

BIO DATA OF

**M.H. PANHWAR**



## **M. H. PANHWAR**

Date of Birth : December 25, 1925.

Qualifications : B.E. (Mech. Elec.), Sindh University  
Karachi, 1949.  
M. Sc (Agricultural Engineering),  
Wisconsin, U.S.A, 1953.

## **M.H. PANHWAR'S AWARDS**

- Medal from Sindh University, for securing first number in first class in B.E. (Mech. And Elec.), 1949.
- Awarded SITARA– E-IMTIAZ by the PRESIDENT OF PAKISTAN, in 1992 for outstanding work in ENGINEERING and AGRICULTURE.
- Nominated in “WHO IS WHO IN THE WORLD” in 1987/88.
- Life Time Achievement Award for saving Motherland in History and Archaeology, 1999 by Tarqi Pasand Party.
- Life time Achievement Award for Service in Science of Engineering and Agriculture, August 2002 by Re vivers.

# **M.H. PANHWAR'S EXPERIENCE WITH THE GOVERNMENT OF SINDH AND GOVERNMENT OF WEST PAKISTAN.**

- Agriculture Engineering in Sindh, 1953–58.
- Superintending Engineering, Agricultural Machinery Sindh and Baluchistan Provinces, 1958–69.
- During Period 1953–69 carried out following jobs.
  - 1) Operated a fleet of 600 BULLDOZERS in Sindh and Baluchistan for Agriculture land leveling.
  - 2) Established 12 Repair Workshops for tractors and bulldozers for Agriculture Department, almost one in each district of Sindh and 3 more in Baluchistan.
  - 3) Operated AGRICULTURAL MACHINERY of all types.
  - 4) Put in 3000 Tube-Wells in Sindh, and 1000 Open Wells in diesel pumping sets in Baluchistan 1958–69.
  - 5) Developed BULLOCK–DRAWN IMPLEMENTS carried out tests on large variety of wheel type tractors, implements, harvesters and threshers etc., 1953–69.
  - 6) Carried out GROUND WATER SURVEY in the whole Sindh and Baluchistan and wrote 10 books on ground water in Sindh and Baluchistan.

## **M.H. PANHWAR'S CONSULTANCY EXPERIENCE – (1970–2002).**

- Managing Director, EDUCATIONAL AIDS 1970–1979, equipped New NED University with Scientific Equipment of all laboratories.
- Managing Partner, PLANNING AND DEVELOPMENT CONSULTANTS (1973–79). During the period M.H. Panhwar handled three major projects pertaining to Agriculture and drainage. These are:
  - 1) Project Preparation, LEFT BANK OUTFALL DRAIN Phase–I (Mirpurkhas and Sanghar Districts), (1974–1979).
  - 2) Project Planning RIGHT BANK OUTFALL DRAIN Phase–I (Kandhkot, Thul, Shahdadkot), Surface Drainage Project, (1975–1979).
  - 3) Project Planning for raising sugarcane for DADU SUGAR MILLS, (1975–76).
- Managing Director RESEARCH AND DEVELOPMENT ENGINEERS 1979-to date.
  - 1) Equipment for NATIONAL BUILDING RESEARCH INSTITUTE Karachi, 1980-85.
  - 2) Equipment for APPROPRIATE TECHNOLOGY Government of Pakistan Karachi, 1984–87.
  - 3) Equipment for COUNCIL FOR WORKS HOUSING RESEARCH Karachi, 1980–85.
  - 4) Equipment for PCSIR Karachi, 1986–88.
  - 5) COCONUT FARM on 1000 acres at Hab Chawki 1985–1997.
  - 6) Survey of BIO–GAS PLANT Installed by Energy Cell Government of Pakistan in Sindh, 1989–90.
  - 7) SOLAR POWER for remote villages in Thar area, client Government of Sindh, 1990–91.
  - 8) LEFT BANK OUTFALL DRAIN, ON–FARM WATER MANAGEMENT COMPONENT, 1989–to date.

- 9) Studies for introducing NEW CROPS AND LATEST CULTURAL PRACTICES, 1983–today.
- 10) Introducing 25 new fruit crops in Sindh 1980–2002.

## **M.H. PANHWAR'S HONORARY ASSIGNMENTS**

- Professor Agricultural Engineering at King George the VTH Agricultural College Sakrand and Tando Jam 1954–1957 (Three years additional charge).
- Visiting Professor and Equipment Advisor to the Mehran University of Engineering and Technology, 1980–1986.
- Engineering Advisor to the University of Sindh, 1982–1986.

## **M.H. PANHWAR'S HONORARY MEMBERSHIPS**

- Chairman Executive Committee Daud College of Engineering and Technology, Karachi, 1990–1993.
- Member Board of Governors Daud College of Engineering and Technology, Karachi 1990–93.
- Member Board of Governors National Institute of Historical and Cultural Research Karachi, 1986–1993.
- Member Board of Governors National College of Arts, Lahore, 1989–1993.
- Member Executive Board National College of Arts, Lahore, 1989–1993.
- Member Board of Governors Khuzdar Engineering College, 1989–1993.
- Member Selection Board National College of Arts, Lahore, 1989–1993.
- Member Board of Governors College of Arts Jamshoro, 1989–1993.
- Member Editorial Board, Journal Sindhological Studies, 1982–1993.



## **M. H. PANHWAR'S MAJOR ACHIEVEMENTS**

- Establishment of Agricultural Engineering Setup in Sindh with 12 Workshop for operating 500 bulldozers and installation of tube-wells between 1953–1969.
- Introducing TUBE-WELL in Sindh for first time in 1956 and installing 3000 tube-wells between 1956–1969.
- Investigating Ground Water in Sindh and publishing 100 books and large number of articles on the subject between 1962 and 1973.
- Introducing of Temperature zone fruits like grapes, almonds, pomegranates, figs, peaches, plums, nectarines, pears, apples and persimmon in hot sub-tropics of Sindh commercially new venues for economic development 1989–1996.
- Introducing at Khesano Mori near Tando Jam new Sub-Tropical fruits like Longan, Lychee and Zizyphus Jujuba and Ruby Red grapefruit on commercial scale, 1989–1996.
- Introducing wild plants Jojoba, Jetropha, Bufalo Gourd and other industrial crops in Sindh commercially.
- Introducing new Technologies like RENEWABLE ENRGIES, economic use of Agriculture Waste, rabbit farming and new techniques for saving water.
- Introducing 17 new varieties of mango in Sindh, harvest dates 15<sup>th</sup> April to 15<sup>th</sup> October.
- Developing of Cheap Micronutrient Formulae, for use in horticultural crops.
- Using multidisciplinary approach in investigation of many subjects pertaining to Sindh, whether; history anthropology and archaeology or ground water and horticulture and thus producing following classical books and more than 200 articles.
  - GROUND WATER IN SINDH (8 books, 3000 pages).
  - Source MATERIAL ON SINDH (650 PAGES).
  - Chronological Dictionary of Sindh (7000 pages).
  - The 6000 Years History of Irrigation in Sindh (400 pages).
  - New Fruits, Nuts and Industrial Crops in Sindh (100 pages).
  - An Illustrated Historical Atlas of Soomra Dynasty of Sindh (1011-1351 AD) – 250 pages.

- The first in Pakistan to recognize Banana Bunchy Top Virus, disease in banana.
- Pioneer in Organic Farming on 100 acres farm and by 1996 AD, all synthetic fertilizers and pesticides were discarded.
- Developing 7 new varieties of Lychee from seedlings.

# M.H. PANHWAR'S PUBLICATIONS

ON HISTORY, ARCHAEOLOGY, HISTORICAL GEOGRAPHY, CLIMATES OF  
THE PAST AND ETC., OF SINDH.

As hobby M.H. Panhwar collects various kind of materials connected with Sindh, specially books, ancient and recent maps and photographs, pertaining to ancient monuments and history of Sindh. His collection has 11,000 books and bulletins on Sindh, 3,000 ancient maps and large number of photographs. Some of they are rare and unknown in Sindh.

He has published a number of books and articles on Sindh mostly in English, a few of which have been translated and published in Sindh in Journal 'Mehran' a quarterly of Sindhi Adabi Board.

## LIST OF PUBLICATIONS BY M.H. PANHWAR:

- **MUSLIM AURAT** (Sindhi), 1945.
- **GROUND WATER IN HYDERABAD AND KHAIRPUR DIVISION**, 1964, Revised, 1969.
- **CAUSES OF DECLINE OF PERSIAN IN PAKISTAN**, Pak-Iranian Cultural Centre, 1975.
- **MAPS ON SINDH** (being description of 500 historical economic, hydrological, archaeological, physical, geological, ground water and administrative maps in possession of the author). Sindh Quarterly, Vol.II, No.2, 1976.
- **EVOLUTION OF ARABIC SYSTEM OF MEDICINE FROM GREEK, INDIAN, MESOPOTANIAN, EGYPTIAN AND CHINESE** upto 9<sup>th</sup> Century AD, J. Institute of Sindhiology Summer 1977.
- **SOURCE MATERIAL ON SINDH**, Institute of Sindhiology, 1977.
- **HISTORICAL GEOGRAPHY OF 17<sup>TH</sup> CENTURY**, being an introduction to Mazahar Shah Jehani (Sindhi translation), Sindhi Adabi Board, 1977.
- **SKETCHES OF DRAWINGS, PAINTINGS AND PORTRAITS ON SINDH**, by British officials in the mid nineteenth century, Sindh Quarterly, Vol. V, No. 4, 1978.

- **HEROIC STRUGGLE OF SINDH AGAINST FEUDALISM**, 1500-1843 AD. Sindhiological Studies, Summer 1979. (Sindhi translation by Ghulam Muhammad Lakho Jour. Mehran).
- **SINDH-KUTCH RELATION**, Sindh Archieves, Karachi, 1980. (Sindhi translation, Ghulam Muhammad Lakho, Jour. Mehran).
- **SINDH AND ITS FOOD RESOURCES, SINCE ANTIQUITY**; Pre-Neolithic socio-anthropological study; animals, birds, fishes and wild horticultural products, Sindh Quarterly, Vol. VII, No. 3, 1979 and 4, and Vol. VII No.1, 1980.
- **THE ART OF MAP MAKING AND SOME RARE MAPS** of Indian Sub-continent (which include Sindh) and Sindh, 140 to 1808 AD. Sindh Quarterly Vol. IX, No. 1, 1980.
- **INTERNATIONAL TRADE OF SINDH, THROUGH ITS PORT BARBARICAN (BANBHORE)**, 200 BC – 200 AD, Sindhiological Studies, Winter, 1980. (Summary Jour. PIMA).
- **471 MAPS OF SINDH, IN ROYAL GEOGRAPHICAL SOCIETY, BRITISH MUSEUM, INDIA OFFICE LIBRARY AND NATIONAL ACHIEVES OF INDIA**, J. Grass Roots Spring, 1980.
- **MAN IN SINDH – STONE AGE TO NEOLITHIC**, Sindhiological Studies, Summer, 1980.
- **ABOUT PALANTOLOGIE OF SINDH, 1870-1884**, J. Sindh Quarterly Vol. VIII, No. 2, 1980.
- **GREEK AND ROMAN CLASSICAL WRITERS, WHO WROTE ABOUT SINDH**, (Sindhi) Mehran March, 1981.
- **FAILURE OF GATE OF SUKKUR BARRAGE AND LESSON FOR FUTURE**, Sindhiological Studies, Winter, 1981.
- **RANIKOT FORT**, its odd location and why? In souvenir Ranikot Seminar, 26<sup>th</sup> March, 1981. Published by Ranikot Seminar Committee. Also Sindh Quarterly.
- Sindh the archaeological museum of the world; **LOCATION OF BRAHMANKA, PATALA, DEMETRIAS, MINAGGARA, BRAHMANO, BRAHMANVA, BRAHMANABAD, DALU RAI AND MANSURA**, Sindh Quarterly Vol. XI, No. 1 and 2, 1983.

- **ABDULLAH HAROON AND HIS TIMES (1911-1942 AD)** J. Sindh Quarterly, 1983.
- **CHRONOLOGICAL DICTIONARY OF SINDH**, Institute of Sindhology, 1984.
- **7,000 YEARS OF WOMEN'S SLAVERY**, J. Sindhiological Studies, Part I, 1984.
- **FOUR ANCIENT RIVERS OF SINDH OR ONE HUNDRED THOUSAND YEARS OF HISTORY OF SANGHAR DISTRICT**, J. Sindhiological Studies, Summer, 1985.
- **DEVELOPMENTS IN HISTORY AND ARCHAEOLOGY OF SINDH, SINCE INDEPENDENCE** Part-I and II, J. Sindhiological Studies, Winter, 1985 and Summer 1986. (Also Mehran).
- **HAKRA OR (SARSUTI) CONTROVERSY**. J. Sindhiological Studies, Winter, 1986.
- **INEVITABILITY OF CONQUEST OF SINDH BY THE BRITISH 1843 AD**, J. Sindhiological Studies, Summer 1987.
- **INSTITUTE OF SINDHIOLOGY SUGGESTIONS FOR ITS FUTURE PROGRAMS**, J. Sindh Quarterly, Vol. XVI, No. 4, 1988.
- **TRAGEDY OF PAKISTAN AGRICULTURE, CEREAL CULTURE VERSUS HORTICULTURE**, J. Sindh Quarterly Vol. XVI, No. 1, 1988.
- **METHODOLOGY FOR RESEARCH INTO THE HISTORY OF SINDH** Part I and II, J. Sindhiological Studies, Summer and Winter, 1988.
- **LANGUAGES OF SINDH BETWEEN RISE OF AMRI AND FALL OF MANSURA (4,000 BC – 1025 AD)** based on archaeological evidence, in Abdul Jabar Junejo (Ed), Cultural Heritage of Sindh, Sindhi Adabi Board Jamshoro, 1989.
- **REVOLUTIONARY INVENTION OF JHALI OR PANKHA** in late 18<sup>th</sup> and early 19<sup>th</sup> centuries, J. Sindh Quarterly, 1989.
- **FIXING BOUNDARIES OF SINDH BY THE BRITISH 1843-1947**, J. Sindhiological Studies, Summer, 1989.
- **IRRIGATION UNDER NOOR MUHAMMAD KALHORA**, J. Sindhiological Studies, Winter, 1989.

- **ECONOMIC PLIGHT OF SINDH UNDER PAKISTAN**, J. Sindh Quarterly, Vol. XVII, No. 2, 1990.
- **ON UNIQUENESS OF DADU DISTRICT**, J. Sindhiological Studies, Winter 1990.
- **OCEANOGRAPHIC ARCHAEOLOGY**, Its potential in Pakistan, J. Archaeological Quarterly, Vol. II, No. 1, 1990.
- **STRANGULATION OF AGRICULTURE, INCREASING RURAL POVERTY IN SINDH AND THE LOWER IN PUNJAB**, J. Sindh Quarterly Vol. XIX, No.3, 1991.
- **PRE-HARAPPAN CHRONOLOGY OF SINDH**, I and II, J. Sindh Quarterly Vol. XVII, No. 4, 1990 and Vol. XIX No. 1, 1991.
- **BANANA EPIDEMIC IN SINDH**, Imported disease or deliberate sabotage, J. Sindh Quarterly Vol. XIX, No.4, 1991.
- **PIR HISAMMUDDIN RASHDI**, a dedicated historian, J. Archaeological Quarterly, Vol. IV, No. 1 and 2, 1991.
- **CLIMATIC CHANGES IN SINDH, 67 MILLION YEARS AGO TO 1850**, J. Sindh Quarterly, Vol. XXII, No. 3, 1993.
- **TO GROW PINEAPPLE AND OIL PALM IN THATTA DISTRICT**, J. Sindh Quarterly, Vol. XXII, No. 1, 1994.
- **5,000 YEARS OF TRADE THROUGH BARBARICAN AND THE INDUS**, J. PIMA, Vol. I, No. 3, 1994.
- **SEEPAGE OF WATER FROM THE RIVER INDUS AND OCCURRENCE OF FRESH GROUND WATER IN SINDH**, Article read at conference on Indus, London July 12-16, 1994. (Being published in Proceedings by Oxford University Press, London).
- **SINDH ARCHAEOLOGICAL MUSEUM OF THE WORLD**, A brief study of Brahmanabad-Mansura, J. Archaeological Quarterly, Vol. VI, No. 3, 1994/95.
- **RAIN HAVOC IN DADU-LARKANA DISTRICTS**, Daily Barsat. August 14, 1995.
- **AGRO-CLIMATE OF COASTAL ZONE OF SINDH AND POTENTIAL FOR DEVELOPMENT**, J. Wild Life and Environment, Vol. 4, No.1, April-June, 1995.

- **CLOUD RAIN DISASTER IN DADU AND LARKANA DISTRICTS BE AVERTED**, J. Wild Life and Environment, Vol. 4, No. 2, July-September, 1995.
- **HENRY COUSEN AND ARCHAEOLOGY OF SINDH**, being information on archaeological exploration and excavations in Sindh from 1895/96 to 1937/38 and their sources and published as introduction to Sindhi translation of Henry Cousens', Archaeology of Sindh, Sindhi Adabi Board, 1995.
- **MY REMINISCENCES OF G.M. SAYED** Part-I (1963-70), J. Sindh Quarterly, Vol. XXIV, No.4, 1996.
- **SAMPHIRE AN EDIBLE OIL CROP** for Sindh, PIMA, Vol. 3, No. 1, June, 1996.
- **DEVELOPMENT IN ARCHAEOLOGY SINCE MUJAMDAR'S EXPLORATIONS IN SINDH**, to be published as introduction to Translation of this book, Sindhi Adabi Board.
- M.H. Panhwar, Origin of Castes and Anthropological Study of few Sindhi Tribes.
- Saman-ji-Sultanate a critical letter M.H. Panhwar.
- Willem Floor, The Dutch East India Company (Voc) and Diewel-Sindh, Pakistan (Introduction by M.H. Panhwar, 30 pages).
- Tragedy of Pakistan Agriculture – cereal culture versus horticulture.
- Abdullah Haroon and His Times.
- In Search of Summer Hill Resorts.

## **M.H. PANHWAR UN-PUBLISHED BOOKS ON SINDH**

Below is the list of books pertaining to Sindh, written by M.H. Panhwar and yet unpublished.

SR No.	TITLE	NO. OF PAGES
1.	<b>ANCIENT SINDH (BEING COLLECTION OF 60 ARTICLES PUBLISHED IN VARIOUS JOURNALS).</b>	800
2.	<b>A HISTORICAL ATLAS OF SINDH, WITH 145 MAPS DRAWN BY THE AUTHOR.</b>	250
3.	<b>CLIMATE CHANGES AND THEIR IMPACT ON HISTORY OF SINDH (16,000 BC TO 1950 AD).</b>	250
4.	<b>A SOCIAL HISTORY OF SINDH (PRE-ISLAMIC PERIOD 1, 000 BC TO 711 AD) SINDH.</b>	250
5.	<b>A SOCIAL HISTORY OF SINDH (ISLAMIC PERIOD 711 AD TO 1843 AD).</b>	250
6.	<b>HISTORY OF SIX THOUSAND YEARS OF IRRIGATION IN SINDH.</b>	400
7.	<b>A MAP OF CHANGING COURSES OF THE RIVER INDUS FROM AERIAL PHOTOGRAPHS SIZE 48”X96”.</b>	One sheet 1.0x2.5 meters (40x100 inches)
8.	<b>SOME REMINISCENCES AND RECOLLECTIONS BEFORE AGE OF 10 YEARS.</b>	300
9.	<b>HISTORY OF SINDH IN 2500 ILLUSTRATIONS 16,000 BC TO 1947.</b>	500



# **M.H. PANHWAR'S TECHNICAL PUBLICATIONS**

- **THRESHERS BRITISH AND AMERICAN**, 1953.
- **HARVESTING AND STORING OF RICE**, 1953.
- **COTTON GROWING MACHINES**, 1953.
- **REPORT ON FIRST “DESERT COOLER”** produced at Agricultural Engineering Workshop by M.H. Panhwar, October, 1953.
- Proposal for Establishment of **FIELD DRAINAGE FARM**, Young Engineer, Karachi pp.65-73, 1959-60.
- **GROUND WATER IN DADU DISTRICT**, 1962.
- **GROUND AND SURFACE WATER IN ARID ZONES OF SINDH**, 1963.
- **GROUND WATER IN SINDH**, 1964.
- **GROUND WATER IN KARACHI DIVISION**, 1965.
- **GROUND WATER IN LASBELLA DISTRICT**, 1967.
- **GROUND WATER IN QUETTA AND KALAT DIVISIONS**, 1968.
- **GROUND WATER IN HYDERABAD AND KHAIRPUR DIVISIONS (REVISED)**, 1969.
- **MECHANISATION OF SUGARCANE**, 1969.
- **MECHANISATION OF COTTON CROP**, 1969.
- **EXPERIMENTS ON TWENTY ONE FOOT SOUTHERN CROSS WIND MILL**, 1965-69, 1970.
- **GROUND WATER IN KARACHI MASTER PLAN AREA** (4,000 square miles between Karachi to Hyderabad) on behalf M/s. Zaheeruddin, Panhwar and Partners for K.D.A., 1972.
- Reports for WAPDA concerning: 1974-81.

- (a) **LEFT BANK OUTFALL DRAIN PROJECT** Phase-I, Project Preparation.
- (b) **Kandhkot Thul Shahdad Kot Surface Drainage Project**, Project Planning.
- Reports on Development of **SUGARCANE FOR SUGAR MILL** at Piarogoth, 1975-76.
  - Reports for **ANIMAL HUSBANDRY FARM AT JHIMPIR**, 1975-76.
  - Plan for **DECIDUOUS FARM IN HILL OF DADU AND LARKANA DISTRICTS** in article “In Search for a **HILL RESORT IN SINDH**” Evening Star, the Thursday, October 14<sup>th</sup>, 1982.
  - **SCOPE FOR PRAWN FARMING IN SINDH**, Journal Pakistan Agriculture, September, 1983.
  - **AGRO-LIVE STOCK PROJECT JHIMPIR**, Pakistan Agriculture, October, 1983.
  - **RABBIT FARMING** – Journal Pakistan Agriculture, October, 1983.
  - **FAILURE OF A GATE OF SUKKUR BARRAGE**, A lesson for the future, Sindhilological Studies, Summer 1983, pp.15-32.
  - **ENGINEERING, SCIENTIFIC AND ECONOMIC CONSIDERATION FOR AN AQUACULTURE ENTERPRISE**, Pakistan Agriculture, October, 1984.
  - Banana cultivation. **A NEW AND REVOLUTIONARY VARIETY OF BANANA** suitable for growing throughout Sindh, Pakistan Agriculture, June, 1984.
  - **FIRST BIOGAS PLANT OF PAKISTAN**, (1959), J. Science, Technology and Development Vol. 3, No. 2, 1984.
  - **MY EXPERIENCES WITH GROUND WATER**, Pakistan Agriculture, October, 1984.
  - **SMALL TRACTORS AND ARE THEY WORTH WHILE?** Pakistan Agriculture, March, 1984.
  - Scope for **USE OF WIND POWER IN SINDH**, 1984.
  - **AGRO-INDUSTRY AND POWER ORIENTATION**, Pakistan Agriculture, August, 1984.
  - **A NEW EXPORTABLE VARIETY OF BANANA – WILLIAM HYBRID**, Pakistan Agriculture, June 1984, pp.6-9.

- **WHEAT TURNS POISON**, Pakistan Agriculture, November 1984, pp. 34-35.
- Mr. M.H. Panhwar on Ground **WATER MANAGEMENT**, Pakistan Agriculture, October, 1984, pp. 62-67.
- Use of **ALGAE AS PROTEINOUS FEED FOR HUMAN BEINGS AND ANIMALS**, Pakistan Agriculture, August 1985, pp. 57-58.
- **DEVELOPMENT OF SUMMER HILLS RESORTS AND TOURISM CENTRES IN THE WESTERN HILLS OF SINDH**, Mining Engineer Pakistan, Vol. 3, No. 10, October 1985, pp. 34-39.
- Proposal for **INSTALLATION OF 250 WIND MILLS IN KOHISTAN AND THAR DESERT AS RANGE MANAGEMENT PROGRAM**, Mining Engineer Pakistan, November 1985, pp. 15-27.
- **SOIL CONSERVATION OF THE THAR AND KOHISTAN** Area of Sindh, Mining Engineer Pakistan, November 1985, pp. 4-9.
- **NOW JOJOBA OIL**: An attractive crop for cosmetic industry, Pakistan Agriculture, January 1986, pp.39-42.
- **AN SCOPE FOR BETTER UTILISATION OF POULTRY DROPPINGS**, by converting it into Cattle Feed and Methane, Science Technology and Development, January-February, 1986, pp. 25-28.
- **ELECTROMAGNETIC OR ELECTRONIC TREATMENT OF KOHISTAN WATER** for use in the boilers, Mining Engineer Pakistan, March, 1986, pp. 30-40.
- **PLAN FOR DEVELOPMENT OF THAR AND KOHISTAN**, Mining Engineer Pakistan, March 1986, pp. 36-40.
- **GROUND WATER IN THE THAR DESERT OF SINDH**, Mining Engineer Pakistan, January-February, 1986, pp. 25-39.
- **JOJOBA SUCCESSFULLY GROWN ON SIX ACRES IN PAKISTAN**, Jojoba Happenings USA, July-August, 1987, 1 p.
- **SOME IMPORTANT SPRINGS OF HAMAL KOHISTAN**, Mining Engineer Pakistan, March-April, 1988, pp. 9-14.
- **THE BANANA EPIDEMIC IN SINDH**, April-June, 1991, pp.41-46.

- **IS SINDH'S CLIMATE SUITABLE FOR CITRUS CROPS**, DAWN: Economic and Business Review, December 7-13, 1991, P.III.
- **IS THE CLIMATE OF SINDH SUITABLE FOR RAISING CITRUS FRUITS?** Sindh Guardian January 19, 1992, 2 p.
- **TO GROW OIL PALM IN THATTA DISTRICT**, Sindh Guardian, January 21, 1992, 2 p.
- **TO GROW PINEAPPEL IN THATTA DISTRICT**, Sindh Guardian, 2 p.
- **GOING BANANAS**, New Line – June 1991, pp.56-58.
- **BANANA VIRUS**, DAWN, 18-06-1991, 1 p.
- **GROWING CASHEWNUT IN SINDH: some prospects**, Business Recorder, February 1, 1992, 3 p.
- **IS THE CLIMATE OF SINDH SUITABLE FOR RAISING CITRUS FRUITS?** Science Technology and Development, January-March 1992, pp.46-51.
- **GRAPES IN SINDH**, Minnesota Grape Growers, St. Paul (Mn), 1992, Annual Report, pp.7-9.
- **DAMAGE TO FRUIT TREES** by 1992 Rains, DAWN: Letters to the Editor, September 9, 1992, 1 p.
- **TEMPERATE ZONE FRUITS IN THE SUB-TROPICAL AREA OF SINDH PAKISTAN**, In Fourth International Symposium on Growing Temperate Zone Fruits in Tropics and Sub-Tropics, Cairo (Egypt) May 22-26, 1993 in Acta Horticulture, Vol. 409, pp.155-164.
- **A NEW LOOK AT AGRO-CLIMATIC ZONES IN SINDH**, DAWN: Economic and Business Review, Agriculture & Technology, May 29 – June 4, 1993 – P III.
- **AN UPHILL FUTURE FOR MANGO**, DAWN: Economic & Business Review, May 7-13, 1994, P.III.
- **SAMPHIRE** – an edible oil crop for Sindh, DAWN: Economic & Business Review, May 27 – June 2, 1995, P.III, 2 p. Published jointly with Farzana Panhwar.
- **INTELLECTUAL PROPERTY RIGHTS AND PAKISTAN'S MANGO PRODUCTION**, DAWN: Economic & Business Review, December 9-15, 1995, P.III, 2 p. Published jointly with Farzana Panhwar.

- **WHEAT IN PAKISTAN:** Feeding the towns at the expense of the farmers, Jour. Landmark (U.K), July-August 1995, pp.7-?
- **RAIN HAVOC IN DADU AND LARKANA,** DAWN: Economic and Business Review, August 5-11, 1995, P.VI, 1 p.
- **NEEM** – an natural pesticide, DAWN: Economic & Business Review, June 8-14, 1996, P.III, 3 p. Published jointly with Farzana Panhwar.
- **FLYING FOX:** a highly lethal agricultural pest, DAWN: Economic and Business Review, June 29 – July 5, 1996 P.III, 2 p. Published jointly with Farzana Panhwar.
- Installation of 250 **WIND MILLS** for Thar and Kohistan (In press).
- **BIO-GAS PLANTS FOR DEVELOPING COUNTRIES** (Ready for press).
- Advisory Farmnote on Mango (Winter 1998/99) Sindh Society for Horticultural Science Vol. 1, No. 2, 2 p.
- Samphire (*Salicornia Ligrlonii*): A promising fruit oil crop for Sindh, Sindh Society for Horticulture Science, Vol. 1, No. 2, 1 p. Published jointly with Farzana Panhwar.
- Research Criteria for Introducing New Fruit and Nut Crops, Sindh Society for Horticultural Science, Vol. 1, No. 2, 1 p.
- Top Horticulturist of Pakistan and our ignorance, Sindh Society for Horticultural Science, Vol. 1, No. 2, 2 p.
- Simaruba *Glaucifera* Fruits in Sindh, Sindh Society for Horticulture Science, Vol. 1, No. 2, 1 p.
- Mango Truth of Myth, Sindh Society for Horticultural Science, Vol. 1, No. 2, 1 p.
- Grapes in Sindh: From Minnesota Grape Growers 1992 Annual Report, Sindh Society for Horticultural Science, Vol. 1, No. 2, 2 p.
- New Mango Called Sindhu in India, Sindh Society for Horticultural Science, Vol. 1, No.1, 1 p.
- Disappearance of the Citrus Industry in Sindh between 1955 to 1960 and its Rehabilitation,
- Sindh Society for Horticultural Science, Vol. 1, No. 3, 2 p.

- Agro-Climate of Sindh, Sindh Society for Horticultural Science, Vol. 1, No. 3, 1 p.
- Neem – a natural pesticide, Sindh Society for Horticultural Science, Vol. 1, No. 3, 2 p.
- The Great Banana Tragedy in Sindh, Sindh Society for Horticultural Science, Vol. 2, No. 1, 1999, 2 p.
- To Grow Oil Palm in Thatta District, Sindh Society for Horticultural Science, Vol. 2, no. 1, 2 p.
- Agricultural Libraries of Pakistan, Sindh Society for Horticultural Science, Vol. 2, No. 1, 1999, 1 p.
- Mango Farm Note No. 2, Sindh Society for Horticultural Science, Vol. 2, No. 1, 1999, 1 p.

# LIST OF UN-PUBLISHED HAND BOOKS ON FRUIT, NUTS AND INDUSTRIAL CROPS

**BY**  
**M.H. PANHWAR & MRS. FARZANA PANHWAR**

S. No.	TITLE OF HAND BOOK	PAGES
1.	Chinese and Indian jujube.	90
2.	Guava.	96
3.	Lychee.	200
4.	Longan (Brother of lychee) for Sindh.	120
5.	Pomegranates.	120
6.	Fig for Southern Pakistan.	100
7.	Persimmon (Chinese) for subtropics.	85
8.	Almond.	50
9.	Jojoba.	55
10.	Mango.	400
11.	New fruits, nuts and industrial crops for Southern Pakistan.	288
12.	Grapes for subtropics.	150
13.	Low chill peaches and plums for subtropics.	350
14.	Low chill pears for subtropics.	96
15.	Citrus.	300
16.	Tropical apple.	129
17.	Date.	80
18.	Roses.	70
19.	Growth regulators for fruit crops.	100
20.	Foliar fertilizing of fruit crops.	70
21.	New exotic fruits for subtropics.	400
22.	Organic farming at Panhwar Fruit Farm.	50
23.	Post-harvest of fruits.	150
24.	Cashew.	60
25.	Papaya.	80
26.	Jamon.	50
27.	Lures and pheromones.	30
28.	Diseases of fruit crops.	200
	<b>TOTAL</b>	<b>3,969</b>

# **BOOKS ON EXPORT ORIENTED POST-HARVEST TECHNOLOGY**

**BY**  
**M.H. PANHWAR & MRS. FARZANA PANHWAR**

<b>S. No.</b>	<b>TITLE</b>	<b>No. of Pages</b>
1.	POST-HARVEST TECHNOLOGY IN ACHIEVING SINDH'S POTENTIAL OF EXPORTING <b>MANGO</b> .	150
2.	POST-HARVEST TECHNOLOGY IN ACHIEVING SINDH'S POTENTIAL OF EXPORTING <b>CITRUS</b> .	145
3.	POST-HARVEST TECHNOLOGY IN ACHIEVING SINDH'S POTENTIAL OF EXPORTING <b>LYCHEE-LONGAN</b> .	95
4.	POST-HARVEST TECHNOLOGY IN ACHIEVING SINDH'S POTENTIAL OF EXPORTING <b>DATES</b> .	150
5.	POST-HARVEST TECHNOLOGY IN ACHIEVING SINDH'S POTENTIAL OF EXPORTING <b>VEGETABLES</b> .	105
6.	POST-HARVEST TECHNOLOGY IN ACHIEVING SINDH'S POTENTIAL OF EXPORTING <b>MELON</b> .	30
7.	POST-HARVEST TECHNOLOGY IN ACHIEVING SINDH'S POTENTIAL OF EXPORTING <b>CUT-FLOWERS</b> .	60
8.	POST-HARVEST TECHNOLOGY IN ACHIEVING SINDH'S POTENTIAL OF EXPORTING <b>GUAVA</b> .	75
9.	POST-HARVEST TECHNOLOGY IN ACHIEVING SINDH'S POTENTIAL OF EXPORTING <b>PAPAYA</b> .	105
10.	EXTENDING <b>MANGO</b> SEASON IN SINDH FROM 15 <sup>TH</sup> TO 15 <sup>TH</sup> OCTOBER.	80
	<b>TOTAL</b>	<b>995</b>



# **M.H. PANHWAR AND FARZANA PANHWAR'S JOINT PUBLICATIONS**

## **PUBLISHED ARTICLES:**

- M.H. Panhwar and Mrs. Farzana Panhwar, **SUSTAINABLE METHODS AS APPLIED TO RAISING FRUIT CROPS**, Institute of Organic and Sustainable Hort. And Agri. Res. Hyderabad and Sindh Society for Hort. Sci. Karachi, 1995, 49 p.
- M.H. Panhwar and Farzana Panhwar, **DESIGN OF AN ACQUACULTURE ENTERPRISE**, J. Pakistan Agriculture Vol.V II, No. 10, October, 1985.
- Farzana Panhwar and M.H. Panhwar, **SAMPHIRE – AN EDIBLE OIL CROP FOR SINDH** Agriculture and Technology DAWN Economic and Business Review, May 27 to June 2, 1995, P-III.
- Farzana Panhwar and M.H. Panhwar, **INTELLECTUAL PROPERTY RIGHTS AND PAKISTAN'S MANGO PRODUCTION**, DAWN Agriculture and Technology, Economic & Business Review, December 9-15, 1995, P-III.
- Farzana Panhwar and M.H. Panhwar, **FLYING FOX A HIGHLY LETHAL AGRICULTURAL PEST**, DAWN June 9 – July 5, 1996.
- Farzana Panhwar and M.H. Panhwar, **NEEM – A NATURAL PESTICIDE**, DAWN Agriculture and Technology, Economic and Business Review, June 8 – 14, 1996.

## **UN-PUBLISHED ARTICLES:**

- Farzana Panhwar and M.H. Panhwar, **BIO-GAS PLANTS** for Developing Countries.
- Farzana Panhwar and M.H. Panhwar, Handbook of **SEA WATER SHRIMP FARMING** including Hatchery, Feed Requirement and Manufacture, Processing and Packing.
- Farzana Panhwar and M.H. Panhwar Research on **BIO-GAS FARMYARD MANURE** Agriculture wastes like banana trunks, bagasse, barley, maize, saw-dust and etc.
- Farzana Panhwar and M.H. Panhwar, Manual of **RABBIT FARMING**.

- Farzana Panhwar and M.H. Panhwar, **COMPLETE DIET FOR CATTLE AND SHEEP**.
- Farzana Panhwar and M.H. Panhwar, Handbook of **AUDIO-VISUAL MATERIAL FOR SCIENTIFIC EDUCATION** in Colleges, Universities and Industries (700 pages).
- Farzana Panhwar and M.H. Panhwar, Handbook of **DEHYDRATION OF FRUITS AND VEGETABLES**.
- Farzana Panhwar and M.H. Panhwar, **BALANCED POULTRY FEED** and the Economic Applications to Pakistan Conditions.
- Farzana Panhwar, **TRACE ELEMENTS** in agriculture.
- Farzana Panhwar, **FAUNA OF THAR AND KOHISTAN**.
- Farzana Panhwar, **FLORA OF THAR AND KOHISTAN**.
- Farzana Panhwar, **BIO-GAS** Technology (8 articles jointly with M.H. Panhwar and Sikandar Arbani) 4 published and 4 in press.

## **M.H. PANHWAR'S RESEARCH REPORTS**

M.H. Panhwar besides his consultancy work in agriculture and engineering had been carrying out research into agriculture; fisheries; ground water; agricultural wastes like; farmyard manure, weeds, banana plant wastes, bagasse, and saw-dust; diet for domestic animals, rabbits and poultry, wind mills, renewable resources of energy, use of audio-visual materials in education, dehydration of fruits and vegetables and etc., and he has produced a number of reports listed below:

- Hand book of **ACQUACULTURE FOR PAKISTAN**.
- Hand book of **SEA WATER SHRIMP FARMING** including hatchery, feed requirement and manufacture, processing and packing.
- Hand book of **SWEET WATER GIANT PRAWN FARMING**.
- Development of **GROUND WATER IN THAR DESERT**.
- Research on **BIO-GAS** from farmyard manure, agricultural wastes like banana trunks, bagasse, barley, maize, saw-dust and etc.
- Successful evolution of **A NEW VARIETY OF MANGO** for harvesting in the second week of May.
- Manual of **RABBIT FARMING**.
- **COMPLETE DIET** for cattle and sheep.
- A project for 250 **WIND MILLS FOR THAR AND KOHISTAN** of Sindh.
- **IMPROVED TYPES OF BIO-GAS PLANTS**, modification of Indian designs.
- Proposal for **EXPERIMENTAL DIGESTER FOR PRODUCTION OF METHANE** by use of agricultural, animal and other organic wastes in addition to animal excrete.
- **BAND BOOK OF IMPROVED BIO-GAS DESIGNS** suitable for Pakistan and the Third World.
- Hand book for **MONITORING BIO-GAS DIGESTERS**.

- **CONVERSION OF LIGNIN** a non-digestible ingredient in animal feed, into digestible one.
- **CONCRETE ADMIXTURE** and increased workability and strength tests.
- **PACKING HOUSE** for export of **MANGOES** and **BANANAS**.
- Effectiveness of **STEEL FIBRE IN ASPHALT**.
- Experiments on **ELECTRO MAGNETIC DEVICES** and their application for softening of hard water in the boiler.
- Effect of **ELECTRO MAGNETIZED WATER** on strength of concrete.
- Hand book of **AUDIO-VISUAL MATERIAL FOR SCIENTIFIC EDUCATION** in colleges, universities and industries (700 pages).
- **GASIFICATION OF WOOD** and agricultural wastes as fuel for gas engines, diesel engines, tractors, vehicles and boilers.
- **A SURVEY OF WIND MILLS** manufactured in the world and those and those economically suitable to conditions in Lower Sindh (Pakistan).
- A proposal for **WIND MILL FARM**.
- Hand book of **DEHYDRATION OF FRUITS AND VEGETABLES**.
- **BALANCED POULTRY FEED** and the economic applications to Pakistan conditions.
- **FEED FROM BIOGAS PLANT** slurries.
- Use of **BIO-GAS SLURRIES** as soil free plant **GROWTH MEDIUM**.
- Processing of **AGRICULTURAL WASTES** as **ANIMAL FEED**.
- **TRACE ELEMENTS** in agriculture.
- Most suitable **AGRICULTURAL SPRAYS** for Pakistan conditions.
- **PLAN FOR DEVELOPMENT OF THAR AND KOHISTAN** 1975, Revised 1982, Revised 1984.

# NEW FRUITS, NUTS AND INDUSTRIAL CROPS INTRODUCED COMMERCIALY FROM ABROAD IN SINDH, NEAR TANDO JAM

**BY**  
**M.H. PANHWAR AND MRS. FARZANA PANHWAR**

S.NO.	YEAR	FRUIT CROPS	NO. OF VARIETIES	SOURCE OF PLANTS
1.	1080	DATE (AT CLIFTON KARACHI)	1	Grows on 50% sea water + 50% fresh water fruiting for the past 10 years.
2.	1983	JOJOBA OIL NUT.	1	Mexico, fruiting since 1986, wax nut, substitute for whale oil.
3.	1983	JATROPHA NUT.	1	Mexico, yielding diesel oil.
4.	1983	BUFFALO-GOURD.	1	Texas (USA), yielding half ton edible oil per acre per year and 4 tons of starch every 3 <sup>rd</sup> years.
5.	1985-1990	MANGO.	35	18 from USA, Brazil and Australia and 17 produced from seedlings.
6.	1988	PEACHES.	13	Florida (USA), now fruiting.
7.	1988	PLUMS.	4	Florida (USA), now fruiting.
8.	1988	NECTARINES.	3	Florida (USA), now fruiting.
9.	1988	AVOCADO.	2	West Indies (suitable only for coasts near Ghorabari).
10.	1989	CASHEW.	1	Australia (suitable for coasts near Ghorabari).
11.	1989	PAPAYA.	3	The Sunrise Solo from Hawaii (USA) and two varieties from Taiwan.
12.	1989	SIMAROUBA GLAUCA.	1	Hawaii (USA). Nut used as a edible oil, now fruiting.
13.	1989	LYCHEE.	7	6 local selections and one from Hawaii (USA).
14.	1989	TAHITI LIME.	1	Florida (USA), now fruits all year around.
15.	1989	GRAPE FRUIT "RUBY" AND "SHAMBER".	4	Florida, California and Texas (USA), in fruit now.

16.	1989	APPLE: ANNA, DORSET GOLDEN, EINSHMBER AND CRAB APPLE.	4	Florida (USA), now fruiting.
17.	1990-1993	GRAPES: THOMPSON SEEDLESS AND OTHERS.	24	California (USA) and Spain, now fruiting.
18.	1991-1993	GUAVA.	10	Taiwan, Indonesia, Hawaii (USA), South Africa and Brazil and local selections.
19.	1992	PUMMELO.	1	Thailand.
20.	1992	PEAR (ORIENTAL).	2	California.
21.	1992	PERSIMMON (JAPANESE).	2	California.
22.	1992	Z. JUJUBE.	2	California, already fruiting.
23.	1993	FIG.	2	California, already; fruiting.
24.	1993	LONGAN.	4	Florida and Hawaii (USA), already fruiting.
25.	1993-94	POMEGRANATE.	8	Spain, USA, already fruiting.

# **M.H. PANHWAR'S MEMBERSHIPS**

## **MEMBERSHIP OF INTERNATIONAL HORTICULTURAL SOCIETIES/ASSOCIATIONS.**

- California Rare Fruit Growers Association, 1986-todate.
- Australian Macadamia Growers Association, 1986-todate.
- California Avocado Society, 1987-todate.
- Jojoba Growers Association, 1985-todate.
- International Society for Horticultural Science, 1990-todate.
- American Society for Horticultural Science, 1990.
- Florida State Horticultural Society, 1987-todate.
- Rare Fruit Council of Australia 1981-todate.
- Australian Society for Horticulturl Science, 1990-todate.
- American Pomological Society, 1989-todate.
- International Banana Association, 1980-1990.
- Professional Member American Society for Enology and Viticulture, 1992-todate.
- South African Society for Horticulture Science, 1993-todate.
- International Rare Fruit Council Inc. (Florida USA), 1990-todate.
- Pakistan Association of Scientists and Scientific Professions 1982-todate.

## **MEMBERSHIP OF PROFESSIONAL ORGANISATIONS.**

- Associate Member American Society of Agricultural Engineers, 1953-todate.
- Member Institute of Agricultural Engineers (U.K), 1964-todate.
- Fellow Royal Geographical Society London, 1979-todate.
- Member Pakistan Engineering Council, Islamabad, 1977-todate.