

In the Name of God, Most Gracious, Most Merciful

# Academy of Sciences of the Islamic Republic of Iran

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## **Abstract**

A brief description of the historical background and activities of the pre-revolution academies of literature, art, language and sciences in the Islamic Republic of Iran is given in this article. The objectives, responsibilities and organization of the newly proposed academy of sciences are illustrated. Recent pertinent achievements are briefly summarized.

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## **Organization of Research**

The National Scientific Researches Council is the highest official body in the Islamic Republic of Iran that mandates, administrates and evaluates the key policies, guidelines and regulations related to the scientific and applied research throughout the country. The aims and scopes of the council are the advancement for scientific knowledge and furtherance of its application for welfare of the human beings.

Research and development activities in all branches of science and technology are both considered and fostered by the council through five specializing committees: (a) Medical Committee, (b) Engineering Committee, (c) Agricultural Committee, (d) Fundamental Sciences Committee and (e) Committee for Human Sciences and Art.

The council is generally presided by prime-minister and in his absence by minister of culture and higher education. Through the membership of a number of cabinet ministers and the presidency of the prime-minister, the council is able to easily act as a ministerial sub-committee. The research deputy to the ministry of culture and higher education is also the secretary of the council. All activities of the council are conducted through the office of the secretariat and under the secretary's supervision. Directors of all five specializing committees and at least four other scientific, industrial, or research organizations are members of the council, too.

The framework and responsibilities of the council are very broad. One of its duties, for example, is to establish and expand the activities of the Iranian academy of sciences. However this very important task had not been put into effect before the first gathering of the council after the Islamic Revolution in the first day of February of 1987 (i.e. 12th of Bahman, 1365 After Hejrah in Solar Calendar: H.S.)

In its first meeting after the Islamic revolution, the council did strongly approve the strict need for establishment of the Academy of Sciences of the Islamic Republic of Iran in a near future. A comprehensive study was thereafter started at the secretariat office of the council. The results included a complete draft which was submitted to the council. An almost thorough review was also made of the goals, objectives and organizations of the most representative academies of the world.

At the present, the proposed draft of the Academy of Sciences of the Islamic Republic of Iran is under careful study by the National Scientific Researches Council and its members. Other organizations such as the Cultural Revolution Supreme Council, the Ministry of Culture and Higher Education and the Prime-Ministry's Office are also involved in studying the draft. Some aspects of the draft are discussed in this article.

## **Historical Background**

The first academy was founded in Iran before the Islamic revolution, in 1935 (1314 H.S). Its goals and objectives were both to preserve and to develop the Iranian language (Persian) and literature. It was supposed to select and adapt the new scientific terms that were highly needed for livelihood, health and fluency of the language. The academy was also requested to purify the language from the strange and un-familiar words adapted basically from the foreign terminologies in an un-controllable fashion. It worked, therefore, principally on selection, innovation and invention of new terms. It was also supposed to collect the traditional and local sounds and music.

As a result of the second world war and occupation of the country by the foreign forces, the activities of the Academy was stopped in 1941 (1320 H.S). It took not less than twenty nine years to re-start these activities once again in 1970 (1349 H.S.). In 1968 (1347 H.S.) a charter was issued for establishment of Foundation of Academies of Iran. The Foundation comprised of the following three academies:

1. ***Literature and Art Academy of Iran*** This academy was constituted in 1974 (1353 H.S.) with the purpose of protection of the Iranian literature and art. It should be noted that the Iranian literature and art had generally been considered to be of the richest ones in the world. However due to the immense imports of strange terminologies and modern styles, it was felt in danger of collapse at that time.

2. ***Language Academy of Iran*** This academy was established in 1970 (1349 H.S.). Its immediate goal was to protect the Iranian language, i.e. Persian, from any possible decay or decline due to the modern changes of the style, and to keep it prepared for fulfillment of the scientific and cultural needs of the nation. It was also supposed to do research and investigation about other local tongues and languages of the country, in order to increase the understanding, rate of progress and quality of development related to the official language. This academy was relatively active until its dissolution in 1978 (1357 H.S.). It could produce a number of different scientific dictionaries

3. ***Sciences Academy of Iran*** This academy was established in 1975 (1345 H.S.). Its objectives were to promote the quality of the scientific work done in the country, to recognize the scientific achievements, and to esteem the eminent scientists especially those who were the natives of the country.

### **Recent Achievements**

Because of the conflicts existing in their responsibilities with the other institutions, the above academies were not, however, thoroughly supported by the official organizations and thus they could not attain considerable achievements toward their goals. They were, therefore, merged after the Islamic revolution into the Cultural Studies and Researches Institute. At the meantime the need for re-establishment of an academy that could suitably deal with all branches of science and technology was deeply perceived by at least four major authorities which effectively considered the matter

1. The National Scientific Researches Council
2. The Ministry of Culture and Higher Education
3. The Cultural Revolution Supreme Council, and
4. The Islamic Consultation House of Parliament.

In its first meeting after the Islamic revolution, the National Scientific Researches Council confirmed the need for re-establishment of the academy of sciences of the Islamic Republic of Iran. Due considerations were also to be given to the previously established organizations such

as the National Center for Scientific Research and the Cultural Studies and Researches Institute, which resembled in some aspects to the academy.

The office of the secretariat of the National Scientific Researches council was, therefore, requested to work in some detail on the state of the art about the sciences academies of the world. The studies were shortly started with a comprehensive review on the subject. Considerations were given to 50 academies in 32 countries, from which the following four were selected as the most representatives of all:

- The Third world Academy of Sciences: indicating a new pattern for the third world,
- The Pakistan Academy of Sciences: as a representative to those existing in the developing countries,
- The British Royal Society: as a typical of the western world, and
- The Academy of Sciences of the Soviet Union: as a representative for the academies existing in the eastern block.

The studies showed that the academies existing in the world can be categorized into two groups. The first group comprised of those involving directly in planning, guidance and leadership of the research programs. The examples are those existing in China, Australia, Finland and the Soviet Union. The second category, on the contrary, have a symbolic role for enhancement of the research and development activities with the major task to dower proper prestige and honor to the brilliant individuals dedicated to the scientific and engineering attempts. The majority of the academies existing in the world are, of course, of the latter sort.

In the countries with the symbolic kind of academies, the ministries of sciences and higher educations are usually responsible for the planning, guidance, leadership and co-ordination of the research activities. This is the most similar condition with that existing in the Islamic Republic of Iran. Thus the symbolic pattern was chosen to be the most pertinent pattern applicable to the conditions presently existing in this country.

Suggestion was therefore made to the National Scientific Researches Council by the secretariat for preparation of a new proposal based of the symbolic pattern. This suggestion was quickly accredited by the council and the work was started.

### **New Proposal**

The principal objective of the academy of sciences of the Islamic Republic of Iran is to stimulate, facilitate and foster the investigations carried out by the brilliant individuals dedicated to the scientific, engineering and cultural research, for the benefit of human welfare. It is also to provide the means of enhancement of the national potential and ability to accelerate the research activities for acquiring the appropriate position in the world of science and technology.

The academy is also to acknowledge the significance of the noble research activities and to transmit their vital value to the new generations. It is to glorify the excellence of the endeavors made by the highly distinguished research-workers involved in serving the human community with their remarkable contributions. It is therefore to be a center for gathering, Partnership, communication and scientific exchange for the most knowledgeable and prestigious scientists and engineers residing inside or outside the country.

The academy is also to help the expansion of the boundaries of knowledge by publicizing the

outstanding results of the research programs. It needs therefore to be active in publication of books, journals and periodicals for the specific and general use. Close relations is obviously necessary between the editorial boards of the academy's journals and those of the other institutions, especially the international journals published by the National Center for Scientific Research. Two of these latter journals, Journal of Medical Sciences and the International Journal of Engineering are now under print.

The academy may also be involved in establishment of the associated institutions, laboratories and research centers in order to absorb, encourage and retain the dedicated research workers who can be involved in high priority high level research topics.

Scientific and engineering meetings can be organized by the academy at the national or international levels. At these gatherings, highly specialized subjects can be discussed by top scientists, engineers and scholars of the whole world. The academy is also supposed to give recommendations and consultations to the government authorities on the scientific and engineering issues, whenever requested.

The academy of Sciences of the Islamic Republic of Iran is organically proposed to be tied to the Ministry of Culture and Higher Education, but its conducts are under the supervision of the National Scientific Researches Council.

The academy is constituted of at least six separate boards dealing with the major scientific, engineering and cultural fields of investigation and research. A number of more specializing committees can be associated with each board. Close ties between these committees and those related to the National Scientific Researches Council is also to be established. The members of the committees are to be chosen from universities, research institutes, industry and government to provide a diversity of backgrounds and a balanced spectrum of knowledge.

The committees engaged with newly emerged scientific, engineering and cultural problems. The results of the outstanding research projects as well as the national research programs are to be reviewed by the committees. The purpose is to establish fresh insights into the most recent concepts that convey major atonements. Critical problems and scientific issues that have not adequately been investigated must be identified and discussed by the specializing committees.

The academy can have both types of affiliated or associated members. The affiliated members should necessarily participate in the assemblies, boards and committees; whereas the associated members contribute through correspondence with their ideas, thoughts and experiences into the academy's activities.

The autonomous institutions and research centers capable of managing top-quality research programs, are eligible to attain official relationship with the academy or become member-institutions of the academy. These relationships are, however, confined to the scientific co-operative matters, basically. The academy, at the other hand, can establish its own member-institutions if it proves to be feasible.

The academy can start its work with at least 15 and at most 50 affiliated members. Although the exact requirements for becoming a member of the academy is to be determined later, but at least a doctorate degree with several years of successful research experience seems to be necessary. In terms of the academic status, the qualifications usually required to become an associate professor, are to be met. Any distinguished scholar in science and technology recognized by his or her outstanding contributions is certainly welcome to become a member of the academy. The membership in the academy is fully honorary.

## Summary

There exist at least three legal organizations in the Islamic Republic of Iran that deal with the nation's major research policies and guidelines:

- The National Scientific Researches Council,
- The National Center for Scientific Research, and
- The Ministry of Culture and Higher Education.

All these three organizations have recently been involved in developing the interesting idea of establishment of a new academy that can be concerned with the scientific engineering and cultural achievements throughout the country. Attention paid by other legal organizations as well as the private sector did create enough impetus for provision of a complete proposal for establishment of the Academy of Sciences of the Islamic Republic of Iran.

Although around 55 years of helpful experience has been available on dealing with various literature and language academies, the establishment of the Academy of Sciences of the Islamic Republic of Iran seems to be the first effective endeavor for enhancing the health and vitality of the fundamental and applied sciences.

In conclusion, the academy not only is to deal with the classic fields of science and technology, but is going to pay enough tribute to the modern scientific and engineering concepts as automatics, informatics, genetics, biotechnology and space.

## Appendix

**Table 1.** Educational and Research Institutes in the Islamic Republic of Iran.

Institution (Governmental)	Department						
	Medical Sciences	Engineering and Technology	Agriculture	Fundamenta l Science	Human Science	Art	Others
Research	16	14	13	6	21	-	-
Universities	35	42	19	20	37	3	18
Colleges	11	-	-	-	-	1	17
Independent Departments	3	1	1	-	11	1	1
Higher Schools	12	2	-	-	11	1	1
Technical Colleges	-	21	-	-	-	-	-
<b>Total</b>	<b>77</b>	<b>76</b>	<b>33</b>	<b>26</b>	<b>80</b>	<b>5</b>	<b>33</b>

**Table 2.** Statistics on the Academia in the Governmental Institutions in the Islamic Republic of Iran.

Academia	Department							Total
	Medical Sciences	Engineering and Technology	Agriculture	Fundamental Science	Human Sciences	Art	Others	
Professor	140	33	26	80	52	1	-	332
Associate Prof.	278	66	56	159	113	6	-	678
Assistant Prof.	1287	371	200	736	621	62	6	2383
Instructor	599	475	209	881	877	83	10	3183
Others	54	22	4	31	24	5	4	144
Total	2358	967	495	1887	1687	157	20	7571

**Table 3.** Statistics on the Students in the Governmental Institution in the Islamic Republic of Iran. The date is for the last academic year. For this year, add 10-15 percent.

Degree	Department							
	Medical Sciences	Engineering and Technology	Agriculture	Fundamental Science	Human Science	Art	Others	Total
Doctor of Philosophy	1261	-	5	-	89	-	-	1355
Professional Doctorate	13900	-	878	-	-	-	-	14778
Master of Science	511	1217	194	502	1518	1024	-	4966
Bachelor of Science	2441	23404	1486	22816	46165	2598	-	98910
Junior Certificate	13095	12958	2853	1035	1090	455	-	31482
Total	31208	37579	5416	29353	48862	4077	-	151495

**Table 4. Governmental Budget on Higher Education, Scientific Research and Applied Research in the Islamic Republic of Iran. (Million Rials)**

Year	Higher Education	Scientific and Applied Research			Total
		University	Scientific Institutions	Applied Research	
83	69,030	1,780	310	19,420	21,510
84	99,200	1,950	744	28,320	30,920
85	95,000	1,600	2,214	24,000	27,800
86	122,300	1,760	3,100	35,800	40,600
87	106,200	1,100	3,400	42,240	46,690

# **REPORT**

***of the***

***Second General Conference***

***of the Third World Academy of Sciences***

***Bijing, 14 - 18 September 1987***

***by***

**Mohamed H. A. Hassan  
Executive Secretary**

*TWAS Second General Conference*  
*"Future of Science in China and in the Third World"*

**Regional Meeting of Asian Countries**  
Fragrant Hill Hotel, Beijing, 17 September 1987

Present at the Meeting were:

1. Akhtar, M. - Pakistan/UK
2. Amrollahi, R. - Iran
3. Ang, K.P. - Singapore
4. Chang, Jung Jong - D.P.R. Korea
5. Chen, Naixing - P.R. China
6. Cho, Dong Chun - D.P.R. Korea
7. Ding, Guo-yu - P.R. China
8. Dong, Sheng Liu - P.R. China
9. Feng, Depei - P.R. China
10. Golshani, M. - Iran
11. Huang, Kun - P.R. China
12. Huq, M.M. - Bangladesh
13. Jayewardene, R.P. - Sri Lanka
14. Kim, Gyong Bong - D.P.R. Korea
15. Kim, Won Jin - D.P.R. Korea
16. Kulasinghe, A.N.S. - Sri Lanka
17. Li, Wenlin - P.R. China
18. Li, Zhijie - P.R. China
19. Ma, Shyin - P.R. China
20. Menon, M.G.K. - India
21. Rahman, A.U. - Pakistan
22. Rana, R.S.S.B. - Nepal
23. Rao, C.R. - India/USA
24. Sadrnezhaad, K. - Iran
25. Salimi-Namin, M.H. - Iran
26. Sharma, A.K. - India
27. Shen, Shi-min - P.R. China
28. Shen, Y.K. - P.R. China
29. Shi, Ying-Xien - P.R. China
30. Siddiqi, O. - India
31. Sudarshan, E.C.G. - India/USA
32. Tan, C.C. - P.R. China
33. Tseng, Chenkui - P.R. China
34. Tu, Guangzhi - P.R. China
35. Wang, Bin - P.R. China
36. Wang, Daheng - P.R. China
37. Xi, Zezong - P.R. China
38. Xu, Guanren - P.R. China
39. Zhu, Daoken - P.R. China

About 40 scientists from 9 different countries of Asia participated in the Group meeting on regional presentations and the modality of South-South Co-operation. Seven presentations were made.

The representatives from the Institute for Fundamental Studies of Sri Lanka, H.E.J. Research Institute of Chemistry from the University of Karachi and the Institute of Mathematical Sciences in Madras, spoke about the objectives, areas of study and management patterns of these respective institutes.

The other participants from Bangladesh, Iran and Morocco presented reports on the state of science in their respective countries. The group was also informed about the Centre for Science and Technology for Non-Aligned Countries being set up in India. It will serve as an information centre for the entire technological capability available in the developing world.

The group expressed their deep appreciation of the development of Science and Technology in China in different fields — both basic and applied. In China, Science Education and Research are in conformity with the national requirements. Moreover, there is a strong commitment of the Chinese scientists — whether working abroad or in the country - to work for the development of the nation.

It is suggested that in other countries too, Science Education and Research should be adapted to national requirements where it is lacking. In order to achieve this objective, a strong research base on basic sciences is essential. TWAS may assist in promoting basic research in these countries.

For South-South Co-operation, some of the areas of study suggested were:

- (a) natural products - chemistry, pharmacology, molecular biology;
- (b) vector biology
- (c) biomass as a source of energy
- (d) biophysics
- (e) physics of condensed matter
- (f) material science
- (g) biotechnology in relation to agriculture and animal husbandry
- (h) marine sciences
- (i) climate modelling
- (j) resource survey - land and biological resources
- (k) natural and man-made climatic changes on man and environment in addition to others.

Some institutions were identified for the effort and it was suggested that the respective academies be approached for further suggestions. Institutes identified were: