

Federation of Arab Scientific Research Councils
Khartoum – Republic of Sudan



Action Strategy

2008-2016

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1-Introduction:

The Arab nation is considered as one of the nations that gave scientific research a considerable concern, encouragement, and support. and sponsored scientific workers during its prosperous brilliant civilization.

Arab scientists had the favor of developing the basics and curricula of scientific research; they explored unprecedented horizons in basic and applied sciences during a period which many regions of the world were engulfed in ignorance. Many of those who held the modern scientific and technological advancement banner in Europe had learnt from Arab. This was followed by a relapse of Arab civilization and weakness in giving concern to scientific research, and, its disappearance almost in many of the nation's countries , where Arabs had suffered greatly under the severity of foreign exploitation and oppression.

The last decades of the 20th century witnessed some development in the fields of scientific research in Arab countries. This came within the comprehensive advancement by Arab countries in various aspects of life where they established many independent or government scientific research centers to conduct scientific researches in addition to researches conducted by universities and high institutions.

Some Arab countries have followed different approaches in order to design and set scientific research policies at the state's level. Some of them invented a "central organ" for this purpose, others assigned this mission to the Ministry responsible for higher education, or to one of the universities, or to the major scientific research center in its territory, They also established different frameworks to organize and coordinate work between Arab countries in some fields of technology.

As for scientific research, Arab cooperation took the form of bilateral or multilateral cooperation, or was limited to the conferences, symposia, seminars and expert's meetings. However, all these levels of cooperation failed to have any considerable impact as joint Arab scientific efforts. There was need for coordination among Arab scientific research institutions and centers to promote scientific and technological research at the national level.

From this point of view, an idea of establishing a Federation for Arab Research Institutions has emerged during a meeting for Arab scientific research experts which convened in Cairo (1Feb- 6Feb 1975). The Iraqi Scientific Research Institution at that time suggested the establishment of the Federation and the proposal gained support of all the gathering. Then, the Scientific Research Institution called for the constitutional meeting in Bagdad at (26-29 May 1975). The participants of

that meeting were representatives from Jordan, Iraq, Palestine, Egypt, Libya, Yemen, The Secretary General of Arab League, UNISCO, Arab Universities Federation, Arab Center of Sahel and Desert. The meeting discussed the proposed Federation charter and the adoption of its final speech.

The establishment of the Federation of Arab Scientific Research Councils was declared during the Conference of Arab Ministers responsible of the application of science and technology on development (**CASTARAB**) in Rabat on 16 Aug 1976 after the ratification of its charter by seven countries at that time.

Federation of Arab Scientific Research Councils is an inter-governmental Arab organization is a legal entity that is independent and can achieve its objectives and undertake its functions according to the statute of establishment. The location of its headquarters at the time of establishment was Bagdad- Republic of Iraq. The relationship between the Federation and the state of origin is governed by a private agreement ratified by the two parties, according to which the Federation enjoys immunities and privileges that enable it to achieve its objectives . The Federation enjoys the same advantages and immunities of the Arab League and its organizations in Arab member countries. By this time, the Federation membership includes 16 Arab countries.

Owing to the difficult situations in Iraq, the Federation Council in its 27th ordinary session (Khartoum from 14-16 Dec 2004) has ratified the movement of the Federation headquarter to Khartoum. The Federation General Secretariat moved to the new headquarter at the beginning of 2005 and an agreement was signed to organize the relationship between the Federation and Sudan Government.

The Federation had developed an action strategy for the year 1986, its main points included the followings:

- Coordination and exchange of experience among Arab scientific institutions.
- Plans for joint Arab research proposals and supervising their execution.
- Documentation and exchange of information related to Arab scientific research and encouraging its exchange.
- Technical cooperation to develop research capacity in aim of raising the competency of research systems in Arab countries.
- Cooperation with Arab and foreign scientific and technological organizations, federations, and institutions of common interest.

The Federation had prepared a triple plan of action to be executed within the strategy, in the light of this, (330) conference, symposia, seminars, and training courses had been convened with the participation of

17.000 Arab scholars, professors and experts. Similarly, the Federation executed (500) exploration visits for scholars, professors and researchers with whom experience has been exchange of experiences by whole Arab countries. The Federation also organized prizes for the arabicization of scientific books and their translation into Arabic in order to achieve the goals of making Arabic language the language of scientific research as it was in the past.

The Federation issued three scientific periodicals which dealt with computer researches, bio-technology, environment and sustainable development in Arabic language. 25 studies on Scientific Research and Technology in Arab Countries were prepared and distributed over all Arab scientific institutions. More than (2000) of Arab researchers and experts benefited from patents documents which amounted to 1.5 million Arab and foreign patent's that had been in the possession of the Federation Secretariat General in its previous headquarters in Bagdad, but were destroyed during the recent instability in Iraq.

Owing to the fact that 20 years have passed since the development of the aforementioned strategy, and because of the outstanding scientific and technological

advancements on the international arena through more than two decades , the need for developing a new strategy for the Federation's work had emerged. The Federation Council in its 29th ordinary session (Khartoum from 12-14 Dec 2006), decided that the General Secretariat of the Federation shall develop a new strategy for the Federation work and submit it to the Federation Council in its coming session.

2- The Real Situation of Scientific and Technological Research in Arab Countries:

The scientific and technological research capacities vary from one Arab country to another, some of them are quite good, while others do not possess the systems capable of conducting scientific research processes and apply their findings in the field .

Scientific and technological research in Arab countries is generally centralized in universities and scientific research centers attached to universities or different ministries in each Arab country. While the number of universities in Arab countries had increased noticeably and amounted to (217) universities, \which means (0.72) universities for each million people in Arab countries if the population of Arab countries is (300) million, we find that the number of universities is (2-6) universities for every million citizens in many

of the industrialized countries , for example there are (6) universities for each million citizens in the US, and (2) universities for each million citizens in Japan.

As to the number of scientific research centers, we find Cairo at the forefront of Arab countries where there are 104 research center out of a total of 550 centers in all Arab countries, i.e. 15% of the total centers, but despite this, the number is still small in comparison with some of the industrially advanced countries such as the US and the Japan. Also, financial ability as well as manpower in most of Arab research centers are quite limited in comparison with advanced and developing countries. As for research technological cities, they are very few and can be found in a small number of Arab countries like Cairo, Saudi Arabia and Tunis.

The average expenditure on scientific research does not exceed 0.2% of the domestic total production, while the international average amounts to 1.4%, i.e. 7 times more than Arab countries expenditure. The expenditure on scientific research amounts to 3.8%, 2.6%, 2.8%, 2.8%, 2.6%, 2.4% in Sweden, Switzerland, Japan, South Korea, US, and Germany respectively, meanwhile it amounts to 2.4% in Israel, this means that

Israel is expending 12 times more than the average Arab countries expenditure .

As for manpower in scientific fields, Cairo and Tunis precede other Arab countries with respect to the size of scientific manpower. There are (560) and (460) researchers for every 100000 citizens in Tunis and Cairo respectively, despite this, the size of scientific manpower is small compared to some of the developed countries, where the size amounts to (4906) in Japan, 2448 in France, and 3676 in US.

Despite the existence of a small number of people who are capable of conducting scientific research in many of Arab Universities, yet the researches conducted are characterized by individuality and lack of being linked to development plans, where most of it endeavors to improve the scientific and financial situation of a teaching staff member. Therefore, the research activity of the teaching staff is limited and does not exceed 5% of the total efforts of the teaching staff. While it amounts to 33% in the universities of some developed countries.

With respect to publication which is considered as one of the basics of scientific research, we find that the total number of Arab scientific periodicals does not exceed (541) periodicals, most of which are in Cairo. This

amounts to (159) periodicals. Comparing the number of scientific periodicals in Arab countries with one of the developed countries, we find that Japan issued about (13883) periodicals in 1993 only in the field of science and technology. In addition to being few, scientific periodicals suffer irregularity of issuing, lack of allocated support, poor printing and publishing and that they do not cover all branches of knowledge the thing which led some Arab scientists to publish their researches in foreign periodicals.

As for the translation of scientific books and technology publications into Arabic language, we find that what had been translated by Turkey in a year exceeds what was translated by all Arab countries in the same period. The scientific Media is also inefficient in most of Arab countries. It is worth mentioning that Cairo launched a television channel called “Scientific Research Channel”.

As for providing information resources which is considered a the fundamental components of scientific and technology research schemes, the issue is similar. Many countries suffer deficit in this field, especially in scientific and foreign periodicals, this can be attributed either to the difficulty of obtaining for low financial resources, or for non mastering periodical’s languages. Also, the

number of patent, which constitutes one of the important scientific information resources, is very small in most of Arab countries, noting that Arab researchers do not give patents the required concern and do not register their innovations and inventions, the thing which makes developed countries benefit from their researches issued in foreign periodicals.

As for information networks, despite the fact that some Arab countries provided regional scientific networks. Yet, some of them were linked to the international information network, but the irregularity of the regional networks, not being integral in many of Arab countries, and the non-existence of information networks among the countries, prevents the easy exchange of scientific information as well as researches results, this may result in the duplication of researches and waste of Arab research power.

From the above mentioned it is clear that the real situation of technological and scientific research in all Arab countries suffer deficiency in its constituents either in the number of universities and research centers, or trained scientific manpower. Also it lacks to the financial support and the means of publishing researches and patents and disseminating it. This requires more concern and focusing on enhancing joint Arab scientific work through upgrading these constituents as soon as possible

because scientific research is the main motive for the targeted economical and social development to face challenges imposed by scientific and technological advancement running in accelerated paces.

This requires that the new strategy of the Federation's work should be taken with a considerable amount of commitment in order to result in raising scientific research constituents to be in harmony with the world's current advancements.

3- The Strategy Vision, Message and Goals:

3(1) - Vision:

Supporting and developing scientific and technological research in Arab countries in order to achieve the requirements of Arab nation stability, raise its scientific competency and insure its capacity to innovate and create in exploiting the available resources for the utility and development of the nation.

3(2) - Message:

Reason should be followed to achieve nation's need for economic and social development, maintaining its culture and preserving its identity and civilization heritage , the supporters for these aims are:

- Raising scientific and technological qualification standards in universities and higher institutions in Arab countries in order

to strengthen research and scientific capacities in the nation.

- Supporting joint Arab scientific research, urging scientific institutions and academies to participate in the production of scientific knowledge and encouraging cooperation and coordination among them in all fields of scientific and technological researches that lead to the acceleration of development in Arab countries.
- Launching Arab social capacities to the future thinking, creativity, innovation and undertaking productive works supported by studies, research findings and advanced professional experience.

3(3) - Goals:

- Strengthening and developing joint Arab national research capacities.
- Mobilization scientific and technological powers to deal with issues that concern Arab countries.
- Depending on local research capacities and upgrading them in order to develop local Arab products and to derive technology in areas of urgent priority.
- Efficiency of exploiting natural and human resources in Arab countries
- Maximizing the benefit of information and communication technology in joint Arab scientific research.

- Completing the inter-countries information network particularly in the field of transferring technology and marketing the findings of research projects.
- Filling the gap between scientific institutions in Arab countries and private sector through special awareness raising programs, exchanging experience and executing joint projects.

4- Research programs Priorities:

The Federation determines the research program priorities all over Arab countries according to a methodology that considers the maximum output of these programs on economical and social development and enhancing the nation's supports and constituents, following are the fields to be considered and priorities to be organized for execution:

- 1- Productive sectors, such as agricultural, industrial, petrochemical and engineering sectors.
- 2- The technology of new substances.
- 3- The technologies of new and renewable power
- 4- Micro electronics and computers.
- 5- Auto-operation and machineries.
- 6- The technology of water desalination and purification
- 7- Information technology

- 8- Manufacturing software and computer usages that include artificial intelligence and expert systems.
- 9- Bio-technology and genetic engineering.
- 10- Atomic science and its applications.
- 11- Space science and technology
- 12- Communications and extra- speed information networks.
- 13- Nanotechnology

5- Means of Achieving Strategy Goals:

Moving forward from the above mentioned, and on the basis that the strategy is a mean and way of achieving the major Federation goals provided for in its charter a long time ago, and characterized by a nature and movement that cope with the renewable needs which emerged during the execution of plans and being reviewed from time to another according to the development of those needs, therefore, the means of achieving the strategy goals can be gathered in many points as follows:

- Coordination and experience exchange among Arab scientific institutions.
- Strengthening basic scientific researches and directing applied researches to increase production and improve its quality together with working on

upgrading basic and applied sciences in all fields.

- Supporting humanitarian sciences related to Arab development.
- Developing and avoiding coordination default on conduction of joint Arab research in addition to work on sponsoring national scientific and technological research affairs financially and human wise.
- Suggesting the initiation of scientific research centers in all required fields that are not existing or achieved in any of the Arab countries.
- Documenting information related to Arab scientific research and encouraging its exchange with narrowing epistemic, technological, and informative gap among Arab countries
- Maximizing benefiting from information and communication technology in joint Arab research work.
- Raising the standard of exploiting natural and human resources owned by Arab countries with upgrading the efficiency and competency of Arab scientific research system to serve the endeavored development in all Arab countries .

- Promoting scientific media with the significance of scientific research and technological development in all Arab countries .
- Cooperation with organizations, federations and Arab and foreign scientific and technological institutions of joint concern.
- Working on enhancing partnership between scientific research institutions and private sector at the national and Arab national levels.
- Working on making Arabic language the language of teaching and conducting researches in higher education institutions and researches centers all over Arab countries.
- Legalizing the methodology of following, evaluating and benefiting from results in developing the means of applying scientific research findings on field

5(1) - Means of Determining Goals Description:

5(1) 1- Exchanging experience among Arab scientific institutions by the following means:

- Exchanging experience through conferences, symposia, seminars and training courses.

- Exchanging experience through exploration visits, and training and research fellowships.
- Exchanging information through:
 - Scientific publications of conferences, symposia, seminars and training courses executed by the Federation.
 - Publications and studies of the Federation General Secretariat issued annually or from time to another.

5(1)2- Joint Arab Research Execution Planning :

Arab countries currently facing many problems of similar nature the thing that requires conducting joint Arab researches the subject matter of which is to be determined jointly by Arab countries and the Federation within specific conventions if the case requires.

5(1)3- Financing Joint Arab Researches:

The execution of financing research schemes will be through:

- Arab countries participating in research execution.
- Arab and foreign financing funds as the case may requires.
- Federation resources allocated for that purpose.
- Private sector.

5(1)4- Documenting information related to scientific research and encouraging the exchange of its findings through:

- Convening training sessions on informatics and related elements
- Innovating data bank which includes the following basics:
 - Technological and scientific researches in Arab countries.
 - Arab researchers.
 - Arab and foreign patents.
 - Scientific periodicals in Arab countries.
 - Scientific academies and Arab scientific research institutions and centers.
- Maximizing benefit from information networks available among Arab countries for documentation and exchange of information.

5(1)5- Technical cooperation to develop research capacity in Arab countries in order to raise and develop the capacity of scientific and technological research systems in some Arab countries through:

- Delegating some experts or a team of experts to consider scientific situations in some Arab countries and presenting suggestions to upgrade and develop it in a compatible way with the current development in some of the world's countries in scientific and technological field.

- Seeking financial and technical support (as the case may require) from some financial and technical bodies to be presented to some scientific institutions and centers in Arab countries.

5(1)6- Cooperation with organizations, federations, as well as Arab and foreign scientific institutions through the conclusion of cooperation conventions and memos of understanding to achieve:

- The execution of joint scientific activities such as conferences, symposia, seminars and joint Arab researches
- Exchanging information, publications and scientific releases.

5(1)7- Legalizing the follow up and evaluation methodology and benefiting from the findings in developing work means.

The process of follow up and evaluation of the Federation's work is very important and aims to:

- Following up the execution of scientific efficiencies.
- The comprehensive evaluation of the Federation's work through:
 - Directions of the Federation's council in the annual sessions.
 - Forming follow up committees within the Federation General Secretariat as it may be required to follow the execution of schemes.

- Nominating experts by the Federation's council to carry out a comprehensive evaluation of the Federation's work at least once every six years ¹ to know the extent to which the Federation had achieved its objectives and to present the appropriate recommendations which are going to set the Federation in the right course and develop the means of its work to be compatible with the target it had been innovated for.

6- The Requirements of Achieving Goals:

The achievement of goals requires consideration of the following points:

6(1) - Supporting the approval of national strategy for every Arab country and developing programs of action as well as executive plans in order that every Arab country will have the innovative national capacity, and selecting, transforming, publishing and applying the appropriate technologies.

6(2) - Facilitating the mission of Arab scientific institutions cooperation.

6(3) - Flexibility of the Federation's plans in a way that enables scientific institutions in Arab countries to cooperate easily within the specified execution timetable, this for example- will be reflected in:

¹ Stated in the suggestions of King A / Aziz City for Science and Technology once every two years.

- Planning for joint Arab research projects.
- Executing exploratory visits as well as training and research fellowships
- Nominating experts, hosting some efficiencies and facilitating their execution.

6(4)- Attempting with Arab countries to determine issues of joint concern to execute some of it as joint Arab researches and others in the form of conferences, symposia, and seminars taking in consideration the following when preparing scientific plans of the Federation:

- Geographical distribution of these scientific activities.
- Seeking to obtain private funding (in addition to the Federation funding) for some of these projects especially joint Arab researches. Providing that the following should be considered in the Federation's future plans:
 - It should reflect the urgent needs of development in Arab countries.
 - It should enhance the national capacity in advanced science and technology.
 - It should rationalize human resources investment in Arab countries.
 - To obtain the maximum benefit from available international experiences, systems and programs.
 - Enhancing integration and cooperation among Arab countries

6(5) - Coordination with organizations and Arab, regional and international federations in areas of joint concern through:

- Executing joint scientific efficiencies
- Participating in the scientific efficiencies executed by these organizations
- Exchanging information and scientific news as well as documents and publications of scientific efficiencies.
- Obtaining training or research fellowships for Arab scholars from some specialized international organizations and scientific centers.