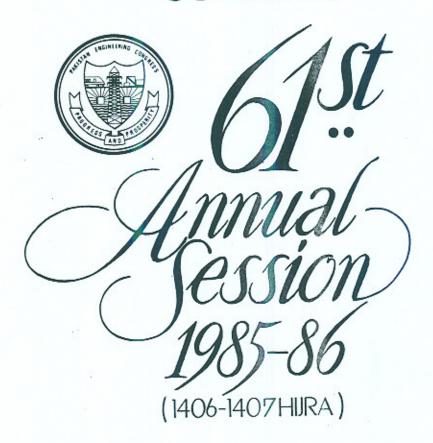
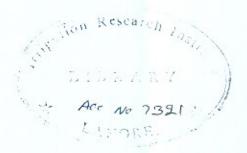
## PAKISTAN ENGINEERING CONGRESS

MAZHAR ALI
Adviser
Irrigation & Power Dept.
Labore.



# **PROCEEDINGS**



**VOLUME 61** 

**LAHORE** 

The Pakistan Engineering Congress as a body does not hold itself responsible for the opinions expressed in the Volume.

Edited and Compiled By

Engr. S. N. H. MASHHADI

Vice President & Convener Publications Committee
and
Engr. DR. IZHAR UL HAQ
Secretary

on behalf of

### Pakistan Engineering Congress

PRICE

Members — Free Others — Rs. 50.00

Printed at:

ZARREEN ART PRESS 61 Railway Road Lahore—Phones: 66274, 220521

### THE EXECUTIVE COUNCIL FOR THE 61TH SESSION (1985-86)

#### PRESIDENT

#### Engr. Mian Masud Akhtar VICE PRESIDENTS

| 1. | Engr. Sardar Allah Bakhsh             | 6. | Engr. M.A. Hameed Rehmani   |
|----|---------------------------------------|----|-----------------------------|
| 2. | Engr. S.N.H. Mashhadi                 | 7. | Engr. Akhtar Ali Chohan     |
| 3. | Engr: Rana Muhammad Saeed Ahmad Khan. | 8. | Engr. Muhammad Rashid Khan. |
| 4. | Engr. M.R. Chaudhry                   | 9. | Engr. Abdus Salam           |
| 5  | Engr. Dr. N.M. Awan                   |    |                             |

#### OFFICE BEARERS

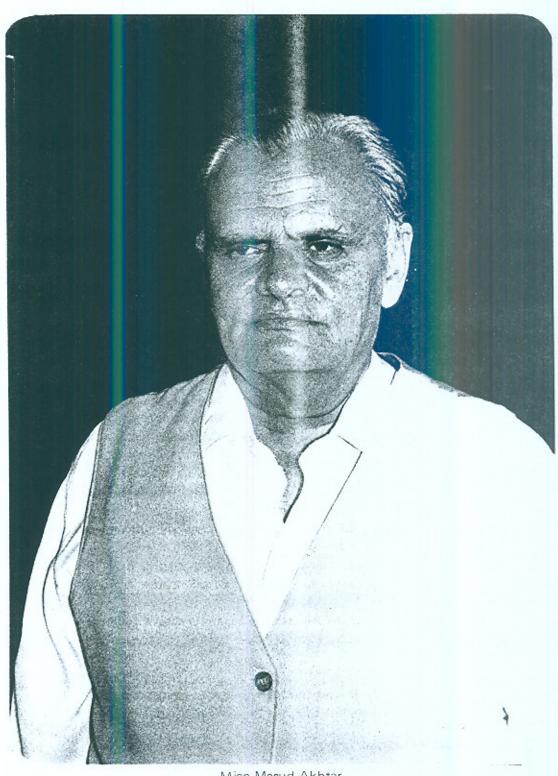
| 1. | Secretary                |        |     |      | Engr. Dr. Izharul Haq     |
|----|--------------------------|--------|-----|------|---------------------------|
| 2. | Joint Secretary          |        |     |      | Engr, S.M.A. Zaidi        |
| 3. | Publicity Secretary      | ***    |     | ***  | Engr. Haroon Rashid Toosy |
| 4. | Business Manager         |        |     |      | Engr. Ch. Bashir Ahmad    |
| 5. | Treasurer                |        |     | ***  | Engr. Muhammad Khurshid   |
| 6. | Chief Editor Engineering | o News | Jou | rnal | Engr. R.K. Anver          |

#### **EXECUTIVE MEMBERS**

| 1.  | Engr, Masihullah Khan            | 25. | Engr. S.M. Ayoob              |
|-----|----------------------------------|-----|-------------------------------|
| 2.  | Engr. Nisar Ahmed Malik          | 26. | Engr. Sh. Ahmad Hasan         |
| 3.  | Engr. Syed M.H. Zaidi            | 27. | Engr. Abdul Razik Khan        |
| 4.  | Engr. Ch. Abdul Khaliq           | 28. | Engr. Mian Abdul Aziz         |
| 5.  | Engr. Ch. Nazar Mohammad         | 29. | Engr. Mian Saeed Ahmad        |
| 6.  | Engr. Safdar Hussain Khan        | 30. | Engr. Mian Mazhar-ul-Haq.     |
| 7.  | Engr. Abdul Hameed Arif          | 31. | Engr. Sibtul Hasan Shah       |
| 8.  | Engr. Sultan Ali Barque          | 32. | Engr. Dr. Mubashir Hasan      |
| .9. | Engr. Mian Abdul Majid           | 33. | Engr. Faqir Ahmad Paracha     |
| 10. | Engr, Nizar Ahmed Sheikh         | 34. | Engr. Daud Beg.               |
| 11. | Engr. Muhammad Siddique          | 35. | Engr. Rana Allah Dad Khan     |
| 12. | Engr. Javed Ahmed Malik          | 36. | Engr. A.N G. Abbasi           |
| 13: | Engr. Nasim Akhtar Sheikh        | 37  | Engr. Arif-H-Kazi             |
| 14. | Engr. Muhammad Akbar Khan        | 38. | Engr. Ashfaq Hasan            |
| 15. | Engr. Azhar Irshad Chaudhry      | 39. | Engr. Ch. Altaf Hussain       |
| 16. | Engr. Ashfaq Ahmed Kureshi       | 40. | Engr. Sayyid Hamid            |
| 17. | Engr. Zafarullah Khan            | 41. | Engr. Mian Alim uddin         |
| 18. | Engr, Ch, Haider Ali             | 42. | Engr. Inamullah Khan          |
| 19. | Engr. Rashid Ahmed Baig          | 43. | Engr. M.A. Waheed             |
| 20. | Engr. Mrs. Naheed Ghazanfar      | 44. | Engr. I.A.S. Bukhari          |
| 21. | Engr. Mian Khalil-ur-Rehman      | 45. | Engr. Khan Muhammad Azam Khan |
| 22. | Engr. A. Rashid Sheikh           | 46. | Engr. C.A. Hamid              |
| 23. | Engr. Rana Muhammad Aslam Chohan | 47. | Engr. A.M. Akhoond            |
| 24. | Engr. Ch. Mazhar Ali             | 48. | Engr. Muhammad Saadat Ali.    |

#### NAMES OF PAST PRESIDENTS

```
1912-13.
            The Hon'ble Sir H.P. Burt, K.C.I.E.
            The Hon'ble Sir H.P. Burt, K.C.I.E.
 1913-14.
 1914-15.
            The Hon'ble Col. R.S. Maclagon, C.B., C.I.E.
1915-16
            The Hon'ble Col. R.S. Maclagon, C.B., C.S.I.
 1916-17.
            Col. S.L. Craster, C.I.E.
            The Hon'ble Mr. D.W. Aikman, C.I.E.
 1917-18.
 1918-19.
            Mr. F.W. Woods.
1919-20.
            Mr. A.S. Montgomery.
 1920-21.
            Mr. H.M. Lves.
 1921-22.
            Mr. F.A. Bates.
 1922-23.
            Mr. F.A. Hadow
1922-23.
1923-24.
1924-25.
1925-26.
1926-27.
            Sir Ganga Ram, C.I.E., M.O.V.
            Mr. E.R. Foy
            Lt.-Col. H.E.C.Cowie, R.E.
            Mr. A.R. Astury.
 1927-28.
            Mr. R.P. Hadow.
            Colonel C. Walton, D.S.O., R.E.
Mr. W.S. Dorman.
Mr. F.C. Pavry.
1928-29.
1929-30.
1930-31,
 1931-32
            Mr. J.B.G. Smith C.I.E.
1932-33.
1933-34.
            R.B W.C. Chopra.
Lt. Col W. Macrae, R.E.
1934-35.
            R.B.M.S. Dhody.
 1935-36.
            Mr. D. Macfarlane.
 1936-37.
            Mr. J.D.H. Bedford.
 1937-38. . R B B. N. Singh.
 1938-39.
            Mr. D.A. Howell
1939-40.
            R.B.B.P. Varma.
1940-41.
            Mr. R. Trevor Jones, M.C.
1941-42.
            Mr. A. St. G. Lyster.
1942-43.
            Sir William Roberts, C.I.E.
1943-44.
            Sir Arthur Griffin, Kt., O.B.E.
1944-45.
            Mr. F.F. Haigh, C.I.E.
1945-46.
            Mr. A.M.R. Montague, C.I.E.
1946-47.
            R.B.D. Khanna.
1949-51.
            K.B., M.A. Hamid.
            Khan Mohammad Azam.
1951-52.
1952-54.
            K.B.J.A. Ghafoor.
1954-55.
            Qazi Zahur Hussain.
1955-56.
            Mr. A.D. Ashraf.
1956-57.
            Khan Mohammad Inamullah Khan.
1957-58.
            Mr. M.M. Zubair.
1958-59.
            Mr. Mir Bashar Khan.
1959-60.
            Mr. S.I. Mahbub.
            Mr. Ghulam Sadiq Khan.
1960-61.
            Mian Abdul Aziz.
1961-62.
1962-63.
            A. Rashid Kazi, S.Q.A.
1963-65.
            C.A. Hamid.
1965-66.
            A.M. Akhoond, S.K., P.R.S.
1966-68.
            Mr. M.A. Waheed, P.S.E., I.
1968-70.
            Sh. Ahmad Hassan, S.Q.A.
1970-71.
            Mian Alim-ud-Din, S.Q.A., S.K.
1971-72.
           Mr. I A.S. Bokhari.
1972-74.
           Mr. Sayyid Hamid.
1974-75.
           Dr. Mubashir Hasan.
1976-78.
           S.M. Ayoob.
1978-80.
           Mr. Ashfaq Hasan.
1980-82.
           Syed Muhammad Ayoob.
1982-83.
           Engr. Daud Beg.
1983-84.
           Masih ullah Khan.
```



Mian Masud Akhtar President of the Pakistan Engineering Congress

## MIAN MASUD AKHTAR, PRESIDENT, PAKISTAN ENGINEERING CONGRESS

(Brief Life Sketch)

Mian Masud Akhtar was born in Baghbanpura, Lahore, Punjab on the 23rd April, 1926.

He got his early education in Kinder Garten Section, Queen Marry College, Lahore and then Government High School Baghbanpura and Forman Christan College, Lahore. He graduated in 1943 with Mathematics (Double Course). He was also awarded 'Honourable Mention' in Mathematics by the College. He graduated in Civil Engineering in 1946. He is thus a double graduate. He is also member, Pakistan Engineering Council and Fellow Institute of Engineers Pakistan.

He joined the then Punjab Irrigation Department in January, 1947 i.e. before Independence.

He served in this Department in various capacities for over 39 years. During this period, he held territorial charges in the Irrigation Commands of Lower Chenab Canal, Upper Chenab Canal, Upper Jhelum Canal, Lower Jhelum Canal, Sulemanki Head Works and its Canals and Thal Canals etc. He also held charges in the then Central Design Office where he worked in the design of Rasul Hydel Power Station, Durghai (NWFP) Power Station and Mianwali Power Station. He also worked in Design and Research Office in Irrigation Secretariat of the then West Pakistan (Now Pakistan). During this tenure of service he made special contributions to remodelling of Nara Canal System in Sind Province, design and surface and sub-surface in Baluchistan Province etc. He was also associated with the construction work of field/seepage drains in RECHNA DOAB and construction of Irrigation Channels in Thal Project, Punjab. He remained associated with the field investigations and project planning of the following projects:—

- BUNAH Water Storage Scheme, JABA Water Storage Scheme, JATLI Water Storage Scheme on various Tributaries of River Jhelum.
- ii. He prepared a complete Pilot Project of Soil Conservation in Saruli Watershed in Chakwal Tehsil of Jhelum District.
- iii. The well known greater Thal Project and Jalalpur Canal Project were also revised and updated by him in their existing shape.

Thus Mian Masud Akhtar posseses an extensive experience in Planning of Projects, Field Surveys, Design, Research, Construction and Operation/Maintenance Works in various fields of Engineering Profession.

He is author of the following technical papers written for FAO/UNDP Seminar held at Damascus during Dec. 1971;

- i. Effective use of Irrigation Water at Farm Level.
- ii. Land and Water use in the Near East.

He also presented the following papers in the Seminar on "Water Management and Control for Agriculture" held in Tokyo. Japan during october, 1972.

- Country Report for Pakistan.
- ii. Rice Production and Water Management.
- iii. Water Management for Diversified Agriculture.
- iv. Institutional Support to Irrigated Agriculture.
- v. Economics of Irrigation and Drainage Scheme.

He was appointed as Secretary to Government Punjab, Irrigation and Power Department on 19-4-1984 and continued to hold this job till 22-4-1986 when he retired on super-annuation after attaining the age of 60

During his tenurs as Secretary to Government, he re-organized, the Irrigation Department and added two new posts namely Chief Engineer Planning and Chief Engineer Development with their necessary infrastructure. An important major foreign aided project namely Command Water Management Project is being exclusively handled by the newly created Chief Engineer Development of the Department.

During his assignment as Secretary to Government, Irrigation and Power Department, he was selected for a study tour as a part of technical training programme arranged by United States Bureau of Reclamation, to discuss design parameters, construction/operational techniques and maintenance problems of sub soil Drainage in 1984. During the course of this tour, he visited various projects in Egypt. UK, Canada, USA, Japan etc.

He has been issued appreciation letters for the official duties rendered by him by the then Governor Punjab and Minister for Irrigation and Power, Punjab.

He was elected unanimously as President of Pakistan Engineering Congress at the Annual Session of 1985. During his tenure of this office, he made substantial contribution to encourage technical activities by arranging lecturers by eminent engineers/scientists of national and international reputation Those invited to deliver such lectures included Dr. S.S. Kirmani of World Bank, Dr. Khalid Mahmood of Washington University, USA, Dr. Karren of UK, Dr. Munir Ahmad, Chairman Pakistan Atomic Energy Commission, General Talat Masood Chairman Ordinance factories of Pakistan, Dr M.E. Jensen President International Commission on Irrigation and Drainage, etc. etc. These functions have been of emense technical benefits to the Engineers enaged in various branches of Engineering and Technology in the Country. It is hoped and prayed that this useful practice would continue in future.

### TABLE OF CONTENTS

| Sr. No. | Paper No. |  |     | Page    |
|---------|-----------|--|-----|---------|
| 1.      | 480       | Transport Options for Developing Countries  — by Engr. Mian Ghiasuddin   |     | 1-13    |
| 2.      | 481       | Mechanism of the Doomsday  The Ultimate Fate of Universe.  |     | 17—38   |
| 3.      | 482       | Introduction of Dry Hydrate Lime as a Building Material in Pakistan  —by M/s. Muhammad Iqbal,  Ali Muhammad & K.L. Khawaja |     | 39—68   |
| 4.      | 483       | Development of Lahore at West Bank<br>of Ravi, by Dr. Javed Yunus Uppal  | ••• | 69—76   |
| 5.      | 484       | Remodelling Marala Barrage and<br>Link Canal for Silt Control.<br>- by Engr. Rana Mohammad<br>Aslam Chohan                 |     | 77—104  |
| 6.      | 485       | Drainage Study of Coastal Area.  - by Engr. Bagh Ali Shahid  and Engr. S. M. A. Zaidi                                      |     | 105—132 |
| 7.      | 486       | Optimum Moisture Content as related<br>to grain size of cohesive soils.<br>—by Mr. I H Hamdani                             |     | 133—142 |
| 8.      | 487       | Foundation Protection of Tarbela Hydro Power Building Units 5-8.  - by Engr M. R. Chaudhry                                 | 1   | 143—148 |
| 9.      | 488       | Interceptor Drains,by Dr. Izharul Haq  | 1   | 149—164 |
| 10.     | 489       | Reclamation of Saline Sodic Lands with<br>Chemical Amendments.<br>—by Ch. Altaf Hussain                                    | 1   | 65—172  |
| 11.     | 490       | Monitoring of Mangla Dam Project.  —by Engr, Ch. Altaf-ur-Rehman   | 1   | 73—194  |
| 12.     | 491       | Experimental Errors in Measurement of Alluvial Channels.  by Mr. Ahmed Masud Ch.   | 1   | 95—206  |