

## STIP PLAN SUMMARY

In order to provide employment opportunities for the young and highly educated Lebanese and at the same time attract the Lebanese capital wandering abroad for profitable investment opportunities in Lebanon, the CNRS is coordinating an effort to develop a new science, technology and innovation policy (STIP) for Lebanon that will create high quality jobs and investment opportunities. Such policy is the vision of the Lebanese government, private sector, universities, and organizations (including CNRS), because it will strengthen the economy, improve the quality of life and help Lebanon join the worldwide trend towards becoming a knowledge-based society. Accordingly, to achieve this goal a STIP plan was developed, and when approved, it will hopefully be implemented in the very near future.

### MAJOR OBJECTIVES

The major objectives of the STIP Plan are to:

- Increase and focus efforts in science, technology and innovation.
- Strengthen STI institutions and enable them to contribute better to economic growth.
- Strengthen interaction among partner institutions in science and technology.
- Enhance Lebanon's STI role in regional and international networks

Organized in three task forces, 30 experts from Lebanon contributed to the development of this plan, an effort coordinated by an international consultant and inputs from ESCWA with financial support from UNESCO and ALECSO.

### OPPORTUNITIES BASED ON SOCIETAL NEEDS

The work of the task forces identified specific opportunities for Lebanon in three vital domains that need to be grasped to address the following societal needs:

#### ***A. In basic science, industry and engineering***

- Improve energy, water and other natural resources management through an integrated and sustainable approach.
- Reduce industrial operating costs.
- Promote information and communication technologies for development.
- Promote and strengthen scientific research for development
- Create new jobs in newly established industries suitable for development.
- Increase involvement (and share) in international trade.

#### ***B. In environment and Agriculture***

- Stabilize coastal deterioration through sustainable management.
- Integrate water management for an effective supply/demand balance.
- Grasp new agricultural economic opportunities.
- Improve nutritional food quality of agricultural products.

### ***C. In Medicine and health care***

- Strengthen the position of Lebanon as a regional leader in the field of health care through improving higher education in medical and health sciences, and through improving the quality and cost-effectiveness of medical and health care services.
- Create an environment conducive to a flourishing biomedical industry and services sector.

### **INITIATIVES OF THE STIP PLAN**

Experience worldwide showed how to effectively make use of STI for the benefits of the respective countries. The STIP Plan developed for Lebanon cannot address all possible ways to improve the functioning of the STI system, but rather a selection was made which together form the STIP Plan. It is hoped that the anticipated 5-year STIP plan will evolve after 5 years into a structural approach that should include institutional reforms.

The proposed initiatives can be summarized as follows:

#### ***A. Research programs targeting strategic priorities***

The following thirteen research areas were identified as priorities:

1. Development and production of IT and its diffusion in the manufacturing and enterprise sectors
2. Web and Arabized software Technologies
3. Mathematical modeling including financial/economic applications.
4. Renewable energy resources (e. g. chemical, wind, solar, hydroelectric).
5. Materials / basic sciences for innovative applications.
6. Sustainable management of coastal areas.
7. Integrated water management.
8. Technologies for new agricultural opportunities.
9. Food Nutrition: Quality, behavior
10. Molecular, cellular biology, applied genomics and biodiversity.
11. High quality research in clinical sciences.
12. Forging links between the practitioners of medical and health sciences and technology, social sciences and paramedical professions, including development of health systems
13. Human and social science (social, economical, administrative, financial, legal, archeology, ethics)

#### ***B. Improving the research environment***

To address the identified weaknesses in research and higher education in Lebanon, a variety of necessary measures are proposed for consideration:

- Improve the research function of universities
- Improve the performance of the existing research centers/institutes and create new ones which are essential to carry out the STIP plan.

- Create incentive programs to stimulate collaboration between people across disciplines, institutions, and countries in both public and private sectors.
- Establish a culture of responsibility and performance with a STIP management and funding decisions that are highly transparent.

***C. Improving information and communication infrastructure***

It is essential to establish an improved information and communication infrastructure for higher education and research with an incentive program for innovative information products.

***D. Linking science with practice***

This can be accomplished through a variety of initiatives such as:

- Setting up centers of excellence for sectors such as clothes, shoes, furniture, with the aim to provide technical know-how and laboratory services.
- Establish a small funding initiative to provide seed money very early on for implementing ideas based on scientific work.
- CNRS should take the initiative to set up a team to define the format of workshops and programs in the area of entrepreneurship and business development.
- In the research projects supported by the CNRS, priority will be given to projects that serve immediate societal needs. Priority will also be given to support research co-sponsored by the private sector.

***E. Strengthening the STI policy system***

This can be accomplished by getting a better statistical data on STI indicators. This can be achieved by establishing a unit at the CNRS that can be developed over time into a STI observatory, with help from ESCWA and the UNESCO Institute of Statistics.

***F. Strengthening national and international partnerships***

This can be materialized through the following:

- Enhance partnerships between CNRS, universities, institutes and private and public sector enterprises and organizations.
- Strengthen cooperation in the Arab world and the region (on a case by case basis).
- Incorporate through the various activities of the STIP plan Lebanese scientists and institutions in regional and international networks.