

1 **Name:** Engr. Dr. Ahmad Waqas

2 **Date of Birth:** November 3, 1975

Nationality: Pakistani

3 **CNIC:** 33100-7648828-5

4 **Education:**

Degree	Major / Minor	Institution	Date
PhD	Agri. Engineering	University of ARID Agriculture, Rawalpindi	2021
M.Sc.	Agri. Engineering	University of Agriculture, Faisalabad	2008
B.Sc.	Agri. Engineering	University of Agriculture, Faisalabad	2000

5 **Publication:** 17 publication, one book chapter

6 **Administrative Experiences**

- Superintendent, Post Graduate Research Station, UAF (14-08-2023 to 09-10-2025)
- Director Farms University of Arid Agriculture, Rawalpindi (2013-2014)
- Deputy General Manager Hydroponic Research Station, Kalyam Mughal, Rawalpindi (2013-2014)
- Farm Manager, Experimental Research Station, Water Management Research Center, Jhang Raod, PARS (2007-2018)

7 **Academic positions**

- Assistant Professor, Department of Farm Machinery & Power, UAF (23-09-2024 to date)
- Research Officer (01-08-2003 to 22-08-2024) University of Agriculture, Faisalabad
- Junior Research Fellow in Groundwater Governance in Asia (2007)
- Lecturer (2013-2014) Arid Agriculture University, Rawalpindi
- Research Scholar (2010-2011, four months) Sultan Qaboos University, Oman

8 **Membership of Professional Associations:** Pakistan Engineering Council as Registered Engineer with registration number of AGRI/06041

9 **Detailed Tasks Assigned**

- ▶ Design and development of agricultural machinery
- ▶ Mechanized raised bed planting of crops
- ▶ Irrigation scheduling of crops
- ▶ Planning and design of surface irrigation projects
- ▶ Planning and design of Pressurized irrigation systems
- ▶ Groundwater Modeling
- ▶ On-farm water management
- ▶ Hydroponic agriculture farm structure designing
- ▶ Precision agriculture farming
- ▶ Farm management

10 **Work Undertaken that Best Illustrates Capability to Handle the Tasks Assigned:**

I. Name of the Assignment: Watershed Management and Irrigation Improvement in Pakistan, USDA funded project

Location: Pakistan

Year: 2011-2018

Client: International Center for Agriculture Research in Dry Area (ICARDA)

Main project features: Demonstration and installation of skimming well technology and Furrow-bed irrigation system for water saving

Positions held: Research Officer

Activities performed: Survey and design of watercourses in the project sites
Design, installation and operation of Drip irrigation system, Furrow-bed Irrigation system sites development and Installation of Skimming well

II. Name of the Assignment: Drip Irrigation System for Fruit Orchards and Row Crops for Research and Demonstration Purpose; UAF funded project

Location: Pakistan

Year: 2014

Client: Endowment Funds (FDTTPC), UAF

Main Project Features: Installation of drip irrigation on 120 acres at different UAF research sites, Development of guidelines for the Operation and management of drip irrigation and Training of farmers

Position Held: Co-PI

Activities performed:

- Design and installation of drip irrigation system for 120 acres
- Supervised Installation of drip irrigation system
- Development of irrigation schedules

Report writing and guideline development of best irrigation scheduling

III. Name of the Assignment: Operation and Management of Drip Irrigation System at PARS; UAF funded project

Location: Pakistan

Year: 2013

Client: Endowment Funds (FDTTPC), UAF

Main Project Features: Installation of Drip irrigation system for orchards

Position Held: Co-PI

Activities performed: Development of irrigation schedules for citrus orchard

IV. Name of the Assignment: Evaluation of irrigation schedule and nitrogen fertigation levels for improving water use efficiency under various crops

Location: Pakistan

Year: 2016

Client: DG On-Farm Water Management Punjab

Main Project Features: Development of Drip Irrigation schedules, comparison of surface and subsurface drip irrigation and finding of best drip irrigation geometries

Position Held: Co-PI

Activities performed:

- Review the Design of Surface and Sub-Surface Drip Irrigation for Cotton and Sugarcane Crops
- Provided Technical Assistance in Design and installation of surface and subsurface drip irrigation system

V. Name of the Assignment: Development of indigenized soil moisture sensor based precision irrigation scheduling for improving water use efficiency of different crops

Location: Pakistan

Year: 2014

Client: HEC

Main Project Features: Development of Indigenized soil moisture sensors, Irrigation scheduling based upon local sensor and their calibration, Development of irrigation scheduling for wheat and maize crops and Furrow-bed irrigation system for water saving

Position Held: Co-PI

Activities performed:

- Design of drip irrigation system
- Supervision of installation of sensors for Drip irrigation system
- Development of irrigation schedules for wheat and maize crop

VI. Name of the Assignment: Management aspects of surface and groundwater in irrigated areas of BARI-DOAB

Location: Pakistan

Year: 2004

Client: ALP-PARC (Pakistan Agriculture Research Council)

Main Project Features: Relative contribution of surface and groundwater was determined in Bari-Doab area. Different water quality zones were marked and level of quality of water was investigated

Position Held: Research Officer/M.Sc student

Activities performed:

- Data collection of demand and supply of water in different irrigation administrative divisions of BARI-DOAB
- Estimate crop water requirements in different divisions
- Predicting future scenarios of water shortage through MODFLOW model

VII. Name of the Assignment: On Farm Research & Development Component Project of Rehabilitating LCC Systems

Location: Pakistan

Year: 2005-2009

Client: Japanese International Cooperation Agency (JICA)

Main Project Features: On farm water productivity enhancement by demonstrating various water saving techniques including Raised Bed Technology, Watercourse lining and laser levelling

Position Held: Research Officer

Activities performed:

- Survey of the area and design of watercourses at various project sites
- Involved in the development of demonstrational sites in Mungi, Killianwala and Shahkot area for bed-furrow irrigation system to show 50 % water saving to the local farmers
- Calculation of crop water requirement and development of irrigation schedules
- Design and installation drip irrigation system in the project area
- Design and installation of skimming wells

VIII. Name of the Assignment: Dissemination of Raised Bed Technology to Address Water Shortages in Irrigated Areas

Location: Pakistan

Year: 2008

Client: Endowment Funds (FDTTPC), UAF

Main Project Features: The Raised Bed Technology was tested under different farmers' conditions, improved and now it is in the process of commercialization. The high point in this regard is that Government of Pakistan is providing the machine/planter to the farmers of all four provinces at 50% subsidized rate.

Position Held: Research officer

Activities performed:

- Survey of the area, practically involved in establishing demonstration sites of Raised Bed Technology for cotton and maize crop
- Data collection and report writing

IX. Name of the Assignment: Optimization of Canal and Groundwater Management for Maximizing Crop Production and Managing Salinization

Location: Pakistan

Year: 2009

Client: Australian Centre for International Agricultural Research (ACIAR)

Main Project Features: The research provided scientific information on groundwater salinization and impact on low agricultural production and implications of different water management strategies and policies. The analysis provided information for optimizing canal and Groundwater for maximizing crop yield

Position Held: Team Member/Research Officer

Activities performed:

- Survey and design of watercourses in the project sites
- Design, installation and operation of Drip irrigation system
- Furrow-bed Irrigation system sites development
- Installation of Skimming well

X. Name of the Assignment: Testing Indigenous Hydroponic Greenhouses for Vegetable

Growing at Various Locations in Punjab

Location: Pakistan

Year: 2016

Client: Punjab Agriculture Department

Main Project Features: Establishment of Hydroponic greenhouse for growing vegetables at various location of Punjab for awareness creating of soilless agriculture in pakistan

Position Held: Team Member/Ph.D student

Activities performed:

- Design of greenhouses at various locations of the Punjab province
- Design and installation of drip irrigation system inside greenhouse
- Estimation of crop water requirement and development of irrigation schedules
- Report writing

XI. Name of Assignment: Improving Groundwater Aquifer by Spatio-temporal Assessment of Groundwater Recharge Potential in Water Scarce Areas of Rechna Doab

Year: 2024

Client: HEC

Main Project Features: Establishment of real time groundwater monitoring system for groundwater fluctuations and developing current and future scenarios using MODFLOW

Position Held: PI

Activities performed:

- Installation of observation wells for real time groundwater monitoring
- Running of MODFLOW for development of future scenarios
- Report writing

XII. Name of Assignment: Quality Seed Production and Supply to Farming Community for Ensuring Food Security in Pakistan

Year: 2024 (On going)

Client: MINST

Main Project Features: Mechanization of crops for quality seed production, seed processing unit for various crops

Position Held: PI of Mechanization Domain 6

Activities performed:

- Establishment of machinery pool
- Efficient utilization of surface water resource with Bed planting
- Development of advanced farm mechanization technology
- Development of locally fabricated machines for seed production