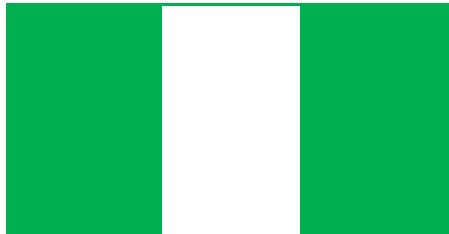**FEDERAL REPUBLIC OF NIGERIA**

NATIONAL
SCIENCE, TECHNOLOGY AND INNOVATION POLICY

(NSTIP)

FEDERAL MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION

2022 EDITION

PRESIDENTIAL STATEMENT ON THE REVISED NATIONAL SCIENCE, TECHNOLOGY AND INNOVATION POLICY (NSTIP)

As the President and Commander-in-Chief of the Armed Forces, I present to Nigerians, the Revised National Policy on Science, Technology and Innovation, a policy which I believe will crystallise the effort of my administration to bestow a lasting legacy to present and future generations of Nigerians. We know, as a matter of fact, that no country has ever become great without Science, Technology and Innovation. The history of our nation is replete with great scientific and technological innovations that have been recognised even in modern times. We indeed take pride in our historical strides in Indigenous Knowledge Systems including our arts and culture, traditional medicine, meteorology, agriculture, to mention but a few. These accomplishments by our citizens were underpinned in Science, Technology and Innovation, an indispensable service tool that has supported the advancement of man over the years.

The Diversification Agenda and National Economic Sustainability Plan of my administration are aimed at repositioning Nigeria to bounce back better and stronger from the ravaging impacts of the COVID-19 pandemic, move our economy from one that is almost wholly resource-based to an economy that is knowledge based and innovation driven towards reclaiming the nation's pride of place among the comity of nations and realising the great hopes and aspirations of our founding fathers at independence.

The mission is onerous, ambitious and altruistic, but I see it as a choice we must make today to rescue our future from hunger, poverty and deprivation. I am convinced that Science, Technology and Innovation (STI) remain tools that will not only help us to achieve the desired sustainable national inclusive growth and development but also to provide leadership in new and emerging technologies. My conviction stems from the resourcefulness of our people, the gains of the application of the outputs of Science, Technology and Innovation in our country and other countries, as well as the implications for the quick turn-around of our economy.

My government has approved this policy as a national guide, not only for the Federal Ministry of Science, Technology and Innovation (FMSTI) and its agencies, but also as a platform for collaboration among the Ministries, Departments and Agencies (MDAs) of Federal, State and Local Governments as well as the Organised Private Sector (OPS). Let me state here that FMSTI is a Service Ministry of Government and as such, has the mandate to interact with all line MDAs and organisations, synergising and promoting the executive mandate of application of STI results in all sectors of the economy.

The areas covered include new and emerging technologies, blue/green economy, STI policy advocacy, communication strategy, human capital development, agriculture, industrial growth, health, metrology, meteorology, environment, information and communications technologies, gender mainstreaming, creative arts, tourism and science

acculturation, natural resources management, building and construction, national security, energy and power, youth, procurement, sports and recreation and transportation systems, among others.

I will continue as the Chairman of the National Research and Innovation Council (NRIC) in order to provide the strategic leadership desired by the policy advocates to drive our national development on all fronts, while preserving and respecting the individual mandates and responsibilities of the line MDAs of Government.

This administration is firmly committed to my proclamation during the 2021 Science, Technology, and Innovation Expo on annual expenditure of a minimum of 0.5 percent of GDP in the country to support the development of Science, Technology and Innovation and activate the National Research and Innovation Fund (NRIF) to drive the implementation of the policy across the STI ecosystem and other relevant sectors of the economy in accordance with the National Development Plan 2050 (Agenda 2050). The government will also decide how much further to allocate for expenditure to STI in pursuit of the minimum of 1 percent of GDP agreed at the African Union as soon as ongoing updated studies are completed on our real percentage of GDP expenditure on STI.

As a final point, let me commend the leadership of the Federal Ministry of Science, Technology and Innovation for the review of this invaluable policy document as an instrument to drive the Nigerian Economy, which aims to transform our vision and indeed, the vision of our founding

fathers into reality. This will, no doubt, lead to the delivery of the much-needed dividends of democracy and improvement in the quality of the lives of our dear country men and women; it will surely also enhance the status of our beloved country, among the comity of nations and sustain our pride of place as the giant of Africa.

MUHAMMADU BUHARI, GCFR
President and Commander-In-Chief of the Armed Forces
Federal Republic of Nigeria

FOREWORD

The global economic landscape is experiencing rapid changes. Globalisation, digitisation and digitalisation especially are creating radically new opportunities and challenges. Their impacts on national economies are driven by significant progress in Science, Technology and Innovation (STI) as exemplified by a plethora of breakthroughs in Biotechnology, Space Research, Energy Development, Information & Communication Technology (ICT), Artificial Intelligence, Robotics, Block Chain Technology, Advanced Manufacturing, Blue Economy, and Nanotechnology that characterise the fourth Industrial Revolution (Industry 4.0.) It is therefore obvious that if Nigeria, given its natural endowments, is to successfully transform its economy and take her rightful place in the comity of nations, integrating STI into national socio-economic development processes must be prioritised. Therefore, to achieve the Diversification Agenda and the National Economic Sustainability Plan of President Muhammadu Buhari's Administration, instruments of STI must be leveraged to diversify the nation's economy in line with the national economic development framework of National Development Plant (NDP) 2021-2025 and other future plans.

In Nigeria, various administrations, since independence, have showed interest and increased appreciation of the role of STI in national socio-economic development. The realisation of this fact motivated the Federal Government to re-establish the Federal Ministry of Science and Technology (FMST as it then was) as a separate entity in 1985. Since then, Nigeria has expended a great deal of effort on STI policy   development

through a combination of the untiring efforts of its scientists, engineers and technologists, international cooperation and government support. The recent Federal Government approval of name change from the Federal Ministry of Science and Technology (FMST) to the Federal Ministry of Science, Technology and Innovation (FMSTI) was borne out of the need to move Nigeria away from resource-based to a knowledge-based economy, driven by creativity and innovation.

Historically, the first National Science and Technology Policy in the country was produced in 1986. The policy was designed to create harmony in the pursuit of knowledge about the environment through Research and Development (R&D). The aim was to use Science and Technology (S&T) knowledge to ensure a better quality of life for the people. The policy was reviewed in 1997 to give more emphasis to coordination and management of the S&T system, sectoral development, collaboration, and funding. In 2003, the S&T policy underwent yet another review to take into consideration lapses observed in the implementation of the 1997 policy, especially with respect to the need to address the institutional frameworks that should foster interaction among the various elements of the National Innovation System (NIS). The policy incorporated a programmatic approach to policy formulation. It emphasised the need for a coherent, systematic, and comprehensive approach to the determination of technological programmes. Significantly, the policy gave prominence to flagship programmes of the Government of the day such as Biotechnology, Information and Communication Technology (ICT), Space Science & Technology, Energy and Engineering

Materials, etc. However, the policy was seen simply as a compendium of sub-sectoral policies, a bit unwieldy and voluminous with attendant challenges to implementation.

Consequent on the above and with lessons learnt from other climes, the first national STI policy was formulated in 2012. One notable feature of the policy is the emphasis on 'innovation', which has become a global tool for fast-tracking sustainable development. This policy was a clear demonstration of the country's renewed commitment to ensure that our Research, Development and Innovation engagements are ultimately translated into goods and services in the marketplace, enhance new business development, and encourage employment generation as well as wealth creation through the proliferation and growth of Small and Medium Scale Enterprises (SMEs).

Over the years, our development partners have played key roles in the processes of policy formulation, capacity and capability building in STI in Nigeria. In 2005, the need to carry out a system-wide reform was consummated and implemented under the Nigeria/UNESCO Science, Technology and Innovation (STI) reform initiative. It adopted the National Innovation System (NIS) approach as a framework for STI system reform. The reform, among other issues, stressed that economic development initiatives, institutional governance, research and development agenda for the country, funding mechanisms, intellectual property (IP) and STI infrastructure development must be addressed in any revised S&T policy. Thus, the need to design a new STI policy that would address

emerging technologies and all these challenges became paramount.

However, after almost a decade of the policy implementation, the 2012 STI policy needed to be reviewed given the current realities of Nigeria's economy and recent advances in the global science and technology space. In pursuit of that goal, the Ministry, in its efforts to reposition Nigeria in a productive and competitive manner, inaugurated an Inter-Ministerial Committee with its members drawn from cognate MDAs, Organised Private Sector (OPS) and International Development Partners. Furthermore, the Ministry, in collaboration with UNESCO, carried out an evaluation of the 2012 STI Policy Performance. As a result, a Task Team was inaugurated by the Hon Minister, Science, Technology and Innovation in October 2021 to finalise the 2012 STI Policy review taking into consideration the lessons learnt from the evaluation report. The Task Team worked assiduously to ultimately produce a draft National Science, Technology, and Innovation Policy, which was widely circulated, further reviewed based on comments received, considered and validated by stakeholders on Thursday, 27th January 2022.

We wish to acknowledge and commend the efforts of all the staff of the Federal Ministry of Science, Technology, and Innovation (FMSTI) and her agencies for their contributions in anchoring the development of the revised STI Policy. Specifically, we appreciate the various contributions of our development partners particularly the UNESCO, members of the Ministerial Task Team including the Academies of Science, Engineering and Letters, the Chambers of

Commerce and Industry, Manufacturers Association of Nigeria (MAN), Academic Staff Union of Research Institutes (ASURI), as well as members of the inter-ministerial review committee including the National Universities Commission (NUC), Committee of Vice-Chancellors (CVC), the Military, cognate Ministries for their support and useful contributions to the revised policy. Our special appreciation goes to members of the Science and Technology Committees of the National Assembly, and many policy experts and eminent Nigerians for their time and invaluable inputs to the successful review of the policy.

We want to assure all Nigerians that the reviewed National Science, Technology & Innovation policy (NSTIP) articulates workable strategies for the development of a knowledge economy in our dear country and for support of the Diversification Agenda of the present administration. We therefore call upon all stakeholders to strongly support the policy and actively assist in its thorough implementation.

God Bless Nigeria.

Dr. Ogbonnaya Onu, FAS, FAEng
Honourable Minister of Science, Technology and Innovation
Federal Republic of Nigeria
February 2022

ACKNOWLEDGEMENT

The Federal Ministry of Science, Technology and Innovation has undertaken to review the 2012 National Science, Technology and Innovation (STI) Policy as a response to the need to reflect the recent advances in STI development and economic sustainability plans of government as well as the change of name of the Ministry from the Federal Ministry of Science and Technology to the Federal Ministry of Science, Technology and Innovation, with special attention to Innovation. This is the fifth Policy since over two decades of the existence of the Ministry. During this period, the Ministry has accumulated substantial capacity in the areas of research and development, acquisition and adaptation of foreign technologies, as well as addressing the needs of the other sectors of the economy. The current effort has been guided by past policies which provided justification and inspiration for all national STI development programmes executed over the years. As part of efforts to review the 2012 STI Policy, the Ministry inaugurated an Inter-Ministerial Committee comprising cognate Ministries, Departments and Agencies (MDAs) in April 2019. Unfortunately, activities of the committee were truncated due largely to the outbreak of COVID-19 pandemic later that year. The Ministry however resuscitated the review exercise by setting up a Technical Task Team made up of experts and scholars to finalise the policy review processes.

Indeed, Nigeria has now entered into a new phase in her development strides, with inherent emerging challenges within the context of evolving globalisation. These have been conceptualised in the National Development Plan (2021-2025) and the Change Agenda of Mr. President with definitive roadmaps to provide focus for STI intervention in all the key sectors of the economy. It is within this broad vision that the existing policy was reviewed. It is equally instructive to submit that beyond the NDP (2021-2025), the policy aligns with Mr President's statement that the Nigeria's 2050 Agenda encapsulates these broad STI initiatives and programmes going forward to push Nigeria in the global STI architecture.

On that note, it is imperative for the Ministry to appreciate the efforts of past leaderships of the Ministry who have conceived and implemented the earlier versions of the policy with outstanding landmark achievements to showcase the worth of our investments over the years.

We also wish to acknowledge the contributions of staff of the Ministry and her Agencies that provided support to the Management in the course of the policy review.

The technical aspect of the policy review also benefited from a wide spectrum of stakeholders drawn from the various Ministries, Departments and Agencies, Education Institutions, Development Partners, Regulatory Bodies, Organised Private Sector (OPS) and the Public Service at both Federal and State levels. The overwhelming support enjoyed by the policy review exercise signals the inclusiveness and accommodation of divergent views which the policy embodies. We sincerely thank all the stakeholders, Chairmen and Secretaries of various experts' committees, members of the National Assembly and all the STI Professional Associations for their unwavering support during the review of the policy document.

We wish to specifically thank our International Development Partners especially UNESCO for their invaluable contribution to this policy. Their support underscores the resolve of the international Community to complement the efforts of the Nigerian Government, an indication of the renewed faith in the capacity of our Government to lead the country on the path of sustainable growth and development. We will count very much on their support going forward.

Finally, the FMSTI acknowledges Mr President H.E, Muhammadu Buhari's commitment to the development of the STI sector through his valuable supportive role in the evolution and review of this STI Policy.

Barrister Mohammed H. Abdullahi,
Hon Minister of State
Federal Ministry of Science, Technology and Innovation,
Abuja

TABLE OF CONTENTS

LIST OF ACRONYMS

ADF	-	Automotive Development Fund
AMT	-	Advanced Manufacturing Technologies
ARIPO	-	African Regional Intellectual Property Organisation
CDM	-	Clean Development Mechanisms
C & P	-	Conventions and Protocols
CVC	-	Committee of Vice-Chancellors
FDI	-	Foreign Direct Investment
F M S T I	-	Federal Ministry of Science, Technology & Innovation
GDP	-	Gross Domestic Product
GLP	-	Good Laboratory Practice
HEIs	-	Higher Education Institutions
HERIs	-	Higher Education and Research Institutions
ICRC	-	Infrastructure Concession Regulatory Commission
ICT	-	Information & Communications Technology
IDPs	-	International Development Partners
IP	-	Intellectual Property
IPR	-	Intellectual Property Rights
ITF	-	Industrial Training Fund
JPO	-	Japan Patent Office
MAN	-	Manufacturers Association of Nigeria
MDA	-	Ministries, Departments and Agencies
NACETEM	-	National Centre for Technology Management
NAS	-	Nigerian Academy of Science
NAE	-	Nigerian Academy of Engineering
NAEdu	-	Nigerian Academy of Education
NAL	-	Nigerian Academy of Letters
SSAN	-	Social Sciences Academy of Nigeria
NCDF	-	National Communications Development Fund
NCSTI	-	National Council on Science Technology and Innovation
NIA	-	National Intelligence Agency

NIS	-	National Innovation System
NRIC	-	National Research and Innovation Council
NRIF	-	National Research and Innovation Fund
NSA	-	National Security Adviser
NUC	-	National Universities Commission
NV	-	National Vision
OPS	-	Organised Private Sector
PTDF	-	Petroleum Technology Development Fund
R & D	-	Research and Development
RMRDC		Raw Materials Research and Development Council
SIPO	-	State Intellectual Property Office
SLT	-	Science Laboratory Technology
SMEs	-	Small and Medium Enterprises
STI	-	Science, Technology and Innovation
S & T	-	Science and Technology
SST IC	-	State Science, Technology and Innovation Council
STEMA	-	Science, Technology, Engineering, Mathematics and Arts
STP	-	Science and Technology Park
TICs	-	Technology Incubation Centres
TETFUND-		Tertiary Education Trust Fund
TTAs	-	Technology Transfer Agencies
TTOs	-	Technology Transfer Offices
TMIS	-	Transportation Management Information System
TNA	-	Technology Needs Assessment
UNDP	-	United Nations Development Programme
UNESCO	-	United Nations Educational, Scientific and Cultural Organisation
USPTO	-	United States Patent and Trademark Office
WIPO	-	World Intellectual Property Organisation
WB	-	World Bank

1.0   PREAMBLE

Building adequate skills and competence in the Science, Technology and Innovation ecosystem for comprehensive implementation, monitoring and evaluation, among Nigerians is paramount. As a system that optimally allocates resources among competing needs and encourages interactions among citizens, businesses and firms; government saw the need to review the 2012 STI policy in light of current technological and socio-economic changes at the global and national levels. The reviewed STI policy is to reflect not only the current realities as contained in Nigeria's National Development Plan (NDP) 2021-2025 (in line with the Nigeria Agenda 2050) but also to address emerging technologies.

The cardinal objectives of these successive plans of lifting 100 million Nigerians out of poverty by the year 2030 specifically by expanding business growth; entrepreneurship and industrialisation; enhanced social inclusion and reduced poverty; building systems to fight corruption, improve governance and create national cohesion as well as improving security for all can be anchored on building a strong STI capability and capacity needed to drive a knowledge-based and innovation-driven economy as well as the need to inculcate STI culture in Nigerians for rapid socio-economic transformation.

The 2022 STI Policy is reviewed in tandem with the objectives and pillars of the NDP 2021-2025 (in line with the Nigeria Agenda 2050). The revised STI policy is articulated to develop and utilise STI to build a large, strong, diversified, sustainable and competitive economy that guarantees a high standard of living and quality of life for the citizens.

Specifically, the 2021 STI Policy is reviewed to facilitate the acquisition of knowledge to adapt, utilise, replicate and diffuse technologies for the growth and sustenance of Micro, Small and Medium Enterprises (MSMEs) in all sectors of the economy. It is meant to foster and support the creation and maintenance of an up-to-date, reliable and accessible database on Nigeria's STI resources and activities; and to promote activities that enhance effective STI communication and inculcation of STI culture in Nigerians, among others.

It is pertinent to mention that based on the feedback from the evaluation study on the 2012 STI policy carried out in 2021, the policy received wide circulation and attention of most stakeholders, including the development partners. However, the extent of implementation is generally described as below expectation. This was clearly as a result of low funding, poor understanding of the 2012 policy objectives by the stakeholders, poor coordination among the implementing institutions, inadequate awareness and poor sensitisation, change of administration and non-approval of the National Research and Innovation Council Bill. Another major omission in Nigeria's STI system is the non-inclusion of Nigerians in diaspora. Therefore, the need to develop a more concise, robust and workable STI policy given the dictates of globalization becomes paramount.

To effectively foster a seamless adoption of the reviewed STI policy with the desired diversification, this policy has recognised the weaknesses within Nigeria's National Innovation System (NIS) and thus set out to strengthen structures for the coordination, promotion, and management of critical /strategic interactions within the system. This is to reduce and eventually eliminate the current high level of "stand alone" research efforts

scattered all over the country and forge synergies among system components that will identify common problems and pool resources for research, tie research agenda to national priorities and reduce the time-to-market of research activities.

For this to happen, existing relationships and interactions among the key stakeholders have to be strengthened through appropriate strategies and platforms. Much more importantly, the Bill on the National Research and Innovation Council (NRIC)/National Research and Innovation Fund (NRIF) must be visible and be urgently assented to by Mr. President to give full effect to the policy now and in the near future.

In forging seamless interactions within the system of innovation, the policy will support the creation and maintenance of an up-to-date, reliable and accessible database of Nigeria's STI resources (human and material) and activities, needed for sound economic planning and policy making.

It is in our collective interest as a people and a nation to therefore pursue the implementation of the reviewed STI policy to drive the economic diversification agenda and deliver its objectives as an integral part of the general policy priorities of government.

2.0   NATIONAL SCIENCE, TECHNOLOGY AND INNOVATION POLICY.

2.1   The STI Policy Vision Statement

To make Nigeria one of the top Scientific Powers in the World

2.2   The STI Policy Mission Statement

Harnessing, developing and utilizing STI to build a large, strong, diversified, sustainable and competitive economy that guarantees a high standard of living and quality of life for its citizens.

2.3   The Underlying Philosophy

The Policy vision and the Mission statements will be best achieved with the underpinning philosophies; viz:

i. **Leadership**: Building strong political will, commitment and leadership that will engender strong and sustained private sector participation in R&D.

ii. **Priority Setting**:   Emphasising the demand side as against the supply driven STI engagements with the private sector in Nigeria.

iii. **Funding:** Evolving sustainable funding mechanism and sustained investments on the part of government with the private sector as the focal point and development partners.

iv. **Partnership**: Building a virile National Innovation System, where all the key components are adequately linked for synergy, partnership building and enhanced competitiveness.

v. **Acculturalisation**: Making STI a way of life and building a culture of innovation to create an enhanced standard of living for all citizens that recognise the Government-Industry-Academia (GIA) linkages as a catalyst for Nigeria's industrialisation.

2.4   General Policy Direction

Build a strong Science, Technology and Innovation capability and capacity needed to drive a knowledge-based and innovation-driven economy.

2.5   Specific Policy Directions (SPDs):

The specific directions are to:

i.   Facilitate the acquisition of knowledge to adapt, utilise, replicate and diffuse foreign technologies for the growth of MSMEs, agricultural development, food security, power generation and poverty reduction, information technology, health and sustainable environment.

ii.   Support the establishment and strengthening of organisations, institutions and structures for effective coordination and management of STI activities within a National Innovation System (NIS).

iii.   Establish Science and Technology Parks in all geo-political zones, to provide the enabling environment (knowledge, infrastructure and funding) for the development of innovative ideas into prototypes that are standardised and made commercialisable.

iv.   Establish Technology and Innovation Centres in all geo-political zones in line with Presidential Executive Order No. 5 for the promotion of Nigeria's drive towards productivity and global competitiveness, in the respective zones, by mobilising all stakeholders within the STI Ecosystem under one centre.

v.   Encourage and promote creation of innovative enterprises utilising Nigeria's indigenous knowledge and technology to produce marketable goods and services,

vi.   Promote advanced research in Military technology as well as training.

vii.   Support mechanisms to harness, promote, commercialise and diffuse locally developed technologies for the production of

globally competitive goods and services that intensively utilise Nigeria's raw materials.

viii. Facilitate and support the creation and maintenance of up-to-date, reliable, and accessible database on Nigeria's STI resources and activities.

ix. Promote and support the use of evidence-based decision which employs Science and Technology in driving development Agenda.

x. Promote activities that enhance effective STI communication and inculcation of STI culture in Nigerians.

xi. Create and sustain reliable mechanisms for adequate funding of STI activities in Nigeria.

xii. Initiate, support and strengthen strategic bilateral and multilateral co-operations in science, technology and innovation activities across all sectors of the economy.

xiii. Create platforms to harvest diaspora's knowledge and skills to build-up and promote brain circulation within a virile national innovation system.

xiv. Develop appropriate policies to regulate the use of chemicals for farming and other purposes.

xv. Promote activities that enhance effective development as well as harnessing of the technological potentials of youth.

xvi. Facilitate and support the development and deployment of technology-based system for mitigating the drivers of food insecurity in the country.

3.0 POLICY STRATEGIES

S N	POLICY DIRECTION	POLICY STRATEGIC THEMES
i	Facilitate the acquisition of knowledge to adapt, utilise, replicate and diffuse foreign technologies for the growth and sustenance of Micro, Small and Medium Enterprises (MSMEs) in all sectors of the economy	• Human Resource Development in STI, • Research and Development(R&D) • Intellectual Property Rights (IPRs), • Technology Transfer and Diffusion
ii	Support the establishment and strengthening of organisations, institutions and structures for effective coordination and management of STI activities within a virile National Innovation System (NIS).	• Human Resource Development in STI • Research and Development (R&D) • Governance • Policy Performance Evaluation and Monitoring • Institutional and legal Framework
iii	Encourage and promote the creation of innovative and	• Science, Technology and Innovation Promotion

creative enterprises, while utilising Nigeria's indigenous knowledge and technology to produce marketable goods and services.

- Intellectual Property Rights (IPRs),
- Technology Transfer and Diffusion
- Standardisation and Quality Assurance

iv Support mechanisms to harness, promote, commercialise and diffuse locally developed technologies for the production of globally competitive goods and services that intensively utilise Nigeria's raw materials.

- Research and Development (R&D
- Technology Transfer and Diffusion (most probable)
- Standardisation and Quality Assurance
- Intellectual Property Rights (IPRs)
- Open Science

v Facilitate and support the creation and maintenance of up-to-date, reliable and accessible database on Nigeria's STI resources and activities.

- Research and Development (R&D)
- STI Information Management System

vi Promote activities that enhance effective STI communication and

- Research and Development (R&D)
- STI Information Management System

inculcation of STI culture in Nigerians.

vii	Create and sustain reliable mechanisms for adequate funding of STI activities in Nigeria.	• Research and Development (R&D) • Funding For STI Activities
viii	Initiate, support and strengthen strategic bilateral and multilateral co-operations in science, technology and innovation activities across all sectors of the economy.	• Research and Development (R&D) • STI Partnership and Collaborations
ix	Create platforms for early introduction of basic STI in our Educational system and to harvest diaspora's knowledge and skills to build-up and promote brain circulation within a virile national innovation system.	• Promote activities that enhance effective development as well as harnessing of the technological potentials of the youth. • Establish Science and Technology Parks in all geo-political zones
x	Encourage and Promote Collaboration of Academia with Industry , Government and R&D Institutions	• STI partnership and collaboration • STI information management system

- Adopt and engage actively in Open Science

3.1. Human Resource Development in STI
Rationale:

The imperative of self-sufficiency and global competitiveness require development of national capability in STI to stimulate inventions and generate innovations for sustainable development.

Strategies:

i. Producing world class scientists, engineers and technologists who are professionally competent in theory, practice of basic and applied sciences as well as the needs of entrepreneurship.
ii. Providing adequate support for continuous training of academic, technical and administrative staff in tertiary and research institutions including in the areas of technology for science and engineering students.
iii. Strengthening curricula in technological entrepreneurship and management of technology for science and engineering students.
iv. Mainstreaming students in the Arts and Social Sciences to appreciate the relevance of STI in business as well as national development.
v. Creating special incentives for students and graduates of Science, Technology, Engineering, Mathematics and Arts (STEMA) education.
vi. Encouraging and providing opportunities for the products of informal training schemes in STI to go for further formal training.

vii. Strengthening capacity building institutions within the military, paramilitary, public and private sectors of the economy.

viii. Facilitating on-the-job standardised training for professionals in STI organisations.

ix. Promoting academic-industry exchange programmes to enhance knowledge sharing.

3.2. Governance

Rationales:

i. To enhance effective coordination, direction and management of STI activities in Nigeria, it is essential to establish and strengthen relevant institutions and structures needed to provide sound STI administration, good governance as well as quality leadership at all levels of government.

ii. To demonstrate leadership at the highest level, top priority should be given to the creation of a platform for inclusiveness, ownership, sustainability and inter- agency collaboration among key actors and stakeholders.

iii. To develop a frame work for the purpose of ensuring that evidence based Research and Development (R&D) in STI drives the governance system across all facets of development agendas especially relating to economic, social and environmental issues

Strategies:

i. Creating a governance structure that is inclusive and broad based.

ii. Reconstituting boards and committees at all levels (MDAs) to reflect the current Policy intent and d i r e c t i o n s .

iii. Ensuring that Research and Development institutions remain focused on their mandates.

iv. Establishing appropriate legal framework for effective organisational management and control.

v. Encouraging the creation, repositioning and strengthening of States' Ministries of STI as the coordinating institutions for all S T I activities in the states.

vi. Establishing appropriate departments and/ or structures in the FMSTI and States' ministries of STI to facilitate linkages among FMSTI, cognate ministries/agencies, research institutions and the private sector.

vii. Carrying out mandatory periodic monitoring, evaluation and reporting of performance of the national STI ecosystem.

viii. Ensuring that monitoring and evaluation reports are used for continuous improvement of the STI ecosystem, as well as for reward and sanctions.

3.3. Intellectual Property Rights (IPRs)

Rationale:

There is need to create and protect Intellectual Property Rights (IPRs) and give recognition to inventors in order to stimulate the development of inventions as well as create wealth for Intellectual Property (IP) owners and the country.

Strategies

i. Ensuring adequate recognition for Intellectual Property, promotion and protection of inventions, traditional knowledge, indigenous technology and other intellectual and creative assets.

ii. Strengthening local capacities in Intellectual Property management for effective transfer of technology.

iii. Promoting awareness programmes on Intellectual   Property at all levels of education.

iv. Establishing   and   strengthening "Technology Transfer Offices (TTOs)"for effective management and utilisation of Intellectual Property Rights in all Higher Education

Institutions (HEIs), research institutes and other public /private organisations.

v. Developing a National Policy on intellectual Property.

vi. Promoting the Intellectual Property culture within the National STI ecosystem.

vii. Providing appropriate incentives to inventors and innovators to stimulate creativity and innovations.

viii. Developing mechanism for equitable distribution of benefits accruing from inventions, traditional knowledge, biodiversity of resources and innovations among stakeholders (development of institutional IP policies)

ix. Developing a comprehensive and accessible databank

x. Initiating when appropriate, the enactment and review of IP laws to incorporate all aspects and issues relating to plant breeders' rights, traditional knowledge and genetic resources.

xi. Encouraging partnership with IPR organisations such as World Intellectual Property Organisation (WIPO), African Regional
Intellectual Property Organisation (ARIPO), United States Patent and Trademark Office.

xii. (USPTO), State Intellectual Property Office (SIPO) and Japan Patent Office (JPO) for knowledge sharing, resource mobilisation and compliance with best practices.

xiii. Facilitating the development of IP assets through incubation and commercialisation processes.

xiv. Creating awareness particularly among students on the implications of intellectual property theft.

xv. Strengthening the institutional mechanisms for the identification, acquisition, adaptation, diffusion and domestication of appropriate foreign technologies.

xvi. Strengthening the national Technology Transfer infrastructure for the identification, evaluation, registration, documentation and adaptation of appropriate technologies from registered technology transfer agreements.

3.4. Establishment of Science and Technology Parks
Rationale:

There is need to provide an enabling environment for inventors, innovators and start-up technologies to draw upon support from government, research and tertiary institutions, industry and entrepreneurs/potential investors, to fulfil the transformation of innovative ideas and research findings into commercialisable products.

Strategies:

i Encouraging private sector and government participation at all stages of establishing and managing STPs.

ii Supporting tertiary and research institutions to establish STPs, to enable the production of prototypes from R&D findings or breakthroughs, up scaling of technologies, standardising and preparing them for commercialisation.

3.5. Technology Transfer and Diffusion
Rationale:

The need to ensure strict adherence to policy implementation framework and action plans is critical in order to develop capacity and capability in technology transfer processes, stimulate rapid technological and industrial development and achieve significant impact on the standard of living of the citizens.

Strategies:

i. Increasing investment in Technology Transfer Agencies (TTAs), Technology Incubation Centres (TICs) and Technology hubs.

ii. Encouraging private sector participation and Government at all levels in the establishment and management of technology incubation centres and technology hubs.

iii. Developing comprehensive and accessible databank of all commercialisable R&D results, inventions and innovations for ease of reference.

iv. Conducting periodic monitoring and evaluation and establishing a feedback mechanism for technology transfer and diffusion processes.

v. Conducting periodic technology needs assessment (TNA) to determine technology gaps to inform priority settings and future actions with respect to planning and resource allocation.

vi. Promotion of local innovation, domestication and modification of imported technologies for local productions and to aid technological development.

vii. Providing technical and expert support services and other incentives to transferees.

viii. Encouraging local production of goods and services through the adoption of appropriate procurement and local content laws.

ix. Support the establishment and strengthening of organisations, institutions and structures for effective coordination and management of STI activities within a virile National Innovation System (NIS).

x. Support mechanisms to harness, promote, commercialise and diffuse locally developed technologies for the production of globally competitive goods and services that intensively utilis e Nigeria's raw materials.

3.6. Policy Performance, Monitoring and Evaluation
Rationale:

The need to ensure that the implementation framework and action plans are strictly adhered to is critical in order for the Policy to have significant impact on the standard of living of the citizens.

Strategies:

  i. Providing clearly defined Key Performance Indicators (KPIs) for ease and transparency of monitoring of the extent of implementation of the activities articulated in the plan.
 ii. Designing appropriate instruments and protocols for effective periodic (including mid-term) monitoring and evaluation of STI programmes and projects.
iii. Enforcing penalties for non-compliance.

3.7. Legal and Policy Framework

Rationale:

There is a need to accord STI a central role in national economic planning and development through the establishment of effective legal and policy framework as well as strengthening linkages at various levels within the NIS.

Strategies:

  i. Reviewing the National Science and Technology Act, CAP 276 of 1977 and the FMST Act No 1,1980 to incorporate the new STI Policy and its succeeding policies.
 ii. Facilitating, strengthening and repositioning FMSTI through appropriate legal instruments to address the demands of the new STI perspective as the custodian and coordinators of innovation matters in the country.
iii. Strengthening the National Council on Science, Technology and Innovation for effective implementation of the STI Policy.

iv. Establishing a National Research and Innovation Fund
Administrator (backed by legislation) to manage t
he NRIF as competitive grants for sustainable
short and long term research.

v. Encouraging and promoting the creation of innovative and

creative enterprises, while utilising Nigeria's indigenous

knowledge and technology to produce marketable goods
and services.

3.8.   Science, Technology and Innovation Promotion
Rationale:

***There is a need to popularise and inculcate STI culture in
Nigerians for rapid socio-economic transformation.***

Strategies:

i.   Encouraging relevant stakeholders to provide students in
primary and secondary schools, as well as technical colleges
with broad-based curricula comprising relevant scientific
knowledge and vocational skills.

ii. Promoting broad-based curricula comprising relevant
scientific, creative, literary and language arts together with
knowledge and   vocational skills for schools and colleges.

iii. Providing Policy incentives to Nigerian youths for career
development in STI fields.

    iv. Popularising STI through regular technology fairs, exhibitions, STI clubs and the mass media (films, newspapers, radio, television, internet, social media, theatrical performances and literary publications in the different indigenous languages of Nigeria, etc.).

    v. Supporting programmes of the professional STI bodies concerned with building STI capacity and capability.

    vi. Support the promotion of Indigenous Technologies.

    vii. Improving conditions of service of STI professionals to encourage creativity and innovation within the STI ecosystem.

    viii. Utilising as much as possible Nigerian STI personnel and institutions for consultancy when such expertise is available.

    ix. Recognising individuals and/or institutional contributions to national STI development.

    x. Empowering women in the utilisation of STI for economic development.

    xi. Increasing local content in industrial processes and engineering infrastructure development activities.

    xii. Encouraging the establishment or strengthening of STI Ministries/ structures at the State level.

    xiii. Encouraging the development and use of local languages for the transfer of STI knowledge especially to the informal sectors of the economy.

    xiv. Promoting home grown inventions and innovations that address immediate local needs.

    xv. Strengthening the national Technology Transfer infrastructures for the identification, evaluation, registration, documentation and adaptation of appropriate technologies from registered technology transfer agreements.

3.9. Standardisation and National Quality Infrastructure
(NQI)

Rationale:

Globalisation drives new technologies, products and processes across national boundaries. Consequently, there is need for adherence to quality and international standards in carrying out scientific, industrial and commercial activities for global competitiveness.

Strategies:

  i. Building capacity and capability for standardisation of products, services, systems, operations and processes.
 ii. Providing innovative tools for standards and metrology in design, development, production, and installation in industries and of services.
iii. Developing processes and framework for the review of national quality infrastructure (NQI) for enhanced industrialisation towards global competitiveness.
 iv. Designing and providing appropriate models for establishing the role of the NQI for managing the delicate balance between societal and business concerns.
  v. Promoting societal friendly technologies and processes that comply with local regulatory authorities and International Conventions and Protocols (ICP).
 vi. Managing business concerns in conducting effective conformity assessment exercises required for certification and accreditation of products, services, systems, operations and processes.

3.10. STI Information Management System

Rationale:

There is need to establish an effective information management system designed to provide real-time access to functional and updated database on STI activities in order to provide a platform for accessing, sharing and exchanging information.

Strategies:

i. Developing a national STI indicators dashboard that will be revised periodically in line with international standards.

ii. Strengthening a national database on STI inputs/outputs infrastructure in NACETEM in collaboration with the Nigerian Bureau of Statistics and other Agencies in FMSTI.

iii. Creating activities networks for R&D collaboration, interaction, cooperation and exchange of ideas among STI actors and stakeholders within and outside the country.

iv. Establishing a mechanism within the FMSTI to coordinate the management of STI Information system.

v. Establishing information system nodes in all agencies of the Federal Ministry of Science, Technology and Innovation (FMSTI) and other MDAs.

vi. Developing capabilities in data science and analytical techniques.

vii. Facilitating and supporting the creation and maintenance of an up-to-date, reliable and accessible database on Nigeria's STI resources and activities.

viii. Promoting activities that enhance effective STI communication and inculcation of STI culture in Nigerians

3.11. Collaboration and Support of International Bodies

Rationale

There is need for Nigeria to be an active player in the global web of STI activities contributing to and benefitting from the global pool of STI knowledge for sustainable development.

Strategies:

i. Facilitating the acquisition and advancement of new and emerging technologies through international STI collaboration and Foreign Direct Investment (FDI).

ii. Strengthening collaborative research and development activities with regional and international agencies.

iii. Encouraging the nation to join and participate in international STI information sharing and networking such as facilitating effective partnership through the alignment of culture, social values and work ethics of Nigeria to the requirements of modern, entrepreneurial, creative, scientific, technological and innovation goals.

iv. Promoting international exchange STI programmes for staff and students in educational institutions, defence and public service institutions.

v. Mobilising and actively engaging Nigerian STI professionals in the Diaspora for national development.

vi. Establishing relevant STI centres of excellence in new and existing institutions.

vii. Encouraging multidisciplinary research teams for collaborative R&D and commercialisation efforts.

viii. Facilitating Nigeria's integration into the Global Knowledge Network through creating avenues for strategic engagements with partners and multiple voices on global STI issues.

ix. Creating incentives for cross-border collaboration that empowers Nigeria's scientific, technological and industrial transformation.

x. Facilitating access to STI knowledge produced abroad through formalised liberal technology transfer agreements, including trade agreements and patent laws.

xi. Providing advice and knowledge that could lead to the establishment of innovation infrastructure.

xii. Promoting creative competition among States to measure technological and investor friendly environment in the States.

xiii. Facilitating reversal of brain drain through provision of good incentives to Nigerian scientists at home and in the Diaspora.

xiv. Encouraging knowledge institutions to provide support for Nigeria's emerging

industrial clusters through active   linkages   and
collaboration.

xv. Encouraging industry- academia-Government collaboration
through Networking on STI initiatives.

xvi. Seeking and admitting local research and innovations that
could improve technical and modern tools with a view to
training and developing local content and ideology.

3.12. Research & Development and Innovation (R&D&I)

Rationale:

R&D and innovation form the core of activities of the FMSTI, to that extent there is need to prioritise strategies (i.e. R&D sectoral issues) for multi-disciplinary, mission-oriented R&D activities in STI geared towards the generation, acquisition, storage, application and diffusion of STI knowledge for national development.

Specific Sectoral Strategies:

3.12.1   Agriculture

i. Enhancing agricultural productivity through cultivation of improved crop varieties and breeds of livestock, as well as fisheries and agricultural mechanisation.

ii. Encouraging technology uptake and diffusion of agricultural innovations to farmers.

iii. Encouraging labour-saving and low-cost gender- sensitive agricultural raw materials processing technologies.

iv. Developing appropriate and innovative technologies for breeding, feeding, health and management of livestock, fisheries, poultry, snailery, and aquaculture

v. Establishing inputs and mechanisation service centres that are private sector driven

vi. Promoting research and development endeavours that are locally driven

vii. Strengthening of farmers extension linkages

viii. Promoting the establishment of local embryo transfer and artificial intelligence centres

ix. Promoting the genetic potentials of indigenous crops, livestock and fisheries

x. Promoting Value Chain of high value crops, livestock and fisheries commodities

xi. Strengthening of existing adopted villages and Agricultural Research technology transfer centres

xii. Promoting Biofuel technology for farm power and domestic use

xiii. Promoting high standards for Agricultural Products

xiv. Introducing new and emerging technologies into the Agricultural curriculum at all levels- Primary, Secondary and Post-Secondary

xv. Encouraging agricultural waste management and utilisation.

xvi. Developing indigenous technologies for value addition of agricultural produce.

xvii. Encouraging modern technologies in agriculture including: organic agriculture, smart farming systems, e-agriculture,

hydroponics, vertical farming, urban agriculture, digital agriculture, drones and artificial intelligence in agriculture.

xviii. Promoting minimal processing of foods/agro-products with controlled atmosphere storage and packaging for SMEs and to serve as industrial raw material

3.12.2 Water Resources

i. Developing R&D, demonstration and deployment capabilities in smart management of surface and ground water resources for sustainable exploitation.

ii. Facilitating the generation and use of safe, clean, efficient and sustainable water technologies for national development.

iii. Promoting R&D in water conservation and utilisation techniques for domestic, agricultural, energy and industrial use.

iv. Facilitating the adaptation of appropriate water technologies for rural development.

v. Developing and deploying novel technologies and materials for use of water purification systems and urban water treatment plants.

vi. Promoting research and development in smart water metering systems.

vii. Developing indigenous technologies for tracking baseline information on Water Sanitation and Hygiene (WASH) activities.

viii. Developing indigenous technologies for monitoring of flood and drought.

ix. Developing indigenous satellite aided national borehole data inventory and surface water information.

x. Researching on Changing Human perception of water

xi. Promoting the implementation of integrated water resources management (IWRM) principles in the research and development of water resources infrastructure.

3.12.3   Biotechnology Research and Education

 i. Promoting the understanding of biotechnology and its applications for national development.
 ii. Building capacity and capabilities in biotechnology research and its applications.
 iii. Harnessing indigenous knowledge on natural products and commercialising discoveries as well as positioning Nigeria in the bio-genetic market.
 iv. Ensuring growth and opportunities in the application of advanced bio-processing and bio-manufacturing processes.
 v. Facilitating brand recognition for Nigerian biotechnology products and benchmark progress.
 vi. Promoting the documentation and use of bio-genetic resources and eliminating bio-piracy.
 vii. Ensuring compliance with biosafety and bioethics guidelines in biotechnology R&D.
 viii. Ensuring active collaboration with relevant institutions home and abroad, in the area of biosafety regulation.
 ix. Promoting the understanding of biotechnology and its importance at the grassroots through effective public dissemination, creation of public awareness and sensitisation including its inclusion in Primary, Secondary and Post-Secondary Curriculum of Science and Technology Education.

3.12.4 Health Research & Innovation (Pharmaceutical Research, Natural Medicine and Products, etc)

 i. Ensuring that research priorities are targeted towards meeting health and nutritional requirements and challenges in Nigeria.
 ii. Promoting effective linkages and collaborations among knowledge institutions and industries engaged in the health sector.
 iii. Strengthening demand-driven R&D in natural and orthodox medicines as well as pharmaceutical research.

iv. Facilitating the development of biological diagnostic tools, drugs and vaccines including known infections, *COVID-19* and other future pandemics.

v. Encouraging R&D in alternative and molecular medicine as well as genomics.

vi. Developing standards for monitoring and evaluation of health products to ensure they are fit for consumption.

vii. Promoting ethics and standards in research and development.

viii. Promoting documentation and dissemination of natural health research.

ix. Promoting the appropriate integration of traditional Health Management with Orthodox medicine.

x. Developing Nutraceutical and plant-based phytol-chemicals from indigenous sources, preservation of endangered plants and species of importance to health.

xi. Translating novel therapeutic substances into drugs /adjuvant for drugs for prophylactics, wellness, and management of illness, which can be exported and can reduce importation of similar agents.

xii. Promoting, training and certification of traditional knowledge system practitioners e.g., Midwifery (Local birth attendance) massagers and bone fixers.

3.12.5 Energy and Power

i. Developing of R&D, demonstration and deployment capabilities in thermal (coal, oil and gas), methanol, nuclear, solar, wind, biomass (biofuels), hydro, and other renewable energies.

ii. Promoting the use of safe, clean, efficient and sustainable energy technologies for national development.

iii. Supporting and initiating the development of energy conversion technologies for sustainable power generation.

iv. Facilitating the adaptation of appropriate energy technologie s for rural development.

v. Encouraging the development and deployment of locally produced power equipment for the power industry.

vi. Supporting national vision to acquire technologies for sustainable power industry covering generation, transmission and distribution in line with the local content policy and the Presidential Executive Order No. 5.

vii. Fostering the development and deployment of smart energy and power systems.

viii. Encouraging R&D activities in the broad areas of peaceful applications of Nuclear Technology.

ix. Supporting national initiatives in nuclear regulatory activities in line with global best practices

3.12.6 Environmental Science and Technology (Green)

i. Promoting the integration of environmental concerns in all development policies and ensuring public understanding of the scientific basis of their actions on the environment.

ii. Developing appropriate and effective waste management system to reduce pollution emission from waste generation.

iii. Encouraging development of mitigating and adaptive technologies on climate change

iv. Promoting innovation in technologies towards planning and management of urban, rural and regional areas of the country.

v. Developing capacity to monitor, predict and mitigate adverse effects of man-made and natural phenomena such as floods, deforestation, drought and desertification and all forms of erosion, among others.

vi. Encouraging integration of environmental factors with standard national accounts/assets to improve environmental monitoring systems.

vii. Promoting the development of a national environmental database to support sustainable economic development.

viii. Promulgation of laws to control indiscriminate dumping of non-biodegradable waste into our rivers and oceans.

3.12.7   Mines and Materials Development
i.   Encouraging R&D in the exploration, exploitation, utilisation and value addition of Nigeria's mineral resources;
ii. Building capacity and enhancing capability of all stakeholders in mining and solid minerals processing technologies as well as new materials development;
iii. Facilitating the development and transfer of   technologies for sustainable utilisation of mineral resources;
iv. Encouraging prioritisation and integration of environmental concerns in the mining and development processes;
v.   Promoting active collaborations among stakeholders including Public Private Partnership (PPP) in the sector.
vi. Fostering Research and Development to support; and better understand Artisanal and Small Scale Miners (ASM)

3.12.8   Ferrous and Non Ferrous Chemical Sciences and Technologies Research
i.   Encouraging R&D in the exploration, exploitation and utilisation of ferrous, non- ferrous, and petroleum resources;
ii. Building capacity and developing indigenous capability in iron and steel,   petrochemical and engineering plastics development;
iii. Promoting R&D in industrial chemicals including bio-chemicals.

3.12.9   Encouraging technopreneurship start-ups in ICT in Nigeria.
i.   Encouraging and supporting collaborative R&D activities among industry, higher educational institutions as well as private and public research institutions for software and hardware development.

ii. Developing indigenous capabilities for the local manufacture ofICT hardware, software development and other accessories through technological substitution and transfer.

iii. Strengthening ICT databank in support of STI.

iv. Supporting ICT multi-disciplinary training modules as fundamental prerequisite to prepare, drive and enhance all sectors of Nigeria's development.

v. Fostering the establishment of Science Parks with ICT backbone and software development.

vi. Developing special conversion programmes to transform existing Engineers to ICT specialists.

vii. Forging functional "collaboration within the STI ecosystem and Federal Ministry of Communications and Digital Economy for efficient and enhanced impact.

viii. Developing a robust Robotics and Artificial Intelligence (R&AI) infrastructure in collaboration with relevant MDAS

3.12.10   Space Research and Investments

i. Developing adequate capacity in space technological infrastructure and research for socio-economic development.

ii. Deploying space technology infrastructure in national development.

iii. Enhancing indigenous capabilities in space research and satellite technologies.

iv. Developing space research as a critical component of the national security architecture.

v. Developing multi-disciplinary research in diverse fields of Space Science and Technology and coordinating activities in relevant areas including:
    a. Basic Space Science and Astronomy
    b. Remote Sensing Satellite Technology Development
    c. Geodesy and Geodynamics
    d. Space Transport and Propulsion
    e. Space Science and Technological Education

f.   Atmospheric research

vi.   Creating impactful Nigerian Space Science and Technology programme that should enhance technological advancement in areas of national priorities.

vii.   Exploring Higher Education Institutions (HEIs), research institutions and international cooperation in Space Science, Technology and application.

viii.   Creating a conducive environment that can attract Nigerian scientists at home and in the diaspora.

ix.   Creating an enabling environment to enhance the development of space science and technology infrastructure in national institutions.

x.   Developing indigenous space dependent technologies to monitor, predict and mitigate man-made disasters, such as oil spillage and gas flaring.

3.12.11 Industrial Research, Development and Production

i.   Ensuring R&D activities are directed towards the development of appropriate technologies for the production of industrial goods and services by micro, small, medium, and large scale firms.

ii.   Developing local capacity for design a n d production of machine tools and spare parts for rapid industrial growth and development.

iii.   Fostering interactions among Higher Education and Research Institutions (HERIs), industries and investors to generate innovations.

iv.   Ensuring value-addition to the nation's natural resources for industrial development.

v.   Fostering the grooming of technological entrepreneurs to facilitate innovation.

vi.   Facilitating the development of industrial innovation and Technology hubs.

3.12.12   New and Emerging Technologies *Rationale*

New and emerging technologies (including disruptive technologies) have been making unprecedented impacts on the global economic landscape in recent times and as such, demand special attention in any national scheme. In this regard, the need to craft workable catch-up strategies for national growth and development becomes paramount. These categories of technologies include; Artificial Intelligence (AI), Robotics and Process Automation (RPA), Machine Learning, Internet of Things (IoTs) and Block chain Technology (BT), among others

Strategies

i. Building institutional capacity and capabilities in new and emerging technologies.
ii. Encouraging collaborative R&D activities (including external collaborations) between industry, higher education and research institutions on new and emerging technologies.
iii. Promoting AI, RPA and IoTs, etc, through development of New and Emerging Technologies (NETs) curriculum at Primary, Secondary and Post-secondary Education levels;
iv. Facilitating National NETs;
v. Establishing innovation clubs and competitions among students of Primary, Secondary and Post-secondary Education levels towards engendering a climate for invention, innovation and technopreneurship

3.12.13   Raw Materials and Manufacturing

i. Developing capacities in storage, retrieval and updating of data and information in earth-based raw materials.
ii. Promoting access to, and stimulating interest in, earth-based raw materials locally and internationally.
iii. Mapping and quantifying biomaterial resources that are available in the country.

iv.   Creating the appropriate value chains from available biomaterials.
v.   Harnessing and adapting indigenous knowledge for sourcing earth-based, biomaterials and energy-based materials.
vi.   Creating and periodically updating a database of new and emerging materials.
vii. Identifying and promoting the adoption of new and emerging technologies for raw materials, new product development and materials processing technologies for national industrial growth.
viii. Building institutional capacity and capabilities in earth-based raw materials, biomaterials, smart materials, new and emerging materials and technologies such as Advanced Manufacturing Technologies (AMT).
ix.   Strengthening the development and fostering proliferation of technologies and innovations for sustainable utilisation of earth-based raw materials, biomaterials and new products as well as new and emerging materials/new products.

3.12.14   Defence & National Security

i.   Facilitating STI capacity and capability building in the operations of the armed forces and other security services.
ii.   Promoting strategic military R&D and innovation for national security and development.
iii. Encouraging the development and deployment of advanced technologies in military hardware and operations.
iv.   Promoting the use of STI to prevent and control crimes and threats to national security.
v.   Deploying STI for the protection and security of indigenous technology, innovation and related intellectual property.
vi.   Strengthening of STI Desk in the office of the National Security Adviser (NSA) for protection of home grown technologies.

   vii. Fostering linkages of R&D collaborations among the academia, military, industries/businesses to enhance National security.

  viii. Encouraging the sourcing and procurement of military hardware and software locally.

3.12.15 Transport System

   i. Promoting R&D and innovation to support activities in the road, rail, water and aviation modes of transportation.

  ii. Facilitating the adoption and use of R&D outputs and local innovations for all forms of transportation and construction (i.e. road, rail, water and aviation) in the country.

 iii. Establishing a functional database and Transportation Management Information System (MIS) to effectively manage the transportation system in the country.

 iv. Facilitating R&D activities and innovations to fast-track delivery of technologies for rural/access roads, aviation, rail and waterways.

  v. Encouraging research and development in technological devices for monitoring and tracking transport/traffic operations in the country.

 vi. Encouraging research and innovation (R&I) in the development of electric and autonomous vehicles including electric cars, drones, electric buses, electric trains, charging stations, batteries, etc.

3.12.16 Youths, Sports and Tourism Development

  i. Encouraging R&D in sports medicine and materials, psychology, nutrition, physical education and other disciplines for the able-bodied and physically challenged persons.

 ii. Utilisation of STI in recreational activities to enhance wellness.

 iii. Promoting competition and award schemes in STI among youths in and outside the educational system.

iv. Facilitating programmes and schemes for mentoring Nigeria n youths for career development in STI.
v. Encouraging application of STI in tourism research and development.
vi. Promoting and developing creative entrepreneurship.
vii. Strengthening STI in Sports Education/management.
viii. Developing state of the art sports infrastructure using STI.
ix. Fostering collaboration between STI Agencies and relevant Agencies in culture, tourism and sports.

3.12.17   Works, Land, Housing and Urban Development

i. Strengthening R&D capacity for effective design, management
   and production of relevant technologies in building, construction and urban development.
ii. Promoting the application of STI in the production and utilisation of local materials for building and construction to facilitate affordable mass-housing delivery.
iii. Promoting effective collaborations between knowledge institutions and professional/regulatory bodies in the application of STI for quality delivery in the construction industry.
iv. Promoting R&D and innovative schemes for evolution of green construction culture in Nigeria (green homes and green cement).
v. Promoting STI activities and its application in regulatory roles for public safety in building and construction as well as mitigating effects of natural disasters.
vi. Promoting standardisation and metrology in the design and the specifications of materials used in construction.
vii. Facilitating R &D activities in Building, Land and Urban Development (including extra-budgetary steps like duties and tariffs) in the sector.

viii. Strengthening framework for ICT based land administration and ownership management and also mitigating environmental disasters.

3.12.18   Forest Resources

i. Developing environmentally sustainable forest management practices for value addition.

ii. Promoting R&D in the cultivation, exploitation and application of forest resources.

iii. Promoting the application of STI to create new products to provide support for Nigerian pulp, paper, timber and other products.

iv. Facilitating emerging wood resources technology related to biofuels, bio-chemicals, bio-composites, nano-cellulose, building and construction industry (timber and plywood products in innovative zero energy houses, wood plastic composites).

v. Promoting STI in managing medicinal plants, ornaments and conservation of wild life.

vi. Promoting STI in afforestation, re-grassing and mitigating desertification.

vii. Harnessing forest resources to sustain human lives and animals through purification of environment.

3.12.19   Science Laboratory Technology (SLT)

i. Facilitating the setting of minimum standards for laboratories in primary, secondary, tertiary institutions for learning, teaching and provision of related services.

ii. Adopting and promoting the principles of Good Laboratory Practice (GLP) in the educational, research, medical and industrial laboratories in conformity with international best practices.

iii. Promoting/Facilitating training and employment of certified science technologists for proper management and maintenance of STEM laboratories.

iv. Developing and promoting the documentation of laboratory equipment in both public and private sectors for planning and development.

v. Ensuring the monitoring, inspection, accreditation and certification of laboratories in both public and private sectors by relevant regulatory bodies.

vi. Determining the standards of knowledge by preparing and disseminating SLT curricula to Institutions where SLT is being offered

vii. **Promoting/Facilitating of Mandatory Continuing Professional Development (MCPD) training and employment of cert ified Science Laboratory Technologists/Laboratory Scientists for proper management and maintenance of STEM laboratories.**

viii. Developing and promoting the documentation of laboratory equipment, reagents and consumables in both public and private sectors for planning and development.

ix. Ensuring the monitoring, inspection, accreditation and certification of Science laboratories in both public and private sectors by relevant regulatory bodies.

3.12.20   Nutrition, Food Science and Technology

i. Encouraging research by relevant stakeholders into the development of nutrient rich food products to deliver best nutrition for the teeming populace in the country.

ii. Advising and recommending to government, at all levels, including the best food products to provide for school feeding programmes from time to time.

iii. Promoting broad-based nutrition calendars, flyers, print outs, jingles and talk-show for individuals, educational institutions, offices among others.

iv. Providing support and incentives to Nigerian youths who choose to study food and nutrition at the higher levels and for setting up MSMEs.

v. Review of the school curricula on food and nutrition at all levels of education in the country to inculcate new and emerging indigenous nutritious foods in the country.

vi. Continuously popularizing food fairs through exhibitions, radio, television and creation of food and nutrition clubs at all levels of the educational institutions in the country.

vii. Promoting Food quality and Safety.

viii. Diffusion of low cost food drying technologies for reduction of high risk sun drying practices.

ix. Encouraging the development of on-farm post harvest technologies in farming cluster areas.

x. Dissemination of low risk packaging, display and vending service tools for open market and street food vendors.

xi. Promoting the deployment of improved and protective bulk packaging of perishables for long distance distribution across the country.

xii. Encouraging the businesses that provide cold chain transportation of fresh nutrient rich foods.

xiii. Encouraging use of post-consumer recycled plastics (PCR) and providing strict guidance for PCR specifications to avoid transfer of contaminants to final food products.

xiv. Providing capital investment subsidies for new food processing units

xv. Providing incentives for technology upgrade in existing processing facilities.

xvi. Providing training facilities to address the knowledge gap in the sector.

xvii. Improving food availability through Research & Development resulting in novel genetic improvements on crops (e.g. Nigerian cassava resistant to cassava mosaic virus).

xviii. Encouraging bio fortification, breeding of micronutrients and vitamins into staple crops to combat malnutrition.

3.12.21 The Creative Industry, Language and Literature

i. Promoting the use of STI in supporting inventive and creative practices in all sectors of the creative industry.

ii. Promoting the use of STI in supporting creative craftsmanship for quality results.

iii. Fostering creative practices in scholarly, scientific, technological, design and artistic practices that create valued effects which can be explicated in review and credible forecast.

iv. Encouraging the use of STI in storing, preserving and propagating the literary arts towards inspiring and sustaining a vibrant reading culture in the nation.

v. Fostering the use of STI in teaching and preserving Nigeria's indigenous languages in order to make it accessible to all for mutual understanding, better inter-personal relationship and national cultural heritage.

vi. Recognizing and empowering the National Theatre of Nigeria, "National Commission for Museums and Monuments", National Institute for Cultural Orientation, National Council for Arts and Culture and National Institute for Hospitality and Tourism as strategic partners in initiating and implementing STI-driven programmes and projects within the culture and tourism development sectors of Nigerian economy.

vii. Collaborating with relevant MDAs and Parastatals e.g. National Institute for Educational Languages (NINLAN), National Universities Commissions (NUC), National Institute for Educational Planning and Administration (NIEPA) and National Centre for Technology Management (NACETEM).

3.12.22 Leather and Leather Products

i. Developing and promoting continuous and innovative research and development (R&D) across the leather value chain through relevant institutions, giving attention to

development of critical mass of personnel and appropriate infrastructure.

ii. Establishing and strengthening institutional structures for effective coordination and management of leather and leather products in Nigeria.

iii. Developing and protecting Intellectual Property Rights (IPRs) by strengthening relevant authorities to stimulate the development of leather inventions.

iv. Enhancing the production of high-quality leather products using cutting edge technology and global information platforms.

v. Promoting R&D activities to develop internationally competitive textiles and leather industries;

vi. Ensuring compliance with environmentally and Socially Responsible Business (ESRB) practices across the Leather Value Chain (LVC).

vii. Developing and enforcing standards for quality hides and skins, and leather and leather products.

viii. Discouraging import of Finished Leather Products (FLPs) through articulated measures that will give advantage to locally manufactured products.

ix. Discouraging the consumption of raw hides and skins (Ponmo) by providing incentives for producers and processors.

x. Establishing a sustainable funding mechanism for the leather sector through the government, organised private sector and development financing.

xi. Stimulating domestic growth through fiscal reprieve and regulatory support to leather investors.

3.12.23 Aviation

i. Ensuring holistic talent hunts extended to the Nigerian grassroots where talented individuals whose development and

visibility may have been constrained by financial and environmental factors can be identified.

ii. Enhancing the performance of public and private research and development.

iii. Improving the delivery of STI services.

iv. Enhancing commercialisation and increase uptake of home grown R&D innovative products.

v. Intensifying the integration of social sciences and humanities with pure and applied sciences.

vi. Developing higher order cognitive, analytical, creative and innovative skills among school children, tertiary level students and teachers.

vii. Introducing new innovative skills in the work force to advance the nation's STI capabilities.

viii. Intensifying STI's Brain Gain and Brain Circulation.

ix. Enhancing talent management system to track supply and demand of skilled human capital in STI.

x. Developing a dynamic career path for researchers in public research institutes (PRIs) and institutions of higher learning (IHLs).

xi. Promoting and enhancing meaningful, effective and equitable female participation in aviation STI at all levels and in all sectors.

xii. Increasing skilled and competent technical workforce to manage, operate and maintain highly specialised aviation equipment and infrastructure.

xiii. Establishing Aerospace Universities within Nigeria to address the challenges of specialized manpower in the nation's sector.

xiv. Establishing and supporting a Nigerian Aerospace manufacturing industry involved in the design, development, manufacture and maintenance of full range of aircraft/aeronautical products including Unmanned Aerial Vehicles (UAVs).

xv. Establishing Maintenance Repair and Overhauling (MRO) facilities within Nigeria as a way of not only saving indigenous

airlines the operational running cost of the airlines but also a way of strengthening the Nigerian economy.

xvi. Ensuring significant and cost effective contribution towards reducing global emissions (noise, air pollution, etc).

xvii. Increasing links to emerging markets so that Nigeria can compete successfully for economic growth.

3.13. Open Science

Rationale

Open Science allows scientific information, data and outputs to be more widely accessible and more reliably harnessed with the active engagement of all the stakeholders. The recent response of the scientific community to the COVID-19 pandemic has demonstrated very well, how open science can accelerate the achievement of scientific solutions for a global challenge. Countries have also adopted a normative instrument called the UNESCO Recommendation on Open Science, which defines shared values and principles for Open Science, and identifies concrete measures on Open Access and Open Data, with proposals to bring citizens closer to science and commitments to facilitate the production and dissemination of scientific knowledge around the world.

Strategies

i.   Mapping and assessment of the Nigerian STI Ecosystem (a Nigerian-UNESCO activity already approved during the 2020 NCSTI).

ii. Establishing a National STI Observatory as a central repository for all kinds of data related to and generated from the STI ecosystem.

iii. Ensuring that the observatory is centrally coordinated and organised in distributed, networked and interoperable manner among the stakeholders.

iv. Facilitating capacity building on all the key elements of Open Science.

v.   Fostering more equitable participation in science through increased access to research outputs, more transparency and accountability in research, inclusiveness, better resource utilisation through minimal restrictions on reuse of research outputs and infrastructure.

vi. Ensuring constant exchange of knowledge between producers and users of knowledge (Open data); and making publicly-funded research output and resources available to all (Open Society) to foster learning and innovation systems.

vii. Agreeing for scientific information, data and outputs to be more widely accessible (Open Access) and more reliably harnessed (Open Data) with the active engagement of all the stakeholders (Open Society).

viii. Encouraging Nigerians to build capacity in, and engage the following key pillars: open scientific knowledge, open science infrastructure, science communication, open engagement of societal actors and open dialogue with other knowledge.

3.14. Sustainable Blue Economy
Rationale:

To deploy Scientific Innovations in the conservation and sustainable use of oceans, seas and marine resources for Sustainable Development.

Strategies:

i. Increasing scientific knowledge, developing research capacity and the transfer of marine technology in the development of a sustainable blue economy;

ii. Deploying scientific innovations to support small scale fishers for sustainable development;

iii. Enhancing the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the law of the Sea (UNCLOS);

iv. Intensifying investments and harnessing the full potential of the oceans, seas, lakes and rivers to accelerate economic growth, create jobs and to fight poverty;

v. Deploying scientific tools in the reduction of ocean acidification;

vi. Strengthening Science and Research to generate and disseminate evidence-based knowledge and information on advancing the sustainable blue economy.

3.15. Women and STI

Rationale:

In Nigeria, there is underrepresentation of women in STI which translates into the loss of critical mass of talent and under achievement of SDGs. There is need to mainstream women in STI and provide more incentives to increase women's participation.

Strategies:

i. Supporting women in STEM/STI education at all levels;

ii. Enhancing mentorship, self-confidence, diligence, hard-work and learning from successful women scientists, who have balanced work and career at all levels of education;

iii. Providing equal opportunities for women to participate and hold leadership positions in STI endeavours;

iv. Providing funding and other incentives for continuing education of women in STI by facilitating access to funds through digital finance tools;

v. Advancing STEM education, S&E and STI for women and girls in Nigeria;

vi. Reviewing existing policies and strategies with a gender lens and identifying bottlenecks to ensure a more effective incorporation of women issues and vulnerable social protections at all stages of policymaking and implementation;

vii. Expanding the coverage of sensitisation programmes such as preventing genital mutilation, preventive measure against rape culture or promoting girl- child education;

viii. Supporting women economic empowerment by facilitating access to finance, skill building trainings and supporting MSMEs business viability.

3.16. Technology and Innovation Centres in Geo-political Zones

Rationale:

There is need for all stakeholders in the STI ecosystem, comprising the academia/research institutions, the organised private sector (OPS), ministries, departments and agencies (MDAs) and the general public to meet regularly, within the respective geo-political zones, as a technology and innovation hub in line with the Presidential Executive Order No.5, to utilize and strengthen the Technology Management Capability and Information systems, to promote Nigeria's drive towards productivity and global competitiveness at the zonal levels.

Strategies:

i. Promoting Productivity and competitiveness Strategy in Raw Materials and Product Development using Advocacy, Institutional arrangement and other strategic tools, taking cognizance of the peculiarities of the respective Zones.

ii. Promoting Research and Development activities in tertiary institutions and activities of government policy and regulatory frameworks of MDAs for Business and Industrial activities in the Zone.

iii. Promoting Technology acquisition and exhibition of R&D breakthroughs/findings for commercialisation; innovations on existing Indigenous Technologies;

iv. Promoting Agro and Mineral Raw Materials endowment of States within the Zones in collaboration with RMRDC.

v. Encouraging States and LGAs in the Zones to host activities of production and utilisation of R&D breakthroughs that impact on the quantity and quality of products and services in a competitive manner.

vi. Working with all stakeholders within the Science, Technology and Innovation (STI) Eco-system including key players (Academic/R&D Institutions, Organised Private Sector (OPS) and Ministries, Departments and Agencies (MDAs) and the general public to promote innovation and enterprise development as well as favourable environment to encourage growth and sustainable technological development of startups.

vii. Sensitising critical stake-holders to imbibe the culture of conformity to quality and standardisation in products development and service delivery.

3.17. Development of regulation and guidelines for innovation procurement:

Rationale:

There is need to provide an effective regulatory environment that assures the private sector of transparency, fairness and

true competition in order to build their trust for active and sustained engagement, while ensuring that the capacity of the demand-side (public procurers) are adequate to successes involved in innovation procurement in the country.

Strategies:

i.   Strengthening the capacity of officers in the procurement cadre and the entire public procurement value chain on how to procure innovation;

ii. Ensuring that only Procurement Professionals duly registered with the regulatory professional body are allowed to head Public and Private Procurement departments, units and Organisations;

iii. Engendering trust in the private sector by providing a fair playing field through provision of regulatory oversight, towards ensuring the principles of transparency, competition and fairness, while ensuring value-for-money is entrenched in the process of innovation procurement;

iv. Developing guidelines for innovation procurement by the public sector in line with international best practices;

v. Creating enabling environment to ensure patronage of indigenous innovations from MSMEs through mechanisms that engender MSMEs participation in public procurement;

vi. Harmonising all existing preferential procurement policies to ensure coherence during implementation of the National Science, Technology and Innovation Policy.

3.18. Funding for STI Activities
Rationale:

For the policy to achieve the desired impact, there is need to institute and evolve reliable and sustainable funding mechanisms from governments, private sector and development partners to ensure adequate funding for R&D and STI infrastructure and activities for sustainable development.

Strategies:

i.   Activating a National Research and Innovation Fund (NRIF).
ii. Ensuring that Nigeria commits to a minimum of 1% of GDP annual expenditure on Research, Development and Innovation as agreed by the African Union in consultation with the National Economic Council. Aspiring to meet the 3% of GDP expenditure on Research and Development being implemented by the European Union.
iii. The sourcing of the shortfall in STI expenditure after analysis of actual expenditure on Research and Development from the following Agencies:
    a.   Raw Materials Research and Development Council (RMRDC)
    b.   Tertiary Education Trust (TET) Fund
    c.   Industrial Training Fund (ITF)
    d.   Automotive Development Fund (ADF)
    e.   National Communications Development Fund(NCDF)
    f.   Agricultural Development Fund
    g.   Ecological Project Office
    h.   Lottery Fund
    i.   Sugar Development Fund
    j.   Development/Donor Agencies, etc.
    k.   Petroleum Technology Development Fund(PTDF)
    l.   Organized Private Sector (OPS)
    m.   Venture Capital
    n.   Nigerians in Diaspora

iv. Government Allocations:
- a. Making adequate annual budgetary allocation to fund activities in STI, including providing operational funding for:
  - i. **critical** investments in STI infrastructure; and
  - ii. **Routine** activities of the nation's STI system.

v. Public- Private Partnership
- a. Fostering in-house and local contractual R&D activities in public and private enterprises by making such investments tax deductible as well as ensuring that all contracts are in accordance with the Infrastructure Concession Regulatory Commission (ICRC) Act as amended from time to time.
- b. Encourage the establishment of PPP Units/Departments in all MDAs in the country
- c. Encouraging industrial firms to:
  - i. establish and equip "in-house" R&D units;
  - ii. give grants and endowments competitively to individuals and institutions to actively engage in R&D in Nigeria;
  - iii. establish, equip and fund laboratories in universities and research institutes; and
  - iv. Establish rules of engagement between industries and specialised research units in the country such that products of such units are patented for commercialisation.
- d. Encouraging development of finance institutions (e.g. Bank of Industry, Nigerian Export-Import Bank) to set a fixed percentage of their loan-able funds at very

low rate of interest for financing manufacturing industries.

vi. International R&D Funds
    a. Developing robust mechanisms to attract international funding for R&D and innovation in Nigeria.

vii. Venture Capital
    a. Promoting and supporting establishment of venture capital schemes, including risk capital to small and medium technology-based businesses, utilizing the output of research and development (R&D) and innovation. These businesses would be conferred with incentives including Pioneer status.

4.0 OVERALL POLICY GOVERNANCE SYSTEM
Rationale:

To provide strong leadership, effective coordination and adequate resources for all STI activities within the National Innovation System.

4.1   National Research and Innovation Council (NRIC)

i.   The National Research and Innovation Council (NRIC) shall perform the under-listed functions:
    a.   Set national priorities on R&D.
    b.   Set directions to coordinate STI activities (including R&D) in line with national priorities.
    c.   Facilitate fund raising activities to support innovation activities in areas of national needs and priorities.

4.2   Governance of   National Research and Innovation Council (NRIC)

i.   The Chairman will be the President of the Federal Republic of Nigeria
ii.   The Council shall consist of the following as members or any subsequent nomenclature they may bear in the future.
    a. Honourable Ministers of the following Federal Ministries:
        i.   Ministry of Science, Technology and Innovation (Member & Secretary)
        ii.   Ministry of Information and Culture
        iii.   Ministry of Communications and Digital Economy
        iv.   Ministry of Agriculture and Rural Development
        v.   Ministry of Industry, Trade and Investment
        vi.   Ministry of Education
        vii.   Ministry of Health

  viii. Ministry of Power
   ix. Ministry of Works and Housing
   x. Ministry of Finance, Budget and National Planning
   xi. Ministry of Petroleum Resources
   xii. Ministry of Environment
  xiii. Ministry of Water Resources
  xiv. Ministry of Women Affairs and Social Development
   xv. Ministry of Justice
  xvi. Ministry of Transportation
  xvii. Ministry of Aviation
 xviii. Ministry of Mines and Steel.
  xix. Ministry of Youth and Sport Development.
  xx. Ministry of Labor and Employment.

b. Two (2) Representatives of the organised Private Sector (OPS) (MAN & NACCIMA)

c. Representatives of Nigerian Academies (NAS, NAE, NAEdu, SSAN and NAL)

4.3 State Science, Technology and Innovation Council (SSTIC)

i. Provide leadership and directions for STI activities at the state level.

ii. Promote STEMA education and disseminate regularly science, technology and innovation information.

iii. Align policies and programmes with those of the NRIC.

iv. Attend NCSTI meeting and implement decisions and programmes of the NCSTI.

4.4 Governance of SSTIC

i. The Chairman will be the Executive Governor of the State while the States' Ministry of Science Technology and Innovation or its equivalent will serve as the Secretariat/Member

ii. The Council shall consist of the following as members:

a. Honourable Commissioners of STI and STI related ministries
b. Honourable Commissioner for Finance and Budget
c. Two (2) Representatives of Members of the State House of Assembly.
d. Two (2) Representatives of State Chapter of Organised Private Sectors and relevant professional bodies.
e. Two (2) Representatives of Chairmen of Local Government Councils in the State.

4.5 National Council on Science, Technology and Innovation (NCSTI)

i. Sets broad and national directions to coordinate STI activities (including R&D) in line with national priorities.
ii. Collates and disseminates annual reports of achievements from all public STI agencies.
iii. Facilitates active interaction/brokerage among government, industry and knowledge institutions.

4.6 Governance of NCSTI

The Chairman will be the Honourable Minister, Federal Ministry of Science, Technology and Innovation (FMSTI).

i. The Council shall consist of the following as members:
   a. State Commissioners of Science, Technology and Innovation (SCSTI) or its equivalent
   b. Cognate Federal Ministries, Departments and Agencies
   c. Academies of Science, Engineering, Letters, Education and Human Social Science.
   d. Nigerian National Merit awardees in Science, Engineering, Technology and Humanities (SETH)
   e. Council for the Regulation of Engineering in Nigeria (COREN)

     f. The Armed Forces and other Security Institutions of Government
     g. Bureau of Public Procurement
     h. Organised Private Sector (OPS)
     i. Development Partners

ii. FMSTI will serve as Member/Secretariat

5.0 CONCLUDING REMARKS

For obvious reasons, this reviewed policy reflects the renewed commitment and aspirations of the Federal Government and people of Nigeria to deploy STI as the fulcrum of all activities and programmes geared towards sustaining the emergence of Nigeria not only as a regional power in Africa, but also an emerging global economic powerhouse within a short time. The reviewed policy seeks to build a nation that is capable of providing steady and progressive high standard of living and quality of life for its citizens by harnessing science, technology and innovation outputs, as well as the energies and talents of its highly resourceful people.

The 2012 STI policy is thus reviewed to enable STI maximally impact on the national socio-economic development landscape with a view to ensuring that Nigeria actually emerges and remains among the top 20 leading economies in the world before the Year 2030 and beyond. This policy therefore shall be faithfully implemented as an integral part of the Diversification Strategy and National Economic Sustainability Plan of this Government.