Science and Technology Management Network (STEMARN)

1998
The Arab Regional Network for Science and Technology Management (STEMARN) is a catalytic framework for capacity building in the management of Science and Technology (S&T), reaching out to advance the efficiency and effectiveness of the role of S&T versus national development.

Current STEMARN goals are to stimulate and promote the following:

- National and regional arrangements for the training of personnel in policy making, planning and management of S&T institutions;
- Research on practical and theoretical aspects of S&T policy and management;
- Exchange of information on national and international activities in the field of S&T policy and R&D management;
- Linkages between research entities and the business sectors of the economy.

DEVELOPMENT

The idea for establishing STEMARN was conceived towards the close of 1992, based on an assessment study, sponsored by the UNESCO Cairo Office (UCO), where a pressing need was revealed for a training scheme catering to several aspects of S&T management. Training was indicated for managers engaged in scientific and technological research and related services, as well as in relevant sectors of industry across the Arab World. Following thorough preparation, UCO officially launched in 1994 Phase I of STEMARN over a three-year period. This emerged as a joint venture of UCO together with the Arabian Gulf University (AGU) in Bahrain. A six-member supervisory committee, appointed of noted experts from different Arab countries, was charged with the overall supervision.

Phase I focused on providing a comprehensive training programme for enhancing S&T management at various levels, and addressing the subsequent impact on national development, given the global changes and transition to free economy and liberalized trade. The positive response to phase I, as acclaimed by recipients of its offerings, led to the initiation in 1998 of a second 3-year Phase. The current Phase II is proceeding to consolidate the STEMARN mission, with a strategic vision to attain a status of an autonomous and inter-institutional operational sustainability. Thus, STEMARN will broaden its foundation by soliciting membership of concerned institutions and individuals. The Supervisory Committee for Phase II is already in place, and an elaborate action plan has been articulated.

Apart from the financial contributions provided by UNESCO & AGU, Phase I of the STEMARN Programme was generously supported by The Arab Fund for Economic and Social Development. The Islamic Development Bank provided travel grants for a number of participants in Phase I activities. The International Development Research Centre of Canada, The Egyptian Academy of Scientific Research and Technology, and The Arab School on Science and Technology (State of Kuwait Branch) shared in the organization and support of some training workshops. The Arab Fund for Economic and Social Development has re-affirmed its support to Phase II. Another major incoming co-sponsor is The Kuwait Foundation for the Advancement of Sciences. Other regional and international organizations have expressed strong interest in supporting STEMARN Phase II.
The main objectives of STEMARN Phase I were set to pursue and institute mechanisms for the proper incubation and development of higher calibre and dedicated Arab expertise in S&T management, with appropriate applications directed to serve the national economic, social and cultural demands.

STEMARN Phase I culminated in several accomplishments along two principal lines of activities as follows:

A. S&T Indicators

Of particular relevance to STEMARN objectives, a multi-disciplinary study was initiated and sponsored by UNESCO in 1994 to deduce S&T indicators for higher education and research and development systems in the Arab states. Utilizing statistics up to the year 1991, the study was first published in 1995 under two volumes, i.e. “The Higher Education Systems in the Arab States” and “R&D Systems in the Arab States”. These were later updated up to the year 1996 and re-issued in 1998. The development of S&T indicators came to satisfy an urgent need in providing policy makers and other stakeholders in higher education institutions and R&D organs with a tool to assess the performance and quality of these institutions.

B. Training Workshops

Training workshops represented the main line of activity of Phase I. The Supervisory Committee designated respective organizing committees for the individual events. The features of the major training workshops offered are summarized in the following table.

The technical programmes of the workshops were attentively selected both in terms of content and level of participation. The topics presented addressed vital issues of S&T management, typically encountered at the various managerial levels. Where appropriate, workshops were tailored to middle-level programme directors, project managers, industry leaders and senior managers of R&D institutions and universities. In two of the workshops, there was special emphasis on the important aspects of commercialization of research results and aligning the priorities of publicly funded S&T institutions with the needs of industrial enterprises. Workshop modalities incorporated lectures, interactive dialogues, panel discussions and exercises. Numerous beneficial case studies were presented from the Arab region; yet, it was equally important to afford an exposure to relevant paradigms from different parts of the world.

All training programmes were carefully monitored. On-site evaluations were carried out to assess the various technical, organizational and logistical elements. Post-workshop evaluations were designed to measure the degree of benefit reflected on the participants and their host institutions. The evaluation results were substantially favorable. Beneficiaries confirmed many merits gained in upgrading their personal skills, getting acquainted with international experiences and case studies and establishing useful contacts with participants from other organizations. There was a general consensus on the evident contribution of STEMARN vis-à-vis signifying the added value of competent management of S&T as a backbone for development.
### Summary of Training Workshop Features

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<tr>
<th>Workshop Title</th>
<th>Venue (date)</th>
<th>Main Themes</th>
<th>No. of Participants (No. of Countries)</th>
<th>Moderators</th>
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| **R & D Management & Commercialization of Research Results** | Bahrain (11/94) | • Upgrading the national capabilities in the management of R & D units.  
• Contributing to the development of effective means for the transfer of scientific research results to production and service units. | 30 (11) | • USA (2)  
• Korea (2) |
| **Meeting the Science & Technology Needs of Small and Medium Enterprises (SMEs) in the Arab World** | Egypt (4/95) | • Strengthening the contribution of publicly-funded S & T institutions to the technological and innovative capabilities and needs of SMEs in the Arab World. | 40 (11) | • Canada (2)  
• Malaysia (1) |
| **Contract Project Management in R&D** | Bahrain (11/95) | • Providing an understanding and appreciation of the unique problems involved in the organization and management of R & D Projects.  
• Introducing the state-of-the-art techniques of project management and project control | 24 (11) | • USA (1)  
• Saudi Arabia (1) |
| **The Organization, Management, And Evaluation of Applied Scientific & Technological Research Systems in Arab Universities** | Bahrain (11/96) | • Reviewing the role, purpose and benefits of university research to society and development, and examining successful models for organizing and managing the various components of university research systems.  
• Identifying the essential organizational and managerial requirements and policies to enable Arab universities fulfill their research mission in the most cost-effective manner. | 32 (15) | • Australia (2)  
• Jordan (1) |
Phase II takes a quantum leap in augmenting STEMARN objectives, and moves towards achieving operational self sustainability of the network. In this phase, concerted efforts will be exerted to effect a closer affinity between the business sector, particularly SMEs, and research entities. Furthermore, collaboration will be sought to benefit from other more established networks like, for example, the Science & Technology Policy Asian Network (STEPAN).

The action plan modalities for Phase II are illustrated below:

| Training Activities | Self-Learning Kits
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At least two training activities will be held each year, one dealing with R&D Project/Programme Management, with the other addressing a different topic each year, as exemplified by: | Didactic material for independent, continuing training will be prepared to serve the diverse needs of Arab countries. Yearly training kits, covering one of the following topics will include video-tapes, textbooks and case studies, and will be designed to suit self or group learning:

i. R&D planning, evaluation & revitalization of public research;

ii. linkages between R&D centres & productive units;

iii. development of S&T in relation to the needs of industry;

iv. S&T management information systems;

v. national S&T policies;

vi. S&T popularization;

vii. R&D process as it relates to product development;

viii. technology transfer & technology contract negotiations. | i. R&D policy and planning, project selection, resource allocation;

ii. organizational structure for S&T development;

iii. evaluation and performance of S&T activities;

iv. political commitment and alternative development;

v. legislative provisions and legal enactment.

Requisite Studies

Studies, utilizing national & international experiences, will be conducted to tackle policy and management remedies. These will cover some priority areas and problems common to the Arab region such as:

i. establishment of S&T management information systems and use for national economic and social development;

ii. organizational structure for S&T policy making;

iii. transfer of know-how and endogenous technology for indigenous technological development;

iv. international & national status of new and emerging technologies;

v. commercialization of S&T innovations;

vi. sustainability of S&T research activities.

Supporting Activities

These will include:

i. updating periodically the compilation and evaluation of key S&T indicators for the Arab region;

ii. designing and maintaining of a web page with resources relating to S&T policy and R&D management in the Arab region and links to international resources;

iii. disseminating 6 issues of a STEMARN electronic newsletter at the rate of 2 issues per year;

iv. training abroad for short duration (2-3 weeks) of selected individuals on issues related to S&T policy and R&D management;

v. designing and implementing computerized databases for the commercialization of research results using the internet.
Operational sustainability of STEMARN and continued demand for its services will necessarily require a wide and coherent base of support. Membership of STEMARN will, therefore, be open to individuals, as well as private and public institutions from all countries in the Arab region. Membership may constitute S&T organizations, industrial enterprises, specialist groups, and individual scholars and entrepreneurs from the business community. The annual membership fee is commensurate with the size and scope of involvement. In addition to members, an invitation is extended to interested parties to share in the sponsorship and financial support of STEMARN.

Potential benefits to members and partner institutions include the following:

i. free of charge training for a certain number of individuals from each organization at each workshop. Selection of the workshop topics will be based on actual needs of members;
ii. assistance in commissioning studies relating to the industries and topics of common interest;
iii. assistance in mobilizing international consultancy missions of leading experts to provide advice on issues of national prominence;
iv. obtaining training materials for in-house training use;
v. acquiring information resources from network database, web page and electronic newsletter, with advertisement as network members and sponsors;
vi. receiving copies of STEMARN published studies & research.

The inertia of the sustained operation of STEMARN and its whole range of progressive activities are apt to lead to the following ultimate outcome:

i. sustainable regional and sub-regional S&T policy and management network;
ii. enhanced manpower capabilities in policy making, planning and management of S&T development within the region;
iii. raised awareness among S&T planners, practitioners, government and business leaders of the major policy implications for socio-economic development;
iv. re-orientation in the philosophy and structure of R&D institutions to be more adaptable to industry requirements;
v. effective interaction, exchange of experience on practical applications of national S&T policies, and interchange of results of studies and research on S&T policy and management issues at the national, regional and international levels.

The collective resultant of the above are aspired to gear development in the Arab world with a more forceful momentum.
SPONSORS

- ARAB FUND FOR ECONOMIC AND SOCIAL DEVELOPMENT
- KUWAIT FOUNDATION FOR THE ADVANCEMENT OF SCIENCES

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A special section for the STEMARN Programme is established on the UCO Web Site: [http://www.unesco.org.eg/stemarn](http://www.unesco.org.eg/stemarn); it contains up-to-date information on current activities and provides links to other useful sites.