



**Ethiopian Science and Technology Agency**

**National Science, Technology and Innovation (STI) Policy of  
Ethiopia**

**(Draft for Discussion)**

**Prepared by**

***The Ethiopian Science and technology Agency***

**October 2006  
Addis Ababa**

## 1. Introduction

The ability of a country to sustain rapid economic growth in the long run is highly dependent on the effectiveness with which its institutions and policies support the knowledge generation, technological transformation and innovativeness of its enterprises. Science, technology and innovation are the corner stones of progress upon which a nation depends to attain economic growth and vibrant integrated self-sustaining economy.

In order to fully embrace Science, technology and innovation (STI), the country needs a functional system comprising of institutions that generate knowledge and technology that can be applied to increase the efficiency of production and use of goods and services; centers that have the capacity to select, copy, adapt and apply knowledge and technology; scientific and technological services to provide current information on the development trends of scientific knowledge and technology to the national innovation system partners and an overall institutional set up for coordinating, managing and funding STI activities.

The National Science and Technology Policy of the country was issued by the Transitional Government of Ethiopia in 1993 with due recognition to the fact that ensuring a reasonable standard of living by accelerating the pace of economic development through science and technology. Although the National Science and Technology Policy served to provide general directions to guide scientific and technological activities, it was not followed by detail implementation strategies and programs aimed at achieving the envisaged policy objectives. It did not form a part of the over-all national development plan either. It has therefore been recognized that it is essential to revise the policy and devise strong implementation strategies as no concerted efforts could be made for its implementation in the absence of strong link between the national development plan and the S&T policy. The major reasons for revising the policy are the following:

- The Ethiopian economy has gone through major transformations from centralized to an open market economy with concomitant political power decentralization where by the regions have legislative, executive and judicial powers on all matters within their borders.
- The policy has served for over a decade in which there have been rapid national changes in the socio-economy and there has been a global advance in the understanding and application of science, technology and innovation. Moreover, many lessons can be learnt from the challenges and opportunities realized during the last twelve years in implementing the policy. have enabled us to think about science and technology in a system perspective than scattered activities here and there.
- There is a strong need to create national STI capability to benefit from the opportunities of the global advancement in scientific knowledge and technology by strengthening the federal and regional government scientific and technological institutions, the universities and the private sector to constructively interact in the generation, transfer and application of scientific knowledge and technologies within the national system of innovation.

- The existing STI situation is characterized by fragmented, uncoordinated and uneconomic use of limited resources and there is a strong need to clearly articulate the legal instruments for effective utilization of the resources.

The revision of the national S&T policy is based on the assessment of the prevailing STI situation of the country and the directions of the various sectoral policies and strategies that have been formulated and implemented to realize the long-term Agricultural Development-Led Industrialization (ADLI) development strategy, which was released in November 1993. The policies and strategies considered, among others, include Sustainable Development and Poverty Reduction Program (SDPRP), agricultural and rural development strategy, capacity building strategy, education sector strategy and development program, health sector development program, population policy, industrial development strategy, integrated water resources management Policy and water sector development program. The Millennium Development Goals as well as the Science and Technology Programmes of the African Union (AU) Commission and the New Partnership for Africa's Development (NEPAD) aimed at strengthening the link between science and technology and economic development have also been taken into consideration in revising the policy.

The revised policy document will serve as a framework to identify national S&T priorities, strategies, programmes and projects to support the different economic and service sectors. The major chapters in the policy document include policy objectives, directives, strategies; and priority sectors and areas. It also shows the national STI organization and management structure.

## **2. Objectives of the Policy**

The general objective of the STI policy is to achieve sustainable social and economic development so as to meet the present and future needs of the nation through a coordinated and integrated application of science and technology for a better standard and quality of life of the Ethiopian peoples. The specific objectives are:

- 2.1 To build national capability to generate and apply scientific knowledge and appropriate new, indigenous and emerging technologies that are useful to the realization of national and global socio-economic development objectives and rational utilization and conservation of resources.
- 2.2 To improve and develop the knowledge, culture and the scientific and technological awareness of the peoples of Ethiopia.
- 2.3 To develop and improve the national productive capacity and competitiveness through efficient application of innovation.
- 2.4 To strengthen S&T cooperation with developing and developed countries to develop the capacities of national organizations through resource, information and experience sharing.

## **3. Policy Directives and Strategies**

Solving the national socio-economic problems requires conscious and integrated application of science and technology in innovative ways. The following are the major policy directions of the Ethiopian Government to achieve the above policy objectives. Each policy directive is followed by specific strategies.

### **3.1 Ensure adequate fund to build up STI capability and sustaining STI activities.**

- At least 1.5% of the country's Gross National Product (GNP) shall be allocated annually in order to support and sustain the different STI activities in all sectors.
- A centralized innovation fund for R&D activities shall be created through a contribution of 1% of the annual profit of all productive and service sectors. This contribution will be compulsory for both public and private sector industries and such contribution will be tax-free.
- Banking and financial institutions will be encouraged through various legal and incentive mechanisms to improve their role of fostering technological innovation.

- Mechanisms shall be established to provide venture and other forms of risk capital to encourage development and application of technologies and creation of innovative businesses and improve their sustainability.
- In addition to the funds raised from domestic sources, the government shall permit the flow of S&T finance from bilateral and multilateral sources.
- Resources for R&D may also be generated through active participation in bilateral and multilateral research projects and through participation in regional and international S&T programmes.
- Private and public firms, interested individuals and other non-governmental donors shall be encouraged to provide funds for the advancement of S&T activities.
- S&T institutions shall be encouraged to generate funds by commercializing their services and outputs. Funds thus generated shall be utilized by the institutions for the promotion and expansion of their S&T activities.

**3.2 Establish an appropriate functional organizational structure for guidance/leadership, coordination, management, prioritization and financing of scientific and technological activities.**

- The organizational structure of the national system of science, technology and innovation shall be established legally defining the necessary organs with clearly delineated powers, duties and relationships.
- Institutional framework shall be instituted for provision of science and technology advice for legislative and executive governmental bodies.
- The organizational arrangement through which the organizational structure makes decisions on a day-to-day basis, and attempts to obtain the desired effect the policy was set out shall be strengthened.
- National capacity to undertake science and technology policy analysis and research to support the formulation, revision, and implementation and follow up shall be built at national level.
- The Regional States shall be encouraged to establish appropriate functional organizational structure to guide, coordinate and support the planning and execution of scientific, technological and innovative activities at regional level.

### **3.3 Strengthening of national capability for the development of indigenous technology and attainment of a national capacity for the assessment, selection, acquisition, adoption and adaptation of foreign technology.**

- Build capability and methodology to identify the scientific content of indigenous knowledge and technologies; improve & change those that are useful for wider dissemination and diffusion.
- Build the capability to undertake technology assessment, monitoring, evaluation and forecasting.
- Ensure transfer and productive utilization of research results through strengthening engineering design, prototype development and commercialization capabilities in both public and private enterprises.
- Devise appropriate legal, fiscal and financial instruments for selection, importation, absorption and adaptation of foreign technology.
- Ensure establishment of institutional facilities for relevant technology information provision and assimilation of imported technology.
- Generate technologies which are internationally competitive, particularly those with export potential.
- Give due considerations to matters relating to human safety, ecology, environment, energy conservation and employment generation, etc. while importing technology.
- Strengthen and make efficient the national intellectual property system to promote and support local creativity, technology development and innovations.

### **3.4 Establish and/or strengthen S&T institutes, Research and Development (R&D) centers and support services as necessary and appropriate in the various regions.**

- Establish and strengthen R&D institutions in priority sectors including agriculture, health, industry, water and energy.
- Establish specialized centers in biotechnology, biosafety, materials, space science and technology, ICT and traditional medicine.
- Create a system and strengthen institutional capabilities to provide services in the identification, procurement, installation, maintenance, calibration, repair, maintenance design and local fabrication of medical, research and other scientific equipment; and related spare parts and consumables.
- Establish technology parks, business and technology incubation centers and export processing zones to facilitate technology transfer and innovative activities.

- Develop, strengthen and modernize the country's engineering and technology base to build a strong national economy and to assist the chemical, textile, agro-industry, mineral and other production sectors which are necessary to meet the demand for basic consumer goods.

### **3.5 Establish a system for a wider popularization of science and technology amongst different nations and nationalities, utilizing their languages in order to improve and enrich the S&T culture of the Ethiopian peoples.**

- Undertake an intensive nation wide programme to popularize science and technology through the effective use of mass media like radio, television, and newspapers so that the broad masses of people can apply scientific principles to their daily lives.
- Launch National Museum of Science and Technology and mobile museums with a view to increasing public understanding of scientific principles and their practical applications, with intent to encourage the people's creative abilities and interest.
- Scientific academies, science clubs, associations, societies and other community based organizations should be given adequate support so as to enable them to play their due role in popularizing science and technology.
- Encourage and support the publication of books, research results, journals and periodicals of Science and Technology interest in the different languages of nations and nationalities as appropriate.

### **3.6 Create conducive working environment to encourage scientists and researchers for better productivity.**

- Scientists and technologists working in the country will be promoted on the basis of their meritorious achievements and will be given the opportunity to reach the highest national grade of pay while continuing in their position; and in exceptional circumstances, even a higher grade, in recognition of outstanding research outputs and other related contributions.
- Sustainable due incentives in the form of awards and national recognition should be given to scientists and technologists for meritorious achievements.
- Highly skilled technicians should be made available as the first step for setting up of infrastructure for research and attractive career structure and pay scale will be developed and implemented.
- Appropriate linkage between the universities, research institutions and industry shall be established to enhance commercialization of R&D results and to facilitate exchange of scientific personnel between these organizations.
- Establish a national S&T information network that enables potential users in government and private sectors to access S&T information relevant to research, technology transfer and national development needs.

- Strengthen national and institutional intellectual property systems to enable successful researchers and technologists directly benefit from application of their outputs.
- Encourage research scientists and technologists to simultaneously engage in consultancy and teaching activities too.
- Ensure that researchers and technologists are provided with the required laboratory and other facilities, supplies and managerial support.
- Support research, technology development and application grants on competitive basis.

### **3.7 Encourage the private sector and community based organizations to participate in the promotion and development of scientific and technological activities.**

- Investment in R&D by the private sector shall enjoy all the incentives provided for other important investment activities including exemption of equipment and materials imported for R&D activities from all taxes and provision of tax incentives for the resources committed to R&D.
- Business and technology incubators, and technology parks will be developed and promoted to play important roles in fostering the creation and growth of small and medium-size knowledge based businesses. Their roles range from providing, affordable space to core business support functions such as business development, financing, marketing, and legal services.
- Government support shall be made for research and new technology or business development undertaking activities of the private sector on competitive basis.
- Steps shall be taken to use the Government purchasing power to encourage local innovative activities through development and transfer of technologies.

### **3.8 Build trained manpower in Science and Technology (S&T) both in quality and quantity.**

- Adequate attention will be given to science and mathematics starting from the primary stage and the school curriculum shall be oriented to enhancing problem solving skills of the pupils.
- Adequate provision and proper arrangements for higher education and training, and research in the universities should be made.
- Access to higher education in science and technology should be selective based on the academic performance and the interest of students supported by Government scholarships.

- Scientific and technological education and training at all levels will be carried out on continuous basis at home and abroad, to continuously enhance research capability of the scientists and technologists.
- Mechanisms and programmes will be developed to provide professional and technical training for specialized personnel to cover all the links in the chain that relates research and development to products and marketing.
- Special attention will be given to developing an indigenous managerial and administrative capacity in science and technology.
- Mechanisms will be developed to promote brain-gain and minimize brain-drain.
- Planned and productive study tours and participation of Ethiopian scientists and technologists in conferences, symposia, workshops and seminars - both at national and international levels shall be supported.

### **3.9 Formulate Science and Technology plan commensurate with sectoral priorities arising from national development objectives.**

- National S&T Development plan will be developed based on science and technology priority areas, identified by the highest organizational body responsible for guiding, coordinating and monitoring S&T development of the country, in line with the national socioeconomic development priorities.
- S&T Programmes and projects that are of national significance shall be developed and implemented by sectoral organizations with the approval of the National Science and Technology Council.
- The Ethiopian Science and Technology Agency shall be responsible for coordinating the evaluation of the projects and programs submitted and following up their implementation under the guidance of the national council.

### **3.10 Ensure bilateral, regional and international scientific and technological Cooperation.**

- Cooperation in S&T at sub-regional, regional and international levels shall be accorded due consideration for the mobilization of resources, exchange of information and experience as well as to carry out joint S&T programmes.
- Sustainable S&T cooperation shall be enhanced with developing countries particularly with neighboring countries with a view to exchanging appropriate technologies and for the sharing of resources for collaborative research programmes.
- Sustainable S&T cooperation shall be pursued with developed countries to build national S&T capability and foster its application for development.

- An effective Science and Technology (S&T) cooperation shall be promoted between Ethiopia and the United Nation (UN) system and other multi-lateral agencies.
- Mechanisms will be created to ensure that regional and international S&T cooperations initiated locally as well as externally are based on mutual understanding and international frameworks.

### **3.11 Establish a system to encourage women and youth in STI activities**

- Encourage and support the participation of urban and rural women in Science and Technology education, application, employment, management and in the decision making processes of policy matters.
- Create mechanisms to attract the interest of young students towards mathematics, basic sciences and engineering disciplines.
- Institute incentive and recognition mechanisms to outstanding and creative achievements by young and women students in the various fields of science and technology.
- Establish a mechanism to search for talented youngsters and to support them to become scientists and technologists in their field of interest.

## **4. Priority Sectors and Areas**

The principal concern of the STI policy is the development of science and technology, promotion of its innovative application in an integrated manner with the national socio-economic development process. In order to achieve these objectives, the policy attaches priorities to STI activities in the following sectoral and cross-cutting areas. Specific policies and programmes may be formulated by the respective sectors on the basis of this National STI policy as deemed necessary.

### **4.1 Agriculture**

Agricultural productivity in Ethiopia is constrained mainly by inadequate supply of improved agricultural inputs and application of improved practices and climatic variability and natural resources degradation. There is a felt need to increase yield per unit area/labour and conserve the natural resources to attain food security at a household level. In this regard, focus will be given to supporting the generation, transfer and utilization of affordable agricultural technologies to enhance agricultural production, productivity, processing and marketing at both household and commercial levels.

## **4.2 Commerce and Industry**

Science and technology has been recognized as an important driving force in industrial production and productivity. In order to diversify the economy and produce goods for export, industrial development has to provide the necessary enabling environment for local and foreign direct investment in industrial capacity building. Therefore, there is an obvious unmet demand for techniques to increase the national capacity for industrial production of quality goods. Promotion of competitive knowledge and technology based trade for local consumption and export through supporting technology transfer and generation efforts of the industry, research centers and the public and private enterprises will be given due consideration.

## **4.3 Education and Human Resource Development**

The success of the national effort for sustainable economic development critically depends on the quality and quantity of the available trained manpower and the awareness of the general public. However, awareness about the role of S&T at all levels of the society is very low. In view of this, focus will be made on the development of adequate human resource required to generate and apply science and technology based on the felt needs of the socio-economic sectors and the society. Strengthening the capabilities and linkages of universities and enterprises and cultivation and nurturing of a culture of science and technology in all sections of the society are also among the priority areas.

## **4.4 Energy**

Energy is essential for most development activities. Wood-fuel is the prime energy source for the majority of the rural people. The use of other alternative energy sources such as solar energy, geothermal and wind energy is limited due largely to inaccessibility and unaffordability technologies to harness these resources. In recognition of this fact, attention will be given to research and development activities aimed to increase energy efficiency of the existing technologies, and to come up with new technologies that enable to tap the existing and new sources of energy; and promotion of affordable and environmentally friendly energy technologies.

## **4.5 Environment**

Ethiopia is blessed with a wide range of biodiversity, both flora and fauna whose exploitation has resulted in environmental problems such as land degradation, pollution, deforestation, etc. This situation needs to be reversed through scientific and technological interventions. In this regard, research, technologies and measures aimed at protecting, conserving and proper utilization of the country's biological diversity for sustainable development will be encouraged and supported.

#### **4.6 Health**

Poor socio-economic conditions such as inadequate nutrition, limited clean water supply, low levels of education and hygiene and sanitation services contribute to health problems of the society. Primary health care with preventive rather than curative measures remains the best option. Recent epidemics such as AIDS, Malaria and Tuberculosis are the major health threat and must be addressed. Traditional healers and local medicine practitioners are not utilized fully. Hence, concerted efforts will be made to support science and technology activities which are focused on understanding the major health problems and to improve the overall national health through application of indigenous knowledge and practices. Developing the capacity to ensure safety of application of new medicines; and medical equipment and techniques will also be emphasized.

#### **4.7 Mining**

It is noted that the potential for industrial minerals and semi-precious stones is considerable. Ethiopia is believed to have a very large reserve of coal that can be used for its major energy needs. However, there is hardly any local research and development in this sector. In view of this, mapping and exploration of the mineral wealth of the country and investigation and verification of alternative uses of the proven mineral reserves of the nation will be encouraged and supported.

#### **4.8 Tourism**

It is anticipated that the tourism sector has the potential to be one of the economic sectors for creating employment opportunities especially in the rural areas because of its labor intensive nature. Tourism can stimulate small and medium scale industries for local people, such as manufacturing local crafts and souvenirs etc. Therefore, support will be provided for relevant innovative ideas, initiatives and activities to identify, record and conserve natural and historical resources that influence ecotourism.

#### **4.9 Water**

Although Ethiopia is referred to as the water tower of the north-eastern Africa, its water resources are not appropriately utilized to support the economic development needs of the country. Improvement of the supply, quality, and efficient storage and utilization of water is still a dire necessity. Understanding of the availability and accessibility of both the surface and ground water resources of the country; and generation, adoption and adaptation of appropriate technologies for water lifting, transmission and storage are therefore the strategic issues requiring attention by all stakeholders. Waste water should also be treated as an economic commodity to be recovered. Building a consolidated water research and development capacity is also among the priorities to enhance utilization of our water resources.

#### **4.10 Transport and communication**

Ethiopia has a large surface area and densely distributed population especially in towns needing an efficient transport and communication system. A network of roads, airports, postal and communication centers need to be developed. Population has increased, urbanization is in the process of being intensified, number of vehicles has relatively increased and other infrastructures expanded. It is desirable that lack of some of the services provided by the sector in the areas

where they are most needed particularly in the rural areas be addressed. Therefore, science and technology activities aimed at enhancing the transport and communication sector through utilization of local knowledge, technology and materials will be highly encouraged together with adaptation of appropriate technologies from abroad.

#### **4.11 Basic and applied research**

Basic and applied research is essential for generating new knowledge and technology for scientific and economic development. Basic and applied research except in agricultural/biological research, in many sectors is almost non-existent. Facilities and infrastructure for such research are not adequate in quality and quantity. Funds allocated to research are insufficient. In this connection, basic and applied research on new and emerging technologies such as biotechnology, materials science, space applications and microelectronics will be encouraged with a view to enhance knowledge and technology led development in the country.

#### **4.12 Nuclear Science and Technology**

Nuclear knowledge and technologies are currently being applied in support of various activities to improve agricultural production and productivity, human and animal health, water resources management, and non-destructive testing. Emphasis will therefore be given to developing the required trained manpower and building the basic infrastructural capabilities that enable to nationally master, promote and safely apply the technologies.

#### **4.13 Safety in the generation and application of science and technology**

Safety is fundamental in all research and development activities, and technology applications. Numerous hazards including accidents are generally associated with R & D work in laboratories, in the field and even at the application level. Profitable science and technology activities may have negative impacts on the environment unless assessed and monitored regularly. Hence, ethical and safe practices in all development and application of science and technology activities will be instituted and applied.

#### **4.14 Social sciences**

Social sciences and culture tend to be neglected in the science and technology development process. Without understanding the socio-cultural environment of the society, S&T can hardly have an appreciable impact on development. Communities' responses and reactions to scientific and technological advancement are determined by cultural attitudes, values and norms. Therefore, focus will be made on encouraging and supporting social science research that reinforces science and technology culture and ensures the development and absorption of technologies that are culture friendly. Research and study on policy, organizational, institutional, legal, fiscal, monetary, historical, anthropological, linguistic, literature, administration and management; testing and application of the results thereof will be the major concerns in this sector.

#### **4.15 Intellectual Property Rights (IPR)**

Intellectual property rights related to patents, designs, plant breeder rights, and copyright protection is not well understood by the public. The available IP information has not been

exploited due to inadequate capacities at universities and at research and development implementing institutions. With this background, promotion of uptake of new knowledge, technology, soft wares, etc through the protection and use of intellectual rights will be encouraged and supported.

#### **4.16 National Quality and Standards**

Quality and standards are considered to be essential for rapid and sustainable industrial development due to, among others, the globalization of trade. Ethiopia depends on external markets for her products and the standard to be adopted must be internationally acceptable. There are also producers supplying goods that that may not be safe to both humans and the environment. In this connection, the design, development and commercialization of internationally competitive products and services by developing and enforcing national standards in line with the requirements of the International markets will be encouraged and the capacity to achieve this will be strengthened.

#### **4.17. Meteorology**

Ethiopia is a country with 18 major agro-ecological zones with climatic variations. The temperature, rainfall and wind pattern vary and fluctuate. Meteorology affects agriculture, environment, conservation of natural resources and aviation. Hence, there is a need to strengthen research and development in this field. Therefore, national capacity in meteorological research and development with a focus on improving its contribution to agricultural production, aviation, environmental and natural resources conservation will be strengthened taking into the agro-climatic diversity of the country.

#### **4.18 Science and Technology Information**

Information is an essential resource in the socio-economic development of the country since it creates greater efficiency in the provision of services, facilitates timely decision making and it widens international communications. Areas that need further development are data communication systems such as the internet. In this regard, development of ICT that will facilitate the exchange of scientific and technological information through an integrated national information system and ensuring its sustainable use in terms of manpower, hardware, network and software will be supported.

#### **4.19 Media and Extension Services**

Media and extension networks provide essential linkage between providers and users of services of S&T. Radio is the main medium through which majority of the peoples in Ethiopia can be reached including those who cannot read and write. Media and extension play vital roles in education and diffusion of knowledge. The extension network of S&T needs to be developed to the level whereby it can adequately diffuse information on S&T. Hence, the involvement of media, extension networks, policy makers, leaders of the productive sectors and other stakeholders in the promotion of S&T will be encouraged and supported.

## **5. Organizational Structure of the National Science, Technology and Innovation System**

In line with the envisaged role of Science, Technology and innovation in the national development, a functional organizational structure for the coordination, promotion and development of STI activities is required. To this end, the organizational structure of the national STI system in Ethiopia shall have the following four functional levels.

- A. National STI Council
- B. Technical Advisory Committee of the National STI Council
- C. Ethiopian Science and Technology Agency
- D. S&T operational Institutes and Centres

The Agency shall be the Secretariat of the National Science and Technology Council.

### **A. National Science, Technology and Innovation Council (NSTIC)**

NSTIC is the highest decision making body for STI policy and plan of action. Based on the National STI Policy, it establishes and directs the general framework and strategy for STI development and determines the role of STI in the national economy. The Council shall be chaired by the Prime Minister with the General Director of ESTA as its Secretary. The Council shall have the following members.

The Prime Minister	(Chairman)
Minister of Finance & Economic Development	(Member)
Minister of Agriculture & Rural Development	(Member)
Minister of Health	(Member)
Minister of Water Resources	(Member)
Minister of Trade and Industry	(Member)
Minister of Mines and Energy	(Member)
Minister of Education	(Member)
Minister of Federal Affairs	(Member)
S&T Advisor to the Prime Minister	(Member)
President of the Ethiopian Chamber of Commerce	(Member)
Three Prominent Scientists and Technologists	(Members)
Director General of ESTA	(Member & Secretary)

The Prominent Scientists and Technologists will be nominated by the Director General of the Ethiopian Science and Technology Agency (ESTA), to be appointed by the Council. The Council meets once every three months and evaluates the performance of STI activities on the basis of which it issues guidance, directives and decisions. Additional meetings can be held as and when necessary.

## **B. Technical Advisory Committee (TAC) of the National STI Council**

The Committee is composed of renowned and experienced scientists and engineers drawn from different branches of S&T; chairpersons and secretaries of the sectoral Science and Technology Councils, the Director General ESTA and three professionals who are also members of the National STI Council. The Committee is chaired by the Adviser to the Prime Minister.. Its main objective is to undertake the necessary preliminary work and consolidate matters that will be submitted to the Council and to advise the Council on any technical matters. The NSTIC may also be assisted by sub-Committees, Technical Committees, Advisory Panels, Expert Panels and Consultants, as required.

## **C. The Ethiopian Science and Technology Agency (ESTA)**

The Ethiopian Science and Technology Agency is a federal government institution, headed by a Director General and governed by its own regulations. The Agency is accountable to the Office of the Prime Minister. It is the central organ empowered with responsibilities and mandates to plan, promote, coordinate, finance and oversee STI activities of the country. It is also responsible to advise the government on issues of STI, implement the government's STI policy and follow up the appropriate and immediate application of Research and Development (R&D) results. The Agency shall have the mandate to organize different sectoral and/or thematic STI Councils composed of renowned professionals and representatives from the relevant economic and service sectors, to assist in the formulation and implementation of STI policies and priorities and to screen projects that are eligible for grants.

The Sectoral/thematic Science and Technology Councils will be chaired by the elected members of the Councils with the Department Heads of the Agency acting as secretaries. The Councils prepare detailed policies and guidelines, set priorities of R&D plans, determine the financial assistance for research and innovative programmes and projects submitted to the Agency and follow-up their implementation. They will also study ways of application of research and development results generated from various sectors and present these to the National Science, Technology and Innovation Council through the Director General.

## **D. Science and Technology (S&T) Operational Institutes and Centres**

There shall be research institutes, technology centres, design enterprises, and various S&T support services in various sectors and higher educational establishments which would be responsible for the actual performance of S&T activities. The Agency shall establish under it science and technology support services, centres and Research and Development (R&D) units as deemed necessary particularly in areas requiring special attention. The establishments shall either merge with other relevant organizations or function as autonomous bodies when they reach the stage of maturity.