



The Higher Council for Science and Technology

Science and Technology Strategy

2006-2010

Towards an Innovative
Society and Research
Networks of Excellence

2006
Amman - Jordan



Preamble

The Higher Council for Science and Technology (HCST) has played a prominent role in the Jordanian economy since its establishment, as demonstrated in the preparation and ratification of the National Science and Technology Policy in 1995; its establishment of national centers of excellence; targeted support for research and development activities; increasing the awareness of the significance of research and development to the competitiveness of both productive and services sectors of the Kingdom's economy; the creation of a recognized forum for regular dialogue among members of the science and technology community, productive and services sectors, and governmental bodies; and the enhancement and initiation of international science and technology cooperation.

Innovation is an obvious prerequisite for progress; without it economies cannot embark on any real and sustainable and therefore competitive development. Dynamic innovative development is a global reality, requiring constant monitoring and adaptation to local conditions. It follows that the regular review of National Science and Technology Policy is imperative. The most recent started in 2005, culminating in this White Paper that includes new policy elements and a strategic path for science and technology within the period 2006-2010.

This strategy focuses on creating the appropriate innovative environment, the related research networks of excellence and other mechanisms that would contribute to creating and fostering the entrepreneurial spirit within Jordanian culture, providing for the setting enabling the successful commercialization of innovative ideas.

An action plan was also prepared in accordance with this strategy; it includes five programmes as included in this document, together with a number of projects within each initiative, as well as the related time schedules and costs. It is our hope that the implementation of this plan will leapfrog Jordan into a competitive and innovative society.

Dr. Khaled Elshuraydeh
Secretary General
The Higher Council for Science and
Technology
The Hashemite Kingdom of Jordan



B Background

The Higher Council for Science and Technology was established in 1987 to build a national science and technology base to contribute to the achievement of national developmental objectives.

The Higher Council is presided over by HRH Prince El Hassan Bin Talal, who has been instrumental to the progress of science and technology in Jordan from the very beginning.

The Council is constituted of the following: Minister of Finance, Minister of Planning and International Cooperation, Minister of Higher Education and Scientific Research, Minister of Telecommunications and Information Technology, Minister of Energy and Mineral Resources, Minister of Industry and Trade, Minister of Education, Minister of Agriculture, Commander-in-Chief of the Jordanian Armed Forces, President of the Royal Scientific Society, President of Amman Chamber of Industry, President of Amman Chamber of Commerce, Secretary General of the HCST, and three persons of qualification and experience in their personal capacity.

The HCST is entrusted with several responsibilities that include the following:

- Ratifying the general policy of science and technology in the Kingdom, defining its priorities, and drawing up the related programs and plans as well as following up on their implementation and evaluation.
- Drawing up the strategies suitable for the development of scientific and technological potential in the Kingdom and providing the scientific environment suitable for this purpose.
- Supporting the institutions and units of scientific and technological research and providing the necessary funding for the support of scientific and technological research as well as scientific and technological services and activities in the kingdom.
- Participating in the supply and training of manpower and technical potential for scientific and technological research institutions.
- Representing the Kingdom before Arab, regional and international institutions and bodies concerned with science and technology.
- Undertaking scientific and technological cooperation and concluding agreements related to scientific and technological research in collaboration with local, Arab, regional and international organizations.



■ Establishing affiliated specialized centers of scientific and technological research.

The Jordanian Government provides the Higher Council with an independent annual budget through which the council supports research and development projects and programs. This includes activities that contribute to strengthening the channels of communication and increasing coordination and cooperation between various national institutions, thereby providing the basis for enhancing the role of S&T within comprehensive development.

Since its establishment The HCST has accomplished several significant and vital achievements that cover a wide span of S&T activities including S&T policy formulation, international S&T cooperation activities and initiatives, fostering continuous national dialogue on timely and diversified S&T related matters. The HCST ratified the National S&T Policy and Strategy in 1995, and established a national fund to provide Jordanian private sector enterprises with financial support geared to improving their competitiveness and productivity. In order to cater for national development requirements, including those particular to the widespread Badia region, the HCST has established several research centers, some of which are still affiliated to it, and others which have been evolved to affiliate with other strategic national organizations. The HCST has also been dedicated to encouraging entrepreneurship, and therefore has initiated a number of activities that provided the appropriate environment for developing entrepreneurial ideas and activities, including the support and establishment of technology business incubators. In order to increase the awareness of Jordanian researchers and entrepreneurs about the importance of Intellectual Property Rights (IPR), the HCST established an IPR Help Desk, with the foremost aim of providing consultancy on IPR related issues and developments to concerned individuals and institutions.

The National Science and Technology Policy and its target sectors are in accordance with those of Jordanian developmental plans. National consensus on policy was achieved through review and deliberations during the second Jordanian Science Week convened in 1994. On this basis the Higher Council for Science and Technology then ratified the policy at the onset of 1995. The National Science and Technology Policy remains under constant review and updating by the Council, forming the basis of executive programs within each of its four main interest headings, currently defined as: Research and Development (R&D); Technologies; Information; and Human Resources. These guidelines were



circulated among institutions of the Jordanian science and technology community and the policy document and related executive programs were used as part of the basis for HCST support of S&T projects.

The policy was reviewed in 2005 after which the Council approved policy for the period 2006-2010, concentrating on establishing a S&T system that would develop the productive and services sectors - based on three basic pillars: Information, Human Resources, and Scientific Research and Technology Transfer. The statements of the S&T policy are as follows:

- **Information:** Establishing and developing tools and mechanisms that result in an efficient flow of information from international sources to S&T institutions in Jordan, and from the latter to the different developmental sectors' institutions.
- **Human Resources:** Continuous development of qualified and trained human resources which form the basis for the development process, satisfying the needs of the different developmental sectors from main, supportive and interdisciplinary specializations. Special consideration will be given to those working in research and development.
- **Scientific Research and Technology Transfer:** Strengthening scientific research and identifying its priorities based on the requirements of institutions of the different developmental sectors. Promising technologies will also be identified, and the necessary tools and mechanisms for their transfer to the developmental sector will be employed.

S&T Strategy 2006 -2010

The HCST has adopted a S&T strategy for the period 2006-2010. The purposes of the strategy are:

- Chart a long term plan of action for the integration of S&T into all national development plans and programs.
- Enhance partnership and synergies between the S&T community and stakeholders.
- Identify and employ appropriate resources to enable the implementation of action plans and activities.



Vision of the Strategy

"Achieving an internationally reputable capacity in frontier sciences and technologies, and maximizing the benefits of their application for the sustainable socio-economic development of Jordan".

Goals of the strategy:

- Build a distinguished science and technology base.
- Emphasize applications of advanced technologies.
- Effectuate the innovation cycle (convert S&T ideas and R&D results into tangible economic assets).

These strategic goals are challenged by the following:

- Continuously increasing capacity and innovation of human capital.
- The interdisciplinary character of emerging and enabling technologies.
- Rapid and continuous developments of markets and products to accommodate for changing consumer requirements and patterns.
- Effective communication and cooperation channels among all S&T stakeholders, and the productive and services sectors.
- The attitudes of stakeholders towards the role of S&T in development.
- Effective employment of mechanisms and instruments, as suited to the characteristics and salient features of the Jordanian economy.

This mindset recognizes that such challenges require the creation of an environment that leads to advances in S&T, maximizing benefits to the Jordanian economy through the following:

- Participation of all concerned national institutions.
- Multi and inter-disciplinary national research teams.
- National, regional and international networking.
- Adequate financial resources for support of Research and Development, and Innovation.

Such goals are to be achieved through the implementation of five national programs in different fields of S&T.



Programmes of the Strategy:

- Regular Review of National S&T Policy.
- Organization of National S&T Activities and planning for their investments:
 1. Planning and Coordination of R&D Activities.
 2. Supporting R&D Activities.
 3. Supporting Innovation Activities.
 4. Contributing to SMEs' Business Development.
- Strengthening the Relationship among S&T Community, Productive and Services Sectors, and the Government.
- R&D Based Regional Socio-Economic development:
 1. Enhancing National Strategic Resources.
 2. Comprehensive Development of Pilot Areas in Badia.
- Intellectual Property Rights Protection.

These programmes are to be implemented during the period 2006-2010. For this purpose an executive plan for implementation has been prepared. Its summary is included in the following paragraphs:

First Programme

Title: Regular Review of National S&T Policy.

Objective: Updating National S&T Policy to reflect evolving national and international developments encompassing S&T priorities and performance indicators.

Plan: The revision of this policy will be carried out in 2010, and the budget allocated for the programme is 50,000 JD.



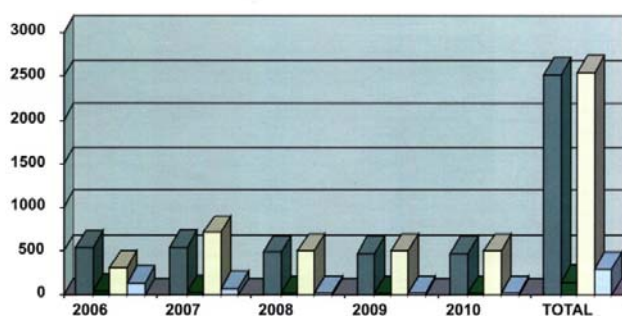
Second Programme

Title: Organization of National S&T Activities and planning for their investments.

Objective: Reinforcing the national S&T system and directing its activities towards developmental priorities, including the identification of R&D priorities and integration of investments, enhancing financial resources, and establishing national networks for advanced technologies.

Plan: This programme will be implemented over the strategy period with an annual budget (thousand JD's) shown in the following table and illustrated in the subsequent chart:

Sub Programme	2006	2007	2008	2009	2010	Total
Planning and Coordination of R&D Activities	540	546	487	476	476	2525
Supporting R&D Activities.	49	41	25	20	20	155
Supporting Innovation Activities	314	714	508	507	507	2550
Contributing to SMEs' Business Development	135	85	27	27	26	300





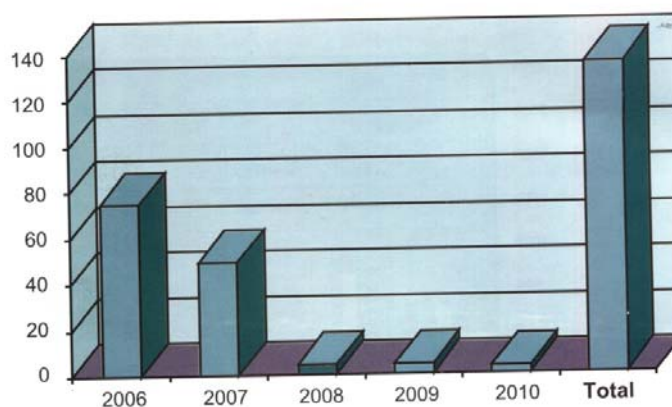
Third Programme

Title: Strengthening the relationship among members of the S&T Community, Productive and Services Sectors and Government.

Objective: Involving all national stakeholders in effectuating a S&T system for national development, strengthening existing networking mechanisms and establishing new ones.

Plan: This programme will be implemented over the strategy period with an annual budget (thousand JD's), as shown in the following table and illustrated in the subsequent chart.

Programme	2006	2007	2008	2009	2010	Total
Strengthening the Relationship Among S&T Community, productive and Services Sectors, and Government.	75	49	4	4	3	135





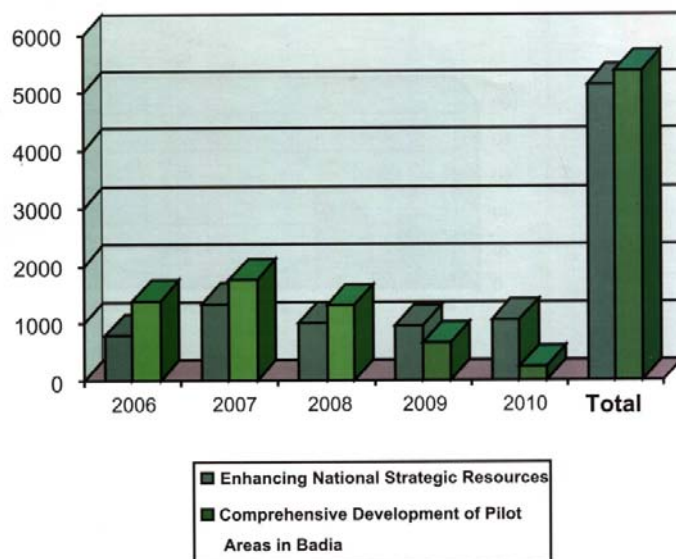
Fourth Programme

Title: R&D Based Regional Socio-Economic development.

Objective: Sustainable use of national natural resources.

Plan: This programme will be implemented over the strategy period with an annual budget (thousand JD's) shown in the following table and illustrated in the subsequent chart:

Sub Programme	2006	2007	2008	2009	2010	Total
Enhancing National Strategic Resources	780	1340	1000	950	1050	5120
Comprehensive Development of Pilot Areas in Badia	1390	1760	1310	660	250	5370





Fifth Programme

Title: Intellectual Property Rights Protection.

Objective: Increasing the awareness of different areas of intellectual property rights including patenting issues and the revision of related legislative and procedural matters, within Jordanian society.

Plan: This programme will be implemented over the strategy period with an annual budget (thousand JD's) as shown in the following table and illustrated in the subsequent chart:

Programme	2006	2007	2008	2009	2010	Total
Intellectual Property Rights Protection	25	37	9	7	7	85

