FOREWORD

This revised policy underlines the desired need for appropriate cutting-edge technologies that will propel the country through and beyond the 21st century. This vision policy is therefore designed to underpin the nation's socio-economic progress and development. It emphasizes the need for a coherent, systematic and comprehensive approach to the determination of technological programmes and their implementation taking into account domestic productions in agriculture and rural development, food security, industrial manufacture, infrastructural services such as information and communications technology (ICT), space exploration and biotechnology.

Three major technologies will dominate, at least, the first half of this century.

These are:-

(i) Information and Communications Technology;

(ii) Biotechnology; and

(iii) Bio-resources Research and Development.

This policy recognizes the tremendous challenges and opportunities offered Nigerians by these three.

Information and Communication Technology (ICT) is the bedrock for national survival and development in a rapidly changing global environment, and challenges us to devise bold and courageous initiatives to address a host of vital socio-economic issues such as reliable infrastructure, skilled human resources, open government and other essential issues of capacity building.

It also recognizes that Biotechnology, especially genetic engineering provides the potential to make Life Sciences an engine of growth and business for the

country. This has led to the establishment of the National Biotechnology Development Agency (NABDA).

Nigeria is considered one of the richest countries in Bio-resources with its extensive biodiversity. The Federal Ministry of Science and Technology recognizes this and is therefore collaborating with the Federal Ministry of Environment and other stakeholders in evolving an environmentally friendly planet.

Since the declaration of the Lagos Plan of Action for Economic Development of Africa, the Federal Ministry of Science and Technology has initiated action in the fields of Satellite Remote Sensing and Geographic Information Systems (GIS) for the acquisition and generation of spatial and temporal resources, and environmental information. The policy therefore recognizes the daunting nature of the technical and financial challenges in this bold programme, and provides steps for a sustainable development through the establishment of the National Space Research and Development Agency (NARDSA).

This policy equally emphasizes the recurring signals of a microelectronics revolution which is characterized by three major developments:

(i) Miniaturization of electronic circuitry or chips;

(ii) The very large scale integration (VLSI) of extremely complex circuitry on a single chip; and

(iii) Microprocessors, which are VLSI systems performing specific functions.

Programmes are already in place through Centres for Adaptation Technology (CAT) of the Ministry for development in fabrications of

integrated circuits, application of software engineering and robotics for remote control, computer architecture and hardware devices.

In Epidemiology and Public health, the policy recognizes contemporary progress made in molecular biology leading to new vaccines needing field trials and more specific diagnostic methods of great epidemiological value in the control of communicable diseases. The Federal Ministry of Science and Technology will sustain as well as consolidate these; while focusing on the global research towards the control and eradication of HIV/AIDS.

The increasing cost of conventional energy generation and grid connection implies that it may no longer be feasible and cost effective to provide energy to remote and rural communities in the country through conventional energy sources. The Policy therefore addresses research and development into alternative and renewable energy sources and their promotion.

Suffice it to say therefore that there is an encompassing need for massive basic education in science. The policy therefore prescribes the use of science in integrating traditional knowledge into the quest for development in all ramifications as well as a massive integration and popularisation of science and technology for growth and development.

In tackling the challenges and opportunities that are the driving forces for this revised policy in the new millennium, the utmost need for a strategic vision has been emphasized and infact re-emphasized. This vision calls for a science and technology R&D that is innovative, creative and infact proactive – that which will leverage the nation's science and technology capability in the public and industry domain within and outside the

institutions. It is hoped that this policy will flourish through both knowledge and finance using modern information technologies to facilitate the application of science and technology for sustainable development of Nigeria. It beckons on all of us.

INTRODUCTION

Nigeria's first national Science and Technology Policy was formulated in 1986 in the realization of the fact that the overall national development could only be sustained through the effective application of scientific and technological skills for the production of goods and services. The Policy was to be a guideline designed to create harmony in the quest for knowledge about the environment through research and development and the use of that knowledge to ensure a better quality of life for our people.

However, while the reasons for which the policy was formulated are still valid, there is a consensus for a further review in order to reflect recent developments within the new millennium particularly in the context of a globalizing world.

Scientific and technological research is increasing our knowledge and ability to understand complex systems and process in an ever-wider range of scales in time and space. The natural sciences for instance has advanced beyond the traditional scope and is enjoying a highly creative phase stemming from breakthroughs and advances in various fields, from molecular biology and biochemistry, quantum physics and material science to the planetary sciences and astronomy. The emergence of new disciplines and of interactions among them, increasingly powerful computational tools, the rapid accumulation of scientific knowledge and the need to bring together the natural and the social sciences in joint agendas with skills and innovations are indeed having string implications on research, education and technology. The new policy is intended to bridge these gaps.

The new Science and Technology Policy reflects and infact is obsessed with the linkage to the changes that are occurring in science and technology particularly

in the globalisation of trade and business, the growing role of transnational firms, and a reduction of the capacities of governments to regulate economic activity and its repercussions on society. The various programmes of the new policy as a matter of fact have been made dynamic. It is only so if it can operate within a globalise framework that is increasingly subject to transnational challenges and short term requirements. It is so elastic to recognize that competitive businesses are often those that can capture information flows and apply them quickly rather than produce discoveries and inventions themselves. The new policy package will be engineered by the forces of the added programmes in space research, information technology and biotechnology.

CHAPTER ONE

POLICY ON BIOTECHNOLOGY

BACKGROUND:

Advances in genomics have led to modifications of plants and animals with desirable, useful traits for food and industrial applications. Food insufficiency caused mainly by growth in human population can be tackled by the application of biotechnology-based revolution in livestock husbandry and plant agriculture. Besides, investment in biotechnology can lead to greater improvement in human health and welfare through new drugs, development of new diagnostics, therapeutics and applications in preventive medicine.

POLICY:

Government shall, as a matter of priority, initiate appropriate steps to explore the use of Biotechnology for the benefit of Nigerians and thus ensure that Nigeria becomes one of the international leaders in Biotechnology, through the provision of an enabling environment that responds to the needs of biotech industry, the R&D communities and the relevant national and international concerns.

OBJECTIVES:

The main objectives of the biotechnology development programme are to:

(i) Ensure that Nigeria become self-reliant in the development and application of biotechnology-based products and services.

(ii) Promote sustenance in the development and application of acceptable and profitable technologies through strategic investments in biotech R&D to support innovation and economic development.

(iii) Ensure global competitiveness and the export of products of the Nigerian biotechnology industry.

(iv) Develop suitable mechanism and activities to support the emergence of biotechnology enterprises for the commercialisation of biotechnology products; so as to ensure a sustainable food security, job and wealth creation, efficient and cheap healthcare delivery as well as a safe environment.

(v) Develop appropriate legislations, compatible with international regulations, so as to ensure bio-safety, in line with social and ethical considerations and to protect intellectual property, industrial property and farmers' rights.

(vi) Maintain sustainable exploitation of bio-resources for our food & agriculture, health care delivery and industrial utilization.

STRATEGIES:

(i) Starting up the national biotech development programme with the importation of the necessary items of equipment and machinery with the view to apply the copy-and-adaptation technology process through indigenous R&D for the attainment of self-reliance within five years.

(ii) Development of R&D facilities through both strengthening existing and setting up of new laboratories in designated centres across the country.

(iii) Ensuring curricular development in biotechnology training for different categories of personnel required in biotechnology development.

(iv) Discovery and development of novel biologically active chemical substances from indigenous natural resources, typically providing leads for new pharmaceutical, nutraceutical, flavours, fragrances and crop protection agents.

(v) Establishment of entrepreneurial activities from associated life sciences research and development.

(vi) Developing international collaborations for sub-regional and regional co-operation in bio-resources and biotech research, development and commercialisation.

WORKPLAN FOR IMPLEMENTING THE POLICY ON BIOTECHNOLOGY

S/N	PROGRAMME	ACTIVITIES	TIME FRAME	ACTION BY	FINANCIAL IMPLICATION
1.	Biotech Enterprises Scheme	(a) Production of Planting Materials for food crops and National Afforestation Programme. (b) Mushroom Production (c) Production of animal vaccine (d) Production of biofertilizers (e) Production of biopesticides	Short term	FMST, Min. of Agric, NGO's, Other Stake Holders, Min. of Industry, University/ Polytechnic	4.331.0m
2.	Health	(a) Production of human vaccine (b) Production of Diagnostic kits for HIV/AIDS (c) Production of Pharmaceutical raw materials	Shrt term	FMST, FMH,NGO's, OPS, Colleges of Medicine FME etc	3,830m
3.	Industry	(a) Production of Bakers Yeast, livestock feed, single cell protein, enzymes flavours	Short term	FMST, FMI	1,725.0m
4.	Environment	(a) Production of compounds for control of oil spillage (b) Production of Biogas	Short term	FMST, FME, University/Polytechnic, Energy Centred MAN etc	1,024m
5.	Capacity Building	(a) Curriculum Development at Postgraduate Levels (b) Training facilities - establishment of 2 labs per year - equipments, chemicals and supplies - public address system - LCD's (c.) Training of scientists, technologies, technicians and other stakeholders in: - DNA techniques - Gene transformation - Biosafety - Bioresources management - Bioinformatics - Taxonomy and	Short term	FMST, FMA, FME	264.06m

		systematics - Plant virus elimination Tissue Culture Diagnostics (c) Workshops/seminars for all stakeholders in biotech development (d) National needs assessment.			
6.	Bioresources Development (i) Agric. (ii) Health	(a) production of grass cutter (bushmeat) (a) development of natural medicines (b) Development of neutraceuticals (c) Development of neem trees and other species as agro-chemicals and human medication	Short term Short Term	FMST, FMA, NGO's OPS FMST, FMH, OPS, NGO's etc	100m 300m
7.	(iii) Industry	(a) extraction of essential oils (b) Development of indigenous fruit drinks	Short Term	FMST, FMI	400m
8.	Research and Development (R&D) in Bioresources and Biotechnology	(a) (i) food and Agric. (ii(Health (iii) Industry and (iv) Environment	Short Term	FMST, FME, FMA, FMI, OPS etc	5,500m
9.	Collaborations and Linkages	(i) Bioinformatics development (ii) WABNET establishment - Network ICT equipments - Metwprl ad, omostratopm - Network in inauguration meeting	Short term	FMST, FME, FMI, FMA	110m

CHAPTER TWO

POLICY ON POLICY LINKAGE OF THE FEDERAL MINISTRY OF SCIENCE AND TECHNOLOGY UNIVERSITIES, NATIONAL AND INTERNATIONAL RESEARCH INSTITUTES.

1.0 INTRODUCTION

1.1 For science and technology to make the desired impact on the economy, research and development efforts must be coherent, devoid of duplications and focused. This can be achieved through selection of national priority R&D programmes and establishment of R&D network among the Ministry, the Universities, national and International research institutes. This will foster collaboration and cooperation among researchers in terms of sharing of resources and exchange of information, and thereby avoid duplication of research projects and attendant negative effect on utilization of resources.

2.0 POLICY STATEMENTS

2.1 The nation shall promote R&D efforts that are focused on priority projects, which address national needs.

2.2 The nation shall put in place a mechanism for coordinating science and technology R&D efforts in such a way that link the Federal Ministry of Science and Technology with Universities, national and international research institutes, in a productive manner.

3.0 OBJECTIVES.

(i) To identify and prioritise R&D projects that will address the national needs.

(ii) To identify deficiencies in the nation's R&D systems.

(iii) To determine remedies for identified deficiencies

(iv) To establish a network among researchers that will promote exchange of information.

(v) To promote sharing of resources and facilities among researchers.

(vi) To deliberately patronize the Universities and research Institutes for challenging research projects with specific objectives.

(vii) To establish an active R&D network for international collaboration and cooperation (bilateral and multilateral)

(viii) To ensure adequate funding of R&D projects

(ix) To promote study of science and technology courses.

(x) To stimulate innovation through attractive incentives.

4. **STRATEGIES**

(i) Carrying out survey and need assessment studies to identify national needs.

(ii) Prioritising the needs based on the imperatives of the economy

(iii) Formulating R&D programmes for addressing the needs

(iv) Establishing feedback mechanisms for assessing R&D inputs into the economy

(v) Providing adequate R&D infrastructural facilities

(vi) Establishing a database of national R&D experts and research findings

(vii) Establishing and institution for R&D commercialisation

(viii) Establishing networks linking FMST, its parastatals and Universities, using Information and Communication Technologies (ICT)

(ix) Providing incentives such as award, fellowships, national recognition to innovators, inventors and entrepreneurs in R&D

(x) Promoting Government patronage of entrepreneurs that make products that are developed out of local findings of local researches

(xi) Creating a National S&T Fund dedicated to solving identified urgent national problems

(xii) Providing incentives to local industry to encourage funding of R&D

(xiii) Soliciting funds from international organisations.

WORKPLAN FOR IMPLEMENTATION OF THE POLICY LINKAGE OF FMST, UNIVERSITIES NATIONAL AND INTERNATIONAL RESEARCH INSTITUTES.

S/N	PROGRAMME	ACTIVITIES	TIME FRAME	ACTION BY	FINANCIAL IMPLICATION

1.	Establishment of Science and technology research and Development Coordinating Division (STRDCD)	Presentation of FEC Memo for the establishment of STRDCD and formal Inauguration of the division	Short Term	FMST	50,000
2.	National Priority R&D Projects	Identify and Prioritize R&D projects to address national needs in: (i) Food security and Poverty eradication (ii) Energy and water supply (iii) Healthcare Delivery (iv) Accelerated Industrialization (v) Qualitative Education and Human resources Development	Short term	NCST, FMST, TAC	20m
3.	Science and Technology Network	(i) Establish LAN in FMST (ii) Establish WAN linking S&T Parastatals (iii) Provide internet access to all Parastatals and Universities (iv) Link all parastatals/University/Polytchnics to FMST Data Bank (v) Create Visual Laboratory.	Short Term	FMST, NITDA, FME, All R&D Institutions	500m
4.	Incentives for fostering Cooperation amongst Stakeholders	(i) Establish a Trust Fund; (ii) Improve Physical Infrastructural facilities in S&T Institutions; (iii) Streamline patenting procedures	Short Term	FMST,NOTAP FMI	1,000m
5.	Fostering Research through International cooperation	(iv) (i) Establish S&T Network dedicated to International cooperation (v) Support Organisation of conferences, workshops seminars etc. (vi) Exchange Programme	Short/Medium term	FMST, International Organisation	10m 140m 140m
		Total			N1,940.05

CHAPTER THREE

POLICY ON HUMAN CAPACITY BUILDING OF NIGERIANS IN , AND TRANSFER OF TECHNOLOGY BY MULTINATIONAL COMPANIES.

1.0 INTRODUCTION

1.1 the positive impact of technology transfer is greatest where the technology providers, particularly the multinationals, create the capability for technology absorption within their overseas subsidiaries or joint ventures. The capacity for technology absorption can be met if the technology providers actively create the conditions for training and skill acquisition within their operations.

1.2 On the other hand, the capability of receiving country to absorb technology is dependent on the range and quality of the country's science and technology infrastructure, incentives and penalties put in place by the3 country's government to enforce the technology providers embark on deliberate programmes of technology absorption within their operations.

1.3 the situation in Nigeria is such that the multinationals do not deploy Nigerians at top-level positions that demand highly sophisticated technology capacity. The possible explanations could that:

(i) the companies did not consider that Nigerians have enough capability to meet challenges of top level positions.

(ii) Many Nigerians do not actually posses the necessary capacity inspite of their sound theoretical capabilities

2.0 POLICY STATEMENT

The nation shall through research and develop create the necessary environment, incentives and penalties for promoting technology transfer by the multinationals, while at the same time promote the provision of necessary infrastructures for technology absorption by Nigerians.

3.0 OBJECTIVES

(i) to establish a data base and update it on a continuous basis on the indigenous capacity building efforts of multinationals operating in Nigeria

(ii) To create enabling environment for multinationals to engage on capacity building through incentives and other fiscal measures

(iii) To establish parameters for measuring capacity building effort of the multinationals

(iv) To establish penalties for failure to comply

(v) To establish a monitoring capacity

(vi) To increase the vocational and technical skill content in primary, secondary and tertiary institutions

(vii) To establish mechanism for S &T manpower planning and projection

(viii) To increase the per capital investment or Research Development

4.0 STRATEGIES

(i) Conducting a nationwide S & T manpower survey to determine available capacity especially in identified critical/sensitive areas

(ii) Strengthening S & T infrastructure to deliver know-how

(iii) Creating an enabling environment for locating, innovating and assimilating existing technologies

(iv) Developing immediate and high level manpower programmes for selected staff within multinational companies

(v) Encouraging technical management levels

(vi) Monitoring companies in respect of their training and top management succession programmes

(vii) Putting in place a number of incentives such as tax relief, increased reparation allowance, national awards, etc to promote technology transfer efforts by the multinationals

(viii) Putting in place penalties such as imposition of levies, reduced reparation allowances, withdrawal of operating licence where this is considered necessary

(ix) Conducting field surveys to address issue of capacity building on regular basis

(x) Staging of stakeholders conferences, seminars and or workshops on capacity impact assessment in multinational companies.

WORKPLAN N HUMAN CAPACITY BUILDING OF NIGERIANS IN , AND TRANSFER OF TECHNOLOGY BY MULTINATIONAL COMPANIES.

S/N	PROGRAMME	ACTIVITIES	TIME FRAME	ACTION BY	FINANCIAL IMPLICATIO N
1.	Obtaining and updating at regular interval, Indigenous Capacity Building efforts of the Multinational	Preparing appropriate questionnaire	Short Term	FMST	1m
		Use of Professional bodies, consultant and FMST staff to conduct national manpower survey	Short Term	FMST	5m
		Preparation of survey reports	Short Term	FMST	5m
		Developing mechanism for updating at regular interval, the multinationals performance with respect to capacity building in their operations	Short Term	FMST	1m
		Increase the vocational technical skill content in primary, secondary and tertiary institutions	Medium	FME/FMST	Tbe determined by FMST
		Increase the per capita investment in development, that is funding of Universities FMST and its parastatals	Medium	FME/FMST	Percentage as recommende d by Lagos Plan of Action
		Increase the overall capacity for the transfer of technology by multinationals through the setting up and enforcing of technology transfer guidelines	Medium term	FMST	1m
		Raise the states of technical colleges along with increasing the number of technical colleges	Medium term	FME/FMST	Cost to be determined by FME
		Establish appropriate mechanism for S&T manpower planning and projection	Medium term	FME/FMST/Manpow er Board	1m
		Carry out comparative study of technical educational systems of selected countries for the purpose of benefiting from their experience	Short term	FMST/FME	5m
	PROVISION OF SECTORAL GUIDELINES TO ENSURE GENUINE TECHNICAL AND	Interaction with multinational companies to agree on a workable capacity development	Short Term	FMST	0.5m

	MANAGEMENT CAPACITY BUILDING OF NIGERIANS OVER SPECIFIED OPERATIONAL TIME FRAME BY MULTINATIONALs	programme			
		Development of a crash programme time table for capacity building in multinational companies	Short Term	FMST	0.5m
		Setting up of appropriate monitoring capacity	Short term	FMST	1m
	DEVELOPING OF INCENTIVES FOR MULTINATIONALS TO PROMOTE CAPACITY BUILDING AND PROVISION OF PENALTIES FOR LOW LEVEL CAPACITY BUILDING	Establish appropriate incentives and penalties	Short Term	FMST	0.5m
		Establish appropriate monitoring scheme	Short Term	FMST	0.5m
	CAPACITY IMPACT ASSESSMENT OF THE OPERATIONS OF MULTINATIONALS	Organise stakeholders conference on capacity building impact assessment in multinational companies	Short term	FMST	10m
		Determine the monitoring and evaluation parameters in respect of capacity impact assessment	Short Term	FMST	5m
		Implementing impact assessment	Medium	FMST	15m

CHAPTER FOUR

POLICY ON ENERGY RESEARCH AND DEVELOPMENT

1.0 INTRODUCTION

1.1 The nature and extent of energy d3mand and utilization in a national economy are to a large extent related to the pace of industrialization. On the other hand, the management of the energy demand and utilization depends on the way research and development tools are employed to promote a judicious cost-effective exploitation of the national convention alternative and renewable sources of energy.

2.0 POLICY STATEMENT

The nation's energy resources shall be developed and utilized on a self-sustaining basis through research development and profitable application.

3.0 OBJECTIVES

(i) to initiate and promote energy related research development programmes; and ensure that such programmes are application oriented and market driven.

(ii) To promote participation in research and development by Nigerians in all areas of energy exploration, development and utilization in an environmentally friendly manner.

4.0 STRATEGIES

(i) Developing endogenous capacity in the management exploitation of the nation's conventional energy resources

(ii) Setting up and maintaining a comprehensive information system on available renewal energy resources and technologies.

(iii) Developing wind energy data acquisition capacity and producing national wind map

(iv) Endogenising hydrogen production and application technologies

(v) Intensifying R&D efforts in nuclear science and technology

(vi) Developing institutional framework and infrastructure for the development and application of nuclear science and technology

(vii) Developing and promoting capability within the nation's Energy Research Systems for the design and fabrication of efficient energy devices and technologies for the utilization of the nation's renewable energy resources of wind solar, biomass, nuclear and hydrogen

(viii) Establishing pilot plant for the demonstration and dissemination of renewable energy devices and technologies to promote their adoption for their market penetration

(ix) Monitoring and assessing international development in all energy areas; and initiating and sustaining local capability for their application

(x) Initiating and promoting energy educational programmes and research activities in tertiary institutions

(xi) Encouraging result-oriented R&D in the energy sector by developing appropriate incentives as may be determined by the FMST, for making expenditure on such R&D efforts

(xii) Developing and implementing R&D in the optional utilization of various energy resources to minimise the associated adverse environment impact

(xiii) Developing a scheme of incentives to encourage producers and users of renewable power system.

WORK PLAN FOR ENERGY RESEARCH AND DEVELOPMENT

PROGRAMME	ACTIVITIES	DURATION	COORDINATING AGENCY	FINANCIAL IMPLICATION
RENEWABLE ENERGY	Documentation Solar Energy Resources	Short Term	FMST	20m
	Documentation of wind energy resources and production of wind map	Short Term	FMST	30m
	Establishing demonstration and pilot projects on solar biomass and wind energy	Short Term	FMST	100m
	Developing and promoting a set of regulations and guidelines to promote and sustain the local solar, biomass and wind energy industry	Short Term	FFMST, FMI, FMPS ENERGY COMMISSION OF NIGERIA	10m
	Continuation of the overflow of short – term activities	Medium term	FMST, FMI, ENERGY COMMISSION OF NIGERIA	50M

	Establishment of pilot project to assist local manufacture of renewable energy equipment such as solar cells PV modules and panels, wind energy equipment, biogas digester etc	**Medium term**	**FMST FMI FMJ**	**5M**
	Encouraging through fiscal measures, wide spread production and installation of renewable energy systems	**Long term**	**FMST, FMI FMJ**	**5M**
	Continuation of overflow of short and medium term activities		**FMST,FMI, FMPS, ENERGY COMMISION, PRIVATE SECTOR**	**150M**
	Full integraqtion of renewable into national energy mix	**Long term**	**FMST, FMI, FMPS, ENERGY COMMISSION, FMJ, FMPS**	**1OM**

PEACEFUL USE OF NUCLEAR ENERGY	**Acqusition and operation of pilot scale irradiation capacity for food preservation, sterilization and other industrial applications**	**Short term**	**FMST**	**1 billion**
	Acquisition of nuclear research facilities and expansion of their applications in manpower training, agriculture, health and industry	**Medium term**	**FMST**	**2 Billion**
	Continuation of overflow of short medium-based activities	**Long Term**	**FMST**	**1 Billion**
HYDROGEN ENERGY RELATED TECHNOLOGIES	**Developing R&D activities in oil, gas and tar sand for the production nof lubricants and other oils**	**Short term**	**FMST**	**15m**
	Endogenising hydro production and application technologies	**Medium** **Long**	**FMST ENERGY CENTRES** **ENERGY COMMISSION**	**2 Billion**

OIL AND GAS	**Endogenising R&D activities in oil, gas and tar sand for the production of lubricants and other oils**	**Short** **Medium** **Long**	**FMST** **ENERGY COMMISSION**	**1 Billion**
ENERGY CONSERVATION	**Developing and implementing R&D programmes in energy conservation and efficiency**	**Short** **Medium** **Long**	**FMST ENERGY CENTRES** **ENERGY COMMISSION**	**200m**

CHAPTER FIVE

POLICY ON COOPERATION OF FEDERAL GOVERNMENT MINISTRIES AND FEDERAL MINISTRY OF SCIENCE AND TECHNOLOGY ON THE IMPLEMENTATION AND FUNDING OF S & T BASED CAPITAL PROJECTS AT FEDERAL, STATE AND LOCAL GOVERNMENT LEVELS.

5.0 PREAMBLE

The Federal Ministry of Science and Technology is determined to play the leading role in encouraging cooperation and collaboration amongst all Science and Technology (S & T) stakeholders, Ministries, Federal, State and Local Governments.

The Ministry will take the necessary steps towards the creation of a suitable environment for the implementation and funding S & T-based capital projects so that the economy can grow and flourish. The Ministry will therefore, seek the full co-operation of existing Institutions in integrating on-going programmes and available resources. A National Science and Technology Co-ordinating Council (NSTCC), with Mr. President as the Chairman, will be established as an apex body with the responsibility for the implementation of the proper collaboration, coordination and consolidation of all S & T related capital projects in the country.

5.1 POLICY STATEMENT

The Federal Ministry of Science and Technology has the mandate for advancement of Science and Technology and its activities have direct bearing on the activities of cognate Ministries such as the Ministries of Agriculture, Health, Industry, Environment, Education, Communications, Power and Steel, Water Resources, Solid Mineral Development, Works and Housing to mention a few.

The Policy therefore intends to address the “missing link” in ensuring adequate funding and proper co-ordination of S & T related projects wherever they are found in the Federation, while ensuring the understanding and cooperation of all Stakeholders at all levels of Governments.

5.2 **OBJECTIVES**

- Preparing and presenting proposal for the establishment of the National S & T

Co-ordinating Council to the Federal Executive Council (FEC) and the National Assembly for approval and necessary Legislation.

- Setting up of the NSTCC SECRETARIAT BY FMST

- Survey of S& T projects/ programmes in various cognate Ministries and other stakeholders at the Federal, State and Local Government levels.

- Consultative drive by the NSTCC with the State/Local Governments for establishing S & T Directorates and Committees at the State and Local Government levels respectively.

- Computer networking between the NSTCC Secretariat and State Directorates/Local Government Committees for flow of information.

- Creation of regular consultative fora between the NSTCC, cognate Ministries and other stakeholders.

- Emphasizing on efforts at increasing S & T language competence for information flow.
  - Expanding of S & T desk content in the mass media and improving the standard of S & T reporting.
  - Expanding the scope and quality of coverage of S & T activities in the mass media by providing a definite focus and identity for S & T communities.
  - Creating greater awareness on the protection of inventive and innovative skills through the Intellectual Property system.
  - Review of primary and secondary schools curricula to emphasize the study of Science and Technology at the early stages of our education.
  - Promotion of establishment of S & T clubs in Tertiary Institutions.

- Organization of Seminars/Workshops and Techmart at the three levels of government, where new innovations, inventions, research breakthrough/findings and other scientific achievements from all over the country would be brought to the knowledge of the general public.

5.21 FEDERAL LEVEL

Presentation of bills to the National Assembly for:

- i Re-establishment pf NSTF into which 20% of the education tax and 50% of tax on foreign technology transfer fees will be committed for the promotion and enhancing R & D activities in the country.

ii Implementation of the proposed 2-5% of GDP or 5% of Annual Budget or 2% of Federation Account for S & T activities effective from 2002 Annual Budget.

- Strengthening Venture Capital Investment Schemes to provide capital for the development of Science and technology, particularly the commercialisation of high-risk R & D projects.

- Channelling 2.5% of the proposed 10% of profits earmarked by banks for small-scale development for commercialisation of R & D results.

- Encouraging commercial and Merchant Banks to fix low rates of interests on funds loaned for commercialisation of R & D Results.

- Setting aside 50% of revenue accruing from the tax realized from Foreign Technology Transfer Fees to NSTF as is done in Brazil, India, Korea, China and the Asian Tigers.

- Providing liberal policies on importation of S & T machinery, equipment, spare parts and raw materials.

- Providing funds for computer education/literacy in tertiary institutions.

5.22 STATE LEVEL

- Establishing a State Science and Technology Fund (SSTF)
- Providing loan guarantees to SMEs to catalyze economic growth.
- Promoting philanthropic contributions to the SSTF by individuals and groups as well as organizations within the state for specified research and development projects and programmes.
- Funding of S & T capital projects and programmes up to a level of 5% of their Annual Budgets.
- Setting aside 2 % of revenue accruing from taxes in general for S & T activities.
- Providing funds for computer education/literacy in secondary schools.

5.23 LOCAL GOVERNMENT LEVEL

- Funding of S & T capital projects and programmes up to a level of 2% of their Annual Budgets.
- Strengthening, nurturing and providing incentives to Micro and Small Scale Enterprises (MSEs) by guaranteeing loans to indigenous entrepreneurs.

- Providing funds for computer education/literacy in Primary schools.

5.3 STRATEGIES

- Designing and implementing comprehensive training and manpower development programmes based on the identified needs through:

- Short courses, workshop, seminars and conferences
- Long courses/training programmes
- Full-time courses
- Enhanced educational programmes

- On-the-job training
- Exchange programmes
- Techno-expositions
- Participation in International events
- Bilateral and Multilateral programmes
- UN Agencies/Donor Agency programmes

- Recruiting, where necessary, of qualified personnel.
- Enhancing the facilities in Research Institutions.
- Encouraging the business and industrial sector to become more involved in R&D.
- Ensuring realistic and practicable budgeting.
- Establishing the current status of S&T capital projects nationwide.
- Harmonization of all S&T capital projects for better funding, monitoring and evaluation.
- Capacity building for project implementers, and for monitoring and evaluation officers.
- Mounting public awareness programmes aimed at educating the public in general, as well as the civil and public service in particular, on the need for attitudinal change in implementing S&T projects.
- Reviewing the existing inter-Ministerial relationships between key S&T stakeholders.
- Addressing any identified problems along the following lines:

❖ **Manpower problems**:
- Recruitment of technically qualified hands
- Training and retraining of staff
- Improved employee education

❖ **Human problems:**
- Increased incentives
- Reviewed remuneration
- Promotion of joint activities
- Improved communication

❖ **Material Resources problems:**

- Increased funding of S&T projects
- Improved project conceptualisation, budgeting, implementation and coordination
- Enhancing facilities for R&D
- Efficient and central control of project finances
- Pooling of S&T resources at the National, State and Local Government levels

- Stationing of S&T experts in cognate Ministries as “Desk Officers “for the purpose of coordinating and monitoring S&T projects.
- Establishment of the NTIT
- Conducting a survey to establish the status quo in terms of facilities, manpower and financial status.
- Computer networking and databank to link all stakeholders.
- Development of human resources of the highest quality and recognition of excellence as a contribution to the strength of the nation.
- Working out the details of the corporate incentive structure suggested above by IMPAC.
- Presentation of memo to FEC on corporate incentives.
- Implementation, monitoring and evaluation of the approved incentives structure.
- Creation of enabling environment for the acquisition of Internet facilities.
- Acquisition and application of the Internet in all sectors of the economy.
- Imbibing Science and Technology as a culture through:
  - Promoting a sound scientific educational system
  - Encouraging maintenance culture
  - Re-orienting the society into recognizing individuals who achieve scientific and technological excellence
- Inclusion of indigenous scientists in the formulation of national policies
- Strengthening of linkages and collaboration between research institutions and relevant industries

- Establishment of Directorates of Science and Technology in all States, while Science and Technology Committees are established in all Local Governments of the Federation.
- Involving all three tiers of Government in the formulation and adoption of the National S&T policy to ensure consistency and long-term support for all S&T –based capital projects.
- Expanding the use of Information Technology, particularly through networking, as a means of promoting free flow of information amongst the three tiers of government.
- Development of S&T databank capable of providing up-to-date and reliable data on Science and R&D activities.
- Review and adoption of the National Policy on Science and Technology;
- Development and presentation of a bill on the establishment of the National Science and Technology Coordinating Council (NSTCC) to the National Assembly for approval and necessary legislation;
- Formal inauguration of the NSTCC;
- Formation of Internal Committee by FMST to design strategies of popularizing the new policy to cognate Ministries and other Stakeholders;
- Collect inputs for the effective implementation of the policy from Stakeholder Ministries;
- Request to Stakeholder Ministries to nominate their representatives for the Inter-Ministerial Action Plan Committee (IMPAC) and selection of experts as members of the National Technical Implementation Team;

- Inauguration of the IMPAC/NTIT

- Survey and Assessment of S & T based capital projects nationwide;

- Establishment of State Directorates and Local Government Committees for S & T

- Establishment through FEC memo the National Science and Technology Fund (NSTF) and remitting 2-5% of GDP and 20% of Education Tax Fund into it for funding S & T.

- Facilitate programmes encouraging Private Sector contributions to funding S&T.

- Review primary/secondary schools curricula to give S & T prominence.

- Enlightenment campaign to governments and the public on the importance of S & T as a critical tool for economic growth and national development

- Acquisition of computer hardware and Internet facilities and establishment of LAN/WAN amongst stakeholders.

- Presentation of a memo to the FEC on the removal of taxes and duties on technology related products and goods.

- Designing other forms of incentives as rewards for outstanding performance on S & T.

- Presentation of a memo to FEC on National Science and Technology Summit (NSTS).

- Holding the first National Science and Technology Summit.

WORK PLAN FOR IMPLEMENTING THE POLICY ON COOPERATION OF FEDERAL GOVERNMENT MINISTRIES AND FEDERAL MINISTRY OF SCIENCE AND TECHNOLOGY ON THE IMPLEMENTATION AND FUNDING OF S&T – BASED CAPITAL PROJECTS AT FEDERAL, STATE AND LOCAL GOVERNMENT LEVELS

S/N	PROGRAMMES	ACTIVITIES	TIME FRAME	ACTION BY	FINANCIAL IMPLICATION
1.	Adoption of the proposed policy on cooperation of Federal Government Ministries and FMST.	a. Review and adoption of policy by FMST.	2nd quarter 2001	FMST	N50,000.00
2.	Approval of proposed policy on cooperation of Federal Government Ministries and FMST by the FEC.	a. Development and presentation of memo to the FEC on the proposed policy, within the frame work of the National Policy on S&T.	2nd quarter, 2001	FMST	N50,000.00
3.	Formal Establishment of the National Science and Technology Coordinating Council (NSTCC).	a. Development and presentation of a Bill on NSTCC to the National Assembly for approval and necessary legislation.	3rd quarter, 2001	Presidency/FMJ	N50,000.00
		b. Proposal to Mr. President for formal inauguration of the NSTCC.	3rd quarter, 2001	HMST	N50,000.00
		c. Inauguration/setting up of the secretariat of the NSTCC.	3rd quarter, 2001	Mr. President (Chairman, NSTCC)	N20,000.00
4.	Popularisation of Policy on cooperation of Federal Government Ministries and FMST.	a. Formulation of Internal Committee by FMST to design Strategies of popularizing the new Policy to cognate Ministries and other stakeholders.	3rd quarter, 2001	HMST	N10,000.00
		b. Consultative drive to stakeholder Ministries to introduce the new Policy and create positive understanding of he Policy.	3rd quarter, 2001	FMST Internal Committee	N10,000.00
		c. Collect imputs for implementation of the Policy from stakeholder Ministries	3rd quarter, 2001		N10,000.00
5.	Formulation of the Inter-Ministerial Action Plan Committee and National	a. Request to stakeholder Ministries to nominate their	3rd quarter, 2001	Stakeholder Ministries/FMST	= =

	Technical Implementation Team to take charge of implementing the Policy within the S&T stakeholder Ministries.	representatives for the IMPAC and the selection of experts as members of NTIT by HMST.			
		b. Inauguration of the IMPAC/NTIT	3rd quarter, 2001	HMST (V/Chairman NSTCC)	N250,000.00
		c. Designing modalities for implementing the Policy within S&T stakeholder Ministries.	3rd quarter, 2001	IMPAC	N25,000.00
		d. Survey and Assessment of S&T-based capital projects nationwide.	3rd quarter, 2001	FMST/NTIT	N200,000.00
6.	Establishment of S&T Directorates/Committee at State & Local Levels respectively	a. Consultative drive to State/Local Govt. to mobilize then to set up their S&T Institutions	4th quarter, 2001	NSTCC/FMST	N2,000,000.00
		b. Setting up of State Directorates and Local Government Communities for S&T	4th quarter, 2001	State/Local Govts.	
7.	Funding of S&T projects and programmes	a. FEC/Legislative approval for the establishment of NSTF and remitting 2-5% GDP and 20% Education Tax Fund into it for funding S&T.	3rd quarter, 2001	FMST/NSTCC/FEC/ National Assembly	
		b. Encouraging State/Local Govts. commit a minimum of 5% and 2% of their annual budgets respectively to S&T programmes.	3rd quarter, 2001	NSTCC/State/Local Governments	N2,500,000.00
		c. Programmes encouraging private sector contributions to funding S&T.	3rd quarter, 2001	NSTCC	
8.	S&T Education	a. Review of Primary/Secondary schools curricular to give S&T prominence.	3rd quarter, 2001	IMPAC/NTIT/FMST/ FMED	N50,000.00
		b. Enlightenment campaign to Governments and the public on the importance of S&T as a tool for economic growth and National development	3rd quarter, 2001	IMPAC/NTIT/FMST/ FMED	N10,000,000.00

9.	Computer Networking	a. Acquisition of computer hardware. b. Establishment of LAN and WAN amongst stakeholders. c. Acquisition of Internet facilities.	4th quarter, 2001 4th quarter, 2001 4th quarter, 2001	FMST/NTIT FMST/NTIT FMST/NTIT	N20,000,000.00 N10,000,000.00 N1,000,000.00
10.	Corporate Incentive Structure	a. Presentation of memo to the FEC and a Bill to the National Assembly on the removal of taxes and duties on technology related products and goods. b. Designing of other forms of incentives as rewards for outstanding performances on S&T	4th quarter, 2001	FMST/NTIT IMPAC	N10,000,000.00 N250,000.00
11.	The National Science and Technology Summit	a. Presentation of a memo to FEC on the National Science and Technology Summit. b. Holding of the first National and Science and Technology Summit	4th quarter, 2001	FMST Government and Private Sector	N50,000.00 N10,000,000.00

CHAPTER SIX

POLICY ON SPACE RESEARCH

PREAMBLE

1.0 Nigeria's desire to venture into Space Technology was first made known to ECA/OAU member countries at an inter governmental meeting in Addis-Ababa, Ethiopia in 1976. For this reason, the Federal Government of Nigeria set aside N10 million within the 1975 – 1980 development plan to establish a Remote Sensing Centre.

In April 1987, an Inter-Ministerial meeting was convened to draw up programme for the establishment of the National Remote Sensing Centre. In the same April, a two man committee was set up by the FAO at the request of the Nigerian government to advise on the user-oriented need and other aspects of space technology. The FAO report strongly advised Nigeria to set up among other things, machineries/infrastructure for the development of Space Science and Technology.

In 1993, the National Agency for Science and Engineering Infrastructure (NASENI) which took over from the FMST constituted a nine-man committee of experts to produce a draft National Space Science and Technology Policy. After extensive consultations with experts both at home and in Diaspora, the draft on space policy documents was finalized. Sequel to these, NCRS, Jos took off in 1996 as the first center among the centers proposed under the policy document.

On the 5th May, 1999 the Space Science and Technology received a boost when the National Space Research and Development Agency (NASRDA) was established.

2,0 **POLICY STATEMENT**

Nigeria shall vigorously pursue the attainment of Space Capabilities as an essential tool for its socio-economic development and the enhancement of the quality of life of its people.

3.0 **OBJECTIVES**

The objectives of the Policy shall be:

(i) to develop indigenous capabilities for research and development and applications in the major areas of space science and technology;

(ii) to use these capabilities as tools for;

(a) natural resources management and infrastructural

development;

(b) environmental monitoring and sustainable development;

(iii) development of an effective and efficient communication system;

(iv) training Nigerians in the acquisition and application of modern technology.

(v) design and launch Nigerian Satellites for communications purposes, for environmental and resources monitoring and for national security.

(vi) develop the Engineering and Scientific ability necessary to produce Transport Vehicles (Rockets) including various types of fuels for Rockets propulsion.

(vii) develop sustainable bilateral and multilateral cooperation with friendly developed nations towards Technology Know-How, Transfer and Training.

(viii) capacity building in space science and technology development and management.

(ix) data acquisition, analysis and utilization in atmospheric science and astronomy;

(x) space medicine and life science research especially into diseases endemic to Africa;

(xi) remote Sensing for resource survey and management, environment monitoring, meteorological services and national security; and

(xii) development and operationalization of indigenous space systems for providing space services.

4.0 **STRATEGIES**

The Nation shall achieve this through research, rigorous education, engineering, development, design and manufacture of appropriate hardware and software in space technology, including transport and payloads, such as satellites, telescope and antennas for scientific research and applications.

Government shall also foster Bi-lateral and international cooperation in all aspects of space science and technology in order to ensure that Nigerian Scientists and Engineers will benefit from global developments in this enterprise.

Space Technology is multi- disciplinary, therefore it is necessary to establish centers of excellence and institutional framework to develop the relevant fields and coordinate various programmes for the attainment of the national space capability. In order to achieve the objectives of the policies, therefore, the government shall establish the following activity centres.

1. ***Centre for Basic Space Science***
2. ***Centre for Remote Sensing***
3. ***Centre for Satellite Technology Development***
4. ***Centre for Geodesy and Geodynamics***
5. ***Centre for Space Transport and Propulsion***
6. ***Centre for Space Science and Technology Education***

Government shall also put in place an institutional framework that will oversee all the SST activities in the Country under an Apex Organ to be called the **National Space Council**. It shall be the policy of government to establish NATIONAL SPACE COUNCIL to be chaired by Mr. President.

The National Space Council will be responsible for the development of the nation's policy guidelines on space activities. Membership of the National Space Council shall include: His Excellency, Mr. President, His Excellency, Mr. Vice President, The National Security Adviser; Ministers of Science and Technology, Defence, Internal Affairs, National Planning, Education, Finance, Communication, a Private Sector representative and one distinguished scientist.

The Ministry of Science and Technology, which coordinates and supervises the activities of a National Space Research and Development agency, will provide the Secretariat. There shall be two Advisory Committees to be set by the Honourable Minister of Science and Technology, Technical Advisory Committee and a Committee on International Cooperation to advice the agency
as the need arises on programmes implementation and bilateral/multilateral cooperation needed in the implementation of the space programmes respectively.

CHAPTER SEVEN

POLICY ON APPROPRIATE TECHNOLOGIES FOR EMPOWERING SMALL AND MEDIUM-SCALE ENTERPRISES (SMEs)

BACKGROUND

Small and Medium-scale Enterprises (SMEs) have long been recognized as critical in the economic and social development of most countries. They cover a heterogeneous group of business units of diverse size and organization, managerial capacity, technological level and sophistication. Economic indices show that SME activities make an important contribution to the improvement and sustenance of economies. They play important roles in job creation with low investment, poverty eradication, rural industrialization, serving as suppliers to large companies, entrepreneurship development, and innovation of new products and processes. The products of SMEs range from services to industrial raw materials, finished products, spare parts, components, units and sub-units. Some of the products are for direct consumer consumption while others are inputs into other industries, including the Large-scale Enterprises (LSEs).

For a country to reap these benefits, its SME development must be properly nurtured, organized and empowered technologically.

POLICY:

Government shall facilitate and ensure the emergence of a large pool of technologically empowered SMEs as a means of achieving sustainable economic growth, eradicating poverty and play a key role in global economy.

Government shall ensure an increase of the national Manufacturing Value Added (MVA) from the present level of $17 per capita to $100 per capita. This will entail fostering, promoting and sustaining the provision of assistance to the nation's SMEs in the areas of infrastructure, technical and business extension services, testing facilities as well as product and process research and development services.

OBJECTIVES:

i. To provide the right environment that will promote access to information at affordable prices on technologies processes, equipment, materials and markets worldwide through ICT facilities;

ii. To create a pool of potential technical entrepreneurs through formal and informal education and training; and

iii. To ensure an adequate supply of varied professionals, creative design engineers, appropriately trained technologists, technicians and craftsmen capable of translating engineering drawings into tangible goods.

STRATEGIES:

i. Government shall create awareness on the importance of small and medium-scale enterprises to national development and poverty eradication by sensitizing all tiers of government and educating them on their responsibilities for establishing a virile SME sector through organizing fora involving policy makers and the private sector at the Federal, State, Local Government and Ward levels.

ii. Government shall pursue the creation of a pool of potential technical entrepreneurs in the SME sector by embarking on hands-on training programmes for such entrepreneurs on specific product lines.

iii. Introduction of entrepreneurship development courses in the curricula of Universities, Polytechnics, Technical Colleges and Vocational Schools.

iv. Government shall ensure that the nations SMEs obtain adequate technical and extension services by mandating Institutions of higher learning and Research Institutes to properly package their capabilities and research findings, and presenting same at fora, workshops and demonstration venues and subsidizing the cost of such technical services to the tune of 75%.

SUMMARY OF PROJECT COST

S/N	TITLE OF PROJECT	1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR	5TH YEAR	TOTAL
1.	**Programme on Data Bank** on S&T-based SMEs.	**=N=** 500.0m	=N= 250.0m	=N= 200.0m	=N= -	=N= -	=N= 950.0m
2.	Programme on Human Resources for the development of SMEs.	320.0m	320.0m	320.0m	-	-	960.0m
3.	Programme on Financial Support for Equipment Upgrading.	400.0m	400.0m	370.0m	310.0m	310.0m	1,790m
4.	Programme on Establishment of a Technology Innovation Fund.	2,000m	1,000m	1,000m	1,000m	-	5,000m
5.	Programme on Wood and Wood Products.	350.0m	258.0m	232.0m	-	-	840.0m
6.	Programme on the development of Oil Palm Industry.	440.0m	355.0m	355.0m	-	-	1,150m
7.	Programme for the Reactivation of the Leather Industry.	328.0m	343.0m	308.0m	-	-	979.0m
8.	Programme						

	on the development of Groundnut Industry.	230.0m	190.0m	190.0m	-	-	610.0m
9.	Programme on the development of Cassava Industry.	310.0m	290.0m	290.0m	-	-	890.0m
10.	Programme on Micro-processor Numerical Control Systems for Locally built Machines.	120.0m	960.0m	77.0m	-	-	293.0m
GRAND TOTAL		**4,988m**	**3,502m**	**3,342m**	**1,310m**	**310.0m**	**13,462m**

WORKPLAN FOR IMPLEMENTING THE POLICY ON APPROPRIATE TECHNOLOGIES FOR EMPOWERING SMALL AND MEDIUM SCALE ENTERPRISES (SMES)

S/N	PROGRAMME	ACTIVITIES	DURATION	COORDINATING AGENCY	COST IMPLICATION
1	Programme on Data Bank on S&T based SMEs		Short Term		950.0m
2.	Programmes on Human Resources for the development of SMEs		Short Term		960.0m
3.	Programme on Financial Support for Equipment Upgrading		Short/Medium Term		1.790m
4.	Programme on establishment of a technology Innovation fund		Short/Medium Term		5,000m
5.	Programme on Wood and Wood Products		Short Term		840.0m
6.	Programme on development of Oil Palm Industry		Short Term		1.150m
7.	Programme on reactivation of the Leather Industry				979.0m
8.	Programme on development of Groundnut Industry		Short term		610.0m
9.	Programme on the development of Cassava industry		Short term		890.0m
10	Programme on Microprocessor Numerical Control Systems for locally built Machines		Short Term		293.0m
	Total				**N13,462m**

CHAPTER EIGHT

POLICY ON ENGINEERING MATERIALS DEVELOPMENT

PREAMBLE:

Materials play a pivotal role in the development of a nation. Indeed, over the ages materials have been so central to civilization that they have been used to denote generations such as the Stone Age and Bronze Age. Even the current Information Age, driven essentially by computers is made possible by accelerated advances in the development and use of engineering materials.

Materials Science and Technology deal with the understanding of the fundamental and practical knowledge of the structure, properties, behaviours and processing of materials with a view to developing and adapting them for various applications.

Presently, Nigeria exports her raw materials, only to import them in finished or semi-finished goods at much higher prices. It is imperative for the industrial and economic development of the country, that policies and programs are put in place not only to promote effective and efficient utilisation of the country's raw materials, but more importantly, to ensure adequate value addition to the materials through properly established engineering materials infrastructures.

POLICY:

Government shall ensure effective utilisation of the knowledge of Materials Science, Engineering and Technology to establish a pervasive mastery of materials development and applications for the transformation of Nigeria from a primarily natural resource-based economy to an industrial giant within a decade;

OBJECTIVES:

i. To foster the emergence of adequate pool of well-trained, highly-skilled and motivated Materials Scientists, Engineers and Technologists backed by appropriate infrastructure provision for focused materials

development and innovations in order to achieve self-reliance and enhance the nation's competitiveness in the global market;

ii. To lay emphasis on alloying elements production for the development of metallic alloys and super-alloys used in critical applications and heavy industries;

iii. To ensure focussed and directed programmes on the development of polymers, glass, ceramics, electronic, magnetic, optical and high temperature super-conducting materials;

iv. To exploit and develop wood and natural rubber;

v. To focus on the development of improved fire resistant and high impact polymers and panels for industrial applications;

vi. To pay specific attention to development of strategic materials for the defence industry;

vii. To develop capacity in, and encourage the application of nano-technology; and

viii. To create a sustainable materials development environment that is healthy and safe for the stakeholders and the public at large.

STRATEGIES:

i). Ensuring early completion of Ajaokuta Steel company and the Oshogbo Nigerian Machine Tools company as well as the commencement of the construction of the second phase of Ajaokuta steel plant for flat sheet production to support the automobile, construction and other related sectors;

ii). Establishment of facilities for the development of engineering materials applicable in healthcare delivery, communication, transportation and construction industries;

i). Intensifying development and production activities in the petrochemical sector to extend their use as engineering materials;

ii). Intensifying R&D activities in the Rubber sector to extend its use as an engineering material;

iii). Development of Biodegradable Polymers, Biopolymer and Conducting Polymers.

iv). Development of secondary polymer materials for the automotive industry; and

v). Ensuring mandatory local materials expertise inputs into all technology imports.

WORKPLAN FOR IMPLEMENTING THE POLICY ON MATERIAL DEVELOPMENT

SN	PROGRAMME	DURATION	COORDINATING AGENCY	COST IMPLICATION
1	Institutional strengthening	1. Enhancing EMI 2. Enhancing RRIN 3. Enhancing NMDC 4. Strengthening og Materials Based research Institutes/Centre 5. Intensified Manufacturing Technical Education, training and research and Development		615m 400m 500m 1.5bn 1.5bn
2.	Enhancing Foundry Technology and Manufacturing Process			3bn
3.	Enhancing ADI Technology			250m
4.	Enhancing Electronic Material Development Production Programme			2bn
5.	Enhancing polymer, Biomaterials and Compose materials Programme	1. (Engineering Plastics) 2. (Biomaterials) 3. (Composite Materials)		400m 400m 700m
6.	Enhancing Natural	1. Natural rubber)		200m

	rubber and wood products	2. (Wood Products)		100m
	Total			N10.320m

CHAPTER NINE

POLICY ON SCIENCE AND TECHNOLOGY DATA BANK

PREAMBLE

The need for a Science and Technology Databank Policy came about as a result of the need for proper information documentation of activities of Science and Technology. The vision of the Databank Policy is:

To create facilities to fully utilize Science and Technology databases for planning, socio-economic and technology empowerment thus making Nigeria an important hub of Science and Technology Information Networking in Africa by 2003.

9.1 POLICY STATEMENT

The policy statement seeks to ensure that Science and Technology is managed with a view to optimizing the use of national resources including human capital and to facilitate decision-making at national and international levels.

The National Science and Technology Policy will provide guidelines to:

- Facilitate the development of S&T information management systems.
- Provide reliable, up-to-date data on available human and material resources in the various S&T disciplines.
- Develop coordinated distributed networks of S&T databases with appropriate links using internationally accepted standard and format for online local and international access.
- To ensure optimal utilization of resources and seamless access to S&T data from within and outside the country.

OBJECTIVES

a. To enhance coordinated management i.e. acquisition, processing, storage, easy retrieval and dissemination of information on :

i. Variability, demand and utilization of Nigerian S&T professionals
ii. Infrastructural equipment information and distribution and operational status

iii. Publications, R&D activities, S&T related organizations, patents etc.

b. To establish national standards, compatible with International standards for S&T information management.

c. To create seamless, easy available, up-to-date information on various levels of S&T activities.

d. To ensure the development of an effective distributed database network with appropriate linkages.

9.3 STRATEGIES FOR IMPLEMENTATION

9.31 a. SHORT TERM PLANS

- Creation/ identification of a Federal Agency, which shall be charged with the management of National Science and Technology Databank. A few of its mandates will include:
  (a) Provision of easy and timely access to National and International science and technology information to research scientists, industrialists, potential investors and the general public through effective bibliographic control and linkage to the information in the country.
  (b) Acquisition, processing, storage and dissemination of research findings and other relevant information in the area of S&T in the country
  (c) Preparation and maintenance of an inventory of science and technology resources (both human and material) available in the country.

WORKPLAN POLICY ON SCIENCE AND TECHNOLOGY DATA BANK

S/N	PROGRAMME	ACTIVITIES	DURATION	COORDINATING AGENCY	COST IMPLICATION
1	Establish,men mt of National Agency for S&T Data Bank	(i) Presentation of FEC Momo to establish the Agency	Short Term	FMST	500m
2.	Creation of facilities for S&T Data bank	i. Creation of S&T Information document network with nodes in designated institution nationwide. ii. Establishment of standards and foemats for acqusition and presentation of S&T data by all R&D Institutions etc iii. Development of publication machinery which will specifically package information for targeted end-users.	Medium term	FMST,FME,ALL R&D INSTITUTIONS, FMI, FM AGRIC.E etc	500M
			Total		N500,05m

CHAPTER TEN

POLICY ON INFORMATION TECHNOLOGY

10.0 Preamble

Information Technology (IT) is the bedrock for any national development and survival in a rapidly changing global environment, and this challenges us to devise bold and courageous initiatives to address a host of vital socio-economic issues such as reliable infrastructure, skilled human resources, open government and other essential issues of capacity building. In addition, an IT built on reliable human resources and infrastructure constitutes the fundamental tools and means of assessing, planning, managing development changes and for achieving sustainable growth.

It is for these reasons that the Federal Executive council approved a National Information Technology Policy in March 2001 and with the establishment of the National Information Technology Development Agency (NITDA), the policy became implemented in April 2001. The policy recognizes the private sector as the engine for its sustenance. National Information Technology Development Agency is to enter into strategic alliance, collaboration, and joint venture with private sector for the actualisation of the IT vision which is to make Nigeria an IT capable country as well as using IT as a vehicle for sustainable development and global competitiveness.

10.1 Policy

The Policy is to make Nigeria an IT capable country in Africa and key

player in the information society by the year 2005 using IT as the engine for sustainable development and global competitiveness as well as for wealth creation, and poverty eradication.

10.2 Objectives

i. To ensure that Information technology resources are readily available to promote efficient national development.

ii. To guarantee that the country benefits maximally, and contributes meaningfully by providing the global solutions to the challenges of the Information Age.

iii. To empower Nigerians to participate in software and IT development.

iv. To encourage local production and manufacture of IT components in a competitive manner.

v. To establish and develop IT infrastructure and maximize its use nationwide.

vi. To promote tourism and Nigerian arts and culture through the use of IT.

vii. To enhance planning mechanisms and forecasting for the development of local infrastructure.

viii. To enhance the effectiveness of environmental monitoring and control systems.

ix. To empower the youth with IT skills and prepare them for global competitiveness.

x. To integrate IT into the mainstream of education and training.

xi. To create IT awareness and ensure universal access in order to promote IT diffusion in all sectors of our national life.

xii. To create an enabling environment and facilitate private sector (national and multinational) investment in the IT sector.

xiii. To simulate the private sector to become the driving force for IT creativity and enhanced productivity and competitiveness.

xiv. To encourage government and private sector joint venture collaboration.

xv. To develop human capital with emphasis on creating and supporting a knowledge-based society.

xvi. To create Special Incentive Programmes (SIPs) to induce investment in the IT sector.

xvii. To generate additional foreign exchange earnings through expanded indigenous IT products and services.

xviii. To build a mass pool of IT literate manpower using the NTSC, NDE and other platforms as "**train the trainer"** (**TTT**) Scheme for capacity building.

xix. To set up Advisory standards for education, working practices and industry.

xx. To establish appropriate institutional framework to achieve the goals stated above.

10.3 **Strategies**

i. Establishing a coordinated programme for the development of a National Information Infrastructure (NII), State Information Infrastructure (SII) and Local Information Infrastructure (LII) backbone by using emerging technologies such as satellite including VSAT, fibre optic networks, high-speed gateways and broad band/multimedia technologies.

ii. Providing adequate connectivity to the Global Information Infrastructure (GII).

iii. Addressing open standards for further liberalization and the fiscal measures including incentives to substantially improve telephone tele-density and make IT more affordable to the citizenry.

iv. Establishing IT Parks as incubating centres for the development of software applications as national, state and local levels.

v. Restructuring the education system at all levels to respond effectively to the challenges and imagined impact of the information age and in particular, the allocation of special IT development fund to education at all levels.

vi. Encouraging massive local and global IT skills acquisitions through training in the public and private sectors with the view to achieving a strategic medium-term milestone of at least 500,000 It skilled personnel by the year 2004.

vii. Empowering the labour force with IT skills and improving Small to Medium Enterprises (SMEs) productivity.

viii. Establishing national IT awareness machinery at all levels of government and encouraging private sector participation in exposing Nigerians to the use and benefits of IT.

ix. Establishing national IT awareness machinery at all levels of government and encouraging private sector participation in exposing Nigerians to the use and benefits of IT.

x. Strengthening government and private sector collaboration for the attainment of national self-reliance.

xi. Creating national database management systems as a tool for effective planning and communication between citizens at home and abroad.

xii. Enacting Bills and Acts to stimulate and protect the rights of users and developers including intellectual property rights.

xiii. Utilizing IT opportunities to restructure government, citizens and business interfaces for better governance, improved trade and commerce and administrative effectiveness.

xiv. In order to achieve the short to medium term objectives of this policy with maximum effectiveness, government will establish a National Information Technology Development Agency (NITDA) to implement the IT policy, regulate, monitor, evaluate and verity progress on an on going basis under the supervision and coordination of the Federal Ministry of Science and Technology. Its operations will be funded as follows:

(a) Start up grant of at least N.00 billion

xv. Establishing a National Information Technology Development Fund (NITDF) under the aegis of the National Information Technology Development Agency and funded as follows:

(a) Start up grant of at least $150m;

(b) Two percent of the national budget will be allocated to the fund until the articulated vision is attained;

(c) 3% tax on all imported finished IT products will be directly paid to the fund.

Government recognizes IT as a strategic imperative for national development and taking cognizance of its immense benefits, government has resolved to provide

considerable national resources, both financial and otherwise, for the realization of the National IT Vision

Work plan for Information Technology Development Policy

	Programme	Activities	Duration			Coordinating Agency	Cost Implication	
			Short	Medium	Long		U.S $	₦ (1 US$= ₦126) ₦m
1.	Establishing the National Information Technology Development Fund	Establishing NITDA	"	"		**FMST**	150m	18,900
2.	Establishing the National IT Development Agency (NITDA)	1. Purchase of sufficient office space with ample parking space. 2. Office furniture and fittings (60% local manufacture) 3.Computerisation:WANS, software, LAM, PCs, server, and HUBs with at least 35% local servicing. 4. VSAT and communications. 5. UPS/Back-up power. 6. Operational vehicles	"	"		**NITDA**	10.5m	1,323
3.	Establishing scalable IT and Science Park Pilot Scheme in the Six Geopolitical Zones and FCT.		"	"		**NITDA**	99m	12,474
4.	IT Educational and Training Sector. a. Centres for IT Development in IT Parks. b. IT Facilities for Educational System.	1. Physical Infrastructure. 2. IT facilities 3. Utilities. 4. Sub-total 1. 100 secondary schools each with 10 PC systems. 2. 25 Universities and centres each with 10 PC systems. 3. 40 Polytechnics each with 10 PC systems. 4. 20 technical colleges each with 10 PC systems.	" " " " "	" " " " "		NITDA	8.50m 16.1m	2,016
5.	IT Grants to specially select tertiary institutions for setting up IT Departments and R&D Facilities.	One in each of the six geo-political zones and FCT.	"	"		NITDA	10.85m	1,367.1
6.	Mobil Internet Units (MIUs) for IT training in rural training schemes.	One in each of the six geo-political zones and FCT.	"	"		NITDA	3.85m	485.1

7.	Rural Internet Resource Centres fitted with HF/VSAT Communications	Ten units each per geographical zone FCT.	"	"		NITDA	21.7m	2734.2
8.	State VSAT Terminals and Facilities.	In order to extend the National Information Infrastructure (NII) to the States, one each in each of 30 states.	"	"		NITDA	18m	2268
TOTAL							**$ 338.50m**	**₦ 42651.0**

CHAPTER ELEVEN

POLICY ON INTELLECTUAL PROPERTY RIGHTS

11.0 PREAMBLE

In today's global arena, national prosperity is generated by advances in science and technology (S&T). However, the absence of an effective and coherent policy on Intellectual Property Rights(IPR) has stunted inventiveness and creativity in S&T, because inventors and creators of commercialisable ideas and technologies have reaped little or no direct benefit and reward from their efforts. Undue advantage of extant weak IPR laws are being taken by third parties to the detriment of inventors and innovators. This has often discouraged this talented group of Nigerians and/or forced them to take their inventions outside the country.

11.1 Policy

Government would create the conducive environment for the generation of new commercialisable ideas, new technologies and new applications that would help catalyze national efforts at wealth creation, poverty alleviation and launch Nigeria on the path of true greatness with capability to compete effectively in global arena.

Government would also device a way of encouraging creativity and protecting inventors and innovators if Nigeria, with its huge human and natural resource endowment is to join the league of developed rich nations.

11.2 **Objective**

To develop an effective national policy on Intellectual Property Rights (IPR), that will invigorate the national economy through the stimulation of innovation, creativity, rapid technological development and acquisition as well as wealth generation.

11.3 **Strategy**

i. Drawing up implementable progragrammes and activities.

ii. Ensuring collaboration in the implementation of programme among relevant institution including private sectors to achieve the set objectives.

WORK PLAN FOR IMPLEMENTING THE NATIONAL POLICY ON INTELLECTUAL PROPERTY RIGHTS

S/N	PROGRAMMES	ACTIVITIES	TIME FRAME	COORDINATING AGENCY	FINANCIAL IMPLICATION
1.	Establishment of a Committee to review all relevant IPR laws.	i) Setting up of a Committee to review IPR laws and also take cognizance of latest developments (biodiversity, It, traditional knowledge, folklore) etc. ii) Workshop to debate the draft review. iii) Preparation of memo on the draft law to the FEC. iv) Presentation of Bill to the National Assembly.	2001 2001 2001	FMST/NOTAP/ FMC/ FMJ	N1m N3m Nil N0.2m
2.	Setting up of a Special Court for the enforcement of IPR	i) Preparation of a memo on the draft law to the FEC. ii) Presentation of Bill to the national Assembly	2001 2001	FMST/FMC/FMJ	Nil N0.2m
3.	Creation of IPR awareness through seminars in sic geo-political zones, advertisements in print and electronic media	i) Organization of seminars on IPR. ii) Development of jingles in Radio, Television and Advert in the print media iii) Establishment of IPR journal	2002 2002	NOTAP	N6.5m N0.02m N1m
4.	Setting up of a National Property Training Institute (NIPTI) with the necessary infrastructures.	i) Preparation of FEC memo on the subject matter. ii) Presentation of Bill to the National Assembly.	2001 2002	FMST/WIPO/NOTAP/ FMC/Copyright Council	Nil N0.2m
5.	Organization of Forum/Workshop/ Techmart for investors, researchers and entrepreneurs.	i) Preparation for the forum/workshop/techmart. ii) Staging of the forum/workshop	2001 2002	NOTAP	N1m N1.5m
6.	Formation of IPR Clubs and Investors Clubs in tertiary Institutions	i) Appointment of Coordinators ii) Inauguration of the Clubs	2001 2002	NOTAP	N0.5m N1.5m

7.	FMST to propose to NUC introduction of IPR courses to non-law faculties (as GS programme) and law faculties of higher institutions in Nigeria	i) Proposal to NIUC for IPR inclusion in the syllabus. ii) NUC incorporates IPR in the syllabus and request tertiary institutions to comply	2001 2002	FMST/NUC	N0.1m Nil
8.	Establishment of IPR institutional framework through upgrading trading trademarks, patents and designs registry into an intellectual property office.	i) FEC memo on the issue ii) Presentation of Bill to the National Assembly	2002 2002	FMST/FMC	Nil N0.2m
9.	Creation of various awards and prizes to both investor(s) of the year and the highest and best quality product per annum	Organizing competitions for researchers, investors and innovators and giving prizes, NOTAP/WIPO/OAU/Awards	2001 2002	NOTAP/FMST	N4m
10.	To organize seminar/workshop on IT to disseminate information	i) FMST/Agency to organize seminars/workshop ii) Assessment of impact seminar/workshop	2001 2001	FMST	N6m N1m
11.	To introduce IT in our educational system particularly from the primary to tertiary level	i) FMST/Agency to forward a proposal to FME to introduce IT into educational curriculum. ii) FME develops the IT syllabus for schools and implement.	2001 2002	FMST/FME	Nil Nil
12.	Establishment/Publication of bi-annual It Journal	i) Set up an Editorial Committee. ii) Publication of the Journal.	2001 2002	FMST & Parastatals to set up to coordinate IT	N0.2m N1m
13.	Development of incentives to attract IT investors	FMST to develop incentives on IT to attract investors into Nigeria.	2001 2002	FMST	N0.2m
14.	Compilation of a compendium of all R&D results/inventions.	Use of scouts and other information gathering techniques to obtain R&D results/inventions from research institutions and private individuals.	2001 2002	NOTAP	N5m
15.	Creation of R&D outfits in all Universities and Polytechnics/ Research Institutes	Establishment of R&D outfits in all Universities, Polytechnics and Research Institutes.	2001 2002	NOTAP	N4m
16.	Development of a database for storage and retrieval of R&D results/inventions.	Purchase/installation of PCs and software.	2001 2002	NOTAP	N5m
17.	Consultative	NOTAP to organize a	2001		

	meeting/forum between industries/entrepreneurs and research institutes.	forum/meeting with research institutes, universities and entrepreneurs.	2002	NOTAP	N5m
18.	Publication of all R&D results.	Printing/updating of the Compendium of R&D results for researchers	2001 2002	NOTAP	N1m per annum
19.	Seeking patent rights for patentable inventions	Patenting inventions/ R&D results for engineering researchers	continuous	NOTAP	N1m per annum
20.	Technical assessment on inventions	Using NOTAP's engineering Team/Consultants	2001 2002	NOTAP	N1m
21.	Development of prototype/pilot plants to demonstrate the workability of the inventions.	Using NOTAP's Team/Consultant to set up prototypes.	2001 - Continuous	NOTAP	N50m per annum
22.	Conducting feasibility studies	Using NOTAP's Team/Consultants to conduct the studies.	2001	NOTAP	N3m
23.	Sourcing of funds	NOTAP to contact investors, venture capitalists, financial institutions etc.	2001	NOTAP	N6m
24.	Promoting and marketing of R&D results/inventions.	Through technology fairs, techmarts, etc.	2001- continuous	NOTAP	N1m
25.	Organize drama/plays on Radio and TV to show the usefulness of IPR.	Organize for radio and television programmes.	2001 - Continuous	NOTAP	N1m
26.	Provision of patent documents, support structures, expertise, etc to SMEs and other entrepreneurial groups.	NOTAP's team to provide support services to SMEs, etc.	2001 - Continuous	NOTAP	N4m
TOTAL SHORT TERM FINANCIAL IMPLICATION = N126.3M					

MEDIUM TERM

S/N	PROGRAMMES	ACTIVITIES	TIME FRAME	COORDINATING AGENCY	FINANCIAL IMPLICATION
1.	Training workshop for young investors in six geo-political zones of the country.	i) Organization of workshop. ii) Staging of the event.	2002 2004		N1m N3m
2.	Formation of IPR Club and Investors Club in tertiary institutions.	i) Appointment of Coordinators ii) Inauguration of the Club.	2002 2003		N0.5m
3.	Organization of technology/techmart/ workshop/forum for researchers, investors and	i) Preparation for the forum/workshop/techmart. ii) Staging of the	2003 2004		N1m N5m

	entrepreneurs.	forum/workshop/techmart.			
4.	Awareness-building campaign through press and electronic media and seminar in collaboration with WIPO.	i) Joint seminar with WIPO. ii) IPR jingles on radio and television. iii) Publication in the newspapers. iv) Publication of IPR journal.	2002 2004		N5m N1m N1m N0.5m
5.	Publication of bi-annual IT journal.	Publication/printing of the journal.	2002 - 2003		N1m
6.	Organization of seminar/workshop on IT to disseminate IT information.	i) FMST/Agency organizes seminar/workshop. ii) Assessment of impact of seminar/workshop.	2003 2005	FMST	N6m
7.	Technical assessment to determine the technical viability of inventions.	Using NOTAP engineering team/consultants to assess the R&D results.	2003 - 2005	NOTAP	N1m per annum
8.	Assessment of inventions vis-à-vis the state-of-the-art in order to establish novelty.	Conducting state-of-the-art search.	Continuous		N1m per annum
9.	Seeking patent rights for patentable inventions.	Assisting to patent inventions R&D result at the Patent Registry.	Continuous	NOTAP	N2m per annum.
10.	Development of prototype/pilot plants to demonstrate the workability of the inventions.	Using NOTAP's team/consultants to set up the plant.	Continuous	NOTAP	N15m per annum
11.	Conducting of feasibility studies.	Using NOTAP's team/consultants to conduct the studies.	Continuous	NOTAP	N4m per annum
12.	Collective management through a National Society of Authors, composers with a modern computerized administration.	i) Formation of a National Society of Authors and Composers. ii) Purchase/installation of PCs.	2002 2004	FMST/Copyright/ FMCT	N1m
13.	Global networking with foreign IP databank/offices worldwide.	i) Purchase/installation of PCs. ii) Networking with foreign IP databank/offices.	2002 2004	NOTAP	N5m
14.	Developing of Networking.	i) Procurement/installation of more PCs. ii) Developing/designing of website.	 2005	 FMST/NOTAP	 N10m
15.	Challenge Nigerian investors/ researchers with a specific task.	i) To develop vaccine malaria parasite. ii) To develop hybrid varieties of crops.	 2005	 FMST/NIMR	 N5m
TOTAL MEDIUM TERM FINANCIAL IMPLICATION = N69.5m					

LONG TERM

S/N	PROGRAMMES	ACTIVITIES	TIME FRAME	COORDINATING AGENCY	FINANACIAL IMPLICATION
1.	Creation of IPR awareness through seminars in six geo-political zones, advertisements in print and electronic media.	i) Organization of seminars on IPR. ii) Development of jingles on IPR in radio, television and print media. iii) Establishment of IPR journal.	Continuous	NOTAP	N6m N0.5m N1m
2.	Creation of various awards and prizes to both investor(s) of the year and the investor(s) with the highest and best quality product per annum.	Organizing competitions for researchers, investors and innovators.	Continuous	FMST/NOTAP	N4m
3.	Packaging and marketing of R&D results/inventions project to potential entrepreneurs.	Use of adverts, techmart awareness campaign etc, promotion and marketing.	Continuous	NOTAP	N5m per annum
4.	Development of business plans.	Use of NOTAP's team to prepare business plan.	Continuous	NOTAP	Nil
5.	Sourcing of venture capital fund.	NOTAP to contact investors, venture capitalist, financial institutions etc.	Continuous	NOTAP	N2m
6.	Organizing National Investors Forum.	i) Preparation for the National investors forum. ii) Hosting of the forum.	Continuous	FMST/NOTAP	N6m
7.	Challenge Nigerian investors/ researchers with specific tasks.	i) Develop vaccine against HIV/AIDS. ii) Develop a Nigerian made vehicle.	Continuous	FMST/NIMR/ PRODA	N10m
= N35M			**TOTAL LONG TERM FINANCIAL IMPLICATION**		

CHAPTER TWELVE

TRADITIONAL MEDICINE DEVELOPMENT
(NATIONAL POLICY)

Background

The definition of Traditional Medicine generally describes a sum total of knowledge and practice, of a given social and traditional setting, used in diagnosis, treatment, prevention and elimination of various forms of ailments, based essentially on experience and observations that are handed down from generation to generation either verbally or in writing. Every Nigerian socio-ethnic setting practices its own kind of traditional medicine.

Since independence, the Nigerian government has been showing appreciation for the complementary role, which Traditional Medicine could play in the nation's health care delivery system. However, all previous government initiatives on the need to formally integrate Traditional Medicine into the nation's health care delivery have not achieved the desired results because of the absence of well-documented scientific basis of the products and their effects. This is against the backdrop of available evidence that many of the herbal remedies and traditional therapeutic regimen are truly efficacious and are particularly affordable.

The current government efforts are directed at modernization and standardization of the Traditional Medicine practices and carefully establishing the scientific basis of each preparation and administration while at the same time pursuing the full integration of these practices into our health care delivery system.

Policies

i. Government shall employ the machinery of Research and Development (R&D) to promote the growth and development of natural medicine and its practices throughout Nigeria with a view to facilitating their integration into the nation's health care delivery system;

ii. Government shall similarly ensure the demystification of Traditional Medicine practices and carefully establishing the necessary scientific basis of each; and

iii. Government shall develop and employ the services of Traditional Medicine practitioners to achieve affordable health-for all in Nigeria.

Policy Objectives

The objectives of the Traditional Medicine Development policy shall be to:

i. Demystify the concept and practice of Traditional Medicine as a veritable alternative to orthodox health care delivery services;
ii. Develop and promote the use of Traditional Medicine in Nigeria;
iii. Establish standards for the regulation of the practice of Traditional Medicine in Nigeria with a view to protecting the citizenry from quackery and the associated hazards; and
iv. Establish a Nigerian specific framework for the practice of the Traditional Medicine profession within Nigeria.

Strategies:

In order to achieve the above objectives for the development of Traditional Medicine in Nigeria and to facilitate its integration into the nation's health care delivery system Government shall pursue the following courses of action:

i. Documentation of all traditional medicine practitioners in Nigeria, including their respective trades and areas of specialty and administration;
ii. Survey and compilation into a compendium of all identified medicinal plants, with their botanical classification, physical and physiological characteristics as well as their medicinal applications;
iii. Characterization and standardization of all herbal preparations and prescriptions;
iv. Establishment of Traditional Medicine Board to license all practitioners of traditional medicine in Nigeria;

v. Development of standard ethical code for the practitioners of Traditional Medicine to ensure compliance with acceptable standards;

vi. Development of manpower in all areas of Traditional Medicine practices, including traditional birth attendants and bone setters, and their full deployment and sustainability; and

vii. Establishment of standard regular and consulting Traditional Medicine Clinics and Hospitals nation-wide.

SCHEDULED ACTIVITIES FOR THE RESEARCH AND DEVELOPMENT OF TRADITIONAL MEDICINE AND ITS INTEGRATION INTO THE NATION'S HEALTH CARE DELIVERY SYSTEM

SHORT-TERM (Within 5 years)

(Documentation and Awareness)

S/N	ACTIVITIES	RESPONSIBILITY	ESTIMATE
1.	Pharmacopoeia of all herbal resource in Nigeria	FMST, NNMDA, NIPRD, NABDA and Universities.	N200million
2.	Compendium of all Practitioners of Traditional Medicine in Nigeria and their practices.	FMST, NNMDA, Universities and Practitioners Association.	N300million
3.	Awareness campaign on the relevance of Traditional Medicine to Nigeria Health care delivery/Formation of state Union and Association of Traditional Medicine practitioners.	FMST, FMI&NO, NNMDA and Practitioners Associations.	N200million
Sub- Total			**N700million**

MEDIUM – TERM (3-7 years)

(Scientific, Physiochemical and medical research)

S/N	ACTIVITIES	RESPONSIBILITY	ESTIMATE
1.	(a) Characterization and purification of herbal preparations. (b) Toxicological studies of purified samples of herbal preparation.	FMST, NNMDA, NIPRD, NIMR, NAFDAC and Universities.	(a) N500m (b) N800m
2.	Clinical trials of purified samples of herbal preparations.	FMST, FMH, NNMDA, NIPRD, NIMR and Universities.	N500million
3.	Manpower development to produce 1000 modern traditional medicine practitioners (100,000 x 1000)	FMST, NNMDA, FMH and Universities.	N100million
Sub- Total			**N1900million**

LONG – TERM (3-10years)

(Formal Integration into Nation's Health care delivery system)

S/N	ACTIVITIES	RESPONSIBILITY	ESTIMATE
1.	Establishment of Government owned Traditional medicine clinics and hospitals in all Local Government Areas (LGAs).	FMST, FMH and NNMDA.	N1000million
2.	Upgrading of all existing authenticated Traditional medicine clinics	FMST, FMH	N500million
		Sub- Total	**N1500million**

Grand- Total = N4100million