



*of*  
**PAKISTAN ACADEMY OF SCIENCES**  
**MILESTONES AND SALIENT ACTIVITIES**

**Dr. Abdul Rashid**

**PAKISTAN ACADEMY OF SCIENCES**

**SIXTY YEARS OF  
PAKISTAN ACADEMY OF SCIENCES  
(1953–2013)  
*Milestones and Salient Activities***

**Dr. Abdul Rashid**  
*Fellow, Pakistan Academy of Sciences*



**Pakistan Academy of Sciences**  
**2014**

# **Pakistan Academy of Sciences**

## **Mission Statement**

“Promoting Science, Technology and Innovation for Socio-economic Development”

## **ADVISORY COMMITTEE**

**Prof. Dr. M. D. Shami, S.I.**

Vice President, Pakistan Academy of Sciences

**Dr. Anwar Nasim, S.I.**

Secretary General, Pakistan Academy of Sciences

**Prof. Dr. N. M. Butt, S.I.**

Treasurer, Pakistan Academy of Sciences

© 2014 Pakistan Academy of Sciences

**ISBN:** 978-969-8223-13-7

**Composed by:** Engr. Adnan Bashir

**Printer:** PanGraphics (Ptv) Ltd., Islamabad

## FOREWORD

The Pakistan Academy of Sciences was inaugurated by the Prime Minister of Pakistan, Khwaja Nazimuddin, on 16<sup>th</sup> February 1953, during 5<sup>th</sup> Pakistan Science Conference at Lahore. The Government of Pakistan has bestowed a consultative and advisory status to the Academy *“on all problems relating to the development of scientific efforts in the country”,* and *“generally on such matters of national and international importance in the field of science as may be referred to the Academy”*. The land for the construction of the Academy building was allotted at the Silver Jubilee celebrations in 1978 by General Zia-ul-Haq and a grant of Rs. 7.00 million was also provided for that purpose. The building was



constructed when Dr. M.A. Kazi was President and Dr. Raziuddin Siddiqi was Secretary. The construction was managed by Dr. Raziuddin Siddiqi and Dr. M.D. Shami. Subsequently, a grant of Rs. 50.00 million was provided by Dr. A.Q. Khan which was used for payment to CDA for the cost of the land, renovation of the existing building and for the construction of the Fellows Lodge, as well as for an endowment. The President of Pakistan General Pervez Musharraf announced a grant of Rs. 30.00 million towards the endowment on the occasion of a felicitation ceremony regarding the conferment of FRS by the Royal Society (London) on Prof. Atta-ur-Rahman. Later, Prof. Atta-ur-Rahman arranged for a regular annual grant to be given by the Higher Education Commission for promotion of research and for support to the Academy, and a sum of Rs. 291.00 million have been received for this purpose by the Academy from HEC during the period July 2003 to June 2013. This has provided a much needed support for the various activities of the Academy.

The Academy has been serving as the most prestigious scientific body of the country, and has been offering advice on various matters. One recent document produced by the Academy is a report on Energy prepared under the supervision of Dr. M. Akram Sheikh. In recent years a large number of new activities have been initiated, in addition to grants of medals and prizes, which include joint training workshops with the Chinese Academy of Sciences, a major research grant program under the supervision of Fellows, support to conferences, and participation of Fellows in international conferences. A regular series of lectures have also been initiated which are widely attended by young scientists.

The Pakistan Academy of Sciences has come to be widely recognized internationally because of its various programs. I am confident that with the constant help and support of our Fellows, it will continue to rise to greater heights.

**Atta-ur-Rahman, FRS  
President**



## PREFACE

I feel privileged in being assigned the responsibility of compiling 60-year history of the Pakistan Academy of Sciences (PAS) by availing the able guidance of an Advisory Committee comprising of Prof. Dr. M.D. Shami, Dr. Anwar Nasim and Dr. N.M. Butt. This souvenir-type publication highlights the ups and downs of the Academy during six decades of its existence. The 1953 to 1978 history of the Academy was written by Professor Dr. M. Raziuddin Siddiqi, who was not only a Founding Fellow but by 1978 had served as Secretary and President of the Academy. Thus, in no way, the present compilation is expected to match the history written by a Founding Father of the Academy.

To my understanding, the performance of the Academy over the years is more or less a mirror image of the overall performance of the country in general and of science and scientific institutions in this country in particular. The sponsoring Ministry of PAS, i.e., Federal Ministry of Education, hardly owned and supported the Academy adequately – almost throughout. During the initial resource-scarce five decades, the Academy's top management struggled hard for its functioning and, at times, even for its sustenance. The Founding Fellows of the Academy deserve all praise for taking the initiative and pains for establishing this much needed scientific forum, in the face of all odds, during early years of Independence of the country. With improved financial support through the Higher Education Commission (HEC) since the fiscal year 2003–2004, which remains uncertain in terms of sustainability, the Academy was able to undertake many initiatives and new activities. All the Fellows, especially those in leadership positions over the years, have contributed towards development of the Academy. However, to my understanding, the major driving force during early phase of the Academy appears to have been provided by the science legends, like Prof. Dr. Raziuddin Siddiqi and Dr. M.A. Kazi, and the subsequent sustenance and relatively recent uplift of the Academy owes a lot to the stalwarts in science, like Prof. Dr. M.D. Shami, Dr. A.Q. Khan and Prof. Dr. Atta-ur-Rahman.

I have heavily relied on earlier publications of the Academy for the information pertaining to the 1953–1978 period. For the subsequent years, I am indebted to members of the Advisory Committee for their generous guidance and critical review of the manuscript. I am thankful to my colleagues in the Academy, especially Mr. Subhan-ud-Din, Engr. Adnan Bashir, Ms. Andleeb Zafar and Mr. Khawaj Mohammad, for their help in digging out information from the Academy's official files. I am also appreciative of Secretary General of the Academy, Dr. Anwar Nasim, for his patience and encouragement during compilation of this publication.

The 60-year sustenance, contributions, and progression of the Academy – in the face of overall non-conducive socio-economic environment of the country – are an ample evidence of scientific commitment and devotion of so many talented and highly accomplished scientists of this country. In consideration of respectable performance of the Academy so far, I am optimistic about the future of this prestigious forum of scientists.

Despite best efforts, this publication may still be plagued with 'bugs'. Thus, Fellows of the Academy as well as other readers are encouraged to apprise the author of the observed errors and omissions.

**Abdul Rashid**

E-mail: pas.editor@gmail.com



## EXECUTIVE SUMMARY

The *Pakistan Academy of Sciences* (PAS), a non-governmental supreme scientific body of distinguished scientists in the country, was inaugurated by the then Prime Minister of Pakistan, Khwaja Nazimuddin, on 16<sup>th</sup> February 1953 at Lahore. Nine illustrious scientists of that time were its Founding Fellows: Prof. M. Afzal Hussain; Dr. Nazir Ahmad; Dr. Salimuzzaman Siddiqui; Dr. M. Raziuddin Siddiqi; Prof. M. Sharif; Dr. M. Qudrat-i-Khuda; Dr. Hamid Khan Bhatti; Dr. M. Ishaque; and Dr. Bashir Ahmad. The Pakistan Association for the Advancement of Science (PAAS) had played a pivotal role in the establishment of PAS.

The Government of Pakistan has given the consultative and advisory status to the Academy “*on all problems relating to the development of scientific efforts in the country*”, and “*generally on such matters of national and international importance in the field of science as may be referred to the Academy*”. The Academy is regarded by the public and the government as a repository of the highest scientific talent available in the country, and is generally supported and consulted in all matters relating to scientific education, research and development.

The Academy comprises of Fellows, Foreign Fellows and Members, who are elected by the General Body in accordance with its Charter and Bye Laws. In addition to the Founding Fellows, during the period 1953–2013 a total of 169 distinguished scientists of the country were elected as Fellows, which included almost everybody who mattered in science of the country. The number of existing Fellows at the end of 2013 was 91. The first-ever Foreign Members (later called Foreign Fellows) were elected in 1982; and up to 2013, 37 eminent foreign scientists, who have/had contributed towards scientific development in Pakistan, were elected as Foreign Fellows. In December 2013, the number of Foreign Fellows was 25. The elected Members of the Academy are considered the potential future Fellows of the Academy. In December 2013, the number of existing Members was 10.

The affairs of the Academy are regulated by its Charter and Bye-Laws, approved by the Fellows. The Academy is governed by a Council, elected by its General Body.

The establishment and initial development of the Academy must have been an uphill task, especially because of its non-governmental character. Its initial growth had been slow, with a small budget of about Rs. 20,000/- to 40,000/- per annum. However, after celebrating its Silver Jubilee in 1978 in Islamabad, at which the then President of Pakistan, General Zia-ul-Haq, was the Chief Guest, the Academy received a substantial grant from the Government for the construction and staffing of its Headquarters building in a respectable setting of Islamabad. Also, the Ministry of Education increased recurring grant to the Academy (ranging from Rs.175,000 to Rs. 700,000) up till 2007–2008, for its improved functioning. The annual grant was reduced to Rs. 100,000 during 2008–2009; no grant was received during 2009–2010; and the last annual grant, received during 2010–2011, was Rs. 1,40,000.

The 1979-onward 35-year period of the Academy appears to be different, more optimistic, and relatively easier, compared with the initial 25-year period, at least in logistic and financial terms. With the concerted persuasions and efforts of its earlier leaders, in 1984 the Academy was shifted to its own Headquarters building in Islamabad. In 2001, the Academy’s Headquarters were renovated and upgraded at a hefty expense, with the kind patronage of Dr. A.Q. Khan. Also, he augmented the Academy’s Endowment substantially. Then, at the FRS celebration ceremony of Prof. Dr. Atta-ur-Rahman, President Pervez Musharraf approved a contribution of Rs. 30.00 million towards Academy’s Endowment. Finally, Dr. Atta-ur-Rahman, as Chairman of HEC made the arrangement of a reasonable annual grant by HEC to PAS for undertaking multifarious scientific activities which the Academy was not able to during the earlier years.



The Academy has been striving for science-based economic development in the country by providing a forum for the advancement of scientific research, popularization of science, motivation of scientists, and encouraging and promoting studies in new areas of science and technology. In accordance with the Aims and Objectives laid down in its Charter, the Academy has been advising the relevant Ministries in the Government on problems of national importance having relevance to scientific education and research. For example, in the early period of its existence, the Academy has been advising the Planning Commission on scientific education and research on the occasion of preparing various Five Year Plans. It had made comprehensive proposals for the formulation of National Science Policy. Also, it organized many studies and surveys on national issues requiring scientific expertise. Most of the recommendations for the promotion of science made at the PAS-organized Meeting of Scientists at Swat in 1965, concluding session of which was presided over by President Mohammad Ayub Khan, are valid even today. Thereafter, the Academy produced a number of documents for making science-based recommendations to address problems of national importance. A recent example is of the ongoing energy crisis in the country. In consideration of the seriousness of the problem, in 2012, after extensive deliberations with the key stakeholders and experts, the Academy prepared a Special Report on “Pakistan’s Energy Crisis – Recommended Solutions”. All these special reports have been distributed to the stakeholders including the concerned Federal and Provincial Ministries.

For promoting science and technology in the country, the Academy accords recognition to scientists at various levels, and encourages cutting edge research in different fields of sciences. To commend and motivate the scientists, since 1967, the Academy has been awarding Gold Medals and Prizes of a number of kinds to Pakistani scientists who have made original/outstanding research contributions. The Gold Medals and Prizes have been awarded in all areas of Science and Technology, viz., Agriculture, Biochemistry, Biology, Botany, Chemistry, Computer Science/Information Technology, Earth Sciences, Engineering & Technology, Mathematics, Medical Sciences, Molecular Biology, Pharmaceutical Sciences, Physics, and Zoology. So far nearly 280 scientists have been given these awards.

The Academy focuses on all the broad fields of sciences, i.e., Engineering Sciences, Life Sciences, Medical Sciences, and Physical Sciences, and interface between sciences and industry. Since its inception, the Academy has provided its forum to scientists to deliberate upon important issues of scientific research, education and technology transfer and present views of the scientific community as policy inputs to planners and decision/opinion makers at various levels. To achieve this, the Academy has organized and supported national and International Conferences, Seminars, Symposia, Workshops and brainstorming sessions periodically on topics of importance to the country. The Recommendations of these Conferences have been disseminated widely, including to the policy/decision makers in the country. Also, the Academy has been organizing Lectures by distinguished national and international scientists on the cutting edge science subjects at its Headquarters in Islamabad as well as at its Provincial Chapters and various universities and research institutions of the country.

Also, the Academy has been representing Pakistan’s scientific effort at regional and international forums.

Since 1964, the Academy has been publishing regularly its scientific journal, viz., *Proceedings of the Pakistan Academy of Sciences*, which is duly recognized by the Higher Education Commission (HEC) and the Pakistan Medical and Dental Council (PMDC). It has also published many monographs on topics of national importance. It maintains a reasonably good reference Library, which is accessible to all the scientific community.

The Founding Fellows of the Academy deserve enormous commendation for their timely initiative, vision and foresight for establishing a formal forum of accomplished scientists, out of the Government arena, to work for the advancement of S&T for economic development of the country.

The overall mandate of the Academy has been promotion of science and technology in the country in the



interest of economic development and human well being. During the past 60 years of its existence, in spite of many hardships and financial constraints, the Academy has done fairly well in living upto the requirements of its Charter by making many important contributions. It has preserved and maintained its rightful status and prestige like its counterparts in other countries of the world.

A recent important development has been that PAS was elected as a Member of the InterAcademy Council (IAC) for the term 2013–2017. The IAC endeavors to mobilize the world's best science to advise decision makers on issues of global concern. The 2013–2017 IAC Board includes the science academies of Australia, Brazil, China, France, Germany, India, Japan, Korea, Mexico, Morocco, Nigeria, Pakistan, USA, The Royal Society of London, The World Academy of Sciences (TWAS), IAP – the Global Network of Science Academies, InterAcademy Medical Panel, and International Council of Academies of Engineering and Technological Sciences.

While going through its activities and achievements, it is realized that the Academy has been only partially successful in addressing its comprehensive list of “Aims and Objectives” so far – primarily because of financial constraint and/or uncertainty. It has survived all those years through the commitment and enthusiasm of its Fellows. Thus, in accordance with its “Aims and Objectives”, future thrust of the Academy must be on enhancing awareness about the inevitable need and benefits of S&T for economic development and human well being. The decision makers in the Government need to be convinced for enhanced resource allocation to S&T. Also, the Academy may give due emphasis for promoting scientist-industry linkages in the interest of more effective transfer of scientific knowledge and innovations to the end users.

*In summary, despite meager financial resources at its disposal, especially during the initial 50 years of its existence, the Academy has a respectable track record of its activities and achievements in accordance with the mandate prescribed in its Charter. It has been able to serve the nation in manner befitting the Academy, for which it is eminently suited by virtue of its talented membership. The devotion of its Fellows and Office Bearers, beyond the call of duty, is praiseworthy.*



## TABLE OF CONTENTS

<b>FOREWORD</b>	<b>i</b>
<b>PREFACE</b>	<b>ii</b>
<b>EXECUTIVE SUMMARY</b>	<b>iii</b>
<b>1. GENESIS, INAUGURATION AND HEADQUARTES OF THE ACADEMY</b>	<b>1</b>
1.1 Genesis of the Academy	1
1.2 Inauguration of the Academy	2
1.3 Office Bearers of the Newly Established Academy	4
1.4 Headquarters of the Academy	4
<b>2. CHARTER AND BYE-LAWS OF THE ACADEMY</b>	<b>9</b>
2.1 Charter	9
2.2 Aims and Objectives	9
2.3 Bye-Laws	11
<b>3. MEMBERSHIP OF THE ACADEMY</b>	<b>12</b>
3.1 Founding Fellows	12
3.2 Fellows	13
3.3 Foreign Fellows	16
3.4 Members	16
<b>4. ADMINISTRATION OF THE ACADEMY</b>	<b>17</b>
4.1 Council of the Academy	17
4.2 Former Office Bearers	20
4.2.1 <i>Presidents</i>	20
4.2.2 <i>Vice Presidents</i>	21
4.2.3 <i>Secretaries / Secretaries General</i>	21
4.2.4 <i>Treasurers</i>	22
4.2.5 <i>Associate Secretaries / Secretaries General</i>	23
4.2.6 <i>Members of the Council and Chapter Secretaries</i>	23
4.3 General Body of the Academy	23
<b>5. FINANCIAL SUPPORT TO THE ACADEMY</b>	<b>25</b>
<b>6. SALIENT ACTIVITIES OF THE ACADEMY</b>	<b>27</b>
6.1 Advisory Role of the Academy	27
6.1.1 <i>Science-based Advices for Policy Planning and Problem Solving</i>	27
6.1.2 <i>Recommendations of the Scientists Meeting in Swat</i>	30
6.2 Gold Medals and Awards conferred by the Academy	34
6.3 Conferences, Symposia & Seminars organized by the Academy	36



6.4	Lectures organized by the Academy	37
6.5	Research Grants to Fellows and Members	39
6.6	Travel Grants to Fellows	39
6.7	Conference Grants to Fellows	39
6.8	International Collaboration	40
<b>7.</b>	<b>SILVER JUBILEE CELEBRATION IN 1978</b>	<b>46</b>
<b>8.</b>	<b>PUBLICATIONS OF THE ACADEMY</b>	<b>48</b>
8.1	Proceedings of the Pakistan Academy of Sciences	48
8.2	Publication of Monographs	49
8.3	Year Book of the Pakistan Academy of Sciences	50
8.4	Newsletter of the Academy	51
<b>9.</b>	<b>WEBSITE OF THE ACADEMY</b>	<b>52</b>
<b>10.</b>	<b>REFERENCES CITED</b>	<b>53</b>

## LIST OF ANNEXURES

<b>Annexure-I.</b>	Total Elected (plus Founding) Fellows of the Pakistan Academy of Sciences, including Founding Fellows, during 1953–2013.	56
<b>Annexure-II.</b>	The Government of Pakistan Order conferring Advisory Status to the Academy.	63
<b>Annexure-III.</b>	Profiles of Founding Fellows of the Academy, till 1953.	64
<b>Annexure-IV.</b>	Fellows of the Academy in December 2013.	76
<b>Annexure-V.</b>	Foreign Fellows of the Academy in December 2013.	82
<b>Annexure-VI.</b>	Members of the Academy in December 2013.	85
<b>Annexure-VII.</b>	Vice Presidents, Treasurers, Associate Secretaries/ Secretaries General, and Editors/Editors-in-Chief of the Academy during 1953–2013.	86
<b>Annexure-VIII.</b>	Some Salient Conferences, Symposia and Seminars organized by the Academy.	88
<b>Annexure- IX.</b>	Some Salient Publications of the Academy (excluding Monographs and Special Reports), during 1953–2013.	89









# 1. GENESIS, INAUGURATION AND HEADQUARTES OF THE ACADEMY

## 1.1 Genesis of the Academy

Any country, which aspires to occupy a befitting place in the comity of nations, encourages the establishment of a supreme scientific organization, usually designated as the “Academy of Sciences” devoted to the promotion of science and its applications for the general welfare of humanity. While these organizations may not carry out actual laboratory researches, they do provide a forum for the advancement of scientific research, popularization of science, motivation of scientists and technologists, as well as studies on new areas of S&T.

With the partition of the Indian subcontinent into two independent countries in 1947, Pakistan was a loser in inheriting scientific institutions. As the headquarters of the then All-India scientific organizations were located either in Delhi or in Calcutta, Pakistan had lost almost every scientific institution to India. Therefore, Pakistan had to start and organize everything *ab-initio*.

The senior scientists of the newly created Pakistan worked dedicatedly not only to develop the much needed scientific institutions and infrastructures, within the available resources, but also endeavored to establish prestigious organizations for the advancement of science, like the *Pakistan Association for the Advancement of Science (PAAS)* and the *Pakistan Academy of Sciences (PAS)*. Prof. M. Afzal Hussain was already in Lahore as Chairman of the Punjab Public Service Commission; Dr. Nazir Ahmad – who, up to 1947, was Director of Cotton Technological Laboratories in Bombay, took over as Joint Secretary of Pakistan’s Ministry of Economic Affairs, and Secretary, Planning and Development Board; Dr. Bashir Ahmad who worked as Assistant Director of the National Chemical Laboratory at Poona, became Director, Institute of Chemistry at University of the Punjab in Lahore; and Dr. Qudrat-i-Khuda who was Principal of Presidency College, Calcutta, at the time of Partition, shifted to Dacca as Director of Public Instruction, and later came over to Karachi as the Scientific Advisor to Defence Ministry). In 1949, these few senior-most scientists, with a handful of their colleagues, established the *Pakistan Association for the Advancement of Science*, as a substitute and counterpart of the *Indian Science Congress Association* and also of the *National Institute of Sciences* to some extent. The PAAS received encouraging response from the scientific community as well as from the Central and Provincial Governments and the Universities. Dr. Bashir Ahmad, being Secretary General of the PAAS, was its life and soul (Siddiqi, 1978a).

Dr. M. Raziuddin Siddiqi, who was Vice Chancellor of Osmania University, Hyderabad, India, migrated to Pakistan in 1950. After serving as Director of Research at University of Peshawar, he was appointed Vice Chancellor of this University in 1953. According to Dr. Raziuddin Siddiqi, the scientific community of that time felt strengthened in 1951 when Dr. Salimuzzaman Siddiqui migrated from Delhi to Karachi, and became Director of Scientific and Industrial Research. Meanwhile, Dr. M. Ishaque had already joined the Pakistan Military Academy at Kakul; Dr. M. Sharif had left the Haffkine Institute at Bombay, and migrated to Karachi and later to Government College, Lahore; and Dr. H.K. Bhatti was acting as Chairman of the Department of Zoology, University of the Punjab (Siddiqi, 1953, 1978a).

The idea of establishing the *Pakistan Academy of Sciences (PAS)* was mooted in November 1947, at the first National Education Conference, organized by the Federal Ministry of Education at Karachi, and inaugurated by Quaid-i-Azam Muhammad Ali Jinnah. However, after a long discussion, the Government felt that the time was not yet ripe for taking the step. Later, the idea of establishing the Academy materialized as a result of extensive discussions during 1948–1953 between the then senior scientists in the country, the





Government of Pakistan, foreign scientists and some foreign learned Societies. The PAAS began to organize annual science conferences and scientific publications, and this purpose, established contacts with principal scientific organizations in other countries and with leading scientists of the world. As a result of interaction with foreign scientists and foreign learned Societies the need for establishing an Academy of Sciences became even more keenly felt (Siddiqi, 1978a).

The PAAS played a worthy role in the establishment of PAS. Soon after migrating to Pakistan, in October 1950, Dr. Raziuddin Siddiqi suggested the PAAS to move ahead for the establishment of the Academy. The proposal was considered by the Council of the PAAS in its meeting on 8<sup>th</sup> November 1950 held at Lahore. The PAAS Council tasked Dr. Raziuddin Siddiqi and Dr. Bashir Ahmad, the then General Secretary of PAAS, to prepare a draft scheme of the Academy. This scheme was considered at the Council's meeting on 11<sup>th</sup> January, 1951, at Dacca. The Council of the PAAS formed a Sub-Committee (comprising of Dr. A.M. Malik, Prof. M. Afzal Hussain, Dr. Nazir Ahmad, Dr. Raziuddin Siddiqi, Dr. M.O. Ghani, and Dr. Bashir Ahmad) to examine the draft scheme. The Sub-Committee in its meeting on 14<sup>th</sup> May, 1951, chaired by Dr. A.M. Malik, decided that the time had come to establish the Academy, that the Pakistan Government be approached to give it a Charter, and to recognize it as the supreme body of scientists in the country. It was further decided that the scientists of the below stated professional standing will be admitted as *Founding Fellows* of the Academy and another five will be admitted every year till the limit of one hundred (100) was reached:

- (i) Fellows of any recognized supreme scientific body of any country; or
- (ii) Past General Presidents or Sectional Presidents of the Indian Science Congress; or
- (iii) Past Presidents of the All India Scientific Societies of Standing.

A draft of the Constitution of the Academy, prepared by Dr. Raziuddin Siddiqi, was also discussed in this meeting of the PAAS Sub-Committee. The agreed upon Constitution was published in Anonymous (1953). It was decided that the Pakistan Academy of Sciences be inaugurated at the time of the 4<sup>th</sup> Annual Pakistan Science Conference to be held at Peshawar in March 1952. However, subsequently, the establishment of the Academy was postponed for further exploratory work and for defining more clearly its functions in relation to those of the PAAS.

In accordance with the above stated criteria, the following nine (9) senior and eminent scientists of that time were named as Founding Fellows of the Academy (Ahmad, 1953; Siddiqi, 1978a):

1. Prof. M. Afzal Hussain;
2. Prof. Dr. Nazir Ahmad;
3. Prof. Dr. Salimuzzaman Siddiqi;
4. Prof. M. Raziuddin Siddiqi;
5. Prof. Dr. M. Sharif;
6. Prof. Dr. M. Qudrat-i-Khuda;
7. Prof. Dr. Hamid Khan Bhatti;
8. Prof. Dr. M. Ishaque; and
9. Prof. Dr. Bashir Ahmad.

The profiles of the Founding Fellows at the time of establishment of the Academy, i.e., 1953, are presented at Annexure-III.

## 1.2 Inauguration of the Academy

After considerable planning and deliberations, the inauguration of the Academy was fixed for 16<sup>th</sup> February,

1953, during the 5<sup>th</sup> *Pakistan Science Conference* in Lahore. In the absence of the Governor General of Pakistan, Malik Ghulam Muhammad, who had to leave for the Middle East, the Prime Minister of Pakistan, Khwaja Nazimuddin, very kindly performed the inauguration. The ceremony took place in Senate Hall of University of the Punjab, and was witnessed by a large gathering of over 1000 scientists, including representatives of the Royal Society, London; the National Institute of Sciences, India; National Research Council of Egypt; United States of America; UNESCO; Iran and Norway. The distinguished guests included Ministers of the Provincial Government, Judges of the Federal Court and the High Court, Members of the Legislative Assembly, Foreign Delegates and eminent scientists, Faculty members of the University, and Delegates and other members of the Pakistan Association for the Advancement of Science. Also, a number of messages of goodwill were received from all over the world (Siddiqi, 1953).



**Figure 1.** Founding Fellows with Prime Minister of Pakistan during Inauguration of the Academy on 16<sup>th</sup> February, 1953. L– R: Dr. M. Sharif, Dr. H.K. Bhatti, Dr. M. Ishaque, Dr. M. Raziuddin Siddiqi, Hon. Khwaja Nazimuddin (Prime Minister of Islamic Republic of Pakistan), Dr. Bashir Ahmad, Prof. M. Afzal Hussain, Dr. Nazir Ahmad, Dr. Salimuzzaman Siddiqi.

The Vice Chancellor of the host University and General President of the Pakistan Association for the Advancement of Science, Dr. Bashir Ahmad, delivered Opening Address of the ceremony, explaining the genesis of the Academy and its proposed functions. After the inaugural address of the Honorable Prime Minister, the Founding Fellows were introduced to him by Prof. M. Afzal Husain. Messages of goodwill were then conveyed by the Foreign Delegates on behalf of their Science Academies, among them being Sir Harold Hartley and Dr. George Taylor from Great Britain, Prof. H.J. Bhabha from India, Dr. G.L. Stahly and Prof. C.R.M. Cuthbert from USA, Dr. A. Ghaffari from Iran, and Prof. Dr. Muhammad Aziz Fikry, Egypt. Finally, Dr. Nazir Ahmad delivered a vote of thanks to the Honorable Prime Minister, the Foreign Delegates and the distinguished guests (Siddiqi, 1953).



**Figure 2.** Prime Minister Khwaja Nazimuddin delivering the Inaugural Address on 16<sup>th</sup> February, 1953.

### 1.3 Office Bearers of the Newly Established Academy

The Founding Fellows assembled on 19<sup>th</sup> February 1953 at Lahore and elected the following office bearers of the Academy (Siddiqi, 1953):

**President:** Prof. M. Afzal Hussain, Chairman, Pakistan Public Service Commission, Karachi

**Secretary:** Prof. Dr. M. Raziuddin Siddiqi, Vice Chancellor, University of Peshawar, Peshawar

**Treasurer:** Prof. Dr. Bashir Ahmad, Vice Chancellor, University of the Punjab, Lahore

### 1.4 Headquarters of the Academy

The Founding Fellows of the Academy at their very first meeting on 19 February, 1953 decided to have temporary Headquarters of the Academy at Lahore. They also decided that the position will be reviewed afterwards for shifting the Headquarters to the Federal Capital, i.e., Karachi.

In its first meeting on 10 January, 1956, the General Body decided to shift the Headquarters of the Academy to the Federal Capital, while Branch Offices were decided to be established at Lahore and Dacca. In the beginning, the Branch Office of the Academy in Lahore was located at the PCSIR Laboratories on Ferozepur Road, where the Treasurer's Office was also functioning. The question of the location of Headquarters was re-opened by some Fellows twice afterwards, at the General Body Meeting on 27 August 1965 at Swat and on 27 December, 1970 at Dacca, and at both these meetings the General Body re-confirmed its previous decision of locating the Headquarters of the Academy at the Federal Capital of Pakistan. Thus, the Headquarters remained at Karachi upto 1964 – in a rented building – and was then shifted to Islamabad where the Federal Capital had already been shifted. In Islamabad, the Headquarters was located at the University of Islamabad (later





named as Quaid-i-Azam University) up to October 1976. In November 1976, the Headquarters was shifted to a rented building in Islamabad, with financial assistance from the Pakistan Science Foundation (PSF). The rented building comprised of Library of the Academy, a Committee Room, office rooms for the Secretary, the Editor and Office Staff, and a couple of guest rooms for the visiting Fellows (Siddiqi, 1978a).

As per Minutes of the General Body Meeting held on 10 January, 1956, the Government of Pakistan was approached for a capital grant for the Academy's Headquarters building, and the then Minister for Education agreed to the request. But because of the change of the regime thereafter, it did not materialize. Several subsequent attempts for the purpose also met the same fate. A reserve fund was also started for constructing the permanent Headquarters building, and a suitable plot of land in Islamabad was selected within the campus of Peoples Open University (later named as Allama Iqbal Open University). But the requisite capital grant from the Government did not materialize. The allotment of a piece of land for the Academy at the then proposed National Science Center area on the Constitution Avenue in Islamabad was envisaged by the Pakistan Science Foundation, and the Academy submitted its space requirements to the Foundation (Siddiqi, 1978a).

On 16 February 1978, at Silver Jubilee function of the Academy, the President of Pakistan General Mohammad Zia-ul-Haq graciously allotted in principle a reasonable piece of land in a prime location in Islamabad, on Constitution Avenue, for constructing the Academy's Headquarters building. Also, the President announced a grant of Rs. 7.00 Million for the purpose. Consequent upon persuasions by the Academy's management of those days, in 1979 the Capital Development Authority (CDA) allotted a plot measuring 8658.33 Sq. Yards (7353.21 Sq. Meters) to the Academy. The total cost of this land, @ Rs. 358.80 per Sq. Meter, was Rs. 26,38,331.75. In addition, the annual ground rent at that time was @ Rs. 1.20 per Sq. Meter, totaling Rs. 8,823.85 per annum.

According to Prof. Dr. M.D. Shami, the credit for persuading the President of Pakistan for this kind gesture goes to the then Federal Secretary of Education, Dr. M.A. Kazi, who was also the Advisor for Science and Technology to the Government of Pakistan (personal communication). Soon after the Silver Jubilee function, Dr. M.A. Kazi served as President of the Academy, from April 1978 to October 1984 (Anonymous, 1992). The Headquarters building was designed by a Fellow of the Academy, Mr. Tajammal H. Hashmi (Prof. Dr. M.D. Shami, personal communication), who is a civil engineer and a younger brother of a deceased Fellow of the Academy, Dr. Z.A. Hashmi (Annexure-I).

The Foundation Laying Ceremony of the Headquarters of the Academy was held on 17<sup>th</sup> March, 1979. The then President of the Academy, Dr. M.A. Kazi, performed the Foundation Laying, in the presence of other Office Bearers and many Fellows of the Academy (Siddiqi, 1978b). The formidable task of managing construction of the Headquarters building was handled jointly by the then Secretary General of the Academy, Prof. Dr. M. Raziuddin Siddiqi, and Prof. Dr. M.D. Shami (who took over as Secretary General after him, on 22 October, 1984).

Utilizing the Government provided funds, the Headquarters building was constructed with a total a covered area of 32,156 sq. ft., i.e., Ground Floor, 17,110 sq. ft.; First Floor, 10,849 sq. ft.; Mezzanine Floor, 2,281 sq. ft.; and Basement, 19,16 sq. ft. The building had an Auditorium, adequate space for Library, a Committee Room, a spacious Lobby, Office Rooms for the Office Bearers and Staff of the Academy, a kitchen, and a couple of Guest Rooms for the visiting Fellows (PAS, 1979). In 1984, the Headquarters of the Academy was shifted to its own building. Thus, after wandering for more than a quarter of a century, this premier Learned Body of Scientists at last found a permanent abode within dignified surroundings of the Federal Capital of the country.

Because of persistent financial constraint, the Academy was not able to pay the full cost of land to CDA, what to talk of utilizing the land effectively. Also, the Headquarters building lacked some basic infrastructure





**Figure 3.** President of the Academy, Dr. M.A. Kazi, laying the Foundation Stone of the Headquarters Building in Islamabad on 17<sup>th</sup> March, 1979.



**Figure 4.** The Headquarters Building of the Academy, constructed in 1984.

facilities, like boundary wall, car porch, vehicle garages and floor pavement. In the absence of boundary wall, wild bores would roam around the premises and uproot all sort of vegetation in the lawns. Similarly, in the absence of parking sheds, the Academy's vehicles were exposed to rain and sun. Because of perpetual paucity of funds, the condition of the Academy's Headquarters building and the premises remained quite poor for more than two decades.

Realizing the deplorable condition of the Academy's premises, the then President of the Academy, Dr. A.Q. Khan, came to the rescue. As a first step, the Boundary Wall was erected in 1998. Later, the existing building of the Headquarters was renovated and upgraded. This substantial infrastructure improvement of the Academy's Headquarters involved a hefty expense of about Rs. 30.00 million on: (i) payment to CDA for the overdue cost of the land and lease rent of the land; (ii) renovation and upgradation of the existing building and the premises in 2001; and (iii) construction of the Fellows Lodge at the Academy in 2001. The much needed renovation and improvement of the Academy's Headquarters included (but was not limited to) Pavement of the Front Compound and construction of Vehicle Garages, the building's Car Porch, improvement of Auditorium Lobby, and stairs, and replacement of old wooden windows with the decent ones. The Fellows Lodge comprises of eight air conditioned guest rooms with attached baths and other facilities, a decent mosque, a kitchen, a dining room and a lobby.

Hard pressed because of continued financial constraint, the Academy handed over a portion of its land facing the Constitution Avenue to COMSTECH; the cost of the transferred land was paid by COMSTECH directly to CDA (Dr. M.D. Shami, personal communication).



Figure 5. The Headquarters Building of PAS, after renovation in 2001.



Figure 6. Fellows Lodge of the Academy, constructed in 2001.

During the years 2012-2013, functioning at the PAS Headquarters was improved substantially by bringing in electronic and digital facilities. For example, all the computers were equipped with UPS (uninterrupted power supply) and wireless internet facilities were provided in the Office Building as well as in the Fellows Lodge. The Office Building and the Fellows Lodge were also improved physically through re-surfacing of certain sections and roof treatment of the Office Building. Also, new computers, television sets and room refrigerators were provided in the Fellows Lodge.





## 2. CHARTER AND BYE-LAWS OF THE ACADEMY

### 2.1 Charter

The Academy was established with the encouragement, patronage and moral as well as financial support of the Government. It was envisaged from the beginning that, like the Science Academies in advanced and progressive countries of the world, the *Pakistan Academy of Sciences* would also be granted a statutory Charter by the Government of Pakistan. Hence, the General Body of the Academy, in its meeting on 6 March 1954, decided “to request the Government of Pakistan to grant a Charter to the Academy”. The matter was then taken up formally with the Government and was pursued for a long time. In the absence of Ministry of Science & Technology (MoST) at that time, the concerned Government Ministry was of Education & Scientific Research. The Education Minister and the Secretary had agreed to the grant of a Charter, and the Ministry had prepared the draft Bill to be put up to the Constituent Assembly. But when the Constituent Assembly was suddenly dissolved by the Governor General in October 1954. Another draft was then prepared for the Governor General to grant the Charter. But the Ministry of Law ruled that the Charter can only be granted by the Federal Legislature. However, on 4<sup>th</sup> May, 1962, the Secretary to the Government, Ministry of Education and Scientific Research, issued a Government Order giving the Consultative and Advisory Status to the Academy on “all problems relating to the development of scientific effort in the country”, and “generally on such matters of national and international importance in the field of science as may be referred to the Academy” (Siddiqi, 1978a). The Government Order is reproduced at Annexure-II.

The Constitution of the Academy was drafted by one of the Founding Fellows, Dr. M. Raziuddin Siddiqi. It was circulated to all members of the Sub-Committee constituted by Council of the PAAS in early 1950s and discussed (Ahmad, 1953). The Constitution was subsequently modified, from time to time, by Fellows of the Academy in various General Body Meetings. Later, on 17<sup>th</sup> March, 1979, the Fellows of the Academy, in a General Body Meeting, approved and adopted the Charter for management and conduct of the affairs of the Academy (Anonymous, 1992). The first elections of Council of the Academy under the new Charter were held in 1980, for the 1980–1982 Council. The updated version of the Charter, as amended by the General Body, from time to time upto November 2013, has been published in the 2012–2013 Year Book of the Academy (Rashid, 2014). Also, the Charter is freely accessible on website of the Academy, i.e., [www.paspk.org](http://www.paspk.org).

### 2.2 Aims and Objectives

In his Opening Address at the Inaugural Ceremony of the Academy on 16<sup>th</sup> February, 1953 in Lahore, a Founding Fellow of the Academy, Dr. Bashir Ahmad, had stated that “The main functions of National Academies in other countries are: (1) the advancement of scientific knowledge; and (2) offer of advice to Government on all scientific matters. The first and the more important function is fulfilled through promotion of research, through establishing and maintaining scientific libraries, laboratories or museums, through instituting research, Professorships, Fellowships, and Lectureships, and award of grants, scholarships, prizes, medals, and through publishing scientific journals, monographs, memoirs, transactions and proceedings. The second function, i.e., advice to Government, is also very important. This concerns administrative and organizational aspects of the development of science and the support of science from public funds as well as international representation of science and scientific work of the country. Thus, the Academies of Sciences are supported by their Governments liberally in conformity with the importance of their work, and they have been given a necessary formal recognition and often a Charter” (Ahmad, 1953).





The Constitution of the Pakistan Academy of Sciences had listed the aims and objects as under (Anonymous, 1953):

- (i) To promote research in pure and applied sciences in Pakistan;
- (ii) To publish proceedings, journals, memoirs, transactions and other publications;
- (iii) To establish and maintain scientific libraries, laboratories, museums and research institutions;
- (iv) To award grants, scholarships, fellowships, prizes, and medals for scientific research;
- (v) To act, through properly constituted committees, as the National Research Council of Pakistan, for undertaking such scientific work of national or international importance as the Academy may be called upon to perform by the public and by the Government, and to offer advice on all scientific matters to Government;
- (vi) To act as the supreme research organization of scientists of eminence for the promotion of research in Pakistan, and to represent internationally the scientific work of Pakistan;
- (vii) To secure and manage funds, endowments etc., for the promotion and development of research;
- (viii) To do and perform all other acts, matters and things that may assist in, or conduce to, or be necessary for the fulfillment of the above mentioned aims and objects of the Academy.

The modified aims and objectives of the Academy, as laid down in its Charter (approved and adopted in March 1979), are as follows (Anonymous, 1997; Rashid, 2014):

- (i) To promote higher studies and research on pure and applied sciences in Pakistan and to disseminate scientific knowledge;
- (ii) To formulate standards of scientific effort and achievement in Pakistan and to recognize outstanding contributions to the advancement of science;
- (iii) To publish and assist in the publication of scientific Proceedings, Journals, Transactions, Monographs, Books and other scientific literature;
- (iv) To establish and maintain associations and relations between Pakistani scientists and the international groups, meetings and unions of scientists, and between Pakistani scientific activities and the activities of scientists in other countries;
- (v) To award grants, scholarships, fellowships, prizes and medals for scientific research;
- (vi) To undertake such scientific work of national or international importance as the Academy may be called upon to perform by the Government;
- (vii) To have the advisory and consultative status with the Ministries and Divisions of Government dealing with scientific and technical matters, and to represent internationally the scientific work of Pakistan;
- (viii) To secure and administer funds, endowments and other grants for the promotion and development of scientific research or projects of scientific nature, and for the attainment of aims and objectives of the Academy;
- (ix) To collaborate the efforts of other scientific bodies; and,
- (x) To do all other lawful things that the Academy may consider conducive to, or necessary for, the attainment of its aims and objects.

## 2.3 Bye-Laws

Bye-Laws are the Rules and Regulations meant for day to day functioning of the Academy. In 1953, the detailed Rules and Regulations of the Academy were framed by the then Secretary of the Academy, Prof. Dr. Raziuddin Siddiqi (Ahmad, 1953). Thereafter, as the need arose, the Bye-Laws were expanded and amended from time to time, with the consent of the Council and approval of the General Body, in consideration of Charter of the Academy.

The Bye-Laws of the Academy have laid down detailed procedures for election of new Fellows, new Members and new Foreign Fellows, election of the Council, and delegation of administrative and financial powers to the Council and Office Bearers of the Academy. In 1991 and 1997, the Academy published its Charter and By-Laws in the form of booklets (Figure 7). The latest version of the Bye-Laws, amended upto 25<sup>th</sup> November 2013, has been published separately during 2014.



**Figure 7.** Booklets of Charter and Bye-Laws of the Academy published in 1991 and 1997; architectural design of the Fellows Lodge was printed on back title page of the 1997 publication.

### 3. MEMBERSHIP OF THE ACADEMY

The Academy comprises of Founding Fellows, Fellows, Foreign Fellows and Members.

#### 3.1 Founding Fellows

The Founding Fellows are the scientists borne on the Register of the Academy as Fellows immediately prior to the coming in force of its Constitution. In accordance with the criteria stated in section 1.1 of this publication, the following eminent scientists of that time were named as Founding Fellows of the Academy:



Prof. Mian Afzal Hussain



Prof. Dr. Nazir Ahmad



Prof. Dr. Bashir Ahmad



Prof. Dr. Salimuzaman Siddiqui



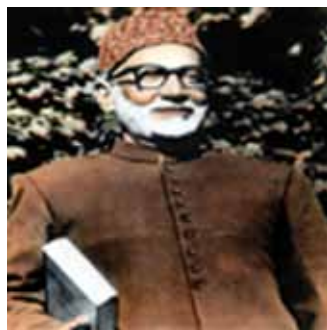
Prof. Dr. M. Raziuddin Siddiqi



Prof. Dr. M. Sharif



Prof. Dr. M. Qudrat-i-Khuda



Prof. Dr. Hamid Khan Bhatti



Prof. Dr. M. Ishaque

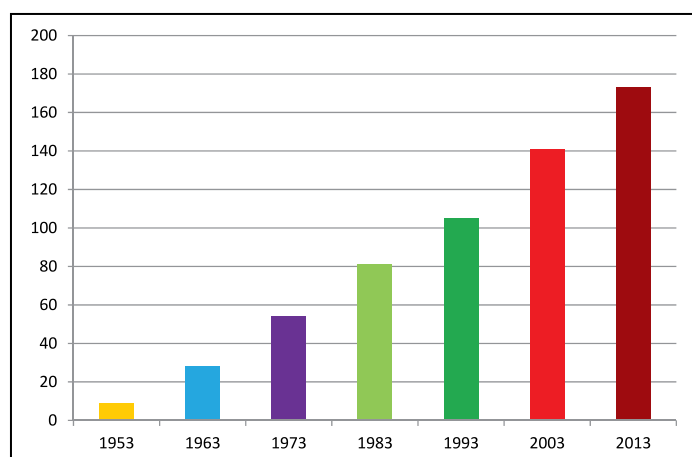
Of the nine (9) Founding Fellows, six (6) pertained to Physical Sciences and three (3) to Life Sciences (Annexure-I). The profiles of the Founding Fellows are given at Annexure-III.

### 3.2 Fellows

As decided by the PAAS Sub-Committee prior to the establishment of the Pakistan Academy of Sciences (Siddiqi, 1953), the Fellows of the Academy are Pakistani Scientists eminent for their original contribution to science, who are elected by the General Body according to the procedure laid down in the Bye-Laws. Only scientists of the highest merit, who have made outstanding contributions to the advancement of scientific knowledge, are elected as Fellows of the Academy. Not more than five (5) Fellows can be elected during any one year; the maximum permissible number of Fellows is one hundred (100).

In addition to nine (9) Founding Fellows of 1953 (detailed in section 3.1), the total number of Fellows elected by the General Body during the 60-year period, i.e., 1953–2013, was 169. It is worth mentioning that all the elected Fellows pertained to four major areas of sciences, i.e., Engineering Sciences, Life Sciences, Medical Sciences, and Physical Sciences, except for two Fellows, one each belonging to Psychology (i.e., Dr. Qazi M. Aslam, elected in 1957) and Geography (i.e., Prof. Dr. Qazi Saeed-ud-Din Ahmad, elected in 1961) (Annexure-I).

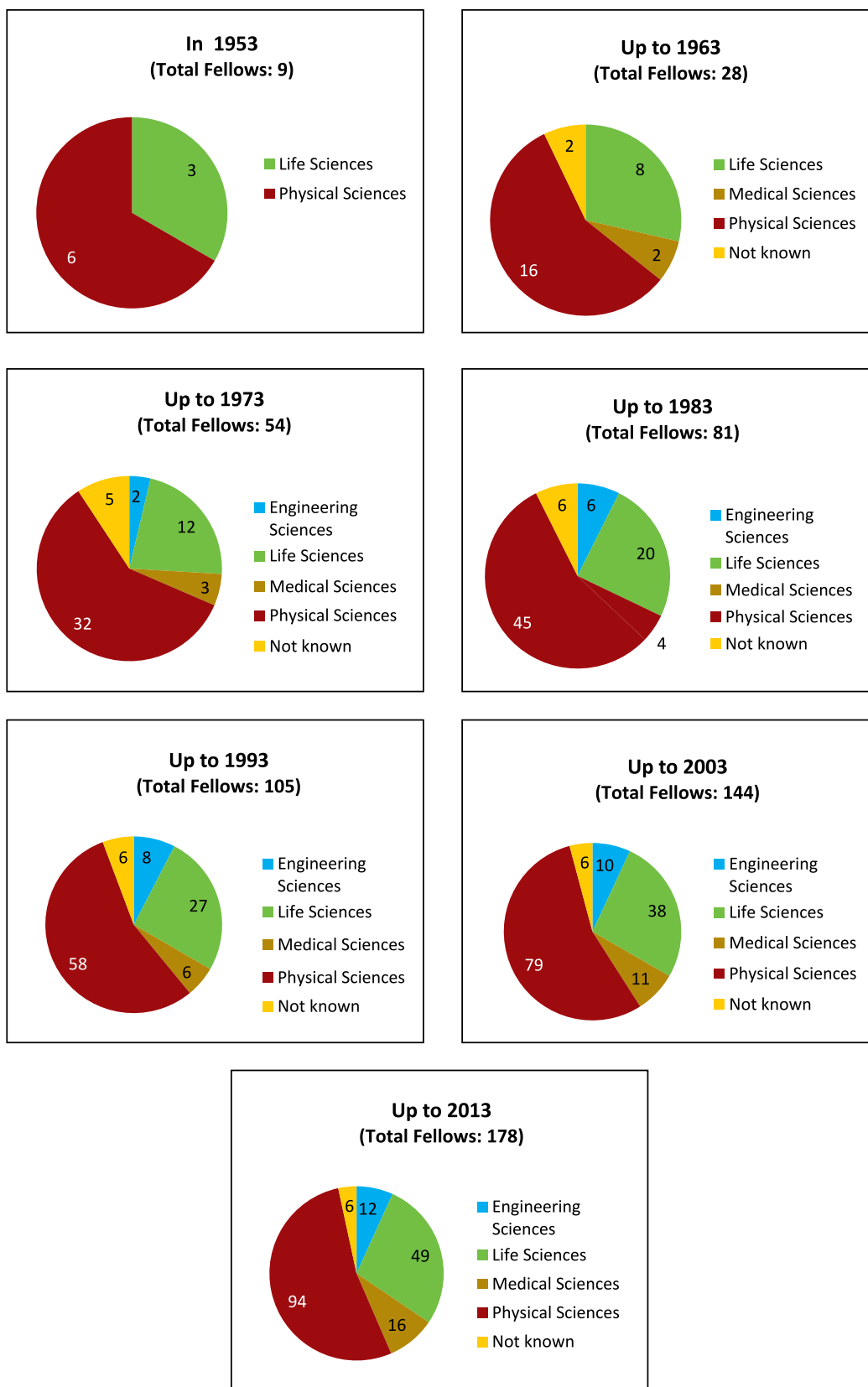
The number of Fellows elected during a year varied from one (i.e., in 1960, 1961, 1966, 1993) to five. No Fellow was elected during 10 out of 60 years of the existence of the Academy, i.e., during 1955, 1962, 1963, 1965, 1969, 1975, 1981, 1984, 1985, and 1986 (Annexure-I). Over the 60-year period, the total number of Fellows of the Academy rose progressively from nine (9) to 178. The progressive increase in total number of Fellows (i.e., Founding plus Elected) of the Academy, during the 60-year period, i.e., 1953–2013, is shown in Figure 8.



**Figure 8.** Progressive Increase in Total Elected (plus Founding) Fellows of the Academy, during 1953–2013.

Historical variations in specialized areas in science of elected Fellows of the Academy were published by Khan and Qurashi (2011). While this author is highly appreciative of their initiative by way of painstaking compilation of the historic data and its categorization, a thorough study of relevant official files of the Academy has revealed that, besides some other errors, a few Fellows elected during 1954–2010 were left out in the cited publication, i.e., Prof. M. Maqsood (1994), Dr. Zafar H. Zaidi (1995), Dr. Abdus Sattar (2000), Dr. Sheikh Arshad Saeed and Dr. Anwar Nasim (2007). The discipline-wise breakups depicted in the following pie-charts (Figure 9), based on the data updated upto 2013 (Annexure-I), present a more realistic picture of decade-after-decade variation in scientific disciplines of the elected Fellows.

During the initial 10 years, i.e., up to 1963, the total number of Fellows rose from nine to 28; of which 17 pertained to Physical Sciences, six (6) to Life Sciences, two (2) to Agricultural Sciences, and one (1) to Medical Sciences (Figure 9). However, two Founding Fellows, i.e., Dr. Bashir Ahmad and Dr. M. Ishaque, had died during this period.



**Figure 9.** Discipline-wise Break-up of Total Fellows (Founding plus Elected) at 10-Year Intervals over the 60-Year Period, 1953–2013.



At the time of Silver Jubilee celebrations of the Academy, i.e., in 1978, the total number of Fellows was 70 (Annexure-I; Figure 8). Out of this, 40 belonged to Physical Sciences, 12 to Life Sciences, five (5) each to Agricultural Sciences and Engineering Sciences, and two (2) to Medical Sciences (Figure 9). As 12 Fellows, including six Founding Fellows, had expired during the initial 25 years, the existing strength of Fellows in 1978 was 58 (Annexure-I).

During the next 25 years, i.e., up to 2003, the total number of Fellows rose to 144 (Annexure-I; Figure 8). Of these, 79 belonged to Physical Sciences, 38 to Life Sciences, 10 to Engineering Sciences, and 11 to Medical Sciences; specialization of six (6) Fellows could not be ascertained (Figure 9; Annexure-I), most of whom belonged to East Pakistan (now Bangladesh).

Of the total 178 Fellows elected during the 60-year periods,, 94 belonged to Physical Sciences, 49 to Life Sciences, 16 to Medical Sciences, and 12 to Engineering Sciences; the subject area of six Fellows could not be ascertained (Figure 9, Annexure-I).

In December 2013, the existing number of Fellows was 91 (Annexure-IV); their discipline-wise break-up was as under:

Discipline	Number of Fellows
Engineering Sciences	8
Life Sciences	27
Medical Sciences	8
Physical Sciences	48
<b>Total</b>	<b>91</b>

Obviously, a predominant fraction of the total Fellows belonged to Physical Sciences throughout, followed by Life Sciences, Medical Sciences, and Engineering Sciences (Figure 9).

The elected Fellows of the Academy included almost everybody who mattered in science of the country in one way or the other. In recognition of their contributions to the cause of science, almost all the Fellows have had received prestigious national and international awards and recognitions. Noble Laureate Professor Abdus Salam was elected a Fellow immediately after the establishment of the Academy, in 1954, when he was just 28 years; he is the youngest scientist elected as Fellow of the Academy so far (Annexure-I). According to the 2013–2014 Secretary General of the Academy, Dr. Anwar Nasim, almost everybody who was something in the science of Pakistan was elected as a Fellow of the Academy, except for Dr. I.H. Usmani (personal communications). Dr. Usmani, an eminent physicist, visionary and mentor, who played a pivotal role in establishing the Pakistan Institute of Nuclear Science and Technology (PINSTECH) and pioneered the nuclear energy program in the country, was second Chairman of Pakistan Atomic Energy Commission (PAEC) from 1960–1972.

Dr. Anwar Nasim is the only scientist who was elected as a Foreign Member (in 1988, while living in Canada) as well as a Fellow (in 2007, after he shifted back to Pakistan). The first-ever lady scientist who was elected as a Fellow of the Academy was Prof. Dr. Nasima Tirmazi; she was elected in 1980. The only Fellow belonging to Balochistan province, Prof. Dr. Masoom Yasinai, was elected in 2012 (Annexure-I).

During the General Body Meeting/Investiture Ceremony of 1982 as well as in 1992, the Council awarded Academy's Crest to senior Fellows of the Academy, who had completed 20 year of Fellowship by that time (Annexure-I). Subsequent to a decision by Council of the Academy, since 1985 Academy's metallic insignia and badges are presented to the newly elected/inducted Fellows, Members and Foreign Fellows.





### 3.3 Foreign Fellows

Foreign Fellows are nationals of countries other than Pakistan, who are eminent for their contributions to science. In accordance with Charter of the Academy, not more than three Foreign Fellows can be elected in any one year until their total number reaches the limit of thirty (30) (Rashid, 2014). The Foreign Fellowship has been bestowed upon the foreign scientists of eminence who have made contributions towards scientific development in Pakistan in one way or the other. Initially, the title was termed as “Foreign Member”; in 1998, the title was changed to “Foreign Fellow”.

Though the election of Foreign Members was considered earlier as well, in 1982, the Academy elected six Foreign Members for the first time, i.e., three each for the year 1981 and 1982. These Foreign Members included three Noble Laureates, i.e., Prof. Dr. Norman E. Borlaug, Prof. P.A.M. Dirac, and Prof. Dr. John Bardeen (Annexure-V). Dr. Norman Borlaug is acclaimed as the *Father of the Green Revolution* and is believed to have saved more lives than any other human being so far. He had made tremendous contributions towards elimination of hunger the world over, especially in Pakistan and India, by developing and promoting high yield potential fertilizer responsive dwarf varieties of wheat. Dr. Borlaug is the only agricultural scientist who has earned Noble Prize. He died at the age of 95 in 2009; his 100<sup>th</sup> birthday, which fell in 2014, was celebrated by many scientific institutions around the world including the Pakistan Academy of Sciences. The other Nobel Laureate Foreign Fellows were Dr. Peter Agre, Dr. Murray Gell-Man, Dr. Samuel C.C. Ting, Dr. George Beadle (Annexure-V).

During the period 1982–2013, the Academy has elected a total of 37 eminent foreign scientists as its Foreign Fellows. Over the years, 11 Foreign Fellows have expired. Dr. Anwar Nasim possesses the unique distinction of remaining Foreign Fellow of the Academy during 1988–2006 while he was in Canada (Annexure-V), and then getting elected as a Fellow in 2007 of the Academy (Annexure-I). In December 2013, the number of Foreign Fellows was 25. Their affiliation, area of expertise and year of election are given in Annexure-V. Whereas eight Foreign Fellows belong to USA, four each belong to Germany and UK, and one each belongs to Brazil, Canada, China, Italy, Kazakhstan, Korea, Mexico, Switzerland, and Uzbekistan. Three current Foreign Fellows of the Academy are Noble Prize Winners; they are Prof. Dr. Peter Agre, an American chemist; Prof. Dr. Murray Gell-Man, an American physicist; and Prof. Dr. Samuel C.C. Ting, another American physicist (Annexure-V). The deceased Foreign Fellows who had won the Noble Prize were: Prof. Dr. Norman E. Borlaug, Prof. P.A.M. Dirac, *FRS*, Prof. Dr. John Bardeen, Prof. Dr. George Beadle. Thus, three current and four deceased Foreign Fellows have had earned the ultimate professional recognition from the Royal Swedish Academy of Science (Rashid, 2014).

### 3.4 Members

The Members of the Academy are Pakistani scientists who have made substantial contribution to sciences. A maximum of three Members can be elected during a year until the total number reaches fifty (50). The Members of the Academy are considered to be the potential Fellows of tomorrow. However, if a Member is not elected as a Fellow within 10 years of the election, he/she ceases to be a Member.

In 1982, the first-ever Members of the Academy, elected for the years 1981 and 1982, were Dr. G.A. Miana, Dr. Mahmood Hussain Qazi, Dr. Sardar Ahmad Qureshi, and Prof. Iqbal Hussain Shah. Later, three scientists were elected as Members in 1984 and two in 1986 (Anonymous, 1992). Only a small fraction of the total Members elected so far were able to attain Fellowship of the Academy. However, some Members were not only elected as Fellows, they were also elected as office bearers of the Academy. A salient example is of Prof. Dr. G.A. Miana, who was elected as Member in 1982, then elected as Fellow during 1998, and served as Secretary General of the Academy during 2011–2012 (Rashid, 2014).

In December 2013, the number of Members of the Academy was 10; their names, affiliations, and years of election are given in Annexure-VI.



## 4. ADMINISTRATION OF THE ACADEMY

### 4.1 Council of the Academy

The administration, direction and management of the affairs of the Academy are entrusted to its Council.

In the “History of the Pakistan Academy of Sciences, 1953 to 1978” (Siddiqi, 1978a), it is stated that as the number of Fellows was so small at initial stage of the Academy, it was thought appropriate not to elect the full Council, comprising of five office bearers and seven other members. This was done gradually over a period of time as and when the need arose: a Vice President was elected for the first time in 1956; five Members of the Council were elected for the first time in 1961. The full Council, with four office bearers and five Members, was constituted for the first time on 12 January, 1961 at Dacca. Till then the President, the Secretary and the Treasurer carried on the work, and got approval from the General Body either at the Annual Meeting or by circulation in case of urgent matters. During the early period of the Academy, during a couple of years the General Body could not meet because of paucity of funds (detailed in section 4.4). Hence, most of the work was handled through circulation. Even the clerical expenses were avoided; the office bearers utilized their official staff after office hours, by paying them a small honorarium. An Associate Secretary was elected for the first time in 1974; and two more Members of the Council were elected for the first time in 1974.

In 1979, the office of Secretary was re-designated as Secretary General and of Associate Secretary as Associate Secretary General. Dr. M. Raziuddin Siddiqi was the first-ever Secretary General (see section 4.2.3) and Dr. M.M. Qurashi was the first-ever Associate Secretary General (Annexure-VII). The minutes of the Council meeting towards the end of 1980, in which Office Bearers for the 1980–1982 Council were nominated, indicate that at one time the Council also used to have the posts of Secretary (Publicity) and Secretary (Finance). During this tenure of the Council, Dr. Raziuddin Siddiqi was Secretary General, Dr. M.M. Qurashi was Associate Secretary General, and Dr. Shafqat H. Siddiqi was Treasurer, Mr. A.H. Chotani was Secretary (Publicity) and Dr. M. Aslam Khan was Secretary (Finance).

In the interest of maintain continuity, in 1985 it was decided that immediate past President of the Academy will be an ex-officio Member of the Council for one term. Thus, in the 1986–1988 Council, Dr. Raziuddin Siddiqi was the first-ever past President who served as an ex-officio member of the Council.

The second position of Vice President was added to the Council during the 1988-1990 tenure (Annexure-VII). Later, four Chapter Secretaries (one for each province of the country) were also added to the Council. While the Karachi, Lahore and Peshawar Chapters are functional since the beginning However, because of the lack of Fellows from Balochistan province, the Quetta Chapter never became functional. It was only during the year 2013 that the first-ever Fellow belonging to Balochistan, Prof. Dr. Masoom Yasinzai, was inducted in the Academy. Because of his job assignment, he was based in Islamabad (as Vice Chancellor of Quaid-i-Azam University); thus, this Chapter could not be established.

Initially, the sitting Council of the Academy used to nominate the panel of candidates for the Council for the next tenure. This panel would be read out in the General Body meeting for approval. This practice continued till the Council tenure of 1988-1990. However, during 1988, General Body of the Academy decided that the out-going Council shall not have the powers to nominate the new Council. It was decided that the candidates for various offices of the Council will be nominated (and seconded) by the Fellows rather than by the Council. Thus, since the 1990–1992 Council the elections for all offices of the Council are held in accordance with this procedure.





Up till 1999, the Editor of the Academy also used to be an ex-officio Member of the Council.

Currently, the Council of the Academy comprises of 13 elected office bearers, i.e., President, two Vice Presidents, Secretary General, Associate Secretary General, Treasurer, three Chapter Secretaries, and four elected Members; Two Members nominated by the Federal Ministries (who are Fellows of the Academy), and immediate Past-President of the Academy are also members of the Council. Whereas the other office bearers could be from any part of the country, the Secretary General and Treasurer ought to be from Islamabad/Rawalpindi.

Up till the 2013-2014 tenure, the term of the Academy's Council was two years and a Fellow as eligible for holding the same office consecutively for two terms only. However, in the annual General Body meeting on November 25, 2013, it was decided that the term of the Office Bearers and other Members of the Council shall be three (3) years. The retiring office bearers and other Members in future shall then not be eligible for re-election to any position of the Council for the subsequent three-year term (Rashid, 2014).

The 2013–14 Council of the Academy is as under:

**President**



**Prof. Dr. Atta-ur-Rahman**  
*FRS, NI, HI, SI, TI*

**Vice President**



**Prof. Dr. M. Qasim Jan**  
*HI, SI, TI*

**Vice President**



**Prof. Dr. M. D. Shami**  
*SI*

**Secretary General**



**Dr. Anwar Nasim**  
*SI*

**Associate Secretary General**



**Prof. Dr. Tasawar Hayat**  
*SI, TI*

**Treasurer**



**Prof. Dr. N. M. Butt**  
*SI*

**Secretary, Karachi Chapter**



**Prof. Dr. Bina S. Siddiqui**  
*SI, TI*

**Secretary, Lahore Chapter**



**Prof. Dr. Kauser A. Malik**  
*HI, SI, TI*

**Secretary, Peshawar Chapter**



**Prof. Dr. M. Asif Khan**  
*TI*

**Member**



**Prof. Dr. M. Aslam Baig**  
*HI, SI, TI*

**Member**



**Prof. Dr. Ikramul Haq**  
*SI*

**Member**



**Prof. Dr. Khalid M. Khan**  
*SI*

**Member**



**Prof. Dr. Abdul Rauf Shakoori**  
*TI*

**Member (MoST Nominee)**



**Dr. Muhammad Iqbal**  
*TI*

**Member (MoE Nominee)**



**Prof. Dr. Azra Khanum**  
*TI*

## 4.2 Former Office Bearers

### 4.2.1 Presidents

On 19 February, 1953, the Founding Fellows of the Academy elected Prof. M. Afzal Hussain as first President of the Academy. Thereafter, along with other office bearers, the President was elected by General Body of the Academy. The following distinguished Fellows have served as elected Presidents of the Academy for the periods as mentioned against each:



**Prof. M. Afzal Hussain**  
(1953 to 1956)



**Prof. Dr. Nazir Ahmad**  
(1956 to 1961)



**Prof. Dr. M. Raziuddin Siddiqi**  
(1961 to 1967)



**Prof. Dr. Salimuzzaman Siddiqui**  
(1967 to 1969)



**Prof. Dr. M. Qudrat-i-Khuda**  
(1969 to 1972)



**Prof. Dr. H. K. Bhatti**  
(1972 to 1974)



**Ch. M. Afzal**  
(1974 to 1978)



**Prof. Dr. M. A. Kazi**  
(1978 to 1984)



**Prof. Dr. M. Raziuddin Siddiqi**  
(1984 to 1986)



**Prof. Dr. M. A. Kazi**  
(1986 to 1988)



**Prof. Dr. M. D. Shami**  
(1988 to 1992)



**Dr. Amir Muhammed**  
(1992 to 1996)



**Dr. A. Q. Khan**  
(1997 to 2002)



**Prof. Dr. Atta-ur-Rahman**  
(2003 to 2006)



**Dr. Ishfaq Ahmad**  
(2007 to 2010)



**Prof. Dr. Atta-ur-Rahman**  
(2011 to 2014)

The exact tenures of the Presidents during the period 1953-1978 have been recorded by Siddiqi (1978a). The longest serving Presidents of the Academy were Prof. Dr. M. Raziuddin Siddiqi and Prof. Dr. M.A. Kazi; both of them remained Presidents for eight (8) years. On completion of his current term in December 2014, Prof. Dr. Atta-ur-Rahman will be third President to serve the Academy for eight years. Dr. A.Q. Khan remained President of the Academy for six (6) years, continuously.

#### 4.2.2 Vice Presidents

In the beginning there was no Vice President of the Academy. The first-ever Vice President, Dr. Qudrat-i-Khuda, was elected in 1956. By getting re-elected again and again, he served in this position upto 1967. Then, Dr. M.O. Ghani served as Vice President during 1967–1969, Dr. Nazir Ahmad during 1969–1972, and Dr. A.G. Asghar during 1974–1978 (Annexure-VII). The exact tenures of the Vice Presidents during the period 1953 to 1978 have been recorded by Siddiqi (1978a).

The Minutes of meetings of the Academy's Council indicate that the second post of Vice President was added during the 1988–1990 term of the Council, when Dr. G.M. Khattak and Dr. Amir Muhammed were elected as Vice Presidents. All Vice Presidents of the Academy during the 60-year period, i.e., 1953–2013, are listed at Annexure-VII.

#### 4.2.3 Secretaries / Secretaries General

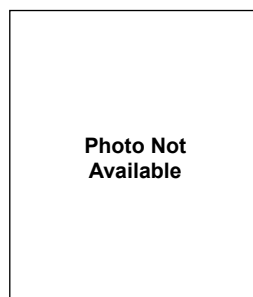
In their meeting in Lahore on 19<sup>th</sup> February, 1953, the Founding Fellows elected Prof. M. Raziuddin Siddiqi as the first Secretary of the Academy. On being re-elected again and again, he served in this capacity up to 12<sup>th</sup> January, 1961. Thereafter, the Secretary was elected by General Body of the Academy along with other office bearers. Dr. M.O. Ghani served as Secretary during 1961–1967 and Dr. S.D. Chaudhri during 1967–1969. Then, Dr. Raziuddin Siddiqi again became Secretary for a 10-year tenure, i.e., 1969–1979 (Anonymous, 1992). The exact tenures for the Secretaries during the period 1953 to 1978 have been recorded by Siddiqi (1978a).



**Prof. Dr. M. Raziuddin Siddiqi**  
(1953 to 1961)



**Prof. Dr. M.O. Ghani**  
(1961 to 1967)



**Dr. S.D. Chaudhri**  
(1967 to 1969)



**Prof. Dr. M. Raziuddin Siddiqi**  
(1969 to 1979)

In 1979, the post of Secretary was re-designated as Secretary General, and the following Fellows of the Academy served in this position during 1979–2013:





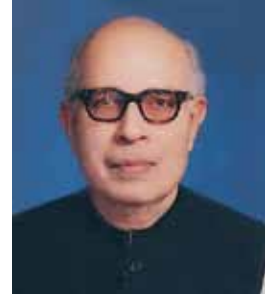
**Prof. Dr. M. Raziuddin Siddiqi**  
(1979 to 1984)



**Prof. Dr. M. D. Shami**  
(1984 to 1988)



**Dr. M. M. Qurashi**  
(1988 to 1992)



**Prof. Dr. M. D. Shami**  
(1992 to 1996)



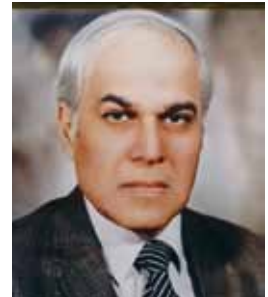
**Prof. Dr. Iftikhar A. Malik**  
(1997 to 1998)



**Prof. Dr. M. D. Shami**  
(1999 to 2002)



**Prof. Dr. Khalid M. Khan**  
(2003 to 2006)



**Prof. Dr. Iftikhar A. Malik**  
(2007 to 2008)



**Prof Dr. M. Qasim Jan**  
(2008 to 2010)



**Prof. Dr. G. A. Miana**  
(2011 to 2012)



**Dr. Anwar Nasim**  
(2013 to 2014)

Prof. Dr. Raziuddin Siddiqi was the longest serving Secretary/Secretary General of the Academy who served the Academy in this position a for a total period of 23 years, 18 years as Secretary and five (5) years as Secretary General. Prof. Dr. M.D. Shami remained Secretary General for eight (8) years, in two stints; and Dr. M.O. Ghani served the Academy in this position for six (6) years, in one stretch. The tenure of all other Secretaries General varied from two to four years.

#### **4.2.4 Treasurers**

At the time of establishing the Academy in 1953, the post of Treasurer was created along with the posts of President and Secretary. The first-ever Fellow who served as Treasurer of the Academy was Dr. Bashir Ahmad, who held this post during 1953–1957. Thereafter, on the sad demise of Dr. Bashir Ahmad, while he was still serving the Academy as Treasurer, Dr. Karimullah was appointed as Treasurer in 1959. On being re-elected again and again, Dr. Karimullah held the post of Treasurer up to 1978. In 1978, Dr. Badruddin was elected as



Treasurer of the Academy (Siddiqi, 1978a). The tenures of all the Treasurers during the period 1953 to 2013 have been stated at Annexure-VII.

#### 4.2.5 Associate Secretaries / Secretaries General

During 1953–1973, since the number of Fellows was small, it was decided that only the four office bearers, i.e., President, Vice President, Secretary and Treasurer, should function as the Council of the Academy. The first-ever Associate Secretary of the Academy, Dr. M.M. Qurashi, was elected in January 1974 (Siddiqi, 1978a). The post of Associate Secretary was re-designated as Associate Secretary General in 1979. By getting re-elected again and again, Dr. M.M. Qurashi served as Associate Secretary/Associate Secretary General upto 1984. Thereafter, Dr. M. Aslam Khan, Prof. Q.K. Ghor, Gen. M.I. Burney, Prof. Dr. R.A. Khan Tahir Kheli, Dr. S. Riaz Ali Shah, Dr. Muhammad Zafar Iqbal, Dr. Kauser Abdulla Malik, Prof. Dr. M. Qasim Jan, Prof. Dr. M.D. Shami, and Prof. Dr. Tasawar Hayat have served the Academy as Associate Secretary General (Annexure-VII).

#### 4.2.6 Members of the Council and Chapter Secretaries

For the first time, the five Fellows (i.e., Dr. Nazir Ahmad, Dr. Salimuzzaman Siddiqi, Dr. M.K. Afridi, Dr. Q.M. Hussain, and Dr. M. Innas Ali) were elected as Members of the Council in 1961. The same Members were re-elected in 1965, and they served as Members upto 1967. Thereafter, the process of electing five Members continued along with other office bearers till the Council's elections in January 1974. Moreover, Prof. Khawaja Salahuddin was nominated as the Representative of the Pakistan Association for the Advancement of Science, and Dr. M.A. Kazi was nominated as the Representative of Ministry of Education. Prof. Khawaja Salahuddin passed away in August 1974, and Dr. Afzal H. Qadri passed away on 6 December, 1974. Dr. Z.A. Hashmi was elected as Member of the Council in place of Dr. Afzal H. Qadri on 31 December, 1974. The same Members were re-elected in March 1976 (Siddiqi, 1978a).

Currently, the Council has four elected Members and two nominated Members (from amongst Fellows of the Academy) one each by the Ministry of Education and Ministry of Science & Technology. Three Chapter Secretaries, one each for Karachi, Lahore and Peshawar, are also elected members of the Council.

### 4.3 General Body of the Academy

The General Body of the Pakistan Academy of Sciences comprises or all living Fellows of the Academy. General Body is the highest decision making body of the Academy and its functions and powers are to:

- Approve the Bye-Laws of the Academy, which shall not be inconsistent with its Charter;
- Approve the annual programme and budget of the Academy;
- Sanction the creation, extension, curtailment or abolition of any of the organizations, institutions, committees and posts, paid or otherwise, established and/or maintained by the Academy;
- Elect the Fellows, Members and Foreign Fellows of the Academy;
- Elect the Council of the Academy;
- Consider the reports submitted by the Council and issue directions for further work of the Academy;
- Subject to other provisions in the Charter, to exercise generally the residuary powers so far as the affairs of the Academy are concerned;
- Frame Rules governing the procedure to be followed at the General Body meetings.



Up till 1984, the Academy lacked its own Headquarters building and facilities for holding the General Body Meetings. Therefore, during early years of the Academy these Meetings were held at different places throughout the country, including venues like Peshawar, Bahawalpur and Dacca. The dates and venue of the Annual General Body Meetings held during 1953–1977 were as under (Siddiqi, 1978a):

Sr. No.	Date	Venue	Sr. No.	Date	Venue
1	19 February, 1953	Lahore	12	10 October, 1966	Islamabad
2	6 March, 1954	Peshawar	13	14 November, 1967	Islamabad
3	20 January, 1955	Bahawalpur	14	18 November, 1968	Karachi
4	10 January, 1956	Karachi	15	20 December, 1969	Islamabad
5	15 March, 1957	Peshawar	16	27 December, 1970	Dacca
6	23 April, 1958	Karachi	17	13 March, 1972	Karachi
7	9 February, 1959	Karachi	18	19 December, 1972	Karachi
8	12 January, 1961	Dacca	19	8 January, 1974	Karachi
9	18 March, 1963	Lahore	20	31 December, 1974	Karachi
10	19 June, 1964	Karachi	21	14 March, 1976	Lahore
11	27 August, 1965	Swat	22	27 June, 1977	Islamabad

The General Body did not meet during certain years (i.e., in 1960, 1962, 1973 and 1975) because of the paucity of funds. The General Body Meeting of 1978 was held in Islamabad. In 1984, the Academy's Headquarters was shifted to its own building on Constitution Avenue in Islamabad, with reasonable facilities (i.e., auditorium, lobby, lawns, etc.) for the General Body Meetings. It is believed that since 1984 the venue of annual General Meetings must have been Islamabad. During 1993–2013, all Annual General Body meetings were held in Islamabad, during the month of November or December.



## 5. FINANCIAL SUPPORT TO THE ACADEMY

Since its inception in 1953, the Academy has been receiving an annual grant from the Ministry of Education, Government of Pakistan to carry out scientific activities. During the early years of its existence, some contributions were also received from various Universities of Pakistan. Then the Pakistan Science Foundation started giving a grant to the Academy for some of its scientific activities. The initial expenditure for the Library of the Academy was met by a donation from the Asia Foundation. Some private donors in Pakistan had also contributed to its funds for a couple of its early years of existence (Siddiqi, 1978a).

The annual grants from the Federal Ministry of Education have been very inadequate throughout. For example, the grants received by the Academy from 1953-54 to 1975-76 ranged from Rs. 5,000/- to Rs. 45,000/- per annum and came of an annual average of about Rs. 24,000/- (Anonymous, undated). Occasionally, the Ministry of Science and Technology, Government of Pakistan and the Pakistan Science Foundation have also helped the Academy financially. Consequently, initial growth of the Academy had been relatively slow, because of meager financial resources.

However, during celebrations of its Silver Jubilee in February 1978, at which the then President of Pakistan, General Mohammad Zia-ul-Haq, was the Chief Guest, the Academy was allotted a reasonable-sized plot on the Constitution Avenue of Islamabad along with a handsome grant of Rs. 7.00 million from the Government of Pakistan for the construction of its Headquarters building (Dr M.D. Shami, personal communications).

According to Minutes of the Council's meeting on 20<sup>th</sup> April, 1978 (subsequent to the President of Pakistan's participation in Academy's Silver Jubilee function held in February 1978), the Ministry of Education informed the Academy of increasing the annual grant from Rs. 42,750/- to Rs. 1,75,000, which included Rs. 25,000/- for the Gold Medals instituted on the assurance of President of Pakistan to support these prizes. During 1986-87 to 2007-2008, the Government's annual grant to the Academy varied from Rs. 390,000 to Rs. 700,000. The annual grant during 2008-2009 was Rs. 100,000 only. No grant was received during 2009-2010. And the last annual grant, received during 2010-2011, was Rs. 1,40,000. Consequent to the devolution of the subject of Education to the provinces as a result of 18<sup>th</sup> Amendment in the Constitution of Pakistan during April 2010, the Academy was told to pursue the grant matter with the Ministry of Science and Technology instead. The efforts so far have proved non-productive.

During 1998-2001, the then President of the Academy, Dr. A.Q. Khan, who was Chairman of the Khan Research Laboratories (KRL) at that time, arranged a donation of Rs. 50.00 million: Rs. 30.00 million for renovation and upgradation of the Headquarters building and Rs. 20.00 million for endowment of the Academy (Prof. Dr. M.D. Shami, personal communication). This financial support helped in substantial improvement of the Headquarters premises as well as in its staffing and day to day functioning.

Since 2003, Prof. Dr. Atta-ur-Rahman, the then President of the Academy and Chairman of Higher Education Commission, arranged for a reasonable regular annual grant to be given by the HEC for scientific activities and for support to the Academy. It was decided that this funding will be utilized for the Academy's activities like Seminars, Conferences, Workshops, Lectures, Printing of Books and Monographs, Policy Studies, Consultants and Experts, Meetings, Training Programs, Research Projects, Travel Grants, etc. Up to 30% of the funds will be set aside to meet the overhead expenses of the Academy. This annual grant received by the Academy varied from year to year, between Rs. 19.5 million to Rs. 40.00 million, and a total sum of Rs. 291.00 million has been received for this purpose by the Academy during the period July 2003 to June 2013. This funding has provided a much needed support for the various activities of the Academy.





In 2006, the President of Pakistan General Pervez Musharraf announced a grant of Rs. 30.00 million towards the endowment on the occasion of a felicitation ceremony regarding the conferment of FRS by the Royal Society (London) on Prof. Dr. Atta-ur-Rahman.



**Figure 10.** The PAS-organized ceremony in Islamabad to celebrate the Award of FRS to Prof. Dr. Atta-ur-Rahman (2006). L-R: Prof. Dr. Khalid Mahmood Khan, Secretary General PAS; Chaudhry Nauroze Shakoor, Minister for Science & Technology; General Pervez Musharraf, President of Pakistan; Lt. Gen. Khalid Maqbool, Governor of Punjab; Prof. Dr. Atta-ur-Rahman, President PAS.

Though the Academy is relatively better off financially since 2003, the uncertainty of uninterrupted funding support, primarily because of uncertain status of the HEC, has proven detrimental to Academy's long term planning, activities and commitments. Thus, the need for more committed Government support by way of a reasonable annual grant through Ministry of Science and Technology (MoST) cannot be over emphasized.

## 6. SALIENT ACTIVITIES OF THE ACADEMY

Since its establishment in 1953, despite meager financial resources at its disposal during the initial five decades, the Academy has been undertaking an array of professional activities for the promotion of science & technology in the country. In recent years, especially since availing a reasonable annual financial grant through HEC, i.e., since fiscal year 2003–2004, a number of initiatives and new activities have been undertaken.

The salient activities undertaken by the Academy over the past 60-year period are elaborated as under:

### 6.1 Advisory Role of the Academy

According to the basic aims and objectives laid down at the time of its inception, since its inception the Academy has been advising the Government on major policy issues concerning scientific education and research. For example, as early as in 1954, the Government of Pakistan informed the Academy that His Royal Highness Sir Sultan Muhammad Shah, Aga Khan III, had donated funds for the award of overseas scholarships to Pakistani scholars. The Academy accepted the responsibility and decided to award the first five scholarships in the disciplines of (i) Mechanical Engineering; (ii) Chemical Engineering; (iii) Aeronautical Engineering; (iv) Cotton Technology; and (v) Jute Technology. After a nation-wide wide publicity and rigorous interview process, in 1955 the selected five scholars were sent to England, France, Germany, and Switzerland for advanced training. However, after the sad demise of the Aga Khan III in 1957, this program discontinued. Also, at the request of various universities, during 1967–68 the Academy provided recommendations for revising and modernizing the honours and postgraduate courses and syllabi in various subjects of science. The universities had taken advantage of the recommendations for revising their syllabi accordingly (Siddiqi, 1978a). The advisory role of the Academy is elaborated in the following sections:

#### 6.1.1 Science-based Advices for Policy Planning and Problem Solving

In accordance with its Charter, a major activity of the Academy has been to organize brainstorming sessions on critical issues of national importance to arrive at science-based recommendations to the Government for handling the situations. The special reports thus prepared were submitted to the relevant Ministries/ stakeholders for consideration and necessary action.

During the initial few decades of its existence, the Academy has been giving its considered opinion regarding the planning and development of scientific education and research at the time of formulation of various Five Year Plans. The 1960 Symposium on Planning & Development of Sciences was also addressed by His Royal Highness the Duke of Edinburgh, who was the General President of the British Association for the advancement of Science as that time. The Academy also gave its views to the Government on the Educational Policy proposed in 1969–70. As a result of Academy's activities in developing new fields of science, the Academy had been asked by the Government of Pakistan to organize studies in environmental and pollution problems by providing an initial sum of Rs. 35,000/-. On the 5<sup>th</sup> June Environment Day of 1973 and 1974, the Academy jointly organized Seminars at Islamabad, Lahore and Karachi. In 1974 and 1975, the Academy collaborated with the National Science Council (the precursor of Ministry of Science and Technology) in holding a series of Panel Discussions to formulate recommendations for a National Science Policy (Siddiqi, 1978a).

The following policy documents produced by the Academy during 1975, in collaboration with National Science Council, speak volumes about the Academy's contribution towards national policy planning concerning

science in the country:

- Pakistan Academy of Sciences (1975) *Joint Panel Discussions on National Science Policy*. Vol. I. *Food, Agriculture and Minor Forest Industries*. 25–27 Jan 1975. Organized by Pakistan Academy of Sciences and National Science Council.
- Pakistan Academy of Sciences (1975) *Joint Panel Discussions on National Science Policy*. Vol. II. *Mineral Resources*. 25–27 Jan 1975. Organized by Pakistan Academy of Sciences and National Science Council.
- Pakistan Academy of Sciences (1975) *Joint Panel Discussions on National Science Policy*. *Joint Panel Discussions on National Science Policy*. Vol. III. *Fuels and Nuclear Energy*. 25–27 Jan 1975. Organized by Pakistan Academy of Sciences and National Science Council.
- Pakistan Academy of Sciences (1975) *Joint Panel Discussions on National Science Policy*. Vol. V. *Irrigation and Reclamation of Land*. 25–27 Jan 1975. Organized by Pakistan Academy of Sciences and National Science Council, Islamabad.
- Pakistan Academy of Sciences (1975) *Joint Panel Discussions on National Science Policy*. Vol. VI. *Health and Medicine*. 25–27 Jan 1975. Organized by Pakistan Academy of Sciences and National Science Council.
- Pakistan Academy of Sciences (1975) *Joint Panel Discussions on National Science Policy*. Vol. VIII. *Nutrition*. 25–27 Jan 1975. Organized by Pakistan Academy of Sciences and National Science Council.
- Pakistan Academy of Sciences (1975) *Joint Panel Discussions on National Science Policy*. Vol. X. *Scientific Manpower*. 8–9 March 1975. Organized by Pakistan Academy of Sciences and National Science Council.

During 1981–1997, the Academy produced the following policy documents for guidance of decision makers in the Government:

- Khattak, G.M. (1981) *The Feasibility of Forestry and Forest Industries in Hazara Division – A Socio-economic Study*. Pakistan Academy of Sciences, Islamabad, 96 pp.
- Karimullah, M.M. Qurashi, M.S.H. Siddiqi, M.K. Bhatti, and A.H. Chotani (1982) *Energy and Its Development (with special reference to Pakistan)*. Pakistan Academy of Sciences, Islamabad, 136 pp.
- Qurashi, M.M., and A.H. Chotani (1986) *Renewable Sources of Energy in Pakistan*. Pakistan Academy of Sciences, Islamabad, 87 pp.
- Aslam, M. (1987) *Ethanol Production for Motor Vehicles & Feedstock*. Pakistan Academy of Sciences, Islamabad, 80 pp.
- Qurashi, M.M., and A.Q. Kazi (1992) *Research & Development in Pakistan: Review (1947-89) and Future Perspectives*. Pakistan Academy of Sciences, Islamabad, 394 pp.
- Chughtai, M.I.D., and Khurshid Ahmed (1996) *Wastewater Reuse in Urban Agriculture in Arid & Semi-arid Regions*. Pakistan Academy of Sciences, Islamabad, Pakistan, 90 pp.
- Hafiz, Abdul (1997) *Lahay-e-Amal (Action Plan): Celebrate Year of Wheat, Increase Production, and Make the Country Prosperous (Urdu)*. Sponsored by Pakistan Academy of Sciences, 24 pp.

On the suggestion of Hakim Mohammad Said (who was elected as Fellow of PAS in 1991), in 1983 the Academy decided to collaborate in sponsoring and organizing the *Pakistan Association for the History and Philosophy of Science* (PAHPS). In addition to producing many books/monographs concerning history and

philosophy of science, PAHPS is publishing a scientific journal, i.e., *Pakistan Journal of History and Philosophy of Sciences*. The driving force behind this organization was Dr. M.M. Qurashi, throughout (Dr. M.D. Shami, personal communication), who was assassinated during the year 2011 (Annexure-I).

In 1987 the President of Pakistan, General Zia-ul-Haq, had graciously invited Fellows of the Pakistan Academy of Sciences to a full-day session at *Aiwan-e-Sadar*, Islamabad, in order to discuss some of the problems of Science and Scientists in the country. Several Fellows and Office-Bearers spoke on this occasion and the President agreed that there was an urgent need for up-grading the *quality* of Scientific and Technological Education in Pakistan as well as taking measures to improve the *utilization* of High-level S&T Manpower. Accordingly, the President of Pakistan was kind enough to commission the Academy to study the problems in depth and prepare a comprehensive report, for which he graciously agreed to provide funds to the extent of Rs. 100,000.00.

The Academy constituted a Committee consisting of six Fellows, headed by Dr. M.D. Shami, the then Secretary General and later President of the Academy. After having the stakeholders' input, detailed deliberations and interaction with the Ministry of Education, the Academy submitted the following Report to Government of Pakistan:

- Shami, M.D. (1990) *Report on High-Level S&T Manpower – Its Training and Utilization*. Pakistan Academy of Sciences, Islamabad, 116 pp.

The recommendations in this special Report dealt with (i) Science Education & Training, (ii) Utilization of S&T Manpower, and (iii) Incentives and Career Structure.



Figure 11. Some Salient Policy Documents prepared by the Academy.

Some relatively recent salient policy documents prepared by the Academy and submitted to the Government are listed below:

1. Ahmad, Rafiq, and Kauser A. Malik (Eds.) (2002) *Prospects for Saline Agriculture*. Kluwer Academic Publishers, Dordrecht, The Netherlands. 460 pp. (sponsored by Pakistan Academy of Sciences)
2. Shami, M.D. (2003) *Education, Science & Industry in the Muslim World*. Institute of Policy Studies, and Pakistan Academy of Sciences, Islamabad, 160 pp.
3. Muhammed, Amir, and S. Sajidin Hussain (Eds.) (2005) *Global Change Perspective in Pakistan: Challenges, Impacts, Opportunities and Prospects*; organized by APN CAPaBLE, Agro-Dev International,



and Pakistan Academy of Sciences, Islamabad, 248+xiii pp.

4. Siddiqui, M. Mian, and S. Muhammad Jafar (2006) *Family Planning in the light of Islamic Directives and Principles of Genetics*. Pakistan Academy of Sciences, and Pakistan Association for History & Philosophy of Science, Islamabad, 41 pp.
5. Ali, Mahbub (2007) *Cotton Research & Development: Memoranda till 60's*. Pakistan Academy of Sciences, Islamabad, 345 pp.
6. Akhter, M. Salim, M.W. Akhter, N.S Akhter, and K. Mahmood (2011) *Essentials of Perinatal and Neonatal Medicine*. Pakistan Academy of Sciences, Islamabad, and HMR Publishing Company, Lahore, Pakistan, 120+v pp.

Realizing the gravity on serious energy crisis in the country, in 2012, the PAS Committee on Energy headed by Dr. M. Akram Sheikh, Former Deputy Chairman, Planning Commission, Government of Pakistan, after comprehensive deliberations with the key stakeholders and experts, prepared the following special report:

- Pakistan Academy of Sciences (2012) *Pakistan's Energy Crisis – Recommended Solutions*. The Pakistan Academy of Sciences, in association with The Corporate Advisory Council (CAC) Secretariat, and National University of Sciences and Technology (NUST), Islamabad, 51 pp.

The report was distributed to all the stakeholders including the concerned Federal and Provincial Ministries.

In June 2013, the Academy organized a press conference its Headquarters in Islamabad to express serious concern on the proposed withdrawal of income tax rebate to researchers and teachers.

#### **6.1.2 Recommendations of the Scientists Meeting in Swat**

During early 1960s it was realized that the senior scientists of the country should get together for taking stock of the position in the fields of scientific and technological research, and for planning for the future. Such an effort had not been made since the Scientific Commission submitted its Report in 1960. Consequent to the establishment of the Scientific and Technological Research Division in the President's Secretariat in 1964, the then President of the Pakistan Academy of Sciences, Dr. Raziuddin Siddiqi, and the Chief Scientific Advisor to the President of Pakistan, Prof. Abdus Salam, planned for the Meeting of senior scientists of the country. They discussed the proposal with the President of Pakistan, who graciously agreed to grace the occasion. Consequently, a joint meeting of the Pakistan Academy of Sciences and the National Science Council was arranged at the Hotel Swat in Saidu Sharif on 23–26 August 1965. In addition to the members of these two organizations, a few other senior scientists from both provinces of the country, i.e., East Pakistan and West Pakistan, were also invited to the Meeting. Participants of the Meeting included many Fellows of the Pakistan Academy of Sciences; Chairman of Pakistan Atomic Energy Commission, Dr. I.H. Usmani; Chairmen of National Science Council, Pakistan Council of Scientific and Industrial Research, Agricultural Research Council, Medical Research Council, and Irrigation and Flood Control Research Council; and Vice Chancellors of various Universities.

The Meeting was logistically supported by the Scientific and Technological Research Division, which included provision of transport and accommodation for the participants. After four-day formal and informal discussions on some of the most fundamental problems in the scientific and technological fields, the concrete





**Figure 12.** Dr. Nazir Ahmad (a former President of PAS) speaking at the Scientists Meeting in Swat on August 27, 1965.  
L-R: Dr. M. Raziuddin Siddiqi, President Mohammad Ayub Khan, Prince Aurangzeb, Prof. Abdus Salam.



**Figure 13.** President Mohammad Ayub Khan addressing Senior Scientists of the Country in Swat on 27<sup>th</sup> August, 1965.



ideas and proposals were submitted to the President of Pakistan by the Chairmen of various sessions in Concluding Session of the Meeting on 26 August 1985, as under:

- *Welcome Address*, by Dr. M. Raziuddin Siddiqi, President, Pakistan Academy of Sciences;
- *Tasks for Science*, by Prof. Abdus Salam, Director, International Center for Theoretical Physics, Trieste, Italy, and Chief Scientific Advisor to President of Pakistan;
- *Problems of Training Manpower in the Scientific and Technological Fields*, by Prof. M. Afzal Hussain, Chairman, Agricultural Research Council;
- *Promotion of Research in Universities and Relationship between Universities and Research Councils*, by Dr. Nazir Ahmad, Former President, Pakistan Academy of Sciences;
- *Promotion of Oriented and Applied Research for Economic Development*, by Dr. Salimuzzaman Siddiqui, Chairman, National Science Council, & Chairman, Pakistan Council of Scientific and Industrial Research; and
- *Some Organizational Problems of Scientific Research*, by Dr. I.H. Usmani, Chairman, Pakistan Atomic Energy Commission.

The President of Pakistan, Field Marshal Mohammad Ayub Khan, guided the discussion and also addressed the scientists. The President assured the scientists that the Government will provide all facilities, within the available resources, to enable to execute their work in the best possible manner. The Secretaries of the Ministries concerned with various Research Councils (i.e., Secretary, Ministry of Education; Secretary, Ministry of Industries and Natural Resources; Joint Secretary, Agriculture Division), who were present on the occasion, took notes of the remarks and directives of the President. Subsequent to the Scientists Meeting, a meeting of the Pakistan Academy of Sciences was held on 27 August, 1965. The Proceedings of the Meetings was published by the Academy (Siddiqi, 1965).

The Recommendations of the Swat Meeting are summarized as under:

- 1) The country should spend at least 2% of its Gross Domestic Product (GDP) on its scientific endeavors;
- 2) For scientific research, priority may be accorded to (i) Industry based on indigenous raw materials; (ii) Food and Agriculture including Food Technology; (iii) Irrigation, Hydrology and Soil Science; (iv) Medicine, Public Health and Hygiene; and (v) Promotion of Science in Universities;
- 3) Establishment of a strong Technical Information Service for collecting scientific and technical data from around the world for dissemination to various scientific research organizations in the country;
- 4) Scientists should be associated with the economic planning; also, the Chairmen of various Research Councils and other specialists should be co-opted to the Planning Commission for technical advice;
- 5) For accomplishing fullest possible impact of the scientific effort on economic development, the research outcomes in the fields of Industry, Agriculture, Health, Communication, etc. should be fully utilized by way of effective transfer of knowledge and technologies from the laboratories and experimental farms to the factories and fields;
- 6) Measures for enforcing standardization and quality control should be adopted, and legislation and executive actions should be taken for the purpose;



- 7) The already taken decision of levying an Industrial Cess to defray the cost of scientific research and services for industrial purpose, should be implemented at the earliest;
- 8) A Foreign Exchange provision of Rs. 10.00 Million should be made in the Industrial Investment Schedule for importing equipment required for the development and exploitation of the processes;
- 9) In-country training of scientific manpower at the highest level should be given priority. The Inter-University Board, in collaboration with the National Science Council, should work out a plan for assigning specialized post-graduate trainings to various universities;
- 10) In the interest of scientific training and research, an industry for manufacturing scientific apparatus and equipment should be developed. The immediate beginning can be made with the apparatus for schools and colleges;
- 11) In order to attract and retain well trained manpower, the scientists must be offered attractive remuneration and amenities; their work performance should be evaluated periodically, and good work should be rewarded;
- 12) The National Science Council should be provided sufficient funds for awarding short term fellowships and grants international conference participation;
- 13) The university teachers possessing aptitude and devotion for research should be allowed to devote upto 50% of their time for research, by relieving them of their teaching and administrative responsibilities;
- 14) Special grants should be made by the Central Government and the Research Councils for research in the subjects for which basic facilities are available in the universities;
- 15) A sufficient number of best performing students should be selected every year for provided training fellowships in research methodology and in work concerning important research projects;
- 16) In the interest of promoting advanced studies and research at the universities, they should be allowed flexibility to acquire the services of the best available specialists as Professors and Readers;
- 17) All necessary measures should be adopted to attain closest possible collaboration and cooperation between the universities and Research Councils;
- 18) For ensuring the success of applied research, effective collaboration should be established between research groups, starting from the laboratory bench work to pilot plant investigations and to full scale commercial exploitation;
- 19) The feasibility of establishing a Scientific Service of Pakistan should be investigated; and
- 20) The retired eminent scientists, who are still active scientifically, should be provided with necessary research facilities in the universities and research institutions.

The Academy had circulated the recommendations of the Swat convention to all the universities and research organizations for their consideration and implementation, and had followed it up by obtaining progress reports and by reminding the organizations about the need for implementing the recommendations (Siddiqi, 1978a). The recommendations of this important Meeting were so comprehensive that even after five decades most of these recommendations are still valid for the advancement of science, scientific education and science-based economic development in the country.



## 6.2 Gold Medals and Awards conferred by the Academy

One of the major functions of the Pakistan Academy of Sciences is to promote science and technology (S&T) in the country by honoring the outstanding scientists by awarding them scholarships, fellowships, prizes and medals. While Fellowship is considered the highest honor this Academy can bestow on scientists of this country, the Academy also accords recognition to many more scientists at various levels in the interest of promoting cutting edge research in different fields of sciences.

Since 1967, the Academy the Academy has been awarding Gold Medals and Prizes to Pakistani scientists who have had made original research contributions in various disciplines of Science and Technology. Nominations for the awards are made by the Fellows of the Academy, Universities and R&D Organizations. The nominations are evaluated by Expert Committees constituted by the Council of the Academy.

Initially, the Academy had been awarding three Gold Medals annually for the best research published in physical and biological sciences by Pakistani scientists. One Medal was awarded on the basis of Open Competition, and the other awarded to encourage Young Scientists, under the age of 40 years. The third Medal for Technology was awarded for developing the materials, patents and processes of national importance. The Technology Medal and also a fourth Medal for Applied Life Sciences was instituted with the financial assistance of the Pakistan Science Foundation. The Academy held its first *Investiture Ceremony in January 1974*, at which six gold medals were presented by the then Governor of Sindh, Begum Ra'ana Liaquat Ali Khan. The second Investiture ceremony was held on the occasion of Silver Jubilee of the Academy in February 1978, at which President of Pakistan, General Mohammad Zia-ul-Haq was the chief guest (Siddiqi, 1978a, 1978b).



**Figure 14.** The Academy's Gold Medalists with the Governor of Sindh, Begum Ra'ana Liaquat Ali Khan (fourth from left) in 1974. The Gold Medalists are (from left) Dr. M.A. Ghani, Dr. Riazuddin, Dr. Nasima Tirmazi, Dr. Fatima Bilqees Mujib, Dr. M. Afzal Hussain Qadri, and Dr. M.M. Qurashi.



Currently, Gold Medals and Prizes are awarded in areas of science and technology, i.e., Agriculture, Biochemistry, Biology, Botany, Chemistry, Computer Science (Software), Computer Science / Information Technology, Earth Sciences, Engineering & Technology, Mathematics, Medical Sciences, Molecular Biology, Pharmaceutical Sciences, Physics, and Zoology.

During the years 1967–2013, nearly 280 scientists have been conferred upon these awards; details are given in Table 1.

**Table 1.** \*Summary of the Gold Medals and Prizes conferred by the Academy during 1967–2013.

Sr. No.	Award/Prize	Discipline(s)	Year(s)	Total Number
1	PAS Open Gold Medal	Physical Sciences, Biological Sciences, Engineering & Technology, Agriculture, Energy, Water Management, Physics, Chemistry, Biochemistry, Earth Sciences, Mathematics, Botany, Medical Sciences	1967–2006	99
2	PAS Gold Medal (under 40 Years)	Physical Sciences, Biological Sciences	1968–1993	17
3	M. Raziuddin Siddiqi Cash Prize & Gold Medal (Under 40 Years)	Physics, Chemistry, Biochemistry, Mathematics	1991–2012	21
4	TWAS Cash Prize (Under 40 Years)	Biology, Botany, Physics, Chemistry, Mathematics	1993–2010	22
5	PAS/Infaq Foundation Agha Hasan Abedi Prize for Best Scientist of the Year (Gold Medal and Rs. 200,000/-)	Engineering Sciences, Agriculture, Biotechnology & Genetic Engineering, Physics, Chemistry,	1995–2001	5
6	PAS/Infaq Foundation Agha Hasan Abedi Gold Medal	Physical Sciences, Chemical Sciences, Biological Sciences, Engineering Sciences, Agriculture, Physics, Chemistry, Mathematics, Botany, Medical Sciences, Zoology	1995–2002	33
7	<sup>1</sup> Meritorious Service Award (Special Medal)		1998	2
8	Dr. M.N. Azam Prize for Pakistani Scientists in Computer Science (Software)	Computer Science (Software)	1998–2009	9
9	<sup>2</sup> World Science Day for Peace and Development Award		2002	1
10	PAS/COMSTech Gold Medal in Computer Science (IT)	Computer Science/ Information Technology	2003–2011	4
11	Prof. Atta-ur-Rahman Gold Medal	Chemistry	2004–2013	9
12	Distinguished Scientist of the Year Award	Biology, Computer Sciences, Botany, Biochemistry, Biochemistry, Earth Sciences, Mathematics, Medical Sciences, Zoology	2004–2013	10
13	PAS Gold Medal	Engineering & Technology, Agriculture, Physics, Chemistry, Biochemistry, Earth Sciences, Mathematics, Botany, Medical Sciences, Zoology	2007–2013	43
14	Dr. Shah Jahan Prize	Agriculture, Botany	2010–2012	2
15	TWAS Abdus Salam Prize in Basic Sciences	Chemistry, Mathematics	2011–2012	2
16	TWAS Salimuzzaman Siddiqui Prize in Applied Science & Technology- 2011 in Agricultural Sciences	Agricultural Sciences	2011	1

<sup>1</sup> This Special Medal was conferred upon Dr. A.Q. Khan and Dr. Ishfaq Ahmad

<sup>2</sup> This Special Medal was conferred upon Dr. A.Q. Khan

\* Source: Rashid (2014)





The names and affiliations of all the scientists who have been awarded Medals and Prizes by the Academy are given in the 2012-2013 Year Book of the Academy (Rashid, 2014).

### 6.3 Conferences, Symposia and Seminars organized by the Academy

The Academy organizes and supports national and international conferences, seminars, symposia, workshops on critical issues in the field of sciences. The Academy has been organizing scientific events either alone or in collaboration with other organizations. The Conferences and Symposia organized by the Academy up till 1975 have been listed by Siddiqi (1978a).

Some of the presentations made in the Academy-organized Conferences led to positive scientific developments in the country. For example, based on a 1971 presentation by Ch. Mohammad Afzal (who later became President of the Academy during 1974–1978) in the Symposium on “Natural and Man-made Fibers” during 1971, a proposal was formulated by him and submitted by the Academy to the Ministry of Agriculture. This proposal fetched financial assistance from UNDP for expanding the facilities of developing high-yielding cotton varieties by the Central Cotton Research Institute, Multan. This Scheme played a pivotal role towards improving the national economy by enhancing cotton production in the country (Siddiqi, 1978a).

The Academy also helped to organize the Marconi Centenary Celebrations in November 1974 at Islamabad and Karachi (Siddiqi, 1978a).

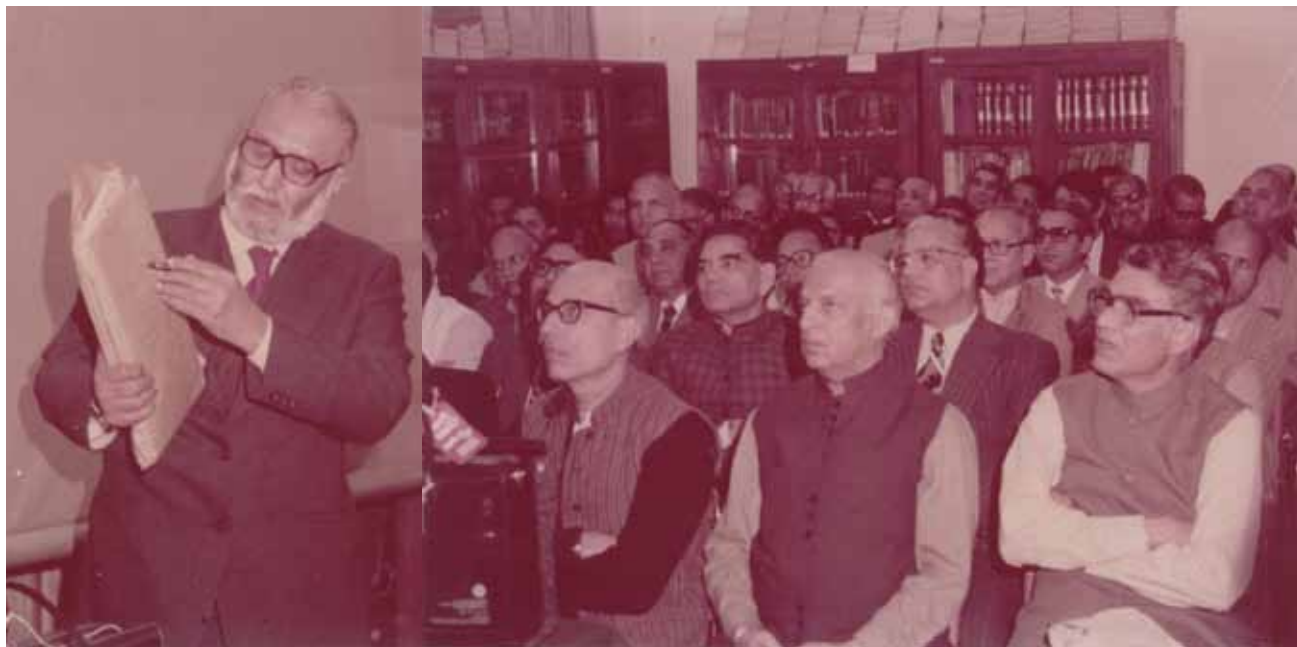
The list of the conferences and symposia organized by the academy during 1953–2013 is given at Annexure-VIII. The abstract books and/or proceedings of some of these conferences/symposia have been published by the Academy. The recommendations of the Symposia and Conferences were submitted to the relevant Government Ministries.



**Figure 15.** President of Chinese Academy of Sciences, Prof. Chunli Bai, delivering his Speech at the first PAS–CAS Binational Conference held in Islamabad on 16<sup>th</sup> July, 2012.

## 6.4 Lectures organized by the Academy

Right from the beginning, the Academy has been organizing Lectures by eminent scientists of the country as well as of expatriate scientists at the Academy's Headquarters as well as various centers of learning in the country. For example, the Noble Laureate Fellow of PAS, Professor Abdus Salam, delivered his Lecture at the Academy in Islamabad in 1978.



**Figure 16.** Nobel Laureate Professor Dr. Abdus Salam delivering his Lecture at the Pakistan Academy of Sciences in 1978.

Some recent Lectures at the Academy's Headquarters addressed high tech science areas, like "High Resolution X-ray Diffraction and Reflection", by Dr. Krishan Lal, President, Indian National Science Academy; "Novel Radionuclides for Medical Applications", by Prof. S.M. Qaim, Germany-based Foreign Fellow; "Application of Nanostructured Materials", by Dr. Irshad Hussain, LUMS; "The Neoproterozoic to Cambrian Amalgamation of Central Gondwana", by Prof. Alan Collins, University of Adelaide, Australia; "Neotectonics of the Baram Delta System", by Dr. Rosaland King, University of Adelaide, Australia; "Tools and Objectives for the Post-Genomic Era", by Prof. Daniel Hoessli, University of Geneva, Switzerland; "Radiotracers for Medical Applications", by Prof. S.M. Qaim, a Foreign Fellow; and "Radiotracers for Medicine", by Dr. Hongmei Jia, Beijing Normal University, China.

In October 2013, the Academy initiated a regular E-Lecture series on topics of general interest at its Headquarters in Islamabad. These are held once every fortnight and about 80–100 post-graduate students and faculty members of the Islamabad-Rawalpindi based universities are invited. The Lectures are transmitted live through video-conferencing to universities across Pakistan – to share the cutting edge science and scientific developments with young scientists, especially the PhD and MPhil scholars in universities. The first E-Lecture of this series was delivered by President of the Academy, Professor Atta-ur-Rahman, on "The Wondrous of Science". The subsequent E-Lectures during the year 2013 addressed topics like "Fascination of Nanotechnology", by Prof. Dr. N. M. Butt, Preston University; and "Some All Times Greats in Maths and Physics", by Prof. Muhammad Dr. Zafar Iqbal, Superior University, Lahore. The E-Lecture series is coordinated by a Fellow of the Academy, Prof. Dr. Raheel Qamar.

The Karachi Chapter of the Academy, under the leadership of Prof. Dr. M. Iqbal Choudhary, also organized a Lecture series during 2013. The main audience of these Lectures was post-graduate students of University of Karachi and other institutions of higher learning in the city.



**Figure 17.** President of Indian National Science Academy, Dr. Krishan Lal, delivering his Lecture at Pakistan Academy of Sciences in Islamabad in January 2012.



**Figure 18.** President of Pakistan Academy of Sciences, Prof. Atta-ur-Rahman, presenting a Memento of the Academy to Dr. Krishan Lal, President of Indian National Science Academy at PAS Headquarters in January 2012.

## 6.5 Research Grants to Fellows and Members

The program of awarding Research Grants to Fellows and Members of the Academy was initiated soon after the allocation of an annual grant by the HEC, i.e., in 2003. Consequent to the satisfactory peer review reports, the project proposals were approved by the PAS-HEC Joint Committee. The progress reports are also evaluated by the reviewers. The first-ever research grant was awarded to Dr. Sheikh Riazuddin in 2003. The second grant winner, in 2004, was Dr. Mohammad Perwaiz Iqbal. Subsequently, 1–10 research grants were awarded per annum regularly.

Initially, a Fellow was eligible for having one project at a time, of up to Rs. 1.00 million. In 2005, the upper limit for Research Projects was raised to Rs. 2.00 million. During the fiscal year 2007–2008, it was decided that the Fellows and Members can submit two research proposals at a time. The maximum cost for the projects was also raised from Rs. 2.00 million to Rs. 3.00 million. During 2008–2009, the upper limit for projects was reduced to Rs. 2.50 million. Again, in 2010, on the recommendation of the PAS-HEC Joint Committee, the Council reduced the upper limit from Rs. 2.50 million to Rs. 2.00 million. In 2011, the Council of the Academy enhanced the funding level of research grants to a Fellow from Rs. 2.00 million to Rs. 4.00 million. Also, the Council decided that a Fellow may submit one project costing up to Rs. 4.00 million or two projects simultaneously, provided their combined cost is not more than Rs. 4.00 million.

During the 11-year period, i.e., 2003–2013, a total of 53 Research Grants pertaining to almost all areas of sciences, and costing Rs. 112.771 million, have been awarded. Two of these projects were awarded to a Member of the Academy and the rest to the Fellows. The duration of these projects varied from one to three years. Out these, 39 projects have been completed and 14 are ongoing.

## 6.6 Travel Grants to Fellows

Since 2003, the Academy has been facilitating its Fellows for participation in Meetings, Conferences and Seminars abroad by providing travel grants/airfare. A Fellow is eligible to avail the PAS travel grant once a year, subject to availability of funds. So far, the travel grants have been awarded for participation in meetings of The Academy of Sciences (TWAS) and the Islamic World Academy of Sciences (IAS) as well as for subject specific conferences.

The number of travel grants varied from year to year, from 4 to 24, totaling 162 during the period 2003–2013. Out of the total, two travel grants were availed by Members of the Academy and the rest by the Fellows. In 2013, it was decided that travel grants will be provided to a Fellow who will have to present a paper, chair a session or is a member of a committee for the conference.

## 6.7 Conference Grants to Fellows

Since 2003, the Academy has been providing funding support to the Fellows for organizing conferences/symposia on scientific topics of national importance. Each Fellow is eligible to seek funding for one scientific event during a year. Initially, the upper limit for Conference grants was Rs. 1.00 million, which was enhanced to Rs. 2.00 million in fiscal year 2007–2008. Later on, on the recommendation of the PAS-HEC Joint Committee, the upper limit was reduced to Rs. 0.75 million.

The total number of Conferences supported by the Academy during the period 2010 to 2013 were 32: eight each in 2010 and 2011, seven in 2012, and nine in 2013.



## 6.8 International Collaboration

As knowledge and science have no geographical borders and scientific progress cannot be achieved in isolation, right from the beginning, the Academy has given due importance of international collaboration. For example, the Royal Society arranged with the *Pakistan Academy of Sciences* for organizing the Rutherford Lectures on



**Figure 19.** The First Delegation of the Chinese Academy of Sciences led by its Vice President (5<sup>th</sup> from left), with President of PAS, Dr. M. A. Kazi, and Fellows of the Pakistan Academy of Sciences in Islamabad during 1974.



**Figure 20.** The First Delegation of Chinese Academy of Sciences, led by its Vice President, with Secretary of the Academy, Dr. M. Raziuddin Siddiqi, and other Office Bearers of the Academy and Senior Scientists at the Academy's Headquarters in Islamabad in 1974.





its behalf. Also, the Royal Society invited the Academy to represent Pakistan at the Tercentenary Celebrations in July 1960. The National Academy of Sciences, USA entrusted the Academy with the task of selecting and nominating candidates for the award of Senior Research Fellowships in the United States. In 1966, the US Government, with the collaboration of the Rockefeller University, New York, invited two Founding Fellows of the Academy (Dr. Salimuzzaman Siddiqui and Dr. Raziuddin Siddiqi) to an international conference to consider the proposals for development of science in Asia. In 1967, the Royal Society invited President of the Academy, Dr. Raziuddin Siddiqi, and Secretary of the Academy, Dr. M.O. Ghani, to the Commonwealth Science Conference. During the same year, the USSR Academy of Sciences, with the approval of the Government of Pakistan, invited the President of the Academy, Dr. Raziuddin Siddiqi, and two Fellows, Dr. S.D. Chaudhri and Dr. M.M. Ahmad, to visit the scientific institutes and laboratories in various parts of the Soviet Union, and to discuss the possible collaboration and cooperation between the two academies (Siddiqi, 1978a).

During the early years, UNESCO also selected the *Pakistan Academy of Sciences* for collaboration in scientific matters. For example, this organization asked the Academy to organize the “International Symposium on Medicinal Plants” at Peshawar in 1960 and the “International Symposium on Humid Tropic Deltas” at Dacca in 1964. Also, UNESCO invited President of the Academy, Dr. Raziuddin Siddiqi, to the Experts Committee for the planning and development of sciences consequent on the eventual disarmament by the Great Powers. In 1974, the Associate Secretary of the Academy accompanied the delegation of the Chinese Academy of Sciences during their 3-week tour of Pakistan. Several Fellows of the Academy were also associated in joint deliberations with this delegation (Siddiqi, 1978a).

During the subsequent years as well, the Academy has keenly pursued international collaborations with the following goals:

- i) Coordination of Joint research projects;
- ii) Participation of Scientists in bilateral symposia, seminars, researcher training courses and workshops;
- iii) Exchange visits by the scientists;
- iv) Exchange of scientific;
- v) publication, information, and expertise on evaluation of science and funding procedures; and
- vi) Technical collaborations with scientific organizations of the Ministry of Science and Technology of Pakistan.

During 2000–2012, the Pakistan Academy of Sciences signed Memoranda of Understanding (MoUs) with 12 Academies of other countries (Table 2). The premier objective of signing the formal document with other Academies is to promote joint scientific and technological pursuits by electively involving both the academies. Whereas some of the MoUs are viable, the others are dormant. Very genuinely, therefore in recent years the Council and the General Body, under the leadership of President of the Academy, Prof. Dr. Atta-ur-Rahman, have stressed upon for execution of the MoUs by undertaking the requisite follow up actions in collaboration with various Academies. In the interest of rigorous follow up of the matters, Fellows of the PAS have been designated as Coordinators for various MoUs, as given in Table 2. The Coordinators have been mandated to get materialized the MoUs between the counterpart academies for achieving the stipulated goals, by working jointly (Rashid, 2014).



**Table 2.** The Memoranda of Understanding (MoUs) signed by the Pakistan Academy of Sciences with the Academies of other countries.

S. #	Name of Academy	Date of Signing the MoU	Coordinator
1.	Chinese Academy of Sciences	March 30, 2000	Prof. Dr. M. Iqbal Choudhary
2.	Nigerian Academy of Sciences	March 17, 2004	Prof. Dr. M. Ajmal Khan
3.	Bangladesh Academy of Sciences	April 5, 2002 & April 20, 2005	Prof. Dr. Kauser A. Malik
4.	Indian National Sciences Academy	January 07, 2006	Prof. Dr. G. A. Miana
5.	Khorezm Mamun Academy	July 12, 2006	Prof. Dr. M. Qasim Jan
6.	International Academy of Sciences, Austria	April 11, 2007	Prof. Dr. M. Aslam Baig
7.	International Academy of Sciences, Azerbaijan Section	April 11, 2007	Prof. Dr. Asif Khan
8.	The Academy of Sciences of the Czech Republic	May 10, 2007	Prof. Dr. Khalid M. Khan
9.	The Royal Society of Edinburgh	November 8, 2007	Prof. Dr. N. M. Butt
10.	National Academy of Exact, Physical and Natural Sciences of Argentina	November 20, 2008	Prof. Dr. M. Ashraf
11.	TWAS, the Academy of Sciences for the Developing World	March 10, 2011	Prof. Dr. Tasawar Hayat
12.	Nepal Academy of Science and Technology (NAST)	September 8, 2012	Dr. Anwar Nasim

As stated above, during the period 2011-2013 onward, international collaborations have been pursued vigorously under the leadership of Professor Atta-ur-Rahman. For example, a six-member delegation of the Indian National Science Academy (INSA), led by its President, Dr. Krishan Lal, visited the Pakistan Academy of Sciences on 17–19 January, 2012. In addition to discussing scientific matters of mutual interest, members of the INSA delegation delivered seminars on “Phagocytosis in *Entamoeba histolytica*, Causative Agent of Amoebiasis” at COMSATS Institute of Information Technology, Islamabad; “Playing with the Buckyball” at Quaid-i-Azam University, Islamabad; “Automotive Noise Control- Recent Advances in Muffler Acoustics” at NUST, Islamabad; and “Anthropogenic Interventions in Nitrogen Cycle: Implications for Soil Health & Climate Change” at National Agricultural Research Center (NARC), Islamabad. The President of INSA, Dr. Krishan Lal, himself delivered a Lecture on “Challenges in High Resolution X-ray Diffraction and Reflection” at the PAS Headquarters in Islamabad (Rashid, 2014).



**Figure 21.** The Delegation of Indian National Science Academy (INSA) led by Its President, Dr. Krishan Lal, with members of the Council of the Pakistan Academy of Sciences in Islamabad in January 2012.

A 15-member high-level delegation of the Chinese Academy of Sciences (CAS), led by its President, Professor Chunli Bai, also visited the Pakistan Academy of Sciences during the year 2012, on 15–18 July, 2012. The members of the CAS delegation were mostly Professors with the ranks like Director General, Deputy Director General and Deputy Director. They discussed scientific matters of mutual interest. Also, on July 16, 2012 the Chinese delegation participated in the *1<sup>st</sup> PAS-CAS Bi-National Conference at the Pakistan Academy of Sciences*, at the PAS Headquarters in Islamabad (Rashid, 2014).



**Figure 22.** The Delegation of Chinese Academy of Sciences led by Its President, Professor Chunli Bai, with members of the Council of Pakistan Academy of Sciences in Islamabad in July 2012.

During 2012–2013, the following officers and Fellows of the Academy and other eminent scientists of the country participated in following professional activities in India and China, as agreed upon by virtue of the respective MoUs:

- Dr. Atta-ur-Rahman, Dr. M. Qasim Jan, Dr. G. A. Miana, Dr. Kauser Abdulla Malik, and Dr. M. Iqbal Choudhary in Summit of Science Academies of South Asia, 6-8 September 2012, at INSA, New Delhi, India;
- Dr. Atta-ur-Rahman, Dr. G. A. Miana, Dr. M. Aslam Baig, and Dr. M. Ashraf visited *Chinese Academy of Sciences, Beijing, China* on 8-13 April 2012;
- Dr. Atta ur Rahman, Dr. M. Iqbal Choudhary, Dr. N. M. Butt, Dr. Fazal Ahmad Khalid, Dr. Anwar-ul-Hasan Gilani, Dr. Sohaib Ahmad Khan (of LUMS, Lahore), Dr. S. M. Hasan Zaidi (of NUST, Islamabad) participated in *2<sup>nd</sup> PAS-CAS Bi-National Workshop* held Urumqi, China on 16<sup>th</sup> September 2013 in;
- Dr. Anwar Nasim and Dr. Azra Khanum participated in *Second Summit of South Asian Academies of Sciences* held at the *Indian National Science Academy (INSA)*, New Delhi, India on 24-27 September, 2013.





**Figure 23.** Prof. Dr. Atta-ur-Rahman, President of Pakistan Academy of Sciences and Prof. Chunli Bai, President of Chinese Academy of Sciences exchanging the Executive Protocol in Islamabad in July 2012.



**Figure 24.** The Pakistani Delegation led by President PAS, Prof. Dr. Atta-ur-Rahman, amongst Delegates of the South Asian Academies in New Delhi, India in September 2012.

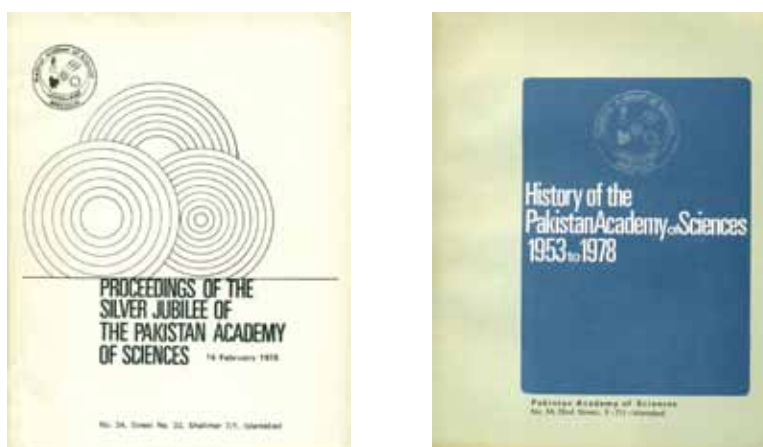


**Figure 25.** The Pakistani Delegation led by President of PAS, Prof. Dr. Atta-ur-Rahman, amongst Participants of 2nd PAS-CAS Workshop held in Urumqi, China on 16-18 September, 2013.



## 7. SILVER JUBILEE CELEBRATION

Exactly after 25 years of its inauguration on 16 February, 1953 in Lahore, Silver Jubilee of the Academy was celebrated in a very befitting manner on 16 February, 1978 in Islamabad. On this occasion, the Academy published and distributed the “*History of the Pakistan Academy of Sciences, 1953 to 1978*”, compiled by the Secretary General of the Academy, Dr. M Raziuddin Siddiqi (Siddiqi, 1978a). The “*History*” documented the Academy’s genesis, organization and development, its national and international activities, its Headquarters, Charter and Finances, the seminars and symposia organized by the Academy, important decisions made during the period, list of publications of the Academy, list of recipients of Academy’s Medals, and biodata of Fellows of the Academy.



**Figure 26.** The Publications of the Academy produced on the occasion of Its Silver Jubilee Celebration in 1978.

The main function of the Jubilee Celebrations, held in the Auditorium of Planning Division of the Government of Pakistan, was inaugurated by the President & Chief Martial Law Administrator (CMLA) of Pakistan, *General Mohammad Zia-ul-Haq*. The invitees for the occasion included Advisors to the CMLA, Governors of Provinces, Ambassadors of foreign countries, Judges of the Supreme Court and the High Courts, Secretaries and Additional Secretaries of the Federal Government, Heads of Scientific and Educational organizations, and Office Bearers of Science Associations and Societies of All-Pakistan Character. The Presidents of Science Academies of Saudi Arabia, USA, USSR, China, UK, France, Federal Republic of Germany, Japan, Nigeria, Indonesia, Iran, Egypt, Bangladesh, Canada, and Australia sent messages and felicitations on the occasion.

An exhibition of scientific books, monographs, reports, and journals published by the Academy and by Fellows of the Academy was organized, which was also visited by the President of Pakistan. The President also conferred Gold Medals of the Academy to the winners who were selected during the years 1974 and 1977. Also, Silver Medallions of the Academy were presented to all the Fellows, Gold Medalists and sponsors of the Silver Jubilee function (Siddiqi, 1978b).



**Figure 27.** President of Pakistan, General Mohammad Zia-ul-Haq, addressing the Participants of Silver Jubilee Function in Islamabad in February 1978.

On the occasion of the Silver Jubilee celebrations, the Academy also arranged a Public Lecture on 17<sup>th</sup> February, 1978 by Dr. Z.A. Hashmi, Fellow of the Academy and Chairman of the Pakistan Science Foundation, on “Ecological Problems of the *Barani* Areas of Pakistan”. Dr. Hashmi was Chairman of the Barani Commission appointed by the Government of the Punjab, and Commission had prepared a comprehensive report on the subject (Siddiqi, 1978b).

A major gain of the Silver Jubilee celebrations was the allotment of a plot and attainment of a grant from the Government of Pakistan for construction of the Headquarters building of the Academy. The then President of the Academy, Ch. Muhammad Afzal, Secretary General of the Academy, Dr. M. Raziuddin Siddiqi, and Federal Education Secretary & Chairman of University Grants Commission, Dr. M.A. Kazi, deserve commendation in this regard.

Subsequent to the Silver Jubilee function, the Academy produced another elaborate publication titled “*Proceedings of the Silver Jubilee of the Pakistan Academy of Sciences, 16 February 1978*”. This publication documented the Proceedings of the Silver Jubilee ceremony, including the Inaugural Address of General Mohammad Zia-ul-Haq (Siddiqi, 1978b).

## 8. PUBLICATIONS OF THE ACADEMY

### 8.1 Proceedings of the Pakistan Academy of Sciences

In 1956, the General Body decided that the *Proceedings and Transactions of the Academy* should be started, to be published twice a year, and the Fellows should communicate their papers to the Secretary of the Academy. It was further decided that the papers of non-Fellows will be communicated by a Fellow, and each paper sent for publication will be sent to a referee of evaluation. Consequently, the official journal of the Academy, i.e., *Proceedings of the Pakistan Academy of Sciences*, is being published regularly since 1964. The Academy has been publishing its official journal, i.e., *Proceedings of the Pakistan Academy of Sciences*, since 1964. Upto 1970, the *Proceedings* of the Academy were published from Dacca. Since 1972 these are being published from Islamabad (Siddiqi, 1978a).

During early years, the Fellows handled the responsibility of Editor of the Academy on honorary basis. In fact, during 1953 to 1959, in accordance with a provision in the Constitution, the then Secretary of the Academy, Dr. M. Raziuddin Siddiqi, also worked as Editor of the Academy. Thereafter, Dr. Afzal H. Qadri was elected as Editor at the Annual General Body Meeting held at Karachi in 1959, and re-elected at Dacca in 1961. After that Dr. M.H. Khundkar was elected at Lahore in 1963, and re-elected in 1967 and then again in 1969. Then, in 1972 Dr. M.M. Qurashi was appointed as Editor by the Council and endorsed by the General Body at Karachi (Siddiqi, 1978a). All Editors of the Academy, from 1953 to 2013, are listed at Annexure-VII. Dr. M.M. Qurashi was the longest serving Editor, from 1971 to 1995, and that too on honorary basis.

Initially, the Editor used to be elected by Fellows of the Academy. Dr. M.M. Qurashi was the first Editor appointed by Council of the Academy in 1971. From 1985 to 1999, Editor of the Academy used to be an ex-officio member of the Council. However, in 1999, when Dr. M. Arslan was appointed as the first-ever salaried Editor, this arrangement was discontinued.



**Figure 28.** Some Salient Title Pages of the *Proceedings of the Pakistan Academy of Sciences*, published during 1964–2013.

During 1964 to 1974, the *Proceedings* used to be a biannual publication. Since 2005, this international journal is published quarterly. It publishes original research papers and reviews in all areas of science, i.e., Engineering Sciences, Life Sciences, Medical Sciences, and Physical Sciences. Authors are not required to be Fellows of the Academy or citizens of Pakistan. The affairs of the *Proceedings* are managed by an Editorial Board, comprising of four Editors, i.e., one each for Engineering Sciences, Life Sciences, Medical Sciences, and

Physical Sciences, who are Fellows of the Academy. Also, the Editorial Advisory Board of the journal comprises of 24 eminent scientists, 12 each from Pakistan and scientifically advanced countries of the world. The journal is abstracted and indexed by the leading Journal Abstracting and Indexing Services.

The journal of the Academy is duly recognized by the Higher Education Commission (HEC). Initially, this journal was recognized in category Z; and in March 2009, the recognition of the journal was upgraded to category X (the highest non-impact factor category). The journal is also recognized Pakistan Medical and Dental Council (PMDC). Since its recognition, the publication of the journal is financially support by HEC. The SJR (SCImago Journal & Country Rank) indicator shows a significant increase in citation of its articles since 2010 <http://www.scimagojr.com/journalsearch.php?q=17700155803&tip=sid&clean=0>. The SJR indicator is computed by the same formula as of Journal Impact Factor (Thomas Reuters).

Since 2012, the journal is freely accessible on website of the PAS (available at [www.paspk.org](http://www.paspk.org)). Hard copies of the journal are provided to the Fellows and the key stakeholders in the country, i.e., scientific institutions, University Libraries, etc.

## 8.2 Publications of Monographs

In 1964, the General Body decided that “the Academy should publish monographs on research topics written by the Fellows and other scientists” (Siddiqi, 1978a). Subsequently, the following monographs were published upto 1978:

- 1) Ahmad, Nazir (1972) *Survey of Fuels and Electric Power Resources in Pakistan*. Pakistan Academy of Sciences.
- 2) Afzal, Muhammad (1975) *Farming in Pakistan*. Pakistan Academy of Sciences, Islamabad, 277 pp.
- 3) Qurashi, M.M. (1978) *The Mechanics of R&D and Technology Transfer*. Pakistan Academy of Sciences, Islamabad, Pakistan, 127 pp.
- 4) Qurashi, M.M., Karimullah, M. Aslam, A.H. Chotani, and S.M. Moghni (1981) *Appropriate Technology & Development (with special reference to Pakistan)*. Appropriate Technology Development Organization, Government of Pakistan, in collaboration with Pakistan Academy of Sciences & Pakistan Banking Council, 430 pp.
- 5) Butt, N.M., and K. Yaldrum (Eds.) (2009) *The Excitement of Science: Reflections of Some Eminent Pakistani Scientists on Why They Chose Science as a Career*. Pakistan Academy of Sciences, Islamabad, 145 pp.

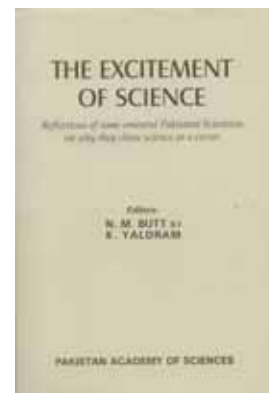
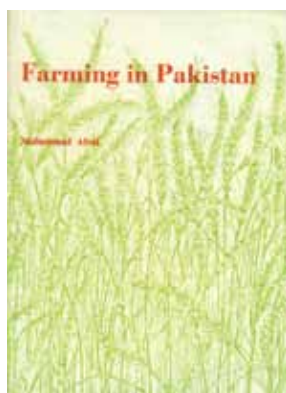


Figure 29. Some Salient Monographs produced by the Academy.



### 8.3 Year Book of the Pakistan Academy of Sciences

The Academy has been publishing its Year Book for documenting the Charter, Bye-Laws, Publications and salient activities, such as Lectures by eminent scientists, Gold Medals & Prizes, International Scientific Collaborations and Profiles of Fellows and Foreign Fellows, and listing of its Members and the deceased Fellows and Foreign Fellows.

The first-ever Year Book of the Academy was published in 1992 when Prof. Dr. M.D. Shami was President and Dr. M.M. Qureshi was Secretary General of the Academy. This edition of the Year Book documented Brief History of the Academy and its Charter, Past Presidents and Secretaries General, Current Council, the Fellowship (i.e., Fellows, Members and Foreign Members), Deceased Fellows, Highlights of the Activities during 1988–1990, Editorial Board and Publications. The next edition of the Year Book was published in 1996 when Dr. Amir Muhammed was President and Dr. M.D. Shami was Secretary General.



**Figure 30.** Some Salient Year Books of the Academy, published since 1992.

During the past 60-year period, the Academy has published the following editions of its Year Book:

1. Anonymous (1992) *Year Book of Pakistan Academy of Sciences* (1992). Pakistan Academy of Sciences, Islamabad, Pakistan, 44 pp.
2. Anonymous (1996) *Year Book of Pakistan Academy of Sciences* (1992). Pakistan Academy of Sciences, Islamabad, Pakistan, 56 pp.
3. Hafeez, M.A. (Ed.) (2002) *Year Book of the Pakistan Academy of Sciences 2002*. Pakistan Academy of Sciences, Islamabad, 79 pp.
4. Hafeez, M.A. (Ed.) (2003) *Year Book of the Pakistan Academy of Sciences 2003*. Pakistan Academy of Sciences, Islamabad, 87 pp.
5. Hafeez, M.A. (Ed.) (2006) *Year Book of Pakistan Academy of Sciences, 2004–2005*. Pakistan Academy of Sciences, Islamabad, 88 pp.
6. Hafeez, M.A. (Ed.) (2008) *Year Book of Pakistan Academy of Sciences 2006–2007*. Pakistan Academy of Sciences, Islamabad, 106 pp.
7. Hafeez, M.A. (Ed.) (2010) *Year Book of Pakistan Academy of Sciences 2008–2009*. Pakistan Academy of Sciences, Islamabad, 103 pp.



8. Subhan-ud-din (Ed.) (2012) *Year Book of Pakistan Academy of Sciences, 2010-2011*. Pakistan Academy of Sciences, Islamabad, 116 pp.
9. Rashid, Abdul (Ed.) (2014) *Year Book of Pakistan Academy of Sciences, 2012-2013*. Pakistan Academy of Sciences, Islamabad, 122 pp.

Whereas the 1992 to 2003 editions of the Year Book were published at variable time intervals, since 2006 the Year Book is being published regularly after every two years. The initial two editions of the Year Book comprised of text information only, without any photographs. The 2002 Year Book included “Some Historical Glimpses” (i.e., photographs, etc.) for the first time. Since 2002, Signature impressions of the Fellows, Charter and Bye-Laws of the Academy, and Profiles of Fellows and Foreign Fellows with their color photographs, were also included in the 2002 Year Book. The 2003, 2004–2005, 2006–2007, 2008–2009 and 2010–2011 editions of the Year Book were similar to the 2002 version in content as well as in appearance. The 2012–2013 Year Book was also similar, but did not include Bye-Laws.

The latest Year Book is accessible on website of the Academy, i.e., [www.paspk.org](http://www.paspk.org)

#### 8.4. Newsletter of the Academy

The PAS publishes a Newsletter for dissemination of information regarding professional activities of the Academy and of its Fellows and Foreign Fellows. The Newsletter is a quarterly publication since 2004, and is distributed to the Fellows and the stakeholders in S&T, i.e., research organizations, Universities, Ministries, etc. Also, the Newsletter is freely accessible on website of the Academy, i.e., [www.paspk.org](http://www.paspk.org).

The following title page images of the Newsletter depict its progressive improvement over the years.



**Figure 31.** Front Pages of Some Salient Newsletters of the Academy, published over the Years.

## 9. WEBSITE OF THE ACADEMY

Till 2011, the official website of the Academy, [www.paspk.org](http://www.paspk.org), comprised of only a limited features. In addition to giving an Introduction to the Academy and stating its Aims and Objectives, the website had listed composition of the current Council of the Academy and given Profiles of the Fellows. The past office bearers of the Academy and Foreign Fellows were listed; and the Muslim Scientific Heritage was narrated.

As the website looked primitive with much less than desired features, Council of the Academy decided to improve upon the website. Thus, in 2012 the new website of the Academy was developed (with the same address, i.e., [www.paspk.org](http://www.paspk.org), but much better outlook) with the following additional features:

1. News as well as recent activities of the Academy, with color pictures;
2. Online accessibility of Academy's Journal, i.e., *Proceedings of the Pakistan Academy of Sciences*. Whereas full text journal articles are accessible since the year 2006, CONTENTS of the Journal issues are available on the website since the year 1997. Also, *Instructions for Authors* are available online. Each issue of the journal is uploaded on the website immediately after publication; and the authors and Editorial Board as well as Fellows and Foreign Fellows of the Academy are provided web link of the new issue, immediately thereafter.
3. The latest *Year Book* of the Academy is also accessible on website of the Academy;
4. Special publications, like the Energy Report of 2012 and Biotechnology Report of 2014 are also accessible full text.
5. The quarterly *Newsletter of the Academy* is also accessible on the website. Similar to the journal of the Academy, previous issues of the Newsletter, since 2006, are available on the website.
6. A listing of all other *Publications of the Academy* is accessible on the website.
7. The new website has Profiles of all the Fellows and Foreign Fellows of the Academy. A listing of *Deceased Fellows* and *Deceased Foreign Fellows* is also available; and names and affiliation of *Members of the Academy* are also accessible.
8. It provides information on *Criteria, regarding Academy's Gold Medals and Prizes. Nomination Forms* are also available.
9. Information regarding Academy's *Research Grants, Travel Grants, and Funding Support for Organizing Conferences* by Fellows of the Academy is also available on the website.



## 10. REFERENCES CITED

- Ahmad, Bashir (1953) Opening Address, In: *Inauguration and Constitution – Pakistan Academy of Sciences*, Lahore, 16<sup>th</sup> February, 1953, p. 6–9.
- Anonymous (undated) *Pakistan Academy of Sciences*. Pakistan Academy of Sciences, University of Islamabad, Islamabad, 19 pp.
- Anonymous (1953) *Pakistan Academy of Sciences: Inauguration and Constitution, Lahore, 16<sup>th</sup> February, 1953*. 37 pp.
- Anonymous (1992) Year Book, 1992. Pakistan Academy of Sciences, 3 Constitution Avenue, Islamabad, 44 pp.
- Anonymous (1997) *Pakistan Academy of Sciences*. Pakistan Academy of Sciences, 3 Constitution Avenue, Islamabad, 31 pp.
- Khan, Shafiq Ahmad and M.M. Qurashi (2011) Historical variations in specialized subjects of elected Fellows of the Pakistan Academy of Sciences. *Proceedings of the Pakistan Academy of Sciences* 48 (4): 251–260.
- PAS (1979) *Pakistan Academy of Sciences Headquarters Building at Constitution Avenue, Islamabad: Perspective View*. Pakistan Academy of Sciences, Islamabad.
- Rashid, Abdul (Ed.) (2014) *Pakistan Academy of Sciences, Year Book, 2012–2013*. Pakistan Academy of Sciences, Islamabad, 122 pp.
- Siddiqi, M. Raziuddin (1953) Introduction, In: *Inauguration and Constitution – Pakistan Academy of Sciences*, Lahore, 16<sup>th</sup> February, 1953, p. 3–5.
- Siddiqi, M. Raziuddin (1965) *Proceedings of the Scientists Meeting*, Saidu Sharif, Swat, August 1965. President's Secretariat, Scientific & Technological Research Division, Rawalpindi, 57 pp.
- Siddiqi, M. Raziuddin (1978a) *History of the Pakistan Academy of Sciences, 1953 to 1978*. Pakistan Academy of Sciences, Islamabad, Pakistan, 139 pp.
- Siddiqi, M. Raziuddin (1978b) *Proceedings of the Silver Jubilee of the Pakistan Academy of Sciences, 16 February 1978*. Pakistan Academy of Sciences, Islamabad, 50 pp.





---

# Annexures

---



## Annexure-I. Total Elected (plus Founding) Fellows of the Pakistan Academy of Sciences, during 1953–2013.

Sr. No.	Name	Year of Birth-Death	Age at Election	Age at Death	Subject of Specialization
<b>1953 (Founding Fellows)</b>					
1	Prof. M. Afzal Hussain	1889-1970	64	81	Zoology
2	Prof. Dr. Nazir Ahmad	1898-1973	55	75	Physics
3	Prof. Dr. Bashir Ahmad	1902-1957	51	55	Biochemistry
4	Prof. Dr. Salimuzzaman Siddiqui	1897-1994	56	97	Chemistry
5	Prof. Dr. M. Raziuddin Siddiqi	1905-1998	45	93	Physics
6	Prof. Dr. M. Sharif	1899-1965	54	66	Zoology
7	Prof. Dr. M. Qudrat-e-Khuda	1900- 1977	53	77	Chemistry
8	Prof. Dr. Hamid Khan Bhatti	1895-1980	58	85	Zoology
9	Prof. Dr. M. Ishaque	1902-1960	51	58	Physics
<b>1954</b>					
10	Ch. Muhammad Afzal	1902-1991	52	89	Agriculture
11	Prof. Dr. Abdus Salam	1926-1996	28	70	Physics/ Mathematics
12	Prof. Dr. M. O. Ghani	1912-1989	42	77	Chemistry
13	Dr. Taskhir Ahmad	1905-1991	49	86	Botany
14	Dr. M. Abdussalam	1913 --- N.K.	41	---	Vet Sciences
<b>1956</b>					
15	Dr. Karimullah	1903-1998	53	95	Chemistry
16	Col. M. K. Afridi	1900-1968	56	68	Medical Sciences
17	Dr. S. Hedayatullah	1905 ---	51	---	N.K.
18	Prof. Dr. M. Afzal Hussain Qadri	1912-1974	44	62	Zoology
19	Prof. Dr. Qazi Motahair Hussain	1897-1981	60	84	Statistics
<b>1957</b>					
20	Dr. Qazi M. Aslam	1900-1981	57	81	Psychology
21	Prof. Dr. Rafat Hussain Siddiqui	N.K.	---	N.K.	Chemistry
<b>1958</b>					
22	Dr. Nazir Ahmad	1910-1985	48	75	Zoology/ Fisheries
<b>1959</b>					
23	Prof. Dr. Mukarram Hussain	1922-1972	37	50	Chemistry
24	Prof. Dr. M. Ziauddin	N.K.	N.K.	N.K.	Statistics
25	Dr. Atiqur Rehman Ansari	1911-1979	48	68	N.K.
26	Prof. Dr. M. Annas Ali	---	---	---	Physics
<b>1960</b>					
27	Prof. Dr. Kamal-ud-Din Ahmad	1923 ---	37	---	Chemistry



Sr. No.	Name	Year of Birth-Death	Age at Election	Age at Death	Subject of Specialization
<b>1961</b>					
28	Prof. Dr. Qazi Saeed-ud-Din Ahmad	1904-1970	57	66	Geography
<b>1964</b>					
29	Dr. A. G. Asghar	1902-1979	62	77	Chemistry
30	Prof. Dr. S.D. Chowdri	1922 ---	42		N.K.
31	Dr. M.M. Qurashi	1925-2011	39	86	Physics
<b>1966</b>					
32	Prof. Dr. M. A. Azim	1910-1987	56	73	Chemistry
<b>1967</b>					
33	Dr. Amir-ul-Islam	N.K.	N.K.	N.K.	N.K.
34	Prof. Dr. M. I. D. Chughtai	1919-2006	48	87	Biochemistry
35	Dr. M.A. Ghani	1915 -2000	52	85	Agriculture
36	Dr. Ghulamullah Chaudhry	1913-1990	54	77	N.K.
<b>1968</b>					
37	Prof. Majeed Ahmad	1916-1981	52	65	Botany
38	Prof. Dr. Rafi Muhammad Chaudhry	1903-1988	65	85	Physics
39	Prof. Dr. Badruddin	1911-1983	57	72	Chemistry
40	Dr. Nazir Ahmad	1910-2000	58	70	Engineering (Irrigation)
41	Prof. Dr. Mofizuddin Ahmed	1918 ---	50		Physics
<b>1970</b>					
42	Prof. Dr. Muzaffar Ahmad	1920 ---	50		Zoology
43	Dr. S. A. Warsi	1916-1983	54	67	Chemistry
44	Dr. S. M. A. Haque	N.K.	---	N.K.	Chemistry
45	Dr. Nurul Islam	N.K.	---	N.K.	Chemistry
<b>1971</b>					
46	Prof. Dr. Shafqat Hussain Siddiqui	1922-1985	49	63	Chemistry
47	Dr. Ahmad Kamal	1914-1975	57	61	Chemistry
<b>1972</b>					
48	Dr. M. A. Kazi	1928-1999	44	71	Chemistry
49	Dr. Z. A. Hashmi	1914-1990	58	76	Biology
50	Prof. Dr. Kh. Salahuddin	1912-1974	60	62	Chemical Engineering
51	Dr. M. Aslam Khan	1926-1998	46	72	Physics
52	Dr. M. K. Bhatti	1929-1990	43	61	Chemistry
<b>1973</b>					
53	Dr. Manzur-ul-Haque Hashmi	1928 ---	45		Chemistry
54	Lt. Col. Dr. M. H. Shah	1902-1979	71	77	Medical Sciences



Sr. No.	Name	Year of Birth-Death	Age at Election	Age at Death	Subject of Specialization
<b>1974</b>					
55	Mr. M. Aslam	1924 ---	50		Chemical Engineering
56	Prof. Dr. Sultan Ahmad	1911-1984	63	73	Botany
57	Prof. Dr. Q. K. Ghori	1932-2009	42	77	Mathematics
58	Prof. Dr. Ahmad Mohiuddin	1923-1998	51	75	Zoology
59	Dr. Riaz Ali Shah	1924---	50		Chemistry
<b>1976</b>					
60	Dr. Yousaf Ahmad	1928-2008	48	80	Chemistry
61	Dr. Riazuddin	1930 - 2013	39	83	Mathematics
62	Dr. S. Marghoob Ali	1927-1980	49	53	Chemistry
63	Mr. A. H. Chotani	1923-2004	53	81	Chemical Engineering
<b>1977</b>					
64	Prof. Dr. Fayyazuddin	1930 --	46		Physics
65	Prof. Dr. A. G. Kausar	1923-1980	54	57	Agriculture
66	Mr. Tajamul H. Hashmi	1923 ---	54		Engineering
67	Dr. M. Saleh Quraishy	1909-1981	68	72	N.K.
68	Dr. G. M. Khattak	1924 - 2012	53	88	Botany
<b>1978</b>					
69	Dr. Fazal Ahmad Farooqui	1927-2010	51	83	Chemistry
70	Dr. Heshamul Haque	1928-1994	50	66	Agriculture
<b>1979</b>					
71	Prof. Dr. K. M. Ibne Rasa	1926 ---	53		Chemistry
72	Dr. Amir Muhammed	1930 ---	49		Biochemistry
<b>1980</b>					
73	Dr. S. Mahdi Hassan	1892-1992	88	100	Biology
74	Dr. M. Ataur Rehman	1929 ---	51		Biochemistry
75	Prof. Dr. Mrs. Nasima Tirmazi	1933-2005	47	72	Zoology
<b>1982</b>					
76	Prof. Dr. M. D. Shami	1930 ---	52		Chemical Engineering
77	Prof. Dr. Atta-ur-Rahman	1942 ---	40		Chemistry
78	Prof. Dr. Syed Irtifiq Ali	1930 ---	52		Botany
<b>1983</b>					
79	Dr. Ishfaq Ahmad	1930 ---	53		Physics
80	Maj. Gen. Dr. M. I. Burney	1922-2008	61	86	Medical Sciences
81	Prof. Dr. R. A. K. Tahir Kheli	1928 ---	55		Earth Sciences
82	Dr. F. H. Shah	1931-1994	53	63	Biochemistry



Sr. No.	Name	Year of Birth-Death	Age at Election	Age at Death	Subject of Specialization
<b>1987</b>					
83	Dr. Naeem Ahmad Khan	1928 - 2013	58	85	Physics
84	Dr. Mahbub Ali	1923 ---	65		Agriculture
<b>1988</b>					
85	Dr. A. Q. Khan	1936 ---	52		Engineering
86	Dr. N. M. Butt	1936 ---	52		Physics
<b>1989</b>					
87	Prof. Dr. Rafiq Ahmad	1927 ---	62		Botany
88	Dr. Abdul Hafiz	1915-2001	74	86	Agriculture
89	Dr. M. S. Bokhari	1928-1990	61	62	Physics
90	Dr. Shafiq Ahmad Khan	1935 - 2013	54	78	Chemistry
91	Maj. Gen. Dr. Iftikhar Malik	1936-2008	54	72	Medical Sciences
<b>1990</b>					
92	Prof. Dr. Imtiaz Ahmad	1941---	49		Zoology
93	Dr. Hameed Ahmed Khan	1942 ---	48		Physics
94	Prof. Dr. M. Zafar Iqbal	1942 ---	48		Chemistry
95	Prof. Dr. M. Qasim Jan	1944 ---	46		Earth Sciences
<b>1991</b>					
96	Prof. Dr. Viqaruddin Ahmad	1940 ---	51		Chemistry
97	Dr. Mushtaq Ahmad	1910-1992	80	82	Biochemistry
98	Prof. Dr. N.M. Awan	1942-1994	49	53	Engineering
99	Prof. Dr. Ghulam Murtaza	1939 ---	52		Physics
100	Hakeem Muhammad Said	1920-1998	71	78	Medical Sciences
101	Prof. Dr. Abdul Rauf Shakoori	1942 ---	49		Zoology
<b>1992</b>					
102	Dr. M. Arshad M. Khan	1938 ---	54		Physics
103	Dr. Agha Ikram Mohyuddin	1932	60		Agriculture
104	Prof. Dr. Asghar Qadir	1942 ---	46		Mathematics
105	Prof. Dr. Abdul Ghaffar	1932 ---	60		Botany
<b>1993</b>					
106	Prof. Dr. M. Arslan	1936 ---	58		Zoology
<b>1994</b>					
107	Dr. Khushnood Ahmad Siddiqui	1937-2009	57	72	Botany
108	Dr. Iqbal Hussain Qureshi	1936 – 2012	58	76	Chemistry
109	Prof. Dr. M. Maqsood	1923 -2007	71	84	Vet. Sciences
<b>1995</b>					
110	Dr. Kauser Abdulla Malik	1945 ---	50		Biology
111	Dr. Muhammad Anwar Waqar	1941-2010	54	69	Biochemistry





Sr. No.	Name	Year of Birth-Death	Age at Election	Age at Death	Subject of Specialization
112	Prof. Dr. M. Suhail Zubairy	1952 ---	43		Physics
113	Prof. Dr. Zafar H. Zaidi	1939–2001	56	62	Chemistry
<b>1996</b>					
114	Dr. Anwar-ul-Haq	1947 ---	49		Engineering
115	Prof. Dr. M. Aslam Baig	1950 ---	46		Physics
116	Dr. Nasir-ud-Din	1937 ---	59		Biochemistry
<b>1997</b>					
117	Prof. Dr. Muhammad Zakaria Butt	1949 ---	52		Physics
118	Dr. Ijaz Haider	1941 ---	56		Medical Sciences
119	Prof. Dr. Sheikh Riazuddin	1944 ---	53		Biology
120	Prof. Dr. Bina Shaheen Siddiqui	1948 ---	49		Chemistry
121	Prof. Dr. Abdul Raouf	1929 ---	62		Engineering
<b>1998</b>					
122	Prof. Dr. M. Waheed Akhtar	1944 ---	54		Biochemistry
123	Prof. Dr. Saleem Asghar	1947 ---	51		Mathematics
124	Prof. Dr. M. Zafar Iqbal	1949 ---	49		Physics
125	Prof. Dr. Ghulam Abbas Miana	1939 ---	59		Chemistry
<b>1999</b>					
126	Dr. Syed Qasim Mehdi	1941---	58		Bio-Technology
127	Lt. Gen. (Rtd) Dr. Muhammad Saleem	1937 ---	62		Medical Sciences
128	Prof. Dr. M.A. Hafeez	1937-2010	62	73	Biology
129	Dr. Nisar Ahmad	1942 ---	57		Physics
<b>2000</b>					
130	Dr. S. Moosa Hasany	1942-2007	58	65	Chemistry
131	Prof. Dr. Muhammad Ashraf	1953 ---	47		Botany
132	Prof. Dr. Khalid Mahmood Khan	1941 ---	61		Biochemistry
133	Dr. Abdus Sattar	1941-2001	59	60	Agriculture
<b>2001</b>					
134	Prof. Dr. Muhammad Salim Akhter	1936 ---	65		Medical Sciences
135	Dr. Mashooda Hassan	1939 ---	62		Chemistry
136	Prof. Dr. Muhammad Ajmal Khan	1953 ---	48		Botany
<b>2002</b>					
137	Prof. Dr. Kamal-ud-Din Ahmad	1939 ---	63		Physics
138	Dr. Anwar-ul-Hassan Gilani	1955 ---	47		Vet. Sciences
139	Prof. Dr. M. Perwaiz Iqbal	1942 ---	60		Biochemistry
140	Dr. Shaukat Hameed Khan	1941 ---	61		Physics



Sr. No.	Name	Year of Birth-Death	Age at Election	Age at Death	Subject of Specialization
<b>2003</b>					
141	Prof. Dr. Muhammad Iqbal Choudhary	1959 ---	44		Chemistry
142	Dr. Samar Mubarakmand	1942 ---	61		Physics
143	Prof. Dr. Shahzad A. Mufti	1942 ---	61		Zoology
144	Prof. Dr. Riaz H. Qureshi	1943 ---	60		Agriculture
<b>2004</b>					
145	Prof. Dr. Muhammad Qaisar	1946 ---	58		Botany
146	Prof. Dr. Zulfiqar A. Bhutta	1955 ---	49		Medical Sciences
<b>2005</b>					
147	Prof. Dr. Mustafa Shameel	1941 ---	64		Biology
148	Prof. Dr. Azra Khanum	1949 ---	56		Biochemistry
149	Dr. Ahmad Mukhtar Khalid	1942 ---	63		Biotechnology
150	Prof. Dr. M. Nawaz Chaudhry	1942 ---	63		Earth Sciences
<b>2006</b>					
151	Prof. Dr. Muhammad Ashfaq	1952 ---	54		Agriculture
152	Prof. Dr. Ikram-ul-Haq	1952 ---	54		Biotechnology
153	Dr. Tasawar Hayat	1969 ---	37		Mathematics
154	Prof. Dr. Rabia Hussain	1946 ---	60		Biology
<b>2007</b>					
155	Dr. Anwar Nasim	1935 ---	72		Biotechnology
156	Prof. Dr. Fazal Ahmad Khalid	1957 ---	50		Engineering
157	Prof. Dr. Muhammad Luqman	1950 ---	57		Medical Sciences
158	Prof. Dr. Iqbal Ahmad Khan	1953 ---	54		Agriculture
159	Prof. Dr. Sheikh Arshad Saeed	1939-2009	68	70	Medical Sciences
<b>2008</b>					
160	Prof. Dr. Ismat Beg	1951 ---	57		Mathematics
161	Prof. Dr. Muhammad Aslam Khan	1945 ---	63		Physics
162	Dr. Zabta Khan Shinwari	1959 ---	49		Botany
<b>2009</b>					
163	Prof. Dr. M. Asif Khan	1954 ---	55		Geology
164	Prof. Dr. Raheel Qamar	1962 ---	47		Biology
<b>2010</b>					
165	Prof. Dr. Wasim Ahmad	1957 ---	53		Biochemistry
166	Prof. Dr. Khalid Mohammed Khan	1960 ---	50		Chemistry
167	Prof. Dr. Asghari Maqsood	1947 ---	63		Physics
168	Prof. Dr. Muhammad Sharif	1962 ---	48		Mathematics



Sr. No.	Name	Year of Birth-Death	Age at Election	Age at Death	Subject of Specialization
<b>2011</b>					
169	Dr. Muhammad Iqbal	1958 ---	47		Botany
170	Dr. Rumina Hasan	1955 ---	56		Medical Sciences
<b>2012</b>					
171	Dr. Masoom Yasinza	1958 ---	54		Biochemistry
172	Dr. Farhat Abbas	1960 ---	52		Medical Sciences
173	Dr. M. Akram Sheikh	1943 ---	69		Engineering
174	Dr. Saqib Ali	1954 ---	58		Chemistry
175	Dr. Hamid Saleem	1954 ---	58		Physics
<b>2013</b>					
176	Dr. Amin Badshah	1960 ---	53		Chemistry
177	Dr. Darakhshan Jabeen Haleem	1952 ---	61		Biochemistry
178	Dr. Abdul Rashid	1950 ---	63		Agriculture

N.K.: Not Known

**Source:** Adapted from Khan and Qurashi (2011).



## Annexure-II. The Government of Pakistan Order conferring Advisory Status to the Academy.

No. D-1438-SE&SR/62  
Government of Pakistan,  
Ministry of Education,  
Rawalpindi  
4<sup>th</sup> May, 1962

From:  
S.M. Sharif Esq.  
Secretary to the Government of Pakistan

To:  
Dr. M. Raziuddin Siddiqi  
President, Pakistan Academy of  
Sciences, c/o Sind University,  
Hyderabad

Sir,

I am directed to state that the Government of Pakistan has been giving the Pakistan Academy of Sciences an annual grant with effect from 1953–54 in recognition of the role of the Academy as the *consultative agency* to the Ministry of Education and Scientific Research on all problems relating to the development of scientific effort in the country.

2. Constituted as your Academy is of eminent scientists who have won recognition for their outstanding contribution to the advancement of science and promotion of research, Government expects the Academy to advise generally on such matters of national and international importance in the field of science as may be referred to the Academy.
3. Your Academy, inter-alia, lists the following programmes of work:
  - (i) Publication of Proceedings, journals, memoirs, monographs, transactions and other literature of original nature in the various sciences.
  - (ii) Award of grants, scholarships, fellowships, prizes and medals for scientific research.
  - (iii) Establishment and maintenance of libraries, laboratories, museums and research institutes for different branches of sciences.
  - (iv) Cooperation and liaison with other academies, learned bodies and scientific organizations and institutions with-in the country and outside.

I am to request that the Ministry may be kept informed from time to time of your publications and other activities.

4. It is understood that your Academy has set up its own office and library, and will soon be expanding its construction programme.

5. In conclusion, I am to express the hope that, in addition to the grant paid to the Academy annually, your Academy would be able to raise funds from other sources to enable you to carry out the activities and perform the functions mentioned in the aims and objects of the Academy.

I have etc.,

**S.M. SHARIF**





### Annexure-III. Profiles of Founding Fellows of the Academy, till 1953.



#### Prof. M. Afzal Hussain

Chairman

Pakistan Public Service Commission

Karachi

**Date and Place of Birth:** 1889; Batala, Punjab, British India

#### Education:

M.Sc. (Zoology), University of the Punjab, 1913; B.Sc., University of the Punjab, 1911; Foundation Scholar and Bachelor Scholar, Christ's College, Cambridge, London, 1914; Natural Science Tripos, Cambridge University, 1916; Research Work in Cambridge, London and Manchester, 1916–19.

#### Positions Held:

- Chairman, Pakistan Public Service Commission, 1948–53;
- Member and Chairman, Punjab and NWFP Public Service Commission, British India/Pakistan 1945–48;
- Vice Chancellor, University of the Punjab, Lahore, British India, 1938–44;
- Principal, Punjab Agricultural College, Lyallpur, 1933–38;
- Imperial Entomologist, Imperial Agricultural Research Institute, 1930–33;
- Entomologist, Punjab Government and Professor of Entomology, Punjab Agricultural College, Lyallpur, 1919–30;
- Entomologist, Imperial Agricultural Research Institute, Pusa, British India, 1919;
- Demonstrator in Zoology, Cambridge University, England.

#### Honors and Awards:

- Charles Darwin Prize, Christ's College, Cambridge;
- Frank Smart Prize for Zoology, Cambridge University;
- Member, Pakistan Government Economy Appraisal and Development Committee, 1952–53;
- General President, Indian Science Congress, 1946;
- Member, Indian National War Memorial Committee, 1945;
- Member, Famine Enquiry Commission, Government of Bengal, British India, 1944–45;
- Member, Advisory Board, Imperial Council of Agricultural Research;
- Member, Central Advisory Board of Education, Government of India.

#### Fellowships/Memberships:

- Fellow, National Academy of Sciences of India;
- Fellow, Entomological Society, British India;
- Founding Fellow and Member of Council, National Institute of Sciences of India; President, Philosophical Society, Lahore, British India, 1943–44;
- General President, Pakistan Association for the Advancement of Science, 1949;
- President, Pakistan Academy of Sciences, 1953–.

**Research Area:** Zoology/Entomology

**Source:** Anonymous (1953) *Pakistan Academy of Sciences: Inauguration and Constitution*, Lahore, 16<sup>th</sup> February, 1953, 37 pp.



## Prof. Dr. Nazir Ahmad

Chairman  
Tariff Commission  
Government of Pakistan  
Karachi

**Date and Place of Birth:** 1<sup>st</sup> May, 1888; Lahore, Punjab, British India

### Education:

Ph.D. and M.Sc., Peterhouse, Cambridge, 1920–25; Government College, Lahore, British India, 1918–19; M.A.O. Aligarh, British India, 1914–18.

### Positions Held:

- Chairman, Pakistan Tariff Commission, 1950–;
- Vice President, Pakistan Central Cotton Committee, 1948–50;
- Secretary, Pakistan Development Board and Pakistan Planning Advisory Board, 1947;
- Member, Council of Scientific and Industrial Research and its Governing Body, 1953;
- Chairman, Committee for Organization of Scientific and Industrial Research, Pakistan 1947;
- Member, Indian Tariff Board, 1945–47;
- Dean, Faculty of Technology, Bombay University, British India;
- Chairman, Applied Physics Committee, Council of Scientific and Industrial Research;
- Chairman, Rayon Panel – for preparing a plan for development of the industry, Government of India;
- Director of the Technological Laboratory, Indian Central Cotton Committee, Bombay, British India, 1930–45;
- Head of the Science Department, Islamia College, Lahore, Punjab, British India.

### Honors and Awards:

- General President of the Pakistan Science Conference, 1950;
- Elected President of Physics Section of Pakistan Science Conference, 1949;
- Member of the Senate and Syndicate, University of Karachi, 1952;
- Member of the Scientific Delegation to UK in 1944 and USA in 1945;
- Trustee, Victoria Jubilee Institute, British India;
- Trustee, Saboo Siddick Technical Institute, British India;
- Member, National Planning Committee, British India;
- Secretary of the Sub-Committee on Manufacturing Industries, National Planning Commission;
- Member and Chairman, Advisory Board of the Royal Institute of Science, Bombay, British India;
- Member and Chairman, The National Planning Committee for British India;
- Member and Chairman, The Provincial Industrial Research Council of Bombay, British India;
- Elected Vice President of the Indian Physical Society, British India;
- President of the Agriculture Section of the Indian Science Congress, British India;
- Represented Pakistan in various international conferences and was nominated on several committees by Government of Pakistan;
- Leader of the Pakistan Delegation to the meeting of International Cotton Advisory Committee in Brussels, Belgium in 1949, in Lahore in 1951, and in Rome in 1952;
- Leader of the Pakistan Delegation to Bahuio Conference in Philippines, 1950.

### Fellowships/Memberships:

- President, Pakistan Academy of Sciences, 1956–61;
- Fellow, Institute of Physics, England;
- Fellow, Indian Academy of Sciences;
- Fellow, University of Bombay, British India;
- Fellow of University of the Punjab, British India;
- Member, Provincial Research Board, Punjab;
- Member, Imperial Council of Agriculture Research, British India;
- Member, Council of Scientific and Industrial Research, British India;

### Research Area: Physics

**Source:** Anonymous (1953) *Pakistan Academy of Sciences: Inauguration and Constitution*, Lahore, 16<sup>th</sup> February, 1953, 37 pp.



## Prof. Dr. Bashir Ahmad

Vice Chancellor  
University of the Punjab  
Lahore

**Date and Place of Birth:** 24<sup>th</sup> June, 1902; Jullundur, British India

### Education:

B.Sc. (Honours in Chemistry), University of the Punjab, 1923 (First Division First in the University); M.Sc. University of the Punjab, 1925; Ph.D., University of London, 1931; Research Work, Zurich and Berlin Universities, 1931–32; Research Work, John Hopkins University, Baltimore, USA, 1937–38; Research Work, Cambridge University, Great Britain, 1938–39; Special advanced courses in Biochemistry, Physiology, Bacteriology, Immunology, Nutrition, Physiological Hygiene, Food and Drug Analysis at the Universities of London (1929–31) and John Hopkins, Baltimore (1937–38).

### Positions Held:

- Vice Chancellor, University of the Punjab, Lahore, 1952–;
- Director, Institute of Chemistry, University of the Punjab, Lahore, 1947–52;
- Assistant Director, National Chemical Laboratory, Poona, British India, 1945–45;
- Professor of Chemistry, University of the Punjab, Lahore, British India, 1941–45;
- Assistant Professor and Professor of Biochemistry, All India Institute of Hygiene, Calcutta, British India, 1933–41;
- Lecturer in Chemistry, University of the Punjab, Lahore, British India, 1925–29.

### Honors and Awards:

- General President, Pakistan Academy for Advancement of Science, 1953;
- General Secretary, Pakistan Academy for Advancement of Science, 1947–52;
- LL.D. (Honoris Causa), University of Cambridge, 1953;
- Punjab University Scholarship, 1923–25;
- Ewing Gold Medal, 1923;
- Member, Inter-University Board, Pakistan, 1950–;
- Member, Education Advisory Committee, Federal Ministry of Education, Pakistan, 1952–;
- Member of Council and Governing Body, Council of Scientific and Industrial Research (CSIR), Government of Pakistan, 1953–;
- Chairman, Industrial Fermentation and Biological Products Research Committee, Council of Scientific and Industrial Research, Government of Pakistan, 1953–;
- Chairman, Industrial Fermentation and Biological Products Research Committee, Council of Scientific and Industrial Research (CSIR), British India, 1944–47; Secretary, Dyestuffs Research Committee, CSIR, 1944–47;
- Member, Technical Advisory Board, Food Department, Government of India, 1945–47; Chairman, Edible Oils and Fats Committee, 1945–47;
- Member, All India Board of Chemical Engineering And Technological Studies, 1945–47
- Member, Scientific Advisory Board, Indian Research Fund Association, British India, 1945–47; Member, Nutrition Committee, 1937–47; Secretary, 1946;



- Member, Industrial Planning Committee, Government of Punjab, 1948;
- Member, Technical Mission Survey of Medicinal Plants in Azad Kashmir, Ministry of Industries, Government of Pakistan, 1949;
- Member, Scientific Terminology Committee, Education Division, Pakistan Government, 1949.

### Fellowships/Memberships:

- Fellow, Royal Institute of Chemistry, London, 1948; Associate, 1929–33;
- Fellow, Royal Society of Arts, London, 1952;
- Member, Biochemical Society, London, 1930–;
- Fellow, Rockefeller Foundation, New York, 1937–1939; 1944–45;
- President, Indian Science Congress, Physiological Section, 1947; Member, 1925–50;
- Member, Indian Pharmaceutical Association, 1940–47;
- Member and Joint Secretary, Nutrition Committee, Government of Bengal, 1940–42;
- Member, Scientific and Technical Advisory Board, Corporation of Calcutta, 1941–42;
- Member, Society of Biochemistry and Experimental Medicine, 1944–47; Secretary, 1935–37; 1939–40;
- Member, Lahore Philosophical Society, 1943–45; Secretary, 1943–44;
- Life Member, Indian Science News Associate, 1941–; Member of Council, 1941–48;
- Member and Joint Secretary, National Nutrition Association of India, 1936–47;
- Member and Joint Secretary, All India Nutrition Board, 1936–47;
- Member, Biochemical Society, Calcutta, 1934–1944; Secretary, 1934–36; 1939–41;
- Member, Physiological Society India, 1935–1947; Secretary, 1936–37; 1939–40;
- Member, Society of Biological Chemists India, 1933–1953; Member of Council, 1943–47;
- Member, Indian Chemical Society, 1926–1928; 1940–1947; Member of Council, 1941–47;
- Member, American Federation of Biological Sciences, 1938;
- Member, American Institute of Nutrition, 1938;
- Treasurer, Pakistan Academy of Sciences, 1953;
- Fellow, University of the Punjab, 1944;
- Member of Syndicate, University of the Punjab, 1948–;
- Fellow, University of Karachi, 1951;
- Fellow, National Institute of Sciences of India, 1942;
- Member of Council, National Institute of Sciences of India, 1945–47;
- Treasurer, National Institute of Sciences of India, 1944–47;

### Research Area: Chemistry

**Source:** Anonymous (1953) *Pakistan Academy of Sciences: Inauguration and Constitution*, Lahore, 16<sup>th</sup> February, 1953, 37 pp.



## Prof. Dr. Salimuzzaman Siddiqui

Director

Department of Scientific and Industrial Research  
Karachi

**Date and Place of Birth:** 19<sup>th</sup> October, 1897; Lukhnow, British India

### Education:

B.A., M.A.O. College, Aligarh, 1919; Dr. Phil. Wat., Frankfurt/Main, 1927.

### Positions Held:

- Director, Department of Scientific and Industrial Research, Karachi, 1951-;
- Director, Chemical Laboratories, Council of Scientific and Industrial Research (CSIR), ???, 1944-51;
- Organic Chemist, Board of Scientific and Industrial Chemist, Delhi, British India, 1940-44;
- Director, A & U Tibbi College, Delhi, British India, 1930-40.

### Honors and Awards:

- President, Chemical Society of Pakistan;
- President (West Regional Branch), Pakistan Association for Advancement of Sciences;
- Member or Chairman of various Research Committees, CSIRO, Delhi, British India.

### Fellowships/Memberships:

- Fellow, German Chemical Society;
- Founding Fellow, Indian Academy of Sciences;
- Fellow, Indian Chemical Society;
- Member of Court and Executive Committee, Muslim University, Aligarh, British India;
- Member of Court, Indian Institute of Science, Bangalore, British India.

**Research Area:** Chemistry

**Source:** Anonymous (1953) *Pakistan Academy of Sciences: Inauguration and Constitution*, Lahore, 16<sup>th</sup> February, 1953, 37 pp.



## Prof. Dr. Mohammad Qudrat-i-Khuda

Scientific Adviser  
Ministry of Defence  
Government of Pakistan

**Year and Place of Birth:** 1900; Margram, Birbhum, West Bengal, British India

### Education:

D.Sc. in Organic Chemistry, London University, 1929; Diploma, Imperial College of Science, London, 1929; State Scholar, 1926; M.Sc. in Chemistry (First Division First in the University), Calcutta University, 1924; B.Sc. (Hons) in Chemistry, 1922.

### Positions Held:

- Scientific Adviser, Ministry of Defence, Government of Pakistan, 1949-;
- Director of Public Instruction, Government of East Pakistan, 1949-50;
- Director of Public Instruction, East Bengal, British India, 1947;
- Principal, Presidency College, Calcutta, British India, 1947;
- Professor of Chemistry, Presidency College, Calcutta, British India, 1931.

### Honors and Awards:

- Leader Pakistan Delegation, Commonwealth Advisory Committee on Defence Science Conference, New Delhi, India, 1953;
- General President, Pakistan Association for Advancement of Science, 1952;
- Delegate, British Commonwealth Scientific Official Conference, Australia, 1952;
- Delegate to General Conference of UNESCO, Paris, 1949 & 1951;
- Member, Advisory Committee, Commonwealth Defence Scientists, 1950;
- Member of Senate and Syndicate, Faculties and Boards of Calcutta, Dacca and Karachi Universities;
- Mowat Gold Medal, Calcutta University, British India;
- Premchand Roychand Scholar.

**Research Area:** Chemistry

### Source:

- *Anonymous (1953) Pakistan Academy of Sciences: Inauguration and Constitution*, Lahore, 16<sup>th</sup> February, 1953, 37 pp.
- Bangladesh Academy of Sciences; <http://www.bas.org.bd/fellowship/list-of-fellows-/userprofile/khuda.html>



### **Prof. Dr. M. Ishaque**

Principal Education Officer  
Pakistan Military Academy  
Kakul

**Year and Place of Birth:** 1902, British India

#### **Education:**

Ph.D., University of London; M.Sc., Muslim University, Aligarh, British India; M.A., Muslim University, Aligarh, British India; Diploma, Imperial College of London.

#### **Positions Held:**

- Principal Education Officer, Pakistan Military Academy, Kakul;
- Professor of Physics, Muslim University, Aligarh.

#### **Honors and Awards:**

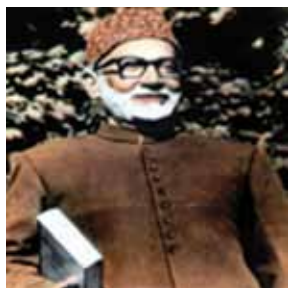
- Member of several Committees in India.

#### **Fellowships:**

- Fellow, National Institute of Sciences of India;
- Fellow, Indian Academy of Sciences;
- Fellow, Institute of Physics, London.

**Research Area:** Physics

**Source:** Anonymous (1953) *Pakistan Academy of Sciences: Inauguration and Constitution*, Lahore, 16<sup>th</sup> February, 1953. 37 pp.



## Prof. Dr. Hamid Khan Bhatti

Reader & Head, Department of Zoology  
University of the Punjab  
Lahore

**Date and Place of Birth:** 7<sup>th</sup> February, 1895; British India

### Education:

Ph.D., Cambridge University, 1936; M.Sc., University of the Punjab, 1916; B.Sc., University of the Punjab, 1914.

### Positions Held:

- Reader & Head, Department of Zoology, University of the Punjab, 1948-53;
- Superintendent Research Officer, Game Warden and Warden of Fisheries, Punjab Government, 1920-50;
- Professor of Biology, Islamia College, Lahore, 1919-20;
- Assistant Professor of Biology, Islamia College, Lahore, 1915-19.

### Honors and Awards:

- President, Biology Section, 3<sup>rd</sup> Pakistan Science Conference, 1951.

### Fellowships:

- Fellow, India Academy of Sciences;
- Fellow, National Institute of Sciences of India;
- Fellow, Cambridge Philosophical Society, 1955;
- Fellow, Royal Microscopical Society, London, 1923.

**Research Area:** Zoology/Fisheries

**Source:** Anonymous (1953) *Pakistan Academy of Sciences: Inauguration and Constitution*, Lahore, 16<sup>th</sup> February, 1953, 37 pp.





### Prof. Dr. M. Sharif

Department of Zoology  
University of the Punjab  
Lahore

**Date and Place of Birth:** 12 April, 1899; British India

#### Education:

Ph.D., Cambridge University, 1936; D.Sc., University of the Punjab, 1930; M.Sc., University of the Punjab, 1922; B.Sc. (Hons. in Zoology), University of the Punjab, 1920.

#### Positions Held:

- Professor of Zoology, University of the Punjab, 1953;
- Professor of Zoology, Government College, Lahore, 1950-53;
- Assistant Director, Entomology, Malaria Institute of Pakistan, Karachi, 1948-50;
- Assistant Director, Department of Entomology, Hafkine Institute, Bombay, 1938-48;
- Assistant Locust Research Entomologist, Imperial Council of Agricultural Research;
- Incharge, Entomology Section, Indian Museum, Calcutta, British India;
- Lecturer in Zoology, Muslim University, Aligarh, British India, 1922-38.

#### Honors and Awards:

- Member, World Health Organization Expert Advisory Panel on Plague;
- President, Biology Section, 3<sup>rd</sup> Pakistan Science Conference, 1952.

#### Fellowships:

- Fellow, National Institute of Sciences of India;
- Fellow, Cambridge Philosophical Society, 1955;
- Fellow, Royal Microscopical Society, London, 1923.

**Research Area:** Zoology/Entomology

**Source:** Anonymous (1953) *Pakistan Academy of Sciences: Inauguration and Constitution*, Lahore, 16<sup>th</sup> February, 1953, 37 pp.



## Prof. Dr. M. Raziuddin Siddiqi

Vice Chancellor  
University of Peshawar  
Peshawar

**Date and Place of Birth:** 7 April, 1905; Hyderabad-Deccan, British India

### Education:

Ph.D., Leipzig, Germany, 1931; Mathematical Tripos and M.A., Cambridge, 1928 and 1932; Hyderabad State Scholar (Merit Scholarship), 1926-31; B.A., Usmania University, 1925 (First Division First in the University; Diploma in Arabic (Moulvi), 1920 (First Division First in the Dominion); Diploma in Persian (Munshi), 1920 (First Division First in the Dominion).

### Positions Held:

- Vice Chancellor, University of Peshawar, 1953-;
- Director of Research, University of Peshawar, 1950-53;
- Vice Chancellor, Osmania University, Hyderabad, India, 1948-49;
- Director of Research, Usmania University, British India/India, 1943-48;
- Professor of Mathematics, Usmania University, British India, 1934-43;
- Assistant Professor of Mathematics, Usmania University, British India, 1931-34.

### Honors and Awards:

- Member of Council and of Governing Body, Council of Scientific and Industrial Research (CSIR), Pakistan, 1953;
- General President – elect, Pakistan Association for the Advancement of Science;
- Chairman, National Committee for Mathematics, Pakistan, 1952;
- Member, National Committee for Geodesy and Geophysics, 1951;
- President, Physico-Mathematical Society of Pakistan, 1951—;
- Pakistan Government Delegate to UNESCO General Conference, Florence, Italy, 1950;
- President, Calcutta Mathematical Society, 1950;
- Chairman, National Committee for Mathematics, India, 1949-50;
- D.Sc. (Honoris Causa), Osmania University, 1942;
- President, Indian Mathematical Society, 1947-49;
- President, Banaras Mathematical Society, 1946-47;
- General Secretary, Indian Mathematical Society, 1934-47;
- Vice President, Calcutta Mathematical Society, 1942-47;
- Gold Medal (for best research work published) by National Academy of Sciences at Allahabad, conferred upon by Pandit Jawaharlal Neheru, 1938.

### Fellowships/Memberships:

- Secretary, Pakistan Academy of Sciences, 1953;
- Member, American Mathematical Society, 1947;
- Member, Mathematique de France, 1936;



- Fellow, Cambridge Philosophical Society, England, 1929;
- Founding Fellow, National Academy of Sciences of India;
- Founding Fellow and Vice President, Indian Academy of Sciences, Bangalore, India, 1946-49;
- Fellow and Member of Council, National Institute of Sciences, India, 1939-42;

**Research Areas:** Mathematics

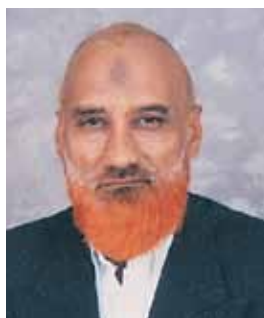
**Source:** Anonymous (1953) *Pakistan Academy of Sciences: Inauguration and Constitution*, Lahore, 16<sup>th</sup> February, 1953, 37 pp.



## Annexure-IV. Fellows of the Academy in December 2013.



**Abbas, Farhat**  
*Medical Sciences*  
Elected: 2012



**Ahmad, Imtiaz**  
*Zoology*  
Elected: 1990



**Ahmad, Ishfaq**  
*Physics*  
Elected: 1983



**Ahmad, Muzaffer**  
*Zoology*  
Elected: 1970



**Ahmad, Nisar**  
*Physics*  
Elected: 1999



**Ahmad, Rafiq**  
*Botany*  
Elected: 1990



**Ahmad, Viqar Uddin**  
*Chemistry*  
Elected: 1991



**Ahmed, Kamaluddin**  
*Physics*  
Elected: 2002



**Ahmed, Wasim**  
*Physics*  
Elected: 2010



**Akhtar, M. Waheed**  
*Biology*  
Elected: 1998



**Akhter, M. Salim**  
*Medical Sciences*  
Elected: 2001



**Ali, Mahbub**  
*Agriculture*  
Elected: 1987



**Ali, Saqib**  
*Chemistry*  
Elected: 2012



**Ali, Syed Irtifaq**  
*Botany*  
Elected: 1982



**Anwar-ul-Haq**  
*Engineering*  
Elected: 1996



**Arslan, Muhammad**  
*Zoology*  
Elected: 1993



**Asghar, Saleem**  
*Mathematics*  
Elected: 1998



**Ashfaq, Muhammad**  
*Agriculture*  
Elected: 2006



**Ashraf, Muhammad**  
*Botany*  
Elected: 2000



**Aslam, M.**  
*Chemical Engineering*  
Elected: 1974



**Aaur Rahman, M.**  
*Biochemistry*  
Elected: 1980



**Atta-ur-Rahman**  
*Chemistry*  
Elected: 1982



**Badshah, Amin**  
*Chemistry*  
Elected: 2013



**Baig, M. Aslam**  
*Physics*  
Elected: 1996



**Beg, Ismat**  
*Mathematics*  
Elected: 2008



**Bhutta, Zulfiqar Ahmad**  
*Medical Sciences*  
Elected: 2004



**Butt, N.M.**  
*Physics*  
Elected: 1988



**Butt, M. Zakria**  
*Physics*  
Elected: 1997



**Chaudhry, M. Nawaz**  
*Earth Sciences*  
Elected: 2005



**Choudhary, M. Iqbal**  
*Chemistry*  
Elected: 2003



**Fayyazuddin**  
*Physics*  
Elected: 1977



**Ghaffar, Abdul**  
*Botany*  
Elected: 1992





**Gilani, Anwar-ul-Hassan**  
*Vet. Sciences*  
Elected: 2002



**Haider, Ijaz**  
*Medical Sciences*  
Elected: 1997



**Haleem, Darakshan Jabeen**  
*Molecular Biology*  
Elected: 2013



**Hashmi, Manzur-ul-Haque**  
*Chemistry*  
Elected: 1973



**Haq, Ikramul**  
*Biotechnology*  
Elected: 2006



**Hasan, Rumina**  
*Medical Sciences*  
Elected: 2011



**Hashmi, Tajammal H.**  
*Engineering*  
Elected: 1977



**Hassan, Mashooda**  
*Chemistry*  
Elected: 2001



**Hayat, Tasawar**  
*Mathematics*  
Elected: 2006



**Hussain, Rabia**  
*Biology*  
Elected: 2006



**Ibne Rasa, Khairat M.**  
*Chemistry*  
Elected: 1979



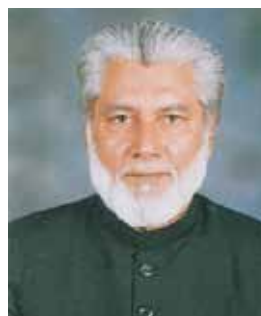
**Iqbal, Mohammad Perwaiz**  
*Biochemistry*  
Elected: 2002



**Iqbal, Muhammad**  
*Biochemistry*  
Elected: 2011



**Iqbal, Muhammad Zafar**  
*Physics*  
Elected: 1998



**Iqbal, Muhammad Zafar**  
*Chemistry*  
Elected: 1990



**Jan, M. Qasim**  
*Earth Sciences*  
Elected: 1990



**Khalid, Ahmad Mukhtar**  
*Biotechnology*  
Elected: 2005



**Khalid, Fazal Ahmad**  
*Engineering*  
Elected: 2007



**Khan, Abdul Quadeer**  
*Engineering*  
Elected: 1988



**Khan, Arshad M.**  
*Physics*  
Elected: 1992



**Khan, Hameed Ahmed**  
*Physics*  
Elected: 1990



**Khan, Iqrar Ahmad**  
*Agriculture*  
Elected: 2007



**Khan, Khalid Mahmood**  
*Biochemistry*  
Elected: 2000



**Khan, Khalid Mohammed**  
*Chemistry*  
Elected: 2010



**Khan, M. Ajmal**  
*Botany*  
Elected: 2001



**Khan, M. Asif**  
*Geology*  
Elected: 2009



**Khan, Mohammad Aslam**  
*Physics*  
Elected: 2008



**Khan, Shaukat Hameed**  
*Physics*  
Elected: 2002



**Khanum, Azra**  
*Biochemistry*  
Elected: 2005



**Luqman, Muhammad**  
*Medical Sciences*  
Elected: 2007



**Malik, Kauser Abdulla**  
*Biology*  
Elected: 1995



**Maqsood, Asghari**  
*Physics*  
Elected: 2010



**Mehdi, Syed Qasim**  
*Biotechnology*  
Elected: 1999



**Miana, Ghulam Abbas**  
*Chemistry*  
Elected: 1998



**Mohyuddin, Agha Ikram**  
*Agriculture*  
Elected: 1992



**Mubarakmand, Samar**  
*Physics*  
Elected: 2003



**Muhammed, Amir**  
*Biochemistry*  
Elected: 1979



**Murtaza, Ghulam**  
*Physics*  
Elected: 1991



**Nasim, Anwar**  
*Biotechnology*  
Elected: 2007



**Nasir-ud-Din**  
*Biochemistry*  
Elected: 1996



**Qadir, Asghar**  
*Mathematics*  
Elected: 1992



**Qaiser, Mohammad**  
*Botany*  
Elected: 2004



**Qamar, Raheel**  
*Biology*  
Elected: 2009



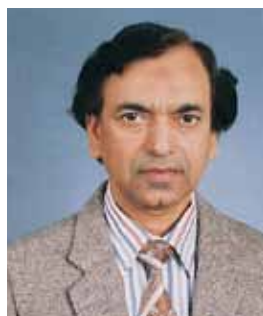
**Qureshi, Riaz Hussain**  
*Agriculture*  
Elected: 2003



**Raouf, Abdul**  
*Engineering*  
Elected: 1997



**Rashid, Abdul**  
*Agriculture*  
Elected: 2013



**Riazuddin, Sheikh**  
*Biology*  
Elected: 1997



**Saleem, Hamid**  
*Physics*  
Elected: 2012





**Saleem, Muhammad**  
*Medical Sciences*  
Elected: 1999



**Shah, S. Riaz Ali**  
*Chemistry*  
Elected: 1974



**Shakoori, Abdul Rauf**  
*Zoology*  
Elected: 1991



**Shami, Misbah-ud-Din**  
*Chemical Engineering*  
Elected: 1982



**Sharif, Muhammad**  
*Mathematics*  
Elected: 2010



**Sheikh, M. Akram**  
*Engineering*  
Elected: 2012



**Shinwari, Zabta Khan**  
*Botany*  
Elected: 2008



**Siddiqui, Bina Shaheen**  
*Chemistry*  
Elected: 1997



**Tahirkheli, Rashid A. Khan**  
*Earth Sciences*  
Elected: 1983

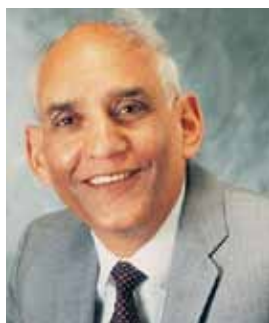


**Yasinzai, Masoom**  
*Biochemistry*  
Elected: 2012



**Zubairy, M. Suhail**  
*Physics*  
Elected: 1995

## Annexure-V. The Foreign Fellows of the Academy in December 2013.



**Akhtar, Muhammad**  
Emeritus Professor,  
University of Southampton, UK;  
Director General,  
School of Biological Sciences,  
University of the Punjab,  
Lahore  
**Elected:** 2000



**Agre, Peter**  
**Nobel Laureate (Chemistry)**  
Professor, Johns Hopkins University,  
Baltimore, MD 21218,  
USA  
**Elected:** 2007



**Bai, Chunli**  
President,  
Chinese Academy of Sciences,  
Beijing, China  
**Elected:** 2011



**Bangash, M. Y. H.**  
39 Wontner Road,  
London, UK  
**Elected:** 2003



**Basha, Fatima Z.**  
Sr. Group Leader,  
Metabolic Diseases Research,  
Abbott Laboratories,  
Lake Forest, IL, USA;  
Foreign Faculty Professor,  
HEJ Research Institute of Chemistry,  
University of Karachi, Karachi  
**Elected:** 2013



**Cheetham, Anthony Kevin**  
Goldsmiths' Professor of Materials  
Science, University of Cambridge,  
Cambridge, UK  
**Elected:** 1997



**de Meis, Leopoldo**  
Instituto Ciencias Biomedicas,  
Department Bioquimica  
Universidade,  
Federal do Rio de Janeiro,  
Rio de Janeiro, Brasil  
**Elected:** 1996



**Gell-Man, Murray**  
**Nobel Laureate (Physics)**  
Nutrition & Health Consultant,  
Professor of Physics,  
California Institute of Technology,  
Pasadena, California, USA  
**Elected:** 1983



**Gilani, G. Sarwar**  
Nutrition & Health Consultant,  
1429 Forest Valley Drive,  
Ottawa,  
Ontario, Canada  
**Elected:** 2011



**Hassan, M. H. Ali**

Co-Chair of IAP,  
the Global Network of Science  
Academies;  
Chairman of the Council of the  
United Nations University,  
Sudan

**Elected:** 2001

**Kharin, Stanislav Nikolaevich**

59 Tole-bi, Almaty,  
Kazakhstan

**Elected:** 1998

**Langer, Peter**

Full Professor and Head,  
Department of Organic Chemistry,  
University of Rostock,  
Germany

**Elected:** 2012

**Maiani, Luciano**

CERN, DG Division - CH 1211,  
Geneva 23,  
Switzerland

**Elected:** 2000

**Nieschlag, Eberhard**

Former Director,  
Institute of Reproductive Medicine,  
University of Münster,  
Münster,

**Elected:** 1996

**Petersen, R. J.**

Department of Physics,  
University of Colorado  
Boulder, Colorado, USA

**Elected:** 1996

**Qaim, Syed Muhammad**

Advisor,  
Institute of Nuclear Chemistry,  
Forschungszentrum Jülich GmbH,  
Professor of Nuclear Chemistry,  
Universität zu Köln D-52425,  
JÜLICH, Germany

**Elected:** 1990

**Stein, Gary**

Chair,  
Department of Biochemistry,  
Co-Director,  
Vermont Cancer Center,  
Burlington, Vermont, USA

**Elected:** 1997

**Ting, Samuel C. C.**

**Nobel Laureate (Physics)**

Department of Physics,  
Massachusetts Institute of Technology,  
77 Massachusetts Avenue, Bldg. 44-120  
Cambridge, MA 02139, USA

**Elected:** 1983



**Voelter, Wolfgang**  
Head of the Board of the Institute  
for Scientific Cooperation,  
Tübingen, Germany  
**Elected:** 1982



**Windley, Brian Frederick**  
Emeritus Professor of Tectonics,  
University of Leicester,  
UK  
**Elected:** 2007

## Additional Foreign Fellows (Profiles not provided)

Foreign Fellow	Country	Year Elected
Alam, M. Sajjad	USA	2003
Kazi, Abdul Mujeeb	Mexico	2001
Panjwani, Noorjahan	USA	2001
Plant, Tony M.	USA	2007
Sagadiev, K.A.	Kazakhstan	1998

## Former Foreign Fellow

Foreign Fellow	Country	Years
<sup>1</sup> Nasim, Anwar	Canada	1988-2006

<sup>1</sup>Was elected as Fellow of the PAS in 2007

## Deceased Foreign Fellows of the Academy

Foreign Fellow	Country	Year Elected
Prof. Dr. Norman E. Borlaug, <i>Noble Laureate</i>	USA	1982
Prof P.A.M. Dirac, F.R.S., <i>Noble Laureate</i>	UK	1982
Prof. Dr. John Bardeen, <i>Noble Laureate</i>	USA	1982
Dr. Ralph Randles Stewart	USA	1982
Prof. Dr. H. Hartmann	Germany	1982
Dr. George Beadle, <i>Noble Laureate</i>	USA	1983
Dr. M. I. Ibrahim	Bangladesh	1987
Prof. R. H. Haynes	Canada	1994
Prof. Dr. Pulat Khabibullaev	Uzbekistan	1997
Prof. Dr. Mu Shik Jhon	Korea	2000
Dr. Nurul Islam	Bangladesh	2003



## Annexure-VI. Members of the Academy in December 2013.

### 2006

#### Dr. Bilquees Gul

Director  
Institute of Sustainable Halophyte Utilization  
University of Karachi  
Karachi

### 2007

#### Dr. Murad Ali Khan

Chairman  
Kohat University of Science & Technology  
Kohat

#### Dr Farzana Shaheen

Associate Professor  
HEJ Research Institute of Chemistry  
University of Karachi  
Karachi

### 2008

#### Dr. Farhan Saif

Associate Professor  
Department of Electronics  
Quaid-i-Azam University  
Islamabad

### 2009

#### Dr. Mona Lisa

Head, Department of Meteorology  
COMSATS Institute of Information Technology  
Islamabad

### 2012

#### Dr. Muhammad Sayyab

National Center of Excellence in Geology  
University of Peshawar  
Peshawar

#### Dr. Sohail Nadeem

Associate Professor  
Department of Mathematics  
Quaid-i-Azam University  
Islamabad

### 2013

#### Dr. Mohammad Ansar

Associate Professor  
Department of Biochemistry  
Quaid-i-Azam University  
Islamabad

#### Dr. Syed Ghulam Musharraf

Assistant Professor  
HEJ Research Institute of Chemistry  
University of Karachi  
Karachi

#### Dr. Asma Saeed

Senior Scientific Officer  
Food and Biotechnology Research Center  
PCSIR Labs Complex  
Lahore



## Annexure-VII. Vice Presidents, Treasurers, Associate Secretaries / Secretaries General, and Editors / Editors-in-Chief of the Academy during 1953–2013<sup>1</sup>.

Years	Vice President (1)	Vice President (2)	Treasurer	Assoc. Secretary / Assoc. Secretary General	Editor / Editor-in-Chief
1953-1956			Prof. Dr. Bashir Ahmad		Prof. Dr. M. Raziuddin Siddiqi
1956-1959	Prof. Dr. Qudrat-i-Khuda		Prof. Dr. Bashir Ahmad/ Dr. Karimullah		Prof. Dr. M. Raziuddin Siddiqi
1959-1961	Prof. Dr. Qudrat-i-Khuda		Dr. Karimullah		Dr. Afzal H. Qadri
1961-1963	Prof. Dr. Qudrat-i-Khuda		Dr. Karimullah		Dr. Afzal H. Qadri
1963-1967	Prof. Dr. Qudrat-i-Khuda		Dr. Karimullah		Prof. M.H. Khundkar
1967-1969	Prof. Dr. M.O. Ghani		Dr. Karimullah		Prof. M.H. Khundkar
1969-1972	Dr. Nazir Ahmad		Dr. Karimullah		Prof. M.H. Khundkar/ Dr. M.M. Qurashi <sup>2</sup>
1972-1974	Ch. Mohammad Afzal		Dr. Karimullah	Dr. M.M. Qurashi <sup>3</sup>	Dr. M.M. Qurashi
1974-1978	Dr. A.G. Asghar		Dr. Karimullah	Dr. M.M. Qurashi	Dr. M.M. Qurashi
1978-1980	Dr. Karimullah		Prof. Dr. Badruddin	Dr. M.M. Qurashi	Dr. M.M. Qurashi
1980-1984	Dr. Karimullah		Prof. Dr. Badruddin/ Prof. Dr. M. Shafqat H. Siddiqui/ Prof. Dr. M.D. Shami*	Dr. M.M. Qurashi	Dr. M.M. Qurashi
1984-1986	Dr. G.M. Khattak		Prof. Dr. M. Shafqat H. Siddiqui/ Prof. Dr. M.D. Shami*	Dr. M. Aslam Khan	Dr. M.M. Qurashi
1986-1988	Dr. G.M. Khattak		Dr. M. Aslam Khan	Prof. Q.K. Ghorri	Dr. M.M. Qurashi
1988-1990	Dr. G.M. Khattak	Dr. Amir Muhammed	Dr. Naeem Ahmad Khan	Prof. Q.K. Ghorri	Dr. M.M. Qurashi
1990-1992	Prof. Dr. Nazir Ahmad	Dr. Amir Muhammed	Dr. Naeem Ahmad Khan	Gen. M.I. Burney	Dr. M.M. Qurashi
1992-1994	Prof. Dr. Nazir Ahmad	Prof. S.I. Ali	Dr. Naeem Ahmad Khan	Prof. R.A. Khan Tahir Kheli	Dr. M.M. Qurashi
1994-1996	Dr. Naeem Ahmad Khan	Prof. S.I. Ali	Dr. N.M. Butt	Prof. R.A. Khan Tahir Kheli	Dr. M.M. Qurashi / Dr. Hameed Ahmad Khan <sup>4</sup> / Prof. Dr. M.D. Shami <sup>5</sup>

Years	Vice President (1)	Vice President (2)	Treasurer	Assoc. Secretary / Assoc. Secretary General	Editor / Editor-in-Chief
1997-1998	Prof. M.I.D. Chughtai	Prof. Atta-ur-Rahman	Dr. N.M. Butt	Dr. S. Riaz Ali Shah	Prof. Dr. M.D. Shami
1999-2000	Prof. M.I.D. Chughtai	Prof. Atta-ur-Rahman	Maj. Gen. (R) M.I. Burney	Dr. S. Riaz Ali Shah	Prof. Dr. M.D. Shami/ Prof. Dr. M. Arslan <sup>6</sup> / Prof. Dr. M. A. Hafeez <sup>7</sup>
2001-2002	Dr. S. Riaz Ali Shah	Prof. Dr. Viqar-ud-Din Ahmad	Maj. Gen. (R) M.I. Burney	Dr. Muhammad Zafar Iqbal	Prof. Dr. M. A. Hafeez
2003-2004	Dr. S. Riaz Ali Shah	Prof. Dr. Viqar-ud-Din Ahmad	Prof. Dr. K.M. Ibne-Rasa	Dr. Kauser Abdulla Malik	Prof. Dr. M. A. Hafeez
2005-2006	Maj. Gen. (R) Iftikhar A. Malik	Prof. Dr. Syed Irtifaq Ali	Prof. Dr. M. D. Shami	Dr. Kauser Abdulla Malik	Prof. Dr. M. A. Hafeez
2007-2008	Dr. Manzoor-ul-Haq Hashmi	Prof. Dr. Syed Irtifaq Ali	Prof. Dr. M. D. Shami	Prof. Dr. M. Qasim Jan	Prof. Dr. M. A. Hafeez
2009-2010	Dr. Rafiq Ahmad	Prof. Dr. Khalid Mahmood Khan	Prof. Q.K. Ghori	Prof. Dr. M.D. Shami	Prof. Dr. M. A. Hafeez
2011-2012	Prof. Dr. Khalid Mahmood Khan	Prof. Dr. M. Qasim Jan	Prof. Dr. Shahzad Ahmad Mufti	Prof. Dr. M.D. Shami	Dr. Abdul Rashid
2013-2014	Prof. Dr. M. Qasim Jan	Prof. Dr. M.D. Shami	Prof. Dr. N. M. Butt	Prof. Dr. Tasawar Hayat	Dr. Abdul Rashid

\* Because of a health problem with Dr. M. Shafiq Siddiqi, Prof. Dr. M.D. Shami acted as Treasurer.

<sup>2</sup> Dr. M.M. Qurashi was the first Editor appointed by Council of the Academy, in 1971. All earlier Editors were elected by the Fellows.

<sup>3</sup> Dr. M.M. Qurashi was the first ever Associate Secretary General of the Academy; he was elected by the General Body in January 1974.

<sup>4</sup> Dr. Hameed Ahmad Khan was appointed Editor in 1995, and served till mid 1996.

<sup>5</sup> Dr. M.D. Shami was appointed Editor-in-Chief in mid 1996, and served till mid 1999.

<sup>6</sup> Dr. M. Arslan was appointed Editor-in-Chief in mid 1999.

<sup>7</sup> Dr. M.A. Hafeez was appointed Editor-in-Chief in 2000.

<sup>1</sup> **Source:** Siddiqi (1978a); and Minutes of various meetings of Council and General Body of the Academy.



## Annexure-VIII. Some Salient Conferences, Symposia and Seminars organized by the Academy.\*

1. Symposium on "Plant Resources", held jointly with PCSIR and UNESCO, at Peshawar in 1960.
2. National Symposium on the "Planning and Development of Science", at Karachi in 1960, and inaugurated by the President of Pakistan.
3. International Symposium on "Humid Tropical Deltas", in collaboration with UNESCO, at Dacca in 1964.
4. "National Meeting of Senior Scientists of Pakistan", in cooperation with Scientific & Technological Research Division (now the Ministry of Science & Technology) and National Science Council at Saidu Sharif, Swat on 23–27 August 1965.
5. Symposium on "Waterlogging and Salinity", at Lahore in 1968.
6. Symposium on "Nutrition", held at Dacca in 1968.
7. Symposium on "Natural and Man-made Fibers", in collaboration with Pakistan Central Cotton Committee and Pakistan Jute Committee in 1971.
8. "Human Environment Day" Seminars, June 1973 & 1974.
9. Symposium on "Nutritional Deficiencies and Their Remedies", at Lahore in April 1974.
10. "Marconi Centenary Celebration and Exhibition", in collaboration with the PASSP and the Institute of Electrical Engineers at Karachi and Islamabad in 1974.
11. "Panel Discussions for Framing Recommendations for a National Science Policy", December 1974–March 1975.
12. International Conference on the "Management of Environment", with the assistance of National Science Foundation of USA at Karachi in 1975.
13. Seminar on "International Islamic Calendar", held in July 1990.
14. Symposium on "Advanced Materials" held at Islamabad in 1992 in collaboration with Federation of Asian Scientific Academies and Societies (FASAS) and OIC Ministerial Committee for Scientific & Technological Cooperation (COMSTECH).
15. First National Symposium on "Current Trends in Developmental and Reproductive Biology", held at Islamabad In 1997.
16. Seminar on "Emerging Environmental Issues in Pakistan", held at Islamabad in 1998.
17. International Seminar on "Prospects for Saline Agriculture", held at Islamabad in 2000.
18. International Conference on "Science & Technology" sponsored by Pakistan Academy of Sciences and Network of Academies of Science of Organization of Islamic Conference (NASIC), April 19-20, 2005 (Collaboration of COMSTECH, HEC & TWAS).
19. International Conference on "Strengthening of Sciences in Africa" in collaboration with Islamic Development Bank and COMSTECH on 19-20 February 2003.
20. National Science Conference on "Roadmap of Cutting Edge Technologies", on January 10-12, 2012 at Pir Mehr Ali Shah, Arid Agriculture University, Rawalpindi.
21. Seminar on "Remembrance Day of October 08, 2005 Muzaffarabad Earthquak", on 8<sup>th</sup> October, 2012.
22. "First PAS-CAS (Pakistan Academy of Sciences-Chinese Academy of Sciences) Bi-National Conference" in Islamabad, Pakistan on July 16, 2012.
23. "Second PAS-CAS (Pakistan Academy of Sciences-Chinese Academy of Sciences) Bi- National Conference", in Urmqi, China on September 16, 2012,.

\*Source: Anonymous (undated); Siddiqi (1978a); Rashid (2014).



## Annexure- IX. Some Salient Publications of the Academy (excluding Monographs and Special Reports), during 1953–2013.

1. Anonymous (undated) *Pakistan Academy of Sciences: Introduction, Functions, Achievements, Future Programme*. Pakistan Academy of Sciences, University of Islamabad, Islamabad, 19 pp.
2. Siddiqi, M. Raziuddin (1953) *Pakistan Academy of Sciences – Inauguration and Constitution*, Lahore, 16 February 1953. Pakistan Academy of Sciences, 37 pp.
3. Pakistan Academy of Sciences (1968) *Proceedings of the Symposium on Waterlogging and Salinity*, March 17-20, 1968. Pakistan Academy of Sciences, Islamabad, 256 pp.
4. Pakistan Academy of Sciences (1973) *Human Environment in Pakistan – Report of Seminars held on 5 June 1973 at Islamabad, Lahore & Karachi*. Pakistan Academy of Sciences, Islamabad; Public Health Engineering Department, Lahore; Pakistan Association of Scientists & Scientific Professions, Karachi, 13 pp.
5. Pakistan Academy of Sciences (1974) *The Investiture Ceremony of the Gold Medals of the Pakistan Academy of Sciences*. Karachi, 7 January 1974. Pakistan Academy of Sciences, Islamabad, 12 pp.
6. Pakistan Academy of Sciences (1974) *Memorandum Concerning the Organization and Development of the Pakistan Academy of Sciences*. Pakistan Academy of Sciences, Islamabad, 14 pp.
7. PSF & PAS (1974) *Souvenir “Marconi’s Birthday Century Celebrations”*, 11-17 November 1974, Rawalpindi & Islamabad. Organized by Pakistan Science Foundation; Pakistan Academy of Sciences; and Institute of Electrical Engineers, 23 pp.
8. Pakistan Academy of Sciences (1974) *Proceedings of the Symposium on Nutritional Deficiencies and Their Remedies*, 23–24 April, 1974, held at Institute of Chemistry, University of the Punjab, Lahore. Pakistan Academy of Sciences, Islamabad, 139 pp.
9. Pakistan Academy of Sciences (1975) *International Symposium on “Natural & Man-made Fibres”*. Pakistan Academy of Sciences; Pakistan Central Cotton Committee; & Pakistan Central Jute Committee, 30 pp.
10. Pakistan Academy of Sciences (1975) *International Conference on the Management of Environment; Part I, Proceedings and Recommendations*, February 17-19, 1975; Pakistan Academy of Sciences, Islamabad, 21 pp.
11. Shah, M.H. (1976) *An Evaluation of Ibn Sina’s Concept of Temperament & Constitution for Food & Drug Research* (Academy’s Annual Lecture). Pakistan Academy of Sciences, Islamabad, 51 pp.
12. Siddiqi, M. Raziuddin (1978a) *History of the Pakistan Academy of Sciences, 1953 to 1978*. Pakistan Academy of Sciences, Islamabad, 139 pp.
13. Siddiqi, M. Raziuddin (1978b) *Proceedings of the Silver Jubilee of the Pakistan Academy of Sciences*, 16 February 1978. Pakistan Academy of Sciences, Islamabad, 50 pp.
14. Ahmad, Nazir (1979) *Tubewell: Theory and Practice*; PAS Monograph No. 4. Pakistan Academy of Sciences, Islamabad.
15. Kazi, M.A. (1979) *Address of Welcome to Professor Abdus Salam, by Dr. M. A. Kazi on the occasion of The Award of the 1979 Nobel Prize for Physics*, 19 December 1979. Pakistan Academy of Sciences, Islamabad, 6 pp.



16. Aslam, M., and A.H. Khan (1983) *Post-Harvest Loss Reduction in Fruits and Vegetables – A review with special reference to Pakistan*. Pakistan Academy of Sciences; & Pakistan Council of Scientific & Industrial Research, 87 pp.
17. Qurashi, M.M. (1988) *Directory of Scholars Engaged in Studies on Science in Islamic Polity*, 3<sup>rd</sup> ed. Pakistan Science Foundation, and Pakistan Academy of Sciences, Islamabad, 99 pp.
18. Ali, S.M., M.H. Quazi, M.M. Qurashi, M.A. Rahim, and F.H. Shah (1989) *Food & Nutrition Problems of the Muslim Ummah*. Pakistan Science Foundation and Pakistan Academy of Sciences, Islamabad, 244 pp.
19. Karimullah, and A.R. Ghani (1989) *Biographical Notes on Eminent Muslim Scientists of South Asia in the 14th Century Hijra, Vol. I. (d. 1877–1979 A.D.)*. Pakistan Science Foundation; and Pakistan Academy of Sciences, Islamabad, 131 pp.
20. Aslam, M. (1990) *Polymers as Soil Conditioners & Sealing Agents, Part I*. Pakistan Academy of Sciences, Islamabad, 66 pp.
21. Shami, M.D. (1991) *Charter & Bye-Laws of Pakistan Academy of Sciences, as revised up to 1.1.1991*. Pakistan Academy of Sciences, Islamabad, 32 pp.
22. Karimullah, and A. R. Ghani (1991) *Biographical Notes on Eminent Muslim Scientists of South-Asia in 14th Century Hijra. Vol. II. (d. 1891–1991 A.D.)*. Pakistan Science Foundation; and Pakistan Academy of Sciences, Islamabad, 84 pp.
23. Burney, M.I. (1991) *Proceedings of Seminar and Policy Briefings on Environmental Pollution and Climate Change*, 21-22 October, 1991, Islamabad; Sponsored by Climate Institute, Washington DC; PAS; PAEC; and PCSIR. Pakistan Academy of Sciences, Islamabad, 38 pp.
24. Anwar-ul-Haq (1993) *Proceedings of the Federation of Asian Scientific Academies and Societies Symposium “New Materials and Contemporary Applications”*, 28 November to 1 December 1992, Islamabad, Pakistan. Pakistan Academy of Sciences, Islamabad, Pakistan. 152 pp.
25. Qurashi, M.M., and S.S.H. Rizvi (1996) *History & Philosophy of Muslim Contributions to Science & Technology*. Pakistan Academy of Sciences, Islamabad, Pakistan. 188 pp.
26. PAS (1997) *First National Symposium on “Current Trends in Developmental and Reproductive Biology”*, 22–23 November, 1997. Pakistan Academy of Sciences, Islamabad, 28 pp.
27. Pakistan Academy of Sciences (1998) *Proceedings of Seminar on “Emerging Environmental Issues in Pakistan”*. Pakistan Academy of Sciences; and Energy and Environment Society of Pakistan, 91 pp.
28. Ilyas, Muhammad (1998) *Islami Qammeri Calendar (Urdu)*. Pakistan Science Foundation; and Pakistan Academy of Sciences, Islamabad, 284 pp.
29. Karimullah, and A.R. Ghani (1999) *Biographical Notes on Eminent Muslim Scientists of South-Asia in 14<sup>th</sup> Century Hijrah. Volume II (d. 1891–1991)*. Pakistan Association for History & Philosophy of Science; and Pakistan Academy of Sciences, Islamabad, 84 pp.
30. Ismail, Shoaib (2000) Abstracts “*International Seminar “Prospects for Saline Agriculture”*”. Pakistan Academy of Sciences, Pakistan Agricultural Research Council, and COMSTECH, Islamabad, 96 pp.
31. Shami, M.D. (2003) *Education, Science & Industry in the Muslim World*. Institute of Policy Studies, and Pakistan Academy of Sciences, Islamabad, 160 pp.
32. Jafar, S.M., and Maulana Misbah-ur-Rahman Yousufi (2004) *Genetic Principles and Islam*. Pakistan Academy of Sciences, Islamabad. 39 pp.



33. Anwar-ul-Haq, and Athar Naeem (2004) *Biographical Notes on Eminent Muslim Scientists of South-Asia in the 14th Century Hijra*. Vol. III. Pakistan Academy of Sciences, Islamabad.
34. Jafar, S.M., and M.M. Qurashi (2005) *Science, Islam and Education*. Pakistan Academy of Sciences, Islamabad.
35. Muhammed, Amir, and S. Sajidin Hussain (Eds.) (2005) *Global Change Perspective in Pakistan: Challenges, Impacts, Opportunities and Prospects*; organized by APN CAPABLE, Agro-Dev International, and Pakistan Academy of Sciences, Islamabad, 248+xiii pp.
36. Nasim, Ghazala, Rukhsana Bajwa, and Amir Muhammed (2005) *Kurrah-e Arz ki Tabdili aur Nizam-e Arzi* (a Summary; Urdu). Sponsored by Pakistan Academy of Sciences, 60 pp.
37. Kazi, A.Q., and Maulana Misbah-ur-Rehman Yusufi (2005) *Human Cloning and Its Implications*. Pakistan Academy of Sciences, Islamabad.
38. Jafar, Syed Muhammad (2005) *Papers on Science, Islam and Education, Vol. III. Islam: The Knowledge-based Religion*. Pakistan Association for History & Philosophy of Science, and Pakistan Academy of Sciences, 50 pp.
39. Siddiqui, M.M., and Muhammad Jafar (2006) *Family Planning in the Light of Islamic Directives and Principles of Genetics*. Pakistan Academy of Sciences; and Pakistan Association for History & Philosophy of Science, Islamabad, 41 pp.
40. Jafar, S.M., and M. Tufail (2006) *Genetic Principles of Inbreeding & Islamic Marriage Prohibitions*. Pakistan Academy of Sciences; and Pakistan Association for History & Philosophy of Science, Islamabad, 37 pp.
41. Hussain, Tajammul, and M. Tufail (2006) *Deleterious Impacts of the Internet & Possible Remedies*. Pakistan Academy of Sciences; and Pakistan Association for History & Philosophy of Science, Islamabad, 56 pp.
42. Pakistan Academy of Sciences (2006) Abstracts of *International Seminar on "Intellectual Property and Innovation: Value Creation in the Knowledge Economy"*, 12-13 December 2006. Pakistan Academy of Sciences, Islamabad.
43. Pakistan Academy of Sciences (2007) Abstracts *"National Research Conference"*. Pakistan Academy of Sciences, Islamabad.
44. Pakistan Academy of Sciences (2008) Abstracts *"International Research Conference: Life Sciences, Earth Sciences, Management Sciences, Social Sciences, Computer Sciences, Economics"*. Higher Education Commission, University of South Asia, and Pakistan Academy of Sciences. 18 pp.
45. Pakistan Academy of Sciences (2012) Abstracts *National Science Conference: Roadmap of Cutting Edge Technologies*, 10–12 January 2012, PMAS Arid Agriculture University, Rawalpindi. Pakistan Academy of Sciences, Islamabad, Pakistan, 358 pp.
46. Rashid, Abdul (Ed.) (2012) *PAS-CAS Conference: Abstracts and Resume of Speakers*, 16 July, 2012, Islamabad. Pakistan Academy of Sciences, Islamabad, Pakistan, 96 pp.





**PAKISTAN ACADEMY OF SCIENCES**

3-Constitution Avenue, G-5/2, Islamabad, Pakistan

**Email:** pasisb@yahoo.com, pas.editor@gmail.com

**Tel:** +92-51-920 7140

**Website:** www.paspk.org