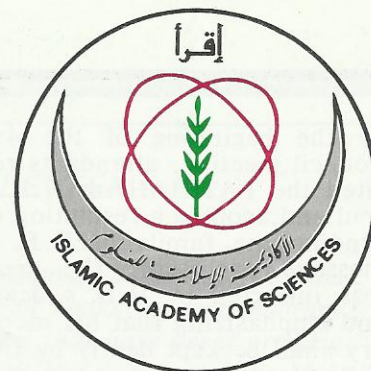


NEWSLETTER

THE ISLAMIC ACADEMY OF SCIENCES



October 1988

ISSUE NO. 6

IAS COUNCIL HELD ITS 4TH MEETING

The fourth meeting of IAS Council was held at the Academy's headquarters in Amman during the period 10-11 September 1988. Five Council members participated in this meeting.

The Council discussed and approved several issues on its agenda. EDG of IAS presented a report on the activities of IAS headquarters and proposed future activities which include mainly the publication of series of books on contemporary scientific issues in accordance with IAS programme document. A proposal for a book on biotechnology was presented and adopted by the Council on the hope that funds can be located for such books.

The Council also approved the results of the first ballot of election new Fellows which shall be submitted to the next G.A. meeting.

IAS JOURNAL

Prof. Naci Bor, Chief Editor of IAS Journal presented to the Council a progress report on the Journal, the first issue of which is expected to be ready for distribution by the end of October 1988. The Chief Editor expressed satisfaction with the encouraging response he had from Muslim scientists all over the Muslim World and that he has high hopes of the high standard of the Journal as well as its continuity.



IAS Council in its Fourth Meeting

IAS 1988 AND 1989 CONFERENCES

The Council in its 4th meeting reviewed the final arrangements for convening the Academy's 1988 conference on "Science and Technology Policy for Self-Reliance in the Muslim World" which shall be hosted by the Pakistan Academy of Sciences and Pakistan Scientific Research Council in Islamabad during the period 3-6 December 1988. Fifteen papers will be presented to this conference in which 70 specialists are expected to participate.

The Council also adopted the agreement signed by IAS and the Kuwait Foundation for the Advancement of Sciences (KFAS)

regarding co-sponsoring the Academy's 1989 conference on "New Technologies and Development of the Muslim World" which shall be held in Kuwait in December 1989.

IAS COUNCIL PAYS TRIBUTE TO PRESIDENT ZIA-UL-HAQ, IAS PATRON

IAS Council expressed its deep sorrow for the death of the Academy's Patron General Mohammad Zia-Ul-Haq, the late President of the Islamic Republic of Pakistan. The Council recalled with appreciation the support and encouragement the scientific community in the Muslim World in general and the Academy in particular have received from His Excellency.

At the beginning of the 4th Council meeting, attendants recited the FATHAH on H.E.'s soul and adopted a resolution of sending the family of H.E. a message expressing the great loss inflicted by H.E.'s death and emphasizing that his memory shall be kept dearly by IAS Fellows.

ELECTION OF NEW FELLOWS

In accordance with the By-laws of the Islamic Academy of Sciences and decisions taken by the General Assembly in its first meeting held in Amman in December 1987, postal ballots received from (31) Founding Fellows by the 31st of May 1988 were opened by the Secretary General in the presence of the Treasurer and the Executive Director General. The results were as follows:

- a) Number of IAS Founding Fellows: 38
- b) Number of voting fellows: 31
- c) Total number of candidates: 23
- d) Number of candidates receiving 51% or more of the total votes required to qualify for IAS Fellowship: 2.

Other candidates receiving votes of less than the 51% were in the following manner:

From 40% to 51% 10 candidates
From 30% to 40% 7 candidates
Less than 20% 4 candidates

The Academy has sent to all IAS Fellows a new ballot sheet signed by the Secretary General which included 22 candidates, and were requested to vote for a maximum of 18 candidates and return the ballot no later than October 1st 1988.

The results of the two ballot election will be reviewed by the Council and recommendations regarding this matter shall be presented to the next General Assembly meeting scheduled for December 1988 in Islamabad.

MEETING OF SCIENTIFIC COMMITTEE FOR IAS 1989 CONFERENCE

In its 4th meeting IAS Council adopted the report of the Scientific Committee for IAS 1989 Conference on "New Technologies and Development of the Muslim World" which met at IAS headquarters during the period 7-8th September 1988.

The Committee set the framework for the conference which included scope and objectives, outlines of papers and recommended names of authors.

The first part of the conference will include the presentation and discussion of ten major papers on the state of the art, present and future trends in the main branches of high technologies namely electronics, informatics, biotechnology, new materials and energy related high technologies. Selected Muslim scientists and specialists will also review the existing potential of the Muslim World in the mentioned areas of high technologies and their impact on the development of the Islamic countries. The second part of the conference will be assigned to discuss the most promising applications of new technologies for the development of the Muslim World. In this context, the Scientific Committee identified six major areas of development namely, food and agriculture, industry, health and environment, natural resources education and energy.

The conference will be concluded by a panel discussion on the requirements for the transfer, generation and application of new technologies. The Academy is expected to issue a declaration on the issue of new technologies and development of the Muslim World addressing decision makers, planners, scientists researchers and the scientific community at large.

In accordance with the decisions and instructions of the IAS Council, the headquarters has started its contacts with the recommended authors and rele-

vant parties to pursue early planning for the conference.

IAS FELLOW DR. SHAMLAN APPOINTED MINISTER OF HIGHER EDUCATION



H.E. Dr. Ali Abdullah Shamlan, IAS Fellow has been recently appointed as Minister of Higher Education in Kuwait. Prior to this assignment, Dr. Shamlan was the Director General of Kuwait Foundation for the Advancement of Sciences (KFAS) which is co-sponsoring IAS 1989 conference on New Technologies and Development of the Muslim World. On behalf of IAS The Fellows and staff, the Editorial Board congratulates Dr. Shamlan and wishes him every success.

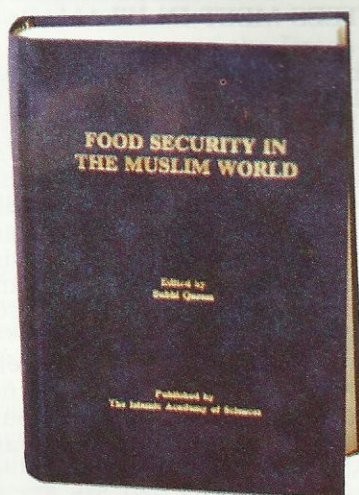
IAS DOCUMENT ON S&T STRATEGY FOR FOOD SECURITY IN THE MUSLIM WORLD

Ministers of agriculture in the Muslim World meeting in Islamabad on the 18th October will discuss a document prepared by IAS upon the request of (OIC) on S&T strategy for food security in the Muslim World. The document is a proposal recommending an immediate action by the Islamic Countries to formulate a strategy for utilizing S&T to achieve food security in the Muslim World. The document presents the rationale of formulating such a strategy as well as a framework for its pursuance. EDG of IAS will be presenting the document to the Ministerial Conference on behalf of the Academy.

WIDE DISTRIBUTION FOR IAS FIRST PUBLICATION

The first IAS scientific publication "Food Security in the Muslim World" has been widely distributed since its appearance from the press. The publication was received with high appreciation by the scientific community through the Muslim World as well as at the international level.

Special copies of the volume signed by IAS President Prof. Kazi, were presented to heads of all Islamic states. The ministers of agriculture in the Islamic



countries were also presented with copies of the publication in a gesture to bring more attention to the issue of food security as well as to follow-up the declaration on food security which was issued by the Academy last year.

IAS headquarters have received several letters of complements from heads of states, ministers and specialists. The publication has also been ordered by many institutes and organizations through the Muslim World as well as several international agencies.

The publication which was sponsored by the Kuwait Foundation for the Advancement of Sciences (KFAS) is a high quality volume of 520 pages in English including illustrations and extensive data. The volume is also accompanied by a three language (Arabic, English, French) summary of 280 pages in a separate book.

EDITORIAL LETTER

In accordance with its five-year programme document, IAS has started its plan to publish a series of books on contemporary scientific and technological frontiers that have great promise and impact on economic development and welfare of the Muslim Ummah.

This action reflects the Academy's view that the capacity to develop and manage science and technology in a manner consistent with national objectives as well as physical and cultural endowments, is the single most important variable accounting for difference in the degree of social and economic progressiveness among nations. IAS also believes that scientific and technological advancements flourish in a healthy environment which does not develop by decisions from one group of the society but rather flourishes with a well articulated support from all groups of the society. It is with this background that IAS decided to publish a series of books on major contemporary scientific and technological fields in order to promote overall social awareness on their importance to Islamic countries. The books will be published in a simplified form to reach the widest spectrum of readers that include policy and decision makers, scientists, industrialists, entrepreneurs, agriculturists, and other individuals and groups in the society who may constitute activist forces that promote and support scientific and technological activities.

IAS has identified a number of fields in which books will be published. These include Biotechnology Revolution, Nutrition and Health, Informatics and its Future and Management and its Role in Improving Productivity of Institutions and Resources in Muslim societies. A proposal has already been framed for the publication of a book on "Biotechnology Revolution and the Muslim World" which was adopted by IAS Council.

The book will be a comprehensive and simplified treatise of the state of the art of biotechnological fields and how they relate to the needs of the Islamic countries. The treatise will also highlight future opportunities and impact of biotechnology in improving plant and animal especially in the field of industrial microbiology, technologies to improve health measures and the production of more efficient microorganisms in nitrogen fixation.

To pursue this ambitious plan, IAS is seeking the assistance of all individuals and institutions who share with the Academy its hopes, ambitions and objectives. The Editorial board takes this opportunity to call upon all those who aspire to see a progressed prosperous Muslim World to back this programme and extend to the Academy their support and help.

IAS FINANCIAL COMMITTEE'S FIRST MEETING

IAS Financial Committee met at IAS headquarters on the 8th of September 1988. The Committee discussed the various aspects of fund raising to support the Academy's projects including IAS permanent headquarters building.

At the beginning of the meeting, EDG of IAS reviewed the background of forming the Financial Committee which was adopted by the G.A. of IAS during its last meeting in December 1987.

The Committee agreed that potential contributors whether individuals, institutions or companies throughout the Muslim World as well as relevant international organization and donor agencies should be approached for financial support.

The Committee defined IAS activities as either long- or short-range projects. Under the long-range projects, the Committee identified the projects of headquarters permanent building, the publication of book series on contemporary scientific issues, supporting research activities and field studies and prize-granting.

As for short-range projects, the Committee agreed that it is urgent for the Academy to have seed-money to execute its scheduled activities such as conferences and seminars. The Committee proposed to the Council the formation of national fund raising committees in the Islamic countries to be initiated and coordinated by IAS Fellows for the purpose of increasing public awareness of the Academy and its objectives and help rally financial support for its projects.

For the purpose of presenting the Academy projects, the Committee recommends the preparation of a portfolio of projects supported by audio-visual aids such as films, and slides. The Committee also proposed several ways of acknowledging contributions whether from individ-

uals or institutions.

The recommendations and proposals of the Financial Committee were reviewed by IAS Council in its 4th meeting and shall be presented to the next G.A. meeting to be held in Islamabad in December 1988.

In this regard, the Editorial Board of IAS Newsletter, kindly requests all IAS Fellows to back up the efforts of IAS headquarters and the Financial Committee in locating sources of financial support for the Academy's projects, by preparing a list of potential contributors, whether individuals or institutions, so that such lists can be presented for consideration by the Financial Committee during the coming meeting of the G.A. Such effort will be highly supportive and appreciated.

IAS 1989 CONFERENCE ORGANIZING COMMITTEE MEETS IN KUWAIT

The Organizing Committee of IAS Conference on "New Technologies and Development of the Muslim World" held its first meeting at the headquarters of Kuwait Foundation for the Advancement of Sciences (KFAS) in Kuwait during the period 21-22nd for September 1988. IAS was represented by the EDG and the Head of Technical Relations Dept. while KFAS was represented by the Head of Cultural Affairs and Conferences Dept. and his administrative assistant.

Based on the co-sponsoring agreement signed by IAS and KFAS and the report of the Conference's Scientific Committee, the Organizing Committee finalized arrangements for convening the conference and the meetings of IAS G.A., Council and Committees during the period 2-7 December 1989 at the headquarters of KFAS in the city of Kuwait.

The Committee has agreed on the place of conference and IAS meetings as well as the specific schedule of each activity.

The Committee also finalized the arrangements of forming the Conference sub-committees namely the reception, secretariat and information committees. The emblem and stationary of the conference were also agreed upon.

The Committee also set the details of the proceedings of the opening session as well as the programme of cultural activities and visits during the period of the conference.

IAS GENERAL ASSEMBLY AND STANDING COMMITTEES MEET IN ISLAMABAD

The G.A. of the Academy will be holding its 2nd meeting in Islamabad during the period 6 - 7 December 1988 following IAS 2nd Conference on S&T policy for self-reliance in the Muslim World. The Standing Committees of IAS will also be holding their meetings during the same period.

The G.A. will discuss several important items on its agenda including the report of IAS Council, IAS Scientific Journal and IAS 1990 Conference.

IAS headquarters have already sent invitation letters to IAS Fellows to participate in these activities.

COMSTECH EXECUTIVE COMMITTEE MEETS AT IAS H.Q.

The COMSTECH Executive Committee met in Amman at IAS headquarters on September 12th 1988. Members from Egypt, Jordan, Malaysia, Pakistan and IFSTAD participated in the meeting. IAS EDG of IAS also attended the meeting as an observer.

The meeting which was chaired by Dr. M. Kazi, Coordinator General, discussed the items on its agenda and took the proper decisions. Among the items discussed was the establishment of COMSTECH Secretariat in Islamabad, the implementation of the S&T plan of action and fin-

ancial position.

The Executive Committee reviewed and valued the accomplishments of COMSTECH regarding the establishment of IAS, Inter-Islamic Networks (of which six have been established), Islamic Federation of Research Institutes (IFRI) and the Islamic Information Centre.

The Committee adopted a resolution of financially supporting IAS 2nd Conference on S&T policy for self-reliance in the Muslim World to be held in Islamabad later this year.

The fifth meeting of the Executive Committee shall be held in Islamabad during the first week of December 1988.

HIGHLIGHTS ON THE SCIENTIFIC AND TECHNOLOGICAL POTENTIAL OF EGYPT*

OVERVIEW

Egypt possesses quite an impressive science and technology (S&T) potential as gauged by the size of its manpower and the diversity of its institutional infrastructure resources. Highly qualified scientists and engineers are particularly in relative abundance as compared to the figures in many developing countries. Those holding doctoral and master of science degrees exceed a total of 30,000. The country has in all nearly 290 institutions concerned with S&T activities, of which 270 carry out research and development (R&D).

By and large the S&T institutions in Egypt, including all R&D facilities, have been created by the Government and are financed from central budgetary resources. According to their function and affiliation, these institutions fall into the following three major categories:

- 1- Institutions of R&D which are centrally located;
- 2- Institutions of R&D which are affiliated to the ministries; and
- 3- Institutions of higher educa-

tion which are chiefly the universities.

The following is an attempt to briefly review the three categories of the institutional infrastructure.

THE CENTRAL SCIENCE AND TECHNOLOGY ESTABLISHMENT

This establishment is represented by the Academy of Scientific Research and Technology and its affiliated institutions. Because of its terms of reference and performance, the Academy is considered to be the chief Government's arm in the field of S&T. Although formally instituted in 1971, the Academy in effect is the fruit of a relatively long evolutionary process which involved both structures and functions, and in which several fore-runners have been in existence. At the heart of the Academy organization is its deliberative system which comprises the Academy Council, headed by the President of the Academy, and 12 specialized research councils. The Academy

Council has in its membership about 40 distinguished scientists and S&T administrators of decision-making capacity. The specialized councils (and their sub-units) are composed of high level scientist and authoritative individuals representing the relevant activities in the national economy. The fields of research covered by these councils are: food and agriculture, industry, petroleum and mineral resources, energy, medicine and drugs, transport and communications, environment, housing and construction, new settlements, economics and administration, society and population, and basic sciences. The findings reached by the specialized councils, particularly as related to research plan and priority projects, are finally

considered and approved by the Academy Council.

The chief executive organs of the Academy are a group of 7 R&D institutions, which operate centrally to serve the national economy (in the Government and in the public and private sectors) in the fields of petroleum and petrochemicals, fisheries and oceanography, metallurgy, astronomy and geophysics, standards and metrology, remote sensing and endemic diseases (esp. bilharziasis).

The National Research Centre, however, is the largest of the R&D institutions in Egypt. It is a multi-disciplinary establishment which represents 70% of the total human and material resources of the central S&T establishment at large. Its research organisational structure comprises 13 divisions, representing distinct disciplines related to industry, agriculture and health, and embracing 56 laboratories, in addition to two specialized research institutes in the fields of ophthalmology and micro-electronics. Most of its research units were purposely created to correspond and to deliver R&D services to existing industries and other production activities of the national economy.

The Centre's research activities are implemented chiefly within the framework of a system for contracting with the research workers, and wherever possible with the end-users.

The Academy's jurisdiction extends also to a number of central R&D support institutions and those responsible for the enhancement of the general state of S&T in the country. These include the Patents Office, the National Information and Do-

cumentation Centre, the National S&T Information Network, and the National Technology Network. Moreover, an important Academy function, is the administration and granting of an annual award of the prestigious State Prizes to meritorious scientists.

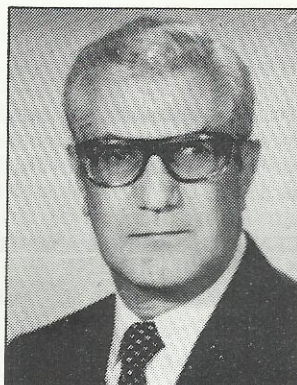
The vast majority of the Academy's programmes and projects, in principle, are inspired by, or at least carefully selected to be in congruence with arrangements concluded with research groups from the ministries, public sector enterprises, the universities, or the Academy's own R&D institutions. The Academy utilizes funds from central budgetary appropriations as well as from bilateral and multi-lateral sources.

SECTORAL SCIENCE AND TECHNOLOGY FACILITIES

These exist in several technical ministries, and their contributions range from short-term problems-solving R&D and extension services to missions-oriented as well as basic research of long-term impact. These facilities are briefly described below.

- **Agricultural Research Centre;** The conglomerate of R&D in the Ministry of Agriculture is administered by the Agricultural Research Centre which discharges its responsibilities (in the areas of research, extension services, and production) through its affiliated 13 research institutes, and numerous field stations, in the areas of field crops, horticulture, plant pathology, plant protection, soils and water, animal health, animal production and reproduction, serums and vaccines, cotton sugar economics, and mechanisation.

Some of these institutions are among the oldest R&D facilities in the country, and have produced many commendable results, such as in the area of



IAS Fellow Prof. Dr. Baha el-din Fayez

plant breeding and the development of several varieties of the highly prized long-staple cotton.

- **Irrigation Research Centre;** The Ministry of Irrigation is responsible for a cluster of 13 R&D institutes, administered by the Irrigation Research Centre, and numerous field stations, which are active in the various disciplines of irrigation and water resource. Some of them are among the oldest facilities of water management research in the country, and are credited with the development recently of Egypt's Water Master Plan and Land Master Plan, which both involve highly ambitious and extensive schemes.
- **Ministry of Industry;** Several facilities for the transfer of technology, quality control, extension, and consultancy are in existence under the jurisdiction of this Ministry in addition to a series of specialized R&D institutions in the areas of plastics, metallurgy, electronics, textiles, food, and mineral resources. The Engineering and Industrial Design Development Centre is a multi-functional institution which delivers services in the fields of R&D, design and engineering, training, and consultancy services related to industrial production. Under the same Ministry also comes the Egyptian Organisation for Standardisation which is the country's major institution in the area of manufactures quality control and specifications.

Ministry of Health; Affiliated to this Ministry are 15 research based institutions which operate in the various disciplines related to public health, nutrition, endemic diseases, pharmaceuticals, etc.

The Ministries of Housing and Reconstruction, and Electricity and Energy, also have among others — their own R&D institutions and extension service facilities, which specifically attend to local environment problems and raw materials, while attempting to keep abreast with latest technology developments.

SCIENCE AND TECHNOLOGY IN THE HIGHER EDUCATION ESTABLISHMENT

In the country there exist 13 universities, of which 12 are Government-funded and one is a private institution. The twelve universities are autonomous bodies, and several of them have their own distinctive organisational and functional features. However, they are guided in many of their overall policies by the decisions of the Supreme Council of the Universities which is chaired by the Minister of Higher Education.

The universities as a group have in their 72 faculties (or colleges) the largest number (close to 16,00 in 1986) of qualified personnel engaged in R&D activities in the country. Most of the research work (largely self-oriented) is performed in the departments and units of these faculties which, at the same time, are responsible for graduate and post-graduate education. In addition to the conventional faculties, several universities have specialized and full-time R&D facilities and region-specific research institutions which are oriented to handle topics of applied nature and short-term impact.

* Article written by; IAS Fellow Prof. Dr. Baha el-din Fayez

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