Agriculture
	Model Fish Market facility: Cold room market development to reduce post-harvest losses	Establishment of coldrooms at selected fish producing hub to reduce post-harvest loss.
	Establishment of ECOWAS Model dry Fish silos Nationwide	Establishment of ECOWAS Model Dry Fish Silos at selected fish producing hub to promote value addition and reduce post-harvest loss.
	Fish Processing Plant: Distribution of Fish smoking Kilns to fisheries cooperative	Distribution of smoking kilns to established fisheries cooperatives to promote value addition and reduce post-harvest loss.
	Fish Market and Processing	Establishment of Model Fish Markets at selected centres.

Monitoring & Evaluation (M&E) Activities		
Policy and Legal Review		
Data Development & Management	Nationwide inventorisation of frozen Fish Cold Rooms	Data collection and monitoring of fish cold rooms nationwide
	Identification, Mapping and Establishment of Fish Landing sites	Training of data collectors and managers on use of GPS for data collection; Data collection on fish landing sites nationwide.
	Canoe Registration Programme	Data capturing and registration exercise of canoes, owners and users nationwide.
	National Fishery and Aquaculture data collection, collation and management	Training of data collectors on data collection methodology, provision of equipment; Nationwide fisheries and aquaculture data collection.
	National Fish Frame Survey 2017	The last was conducted in 2007. To be conducted every five years. It's a nationwide survey of fish farmers and fishers and capacities, including house hold data.
	National Catch Assessment Survey 2017	The last was conducted in 2007. It's a nationwide survey on fish production and productivity.

1B: FISHERIES AND AQUACULTURE: FORMAT 2 - BUDGET ESTIMATE

PROGRAMMES	PROJECT LIST	CONSULTANCY & FACILITATION SERVICES	TRAINING, SEMINAR, WORKSHOPS, STUDY TOUR & INDUSTRIAL ATTACHMENT	GOODS & DEPLOYMENT	CONSTRUCTION & BUILDING	TOTAL AMOUNT (₦)
Advocacy	Sustainable Aquaculture Development system for Nigeria		240,000,000.00			240,000,000.00
	Young Fish Farmers Development Programme				460,000,000.00	460,000,000.00
	Aquaculture Empowerment programme for Retirees		300,000,000.00			300,000,000.00
	Climate change mitigation for Artisanal Fishermen		100,000,000.00			100,000,000.00
Institutional/ Organizational Arrangement	Construction of six (6) carrier boat for Federal Department of Fisheries			120,000,000.00		120,000,000.00
	Fish Farm Estate Development Programme				1,110,000,000.00	1,110,000,000.00
Legal & Policy Review	Certification and Standardization of Aquaculture farm	160,000,000.00				160,000,000.00

	Nationwide					
Human Resources Development						
Infrastructural Development	Vessel Monitoring System Upgrade				100,000,000.00	100,000,000.00
	Support for production and Quality Assurance- Abuja and Lagos Laboratories				470,000,000.00	470,000,000.00
	National Fish Accelerated Fish Production Programme				660,000,000.00	660,000,000.00
Research and Development (R&D) Activities	Carp Value Chain Development					240,000,000.00
	Shrimp Value Chain Development					240,000,000.00
	Tilapia Value Chain Development					240,000,000.00
	Clupeid and Lantern Fish Development					240,000,000.00
	National Gene Bank Development for Fisheries and Aquaculture					90,500,000.00
Industries and Business Development	Rehabilitation of Federal Fisheries Jetty at Eleke- Lagos				660,000,000.00	660,000,000.00
	Establishment of cottage Fish Feed mills Nationwide				260,000,000.00	260,000,000.00
	Artisanal Fisheries development			1,600,000,000.00		1,600,000,000.00
	Alternative Livelihood support for Fishermen		460,000,000.00			460,000,000.00

	Nationwide					
	ECOWAS Fund Fisheries Development Project Phase II					800,000,000.00
	Model Fish Market facility: Cold room market development to reduce post-harvest losses				500,000,000.00	500,000,000.00
	Establishment of ECOWAS Model dry Fish silos Nationwide				210,000,000.00	210,000,000.00
	Fish Processing Plant: Distribution of Fish smoking Kilns to fisheries cooperative				225,000,000.00	225,000,000.00
	Fish Market and Processing				160,000,000.00	160,000,000.00
Monitoring & Evaluation (M&E) Activities						
Strategy Implementation Task Unit						
Grand Total						**7,155,500,000**

1C: FISHERIES AND AQUACULTURE: FORMAT 3 - A 5-YEAR BUDGET ESTIMATE FOR R&D ACTIVITIES

STRATEGY/ ACTIVITIES	PROJECT LIST	Quantity					Total	Unit Cost	Amount (NM)					Total
		YR1	YR2	YR3	YR4	YR5			YR1	YR2	YR3	YR4	YR5	
*R&D projects in Agro based raw materials & products	Carp Value Chain Development								48	48	48	48	48	240
	Shrimp Value Chain Development								48	48	48	48	48	240
	Tilapia Value Chain Development								48	48	48	48	48	240
	Clupeid and Lantern Fish Development								48	48	48	48	48	240

2. **Name of Institution: FMARD** - Veterinary & Pest Control Services; **Address:** 1 Capital Drive, Area 11, Garki, Abuja; **Contact Officer:** .....; **Email Address**.....; **Telephone line(s)**.....:

2A: VETERINARY AND PEST CONTROL SERVICES: FORMAT 1 - PROJECT INDENTIFICATION

Programmes	Project List	Project Description
Advocacy	i.Advocacy and Sensitization of relevant stakeholders in the livestock industry on Codex standards ii. Advocacy to livestock farmers on Codex standards iii.Ministerial Codex Committee	i.&ii Conduct advocacy visit and sensitization of relevant stakeholders in the livestock industry on Codex standards. iii. Coordination of Ministerial Codex Committee for the implementation of standards along the agricultural food system
Legal & Policy Formulation	Development of a national policy on bee health, pollination etc	Develop a national policy on bee health, pollination for improved safety on honey and its products
Legal & Policy Review	i. Development and Review of Veterinary Legislation/Animal Health ii. Development & Implementation of a National Residue Monitoring Plan (NRMP) for export of Honey to the EU and other international markets Development of specific animal disease free zones under PPP arrangement	i. Review of Animal Diseases (Control) Act No. 10 of 1988 and processing of draft Meat and Milk Hygiene Act. ii.Develop standard Operating Procedures for Honey production, Identification & Registration of Beehives, Processing plants, strengthening Laboratory services for improved quality and safety as well as enhanced local and international market for honey and its products. Evidence of NRMP is a pre-requisite for EU listing to export honey to the EU.
Infrastructural Development	i. Construction of 2No. Federal Veterinary Medical Centers ii. Construction of 3 No. Primary Animal Health Service Centers iii. Abattoirs/Slaughter House Development programme iv. Live Bird Market Development Programme	i&ii. Construct 2Nos Federal Veterinary Medical Centers and 3Nos Primary Animal Health Care Service Centers for improved accessibility to veterinary health care services iii. Rehabilitation 12 Nos Abattoirs/slaughter houses and training of 1000 selected abattoir operators on hygienic practices processing and storage for domestic market and export.

		iv.Construction of 8 Nos. Live Bird Markets and Slaughter facilities for food safety and disease control
Human Resource Development	i. Hides and Skin Value chain-Animal Health Services ii.National Apiculture Programme	i.Training of skin and hides buyers & workers on improved flaying techniques, hygienic processing and storage for domestic market and export ii.Coordination of inter-ministerial technical committee on bee health and pollination services with relevant stakeholders, train 2000 beekeepers (youths and women) on modern beekeeping and provision of beekeeping starter packs.
Industries & Business Development	Development of specific animal disease free zones under Public Private Partnership arrangement	Delineation of disease free compartments and zones to produce certified safe animal and animal products that are free from diseases and drug residue for both local consumption and export market
Data Development & Management	i..National Animal Diseases Reporting and Database Systems ii. Veterinary Certification of import /export of animal and animal products, biologics, semen	i.Development of e-animal disease reporting and integration to ARIS and WAHIS for real time disease reporting and response to outbreak of animal diseases ii. Development of e-veterinary certification of import /export of animal and animal products, biologics, semen and integration with relevant certification agencies

2B. VETERINARY AND PEST CONTROL SERVICES: FORMAT 2I – BUDGET ESTMATE

Programmes	Project List	Consultancy & Facilitation Services	Training, Seminar, Workshop, Study Tour &Industrial attachment	Good &Deployment	Construction & Building	Total Amount
Advocacy	i.Advocacy and Sensitization of relevant stakeholders in the livestock industry on Codex standards ii. Advocacy to livestock farmers on Codex standards iii.Ministerial Codex Committee iv. Participation in Codex meeting	Item i,ii &iii are consultative services	Item iv is an international workshop			321,900,000
Legal & Policy Formulation	Development of a national policy on bee health, pollination etc	Consultancy & Facilitation Services				87,000,000
Legal & Policy Review	i. Development and Review of Veterinary Legislation/Animal Health ii. Development & implementation of a National Residue Monitoring Plan (NRMP) for export of Honey to the EU and other international markets Development of specific animal disease free zones under PPP arrangement.	Item i&ii are consultative services				267,675,980

Infrastructural Development	i. Construction of 2No. Federal Veterinary Medical Centers ii. Construction of 3 No. Primary Animal Health Service Centers iii. Abattoirs/Slaughter House Development programme iv. Live Bird Market Development Programme				Item I,ii iii & iv are construction and building	2,271,565,954
Human Resource Development	i. Hides and Skin Value chain-Animal Health Services ii.National Apiculture Programme	Item ii is consultative services	Item I training workshop			526,544,365
Industries & Business Development	Development of specific animal disease free zones under Public Private Partnership arrangement	Consultancy & Facilitation Services				221,823,000
Data Development & Management	i.National Animal Diseases Reporting and Database Systems ii. Veterinary Certification of import /export of animal and animal products, biologics, semen	Item i&ii Consultancy & Facilitation Services				279,900,500

Note to Minister for Veterinary And Pest Control Services: FORMAT 3

3. ANIMAL HUSBANDRY & HEALTH SERVICES: AN HARMONISED SUBMISSION ON FORMATS 1, 2 & 3

S/N	PROJECT NAME	OTHER STATES SAME PROJECT WAS/WILL BE CARRIED OUT	OBJECTIVE OF THE PROJECT	NUMBER OF BENEFICIARIES	CAPITAL COST (FULL COST) (N)	EXPECTED LIFESPAN (YRS)	CAPITAL EXPENDITURE REQUIRED IN 2017	CAPITAL EXPENDITURE REQUIRED IN 2018	CAPITAL EXPENDITURE REQUIRED IN 2019	CAPITAL EXPENDITURE REQUIRED IN 2020	CAPITAL EXPENDITURE REQUIRED IN 2021
1	PASTURE DEVELOPMENT AND CONSERVATION	JIGAWA, KADUNA, NIGER, PLATEAU, ZAMFARA, BAUCHI, ADAMAWA, BORNO, YOBE, SOKOTO, KATSINA, NASARAWA, OYO, KWARA	TO ENSURE AVAILABILITY OF FORAGE ALL YEAR, MITIGATE PASTORALIST/CROP FARMER CONFLICT AND CREATE EMPLOYMENT	120,000	440,000,000	5	148,250,000	147,750,000	144,000,000	146,000,000	147,000,000
2	STRATEGIC DEVELOPMENT OF PHYSICAL STRUCTURES IN GRAZING RESERVES INCLUDING PROVISIONS OF WINDMILL POWERED BOREHOLES PERIMETER FENCING AND PADDOCKING, ETC	FCT, NIGER, PLATEAU ZAMFARA, BAUCHI, ADAMAWA, BORNO, YOBE, SOKOTO, KATSINA, NASARAWA, OYO, KWARA	TO ENCOURAGE SEDENTARISATION IN THE GRAZING RESERVES FOR INCREASED PRODUCTIVITY	120,000	735,000,000	5	246,750,000	246,250,000	240,000,000	242,000,000	244,000,000
3	REHABILITATION OF LIVESTOCK SERVICE CENTRES	JIGAWA, KADUNA, PLATEAU ZAMFARA, BAUCHI, ADAMAWA, BORNO, YOBE, SOKOTO, KATSINA, NASARAWA, OYO, KWARA	TO PROVIDE LIVESTOCK SERVICES TO SETTLED PASTORALIST AND RESIDENT HERDS IN THE RESERVES	120,000	594,000,000	5	199,500,000	198,500,000	196,000,000	197,000,000	198,000,000
4	COMMUNITY CAPACITY ENHANCEMENT, MOBILISATION AND ADVOCACY	JIGAWA, NIGER, PLATEAU ZAMFARA, BAUCHI, ADAMAWA, BORNO, YOBE, SOKOTO, KATSINA, NASARAWA, OYO, KWARA	TO ENHANCE THE CAPACITY OF LIVESTOCK COMMUNITIES WITHIN THE GRAZING RESERVES FOR IMPROVED KNOWLEDGE	120,000	440,000,000	5	148,250,000	147,750,000	144,000,000	145,000,000	147,000,000
5	IDENTIFICATION AND DEVELOPMENT OF PRODUCTION AND MARKET NETWORKS FOR LIVESTOCK COMMODITIES	35 STATES AND FCT	TO PROMOTE SYNERGY AND COLLABORATION TO LEVERAGE RESOURCES FOR INCREASED LIVESTOCK PRODUCTION AND MARKETING	172,000	148,700,000	5	53,000,000	45,000,000	48,700,000	49,000,000	49,700,000

6	HARMONIZATION OF LIVESTOCK DATA INSTRUMENTS AND DEVELOPMENT OF LIVESTOCK MARKET INFORMATION SYSTEM	35 STATES	TO FACILITATE DATA COLLECTION, MANAGEMENT AND UTILIZATION FOR IMPROVED PLANNING AND PRODUCTIVITY	250,000	76,900,000	5	27,900,000	25,000,000	24,000,000	26,000,000	28,000,000
7	PROMOTION AND DEVELOPMENT OF COMMERCIAL SNAIL AND GRASS CUTTER PRODUCTION	LAGOS, OGUN, ONDO, OSUN, OYO, EDO, DELTA, EDO, CROSS RIVER, AKWA IBOM, BAYELSA, ZAMFARA, NASARAWA, KATSINA, GOMBE	TO PROMOTE CONSUMPTION OF MEAT FROM SNAIL AND GRASSCUTTER AND INCREASE OUTPUT BY 30%	250,000	142,600,000	5	49,000,000	48,700,000	44,900,000	45,000,000	45,100,000
8	HOUSEHOLD POULTRY PRODUCTION FOR MEAT AND EGGS (BACKYARD & HOMESTEAD)	12 STATES	TO IDENTIFY AND PROFILE HOUSEHOLD POULTRY PRODUCERS	120,000	226,500,000	5	80,500,000	75,500,000	70,500,000	72,500,000	74,500,000
9	PROMOTION AND UTILIZATION OF POULTRY MANURE FOR ORGANIC AGRICULTURE (PROCESSING AND PACKAGING)	35 STATES AND FCT	TO INCREASE PER CAPITA INCOME OF BACKYARD / COMMERCIAL POULTRY FARMERS	28,000	270,000,000	5	93,000,000	92,000,000	85,000,000	87,000,000	88,000,000
10	PROMOTION & DEVELOPMENT OF QUAIL AND TURKEY PRODUCTION, PROCESSING AND MARKETING (EGG AND MEAT) FOR INCREASED EMPLOYMENT OPPORTUNITY	35 STATES AND FCT	TO INCREASE KNOWLEDGE OF HIGH NUTRITIONAL & MEDICINAL BENEFITS FROM QUAIL AND TURKEY EGGS AND MEAT TO INCREASE EMPLOYMENT OPPORTUNITY	25,000	209,000,000	5	81,000,000	66,000,000	62,000,000	63,000,000	64,000,000
11	SUPPORT FOR COTTAGE POULTRY PROCESSING AND STORAGE FACILITIES IN 4 STATES	OYO, KANO, BAUCHI, EBONYI	TO ESTABLISH COTTAGE POULTRY PROCESSING AND STORAGE FACILITY TO BOOST PRODUCTION OF PROCESSED POULTRY PRODUCTS AND VALUE ADDITION TO INCREASE EMPLOYMENT OPPORTUNITY	244,000	246,000,000	5	90,000,000	75,000,000	80,000,000	82,000,000	81,000,000
12	REVIEW AND DEVELOPMENT OF MINIMUM OPERATING PROCEDURES (POULTRY, FEEDMILL, HATCHERY, SWINE, FEEDLOT CATTLE, POULTRY PROCESSING)	35 STATES AND FCT	TO FACILITATE ESTABLISHMENT OF STANDARD OPERATING PROCEDURES IN LIVESTOCK PRODUCTION	170,000	195,000,000	5	65,000,000	61,000,000	63,000,000	70,000,000	71,000,000

13	ANIMAL HUSBANDRY CAPACITY DEVELOPMENT	7 STATES INCLUDING THE FCT	TO IMPROVE CAPACITY OF PERSONNEL AND FARMERS ON STANDARD OPERATING PROCEDURES	335,000	76,900,500	$	29,000,500	27,500,000	20,000,000	22,000,000	24,000,000
14	UPGRADE OF INDIGENOUS STOCK FOR DAIRY IMPROVEMENT THROUGH ARTIFICIAL INSEMINATION	KANO, KADUNA, PLATEAU, NASARAWA, ANAMBRA, ENUGU, EDO, BENUE, BORNO, ADAMAWA, OSUN	TO INCREASE MILK YIELD AND PRODUCTIVITY OF DAIRY ANIMALS	120,000	96,000,000	$	35,000,000	31,000,000	30,000,000	31,000,000	33,000,000
15	INFRASTRUCTURE SUPPORT FOR BREEDING & IMPROVEMENT CENTRES	NIGER, BAUCHI, BORNO, KATSINA, EDO, DTO, ENUGU, ANAMBRA, PLATEAU.	TO ACHIEVE SUSTAINABLE GENETIC IMPROVEMENT OF INDIGENOUS BREED FOR INCREASED PRODUCTIVITY	170,000	75,000,000	$	20,000,000	25,000,000	22,000,000	24,000,000	26,000,000
16	SUPPORT FOR DEVELOPMENT OF GLOBAL ACTION PLAN FOR ANIMAL GENETIC RESOURCES AND REVIEW OF BREEDING POLICY	KATSINA, BAUCHI, BENUE, ENUGU, BORN, BAYELSA	TO ENABLE THE PROCESS OF CONSERVATION OF ANIMAL HUSBANDRY BIODIVERSITY	127,000	59,000,000	$	20,000,000	16,000,000	21,000,000	22,000,000	24,000,000
17	SUPPORT TO DAIRY DEVELOPMENT PROGRAMME	8 STATES	TO MEET THE OBLIGATION OF GREENHOUSE IN COLLABORATION WITH PRIVATE ENTERPRISES IN DAIRY DEVELOPMENT	255,000	98,000,000	$	23,000,000	23,000,000	29,000,000	23,000,000	25,000,000
18	ORGANISATION AND LINKAGE OF SMALL HOLDER DAIRY CLUSTER FARMS TO MILK COLLECTION CENTRES IN 8 STATES	KANO, FCT, EKITI, NASARAWA, EDO, NIGER, PLATEAU, KADUNA, ADAMAWA, TARABA	TO IDENTIFY AND ORGANISE SMALL HOLDER DAIRY CLUSTER FARMS	200,000	96,000,000	$	25,000,000	24,000,000	30,000,000	32,000,000	35,000,000
19	PROMOTION AND DEVELOPMENT OF COMMERCIAL SHEEP AND GOAT FOR INCREASE MUTTON AND CHEVON, MILK AND SKIN PRODUCTION	12 STATES	TO ENSURE INCREASE IN PRODUCTION OF MUTTON, CHEVON, MILK AND SKIN FOR EXPORT AS WELL INCOME AND EMPLOYMENT GENERATION	360,000	93,900,000	$	24,900,000	21,000,000	26,000,000	23,000,000	30,000,000
20	TRAINING OF HO FLGS PRODUCERS IN 8 STATES	NASARAWA, KADUNA, BAUCHI, ADAMAWA, LAGOS, ENUGU AND ABIA	TO ENSURE HIGH QUALITY FLGs TO COMPETE FAVOURABLY IN THE INTERNATIONAL MARKET	280,000	31,200,000	$	11,100,000	10,500,000	9,600,000	10,000,000	12,600,000

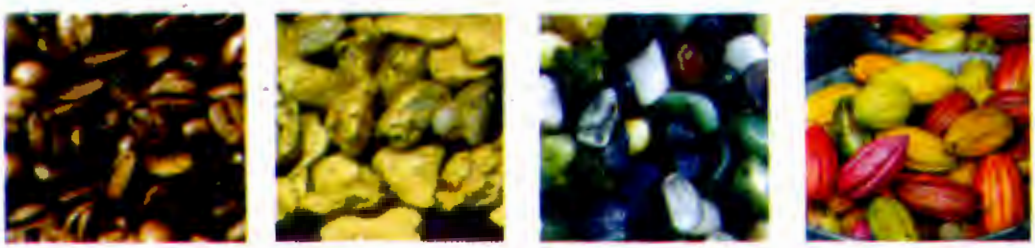
21	SUPPORT GIVING 1 EFFORT IN BRANDING OF MADE IN NIGERIA FINISHED LEATHER GOODS (FLGS);	LAGOS, ANAMBRA, OYO, ABIA, ENUGU RIVERS, SOKOTO, KADUNA AND CROSS RIVER	TO IMPROVE AND PROMOTE THE MADE IN NIGERIA BRAND OF LEATHER LOCALLY AND INTERNATIONALLY	60,000	10,500,000	$	2,500,000	3,500,000	3,500,000	4,500,000	4,500,000
22	STAKEHOLDERS MEETING /TOT FOR ST INSEMINATORS AND ONES FROM 10 STATES AND FCT	DELTA, EDO, RIVERS,CROSS RIVER, ABIA, IMO, ENUGU,ANI, ABIA, ANAMBRA, EBONYI, GOMBE, ADAMAWA, YOBE, LAGOS, EKITI,KOGI,OSUN,OGUN	TO BUILD CAPACITY OF INSEMINATORS TO EFFECTIVELY CARRY OUT ARTIFICIAL INSEMINATION	270,000	42,600,000	$	15,000,000	14,200,000	13,200,000	14,200,000	15,200,000
23	IMPORTATION OF 2,000 STRAWS OF JERSEY BREEDING SEMENS	DELTA, EDO, RIVERS,CROSS RIVER, ABIA, IMO, ENUGU,ANI, ABIA, ANAMBRA, EBONYI, GOMBE, ADAMAWA, YOBE, LAGOS, EKITI,KOGI,OSUN,OGUN	TO IMPROVE THE GENETIC POTENTIAL OF INDIGENOUS BREEDS OF CATTLE	120,000	31,200,000	$	11,400,000	10,500,000	9,600,000	10,600,000	11,600,000
24	COMPLETE ARTIFICIAL INSEMINATION KITS - 12 EACH PER YEAR	DELTA, EDO, RIVERS,CROSS RIVER, ABIA, IMO, ENUGU,ANI, ABIA, ANAMBRA, EBONYI, GOMBE, ADAMAWA, YOBE, LAGOS, EKITI,KOGI,OSUN,OGUN	TO ASSURE AVAILABILITY OF INSEMINATION MATERIALS FOR INCREASED SUCCESS OF AI	120,000	16,500,000	$	5,700,000	5,500,000	5,300,000	5,700,000	5,800,000
25	PROCUREMENT OF SEMEN TANKS 32 - 10 SEMEN TANKS	DELTA, EDO, RIVERS,CROSS RIVER, ABIA, IMO, ENUGU,ANI, ABIA, ANAMBRA, EBONYI, GOMBE, ADAMAWA, YOBE, LAGOS, EKITI,KOGI,OSUN,OGUN	TO PROPER STORAGE OF SEMEN FOR AI	120,000	3,900,000	$	1,400,000	1,300,000	1,200,000	1,400,000	1,800,000
26	PROMOTION AND SUPERVISION OF RUMINANT ANIMAL PRODUCTION PRACTICES	DELTA, EDO, RIVERS,CROSS RIVER, ABIA, IMO, ENUGU,ANI, ABIA, ANAMBRA, EBONYI, GOMBE, ADAMAWA, YOBE, LAGOS, EKITI,KOGI,OSUN,OGUN	TO ENHANCE IMPLEMENTATION OF FIELD ACTIVITIES AND PROMOTE KNOWLEDGE AND PARTICIPATION OF GOVERNMENT INTERVENTION	120,000	25,748,000	$	9,000,000	8,374,500	8,374,500	8,374,500	8,974,500
27	SUPPORT FOR COLLABORATION AND INVESTMENTS IN ANIMAL HUSBANDRY	DELTA, EDO, RIVERS,CROSS RIVER, ABIA, IMO, ENUGU,ANI, ABIA, ANAMBRA, EBONYI, GOMBE, ADAMAWA, YOBE, LAGOS, EKITI,KOGI,OSUN,OGUN	TO ENSURE CAPACITY ENHANCEMENT OF PERSONNEL AND FARMERS TO RESPOND TO INVESTMENT OPPORTUNITIES		110,000,000	$	37,000,000	37,000,000	37,000,000	38,000,000	39,000,000
28	PROCUREMENT OF LIQUID NITROGEN RECEIVING STOCK 500 UNITS AND LIQUID NITROGEN REFILL 500 UNITS	DELTA, EDO, RIVERS,CROSS RIVER, ABIA, IMO, ENUGU,ANI, ABIA, ANAMBRA, EBONYI, GOMBE, ADAMAWA, YOBE, LAGOS, EKITI,KOGI,OSUN,OGUN	TO ACCESS NITROGEN LEVEL IN SEMEN TANKS TO ASSURE QUALITY OF SEMEN	120,000	17,500,000	$	5,900,000	5,900,000	5,700,000	5,800,000	5,900,000
29	SYNCHRONIZATION HORMONES	DELTA, EDO, RIVERS,CROSS RIVER, ABIA, IMO, ENUGU,ANI, ABIA, ANAMBRA, EBONYI, GOMBE, ADAMAWA, YOBE, LAGOS, EKITI,KOGI,OSUN,OGUN	TO SYNCHRONISE ESTRUS IN ANIMALS FOR INCREASED SUCCESS OF AI	600,000	29,700,000	$	10,100,000	9,900,000	8,700,000	9,800,000	9,900,000

30	OPERATIONAL KITS INCLUDING BOOTS, DISPOSABLE GLOVES, SHEATH ETC	DELTA, EDO, RIVERS,CROSS RIVER, AKWA IBOM, ENUGU,IMO, ABIA, ANAMBRA, EBONYI, GOMBE, ADAMAWA, YOBE, LAGOS, EKITI,OGUN,OSUN,BENIN	TO ENSURE AVAILABILITY OF TRAINING AND OPERATIONAL MATERIALS FOR AI	100,000	14,700,000	5	4,900,000	4,900,000	4,900,000	5,900,000	6,900,000
31	PROMOTION AND DEVELOPMENT OF COMMERCIAL PIG PRODUCTION, PROCESSING AND MARKETING	PLATEAU, ADAMAWA, EKITI, OGUN, ANAMBRA, BAYELSA, DELTA, KADUNA,ENUGU, LAGOS, OYO, OSUN	TO FACILITATE INCREASED PRODUCTION AND VALUE ADDITION IN PIG PRODUCTION, PROCESSING AND MARKETING	200,000	158,100,000	5	54,700,000	53,100,000	50,300,000	50,600,000	50,800,000
32	HANDS ON TRAINING OF 20 ARTIFICIAL INSEMINATORS	DELTA, EDO, RIVERS,CROSS RIVER, AKWA IBOM, ENUGU,IMO, ABIA, ANAMBRA, EBONYI, GOMBE, ADAMAWA, YOBE, LAGOS, EKITI,OGUN,OSUN,BENIN	TO PROVIDE PRACTICAL KNOWLEDGE AND SKILLS OF AI PROCEDURES	120,000	10,600,000	5	3,400,000	3,500,000	3,700,000	3,800,000	3,900,000
33	SUPPORT TO FARMERS IN 10 STATES (FEEDS, CONCENTRATES AND MINERAL SALT BLOCKS ETC)	SOKOTO, KADUNA, BAUCHI, ZAMFARA, KANO, NASARAWA, KWARA, FCT, KOGI, NIGER, BORNO, OYO, OSUN, PLATEAU, TARABA, BENUE AND JIGAWA	TO ENCOURAGE BEEF FATTENING PROGRAMME FOR INCREASED BEEF PRODUCTION	120,000	202,500,000	5	69,500,000	67,500,000	65,500,000	65,700,000	65,900,000
34	PROMOTION AND SUPERVISION OF ANIMAL FEED PRODUCTION AND CONTROL ACTIVITIES	KWARA, OYO, KANO, EBONYI, KADUNA, NIGER, FCT, NASARAWA, BENUE	TO ENSURE SEAMLESS OPERATIONS OF FEED [illegible] IMPLEMENTATION	175,000	25,000,000	5	8,000,000	8,000,000	8,000,000	9,000,000	10,000,000
35	STAKEHOLDERS CAPACITY BUILDING ON AFLATOXIN CONTROL IN THE FEEDMILL INDUSTRY	KWARA, KANO, EBONYI, KADUNA, NIGER, FCT, NASARAWA, BENUE, EKITI	TO SENSITIZE FEEDMILLERS ON DANGERS OF AFLATOXIN IN FEED RAW MATERIALS	95,000	53,000,000	5	20,000,000	18,000,000	15,000,000	16,000,000	17,000,000
36	PROMOTION AND DEVELOPMENT OF LIVESTOCK FEED RESOURCES (CATTLE,SHEEP,GOAT & PIG, SNAILRY,GRASSCUTTERS, RABBIT AND POULTRY) USING GRASS, MAIZE, CONCENTRATES,SALT LICK, PREMIX, GRAINS,SOYA BEANS, RICE AND SORGHUM STOVER AND MOLASSES AND OTHERS	KWARA, FCT, EKITI, NASARAWA, KANO, NIGER, OYO, ADAMAWA, TARABA, ANAMBRA, BAYELSA, PLATEAU, ONDO	TO PROMOTE USE OF HIGH QUALITY FEED FOR INCREASE PRODUCTIVITY	220,000	138,000,000	5	48,000,000	45,000,000	45,000,000	47,000,000	48,000,000
37	UPDATE ON FARMER PROFILE IN DAIRY, SHEEP & GOAT, PIG, POULTRY, BEEF, LEATHER, SNAILRY, GRASSCUTTER, SHEEP	36 STATES AND FCT	TO DEVELOP REGISTRATION FORMATS AND INSTRUMENTS FOR DAIRY FARMERS DATABASE	120,000	31,000,000	5	102,000,000	98,000,000	91,000,000	82,000,000	83,000,000

38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
39	[illegible]		[illegible]		[illegible]	5	47,500,000	45,700,000	43,900,000	44,300,000	45,500,000
40	[illegible]	10 STATES	[illegible]	[illegible]	305,000,000	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
41	[illegible]	[illegible]	[illegible]	65,000	[illegible]	5	455,000,000	[illegible]	[illegible]	[illegible]	[illegible]
42	[illegible]	[illegible]	[illegible]	65,000	140,000,000	5	[illegible]	[illegible]	[illegible]	225,000,000	227,000,000
43	[illegible]	[illegible]	[illegible]	[illegible]	21,000,000	5	7,200,000	7,200,000	[illegible]	[illegible]	7,500,000

44	FACILITY AND DEVELOPMENT SUPPORT FOR RAW HIDES AND SKIN COLLECTION CENTERS AND TANNERIES IN 12 STATES	KEBBI, SOKOTO, ZAMFARA, JIGAWA, KANO, BAUCHI, GOMBE, TARABA, NASARAWA, KADUNA, ADAMAWA AND KATSINA	TO SUPPORT PRODUCTION OF QUALITY HIDES AND SKIN TO TANNERIES	180,000	41,700,000	5	15,200,000	13,900,000	12,600,000	12,700,000	12,800,000
45	INSTALLATION OF ZEROFLY SCREENS IN 5 STATES FOR ARTIFICIAL INSEMINATED ANIMALS	KWARA, KOGI, JIGAWA, SOKOTO, GOMBE	TO PROTECT INSEMINATED ANIMALS AGAINST PESTS	120,000	68,[illegible],000	5	24,400,000	22,700,000	21,000,000	22,090,000	23,000,000
46	PROVISION OF 20 CRUSHING MACHINES IN 5 STATES	OYO, FCT, BENUE, TARABA, NIGER	TO PROMOTE EFFECTIVE USE OF CROP RESIDUES FOR LIVESTOCK FEEDS	60,000	28,500,000	5	9,800,000	9,600,000	9,100,000	9,400,000	9,600,000
47	CAPACITY BUILDING IN THE USE OF CRUSHING MACHINE FOR ANIMAL FEED PRODUCTION	OYO, FCT, BENUE, TARABA, NIGER	TO PROVIDE KNOWLEDGE AND SKILLS IN THE USE OF CRUSHING MACHINES	60,000	42,800,000	5	15,000,000	12,800,000	14,000,000	15,000,000	16,000,000
48	SURVEY AND MONUMENTATION OF STOCK ROUTES	JIGAWA, KADUNA, NIGER, ZAMFARA, BAUCHI, ADAMAWA, GOMBE, YOBE, SOKOTO, KATSINA, NASARAWA, OYO, KWARA	TO PROTECT THE ROUTES FROM POSSIBLE ENCROACHMENT AND CONFLICT	170,000	580,000,000	5	193,000,000	197,000,000	192,000,000	193,000,000	194,000,000
49	PROFILING OF SEDENTARY HERDSMEN, HERDMAP USERS AND ANIMALS IN GRAZING RESERVES	JIGAWA, KADUNA, NIGER, PLATEAU, ZAMFARA, BAUCHI, ADAMAWA, GOMBE, YOBE, SOKOTO, NASARAWA, OYO, KWARA	TO OBTAIN DETAILS OF THE PASTORALIST POPULATION WITHIN THE GRAZING RESERVES-436	120,000	294,000,000	5	99,500,000	99,500,000	96,000,000	97,000,000	98,000,000
50	SOCIO-ECONOMIC SURVEY OF WET AND DRY SEASON IN GRAZING RESERVES	JIGAWA, KADUNA, NIGER, PLATEAU, ZAMFARA, BAUCHI, ADAMAWA, GOMBE, YOBE, SOKOTO, NASARAWA, OYO, KWARA	TO DETERMINE SOCIO-ECONOMIC INDICATORS AND CARRYING CAPACITY OF THE GRAZING RESERVES	120,000	147,000,000	5	49,750,000	48,250,000	48,000,000	49,000,000	50,000,000
					8,865,558,500		3,282,000,500	2,896,574,500	2,738,284,500	2,7[illegible],884,500	2,826,884,500

Note: Omnibus FMARD APHS Submission was produced as guided by the Contacted RMRDC Consultant on the Task. RMRDC to appropriately sort out the information according to the FORMATS 1, 2 & 3 Templates



Promoting Nigeria's
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