

# Tariq Altaf



## Hydraulics / Water Resource Engineer

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📅 May 11, 1958 ♂ Male 🇵🇰 Pakistani 🌐 tariqaltaf.com

### KEY QUALIFICATIONS

#### Experience:

40+ years in water sector planning, design, and implementation across six countries. Specialized in water resource assessment, disaster risk management, and major infrastructure projects.

#### Major Projects:

- Pakistan: Ghazi Barotha Hydropower, Diamer Basha Dam, Kalabagh Dam.
- International: Kalboh Dam (Oman), Ganges Barrage (Bangladesh), Dahla Dam (Afghanistan), Sistan Flood Protection (Iran).

#### Leadership:

Led the ADB's Punjab Irrigated Agriculture Investment Program (PIAIP) for over 10 years, including flood risk management and climate change assessments.

#### Strategic Roles:

Head of Water & Agriculture Division: Directed projects like Kachhi Canal, WRMIS, Jalalpur Irrigation, Taunsa Hydropower (120 MW), and Cholistan Water Development. Chaired multiple project boards.

#### Global Exposure:

Experience in the USA, UK, Australia, Netherlands, Iran, Saudi Arabia, Oman, Bangladesh, Afghanistan, and more.

### Education

Jun 1987

■ **M.Sc. Water Resources Engineering**  
[George Washington University, Washington D.C. U.S.A., Washington](#)

Jun 1981

■ **B.Sc. Civil Engineering**  
[University of Engineering and Technology Lahore - Pakistan, Lahore](#)

### Employment

Jun 2018 - Present

■ **Expert Hydraulics & Water Resources, CEO (Levant)**  
[Self \(Own firm "Levant" www.levantc.com\), Lahore](#)  
**Projects:**

1. River Morphological Study, Flood Hazard Mapping, and Establishment of Decision Support System for Sindh Province (World Bank Project), Lead Firm AIT Bangkok, 2020 - 2022
2. Detailed Design of Panjtar Dam Project, Khyber Pakhtunkhwa (KP) – 2021-2022
3. Sri-Toi Dam Safety – Panel of Experts, Balochistan Water Resources Development Sector Project 2020-2022
4. Preparation of an Inventory of Indus Embankments & Breaching Sections to document their current condition and for Informed Disaster Risk & Hazard Mapping, 2022-2023

May 2022 - Present

■ **Project Coordinator**  
[EBA Engineering Inc., USA](#)  
**Project:**  
Lahore Water & Wastewater Management Project - Sewerage System from Larech Colony to Gulshan-e-Ravi (through trenchless Technology) Donor Agency: Asian Infrastructure Investment Bank (AIIB)

May 2022 - Present

■ **Hydraulic Expert**  
[ECCL Singapore Ptv Ltd](#)  
**Project:**  
Consulting Services for Construction Management and Related Works for Construction

Aug 2020 - Mar 2022

■ Supervision of Sunkoshi Marin Diversion Multipurpose Project, Nepal Project Description: Sunkoshi Marin Diversion Multipurpose Project (SMDMP) is in Sindhuli District, Province 3 of Nepal. The project is mainly conceived as an irrigation project, with the intent of diverting a constant flow of 67m<sup>3</sup>/s from the Sunkoshi River basin to the Bagmati River basin. The augmented flow is planned to be fed into the Bagmati Irrigation Project (BIP) and will be used to increase the total command area of BIP to 122,000ha. SMDMP also plans to generate electricity using the available head of 67m. The installed plant capacity will be 31MW and the annual energy generation will be 272.4GWh.

■ **Water Resources Specialist / Deputy Team Leader**

**Engineering General Consultants EGC (Pvt) Ltd.**

**Projects:**

Institutional Transformation of the Punjab Irrigation Department to a Water Resources Department

**Donor Agency:** Asian Development Bank (ADB)

**Description of Project:** The objective of this project is to assist the Punjab Irrigation Department (PID) in enhancing its capacity for transforming its services delivery from a traditional irrigation water deliverer to a Water Resources Department (WRD) that holistically manages water resources in line with the Punjab Water Policy (PWP) & Punjab Water Act (PWA) 2019. As a result of this project, PID is expected to acquire improved capacity in:

- Management of Irrigation & Drainage
- Water resource planning & management
- Development research and operational management.
- Water-related disaster management.
- Management of river ecosystem.
- Groundwater management
- Marginal quality water management

**Activities Performed:**

- Lead the national team for effective teamwork.
- Coordination with the PID, other government institutions, and local stakeholders.
- Provided technical input as a water resources specialist to develop Water Resources Information System, IWRM framework, the and River Basin Plan.
- Provided input in institutional & policy assessment.
- Organized and conducted stakeholders' workshops on Punjab
- Groundwater Management, Integrated Water Resource Management (IWRM) & River Basin Planning.

May 2020 - Nov 2021

■ **Senior Water Resource Specialist**

**Asian Development Bank (ADB)**

**Project:**

Capacity Building of Disaster Risk Management Institutions, Pakistan

**Description of Project:** ADB suggested the Government of Pakistan develop a comprehensive flood telemetry master plan that prioritizes the need for telemetric systems installation and improvement along with cost estimates.

**Activities Performed:**

- Review of the current status of the Hydrological gauging network
- Review existing enhancement plans prepared by different stakeholders
- Establish the requirement for the installation of telemetry system mechanisms across the country
- Review existing O&M systems and propose future mechanisms of O&M.

Apr 2020 - Present

■ **Hydraulic Structure Expert of Siri Toi Dam**

**Irrigation Department, Government of Balochistan**

**Project:**

Balochistan Water Resources Development Sector Project, Pakistan

**Description of Project:** To bring due diligence in following international quality standards in the studies carried out by the Consultants (Design of Siri Toi Dam). This 72 m high dam which will be 55 km from Zoab city, aims to increase the command area to around 4,000

Jul 2020 - Jan 2021	<p>hectares with a sustainable water supply.</p> <p><b>Activities Performed:</b></p> <ul style="list-style-type: none"> <li>● Reviewed the layout and design of hydraulic structures of the dam (spillway, intake &amp; outlet structures, irrigation &amp; cross drainage structures).</li> <li>● Proposed alternate options are given cost savings and other considerations.</li> </ul>
Apr 2019 - May 2019	<p><b>Hydraulic Structure Engineer</b></p> <p><b>Donor Agency: Asian Development Bank (ADB), Sindh Province, Pakistan</b></p> <p><b>Project:</b></p> <p>Support to Preparation of Water Resources Management Investment Projects in Sindh Province, Pakistan</p> <p><b>Description of Project:</b> The government of Sindh identified ADB following three potential investment projects:</p> <ul style="list-style-type: none"> <li>(i) Torrential flash flood management in the Kirthar range</li> <li>(ii) Enhancing rainwater harvesting government in the Tharparker desert</li> <li>(iii) Water &amp; land management in the Indus River riverine belt.</li> </ul> <p>Under this assignment, first desk reviews and field assessments were carried out and then a pre-feasibility report including the preliminary design concept of the three potential investment projects was prepared. <b>Activities Performed:</b> Carried out a rapid evaluation of Government water resources projects (8 small dams &amp; related structures) implemented and completed in these areas. Provided requisite inputs related to hydraulics &amp; hydrology for the pre-feasibility reports for the three protentional projects.</p>
Nov 2018 - Jan 2019	<p><b>Independent Irrigation Engineer (International)</b></p> <p><b>Donor Agency: Asian Development Bank (ADB), Pakistan</b></p> <p><b>Project:</b></p> <p>Pehur High-Level Canal Extension (PHLCE) Project, Pakistan</p> <p><b>Description of Project:</b> The project includes an underground pressure pipe (the Indus-Ambar pressure pipe) that will convey irrigation water from the Gandaf tunnel through the Swabi district to relatively high-elevation areas of Anbar and Indus. Reviewed the design and alignment of the pressure pipe as part of the ADB review mission to address a complaint.</p>
Jul 2018 - Oct 2018	<p><b>Hydraulic Engineer (International)</b></p> <p><b>Donor: Asian Development Bank (ADB), FCG ANZDEC, New Zealand</b></p> <p><b>Project:</b></p> <p>Feasibility study of Dahla Dam Water Improvement Project Afghanistan <b>Project Description:</b> 60 m high Dahla Dam constructed in 1952 was proposed to be raised to improve water resources management, irrigated agriculture, water supply, and hydropower in Kandahar City and surrounds, for which ADB provided a Transaction Technical Assistance (TRTA). The project components were:</p> <ul style="list-style-type: none"> <li>(i) Raising Dahla Dam and six saddle dams</li> <li>(ii) climate-smart productive use of water for agriculture</li> <li>(iii) water supply for Kandahar City</li> <li>(iv) Dahla Dam hydropower development.</li> </ul> <p><b>Activities Performed:</b></p> <ul style="list-style-type: none"> <li>● Reviewed the condition of the Dahla Dam, spillways, saddle dams, training works, irrigation outlet works, and identified areas of potential risks/changes in design due to planned dam raise</li> <li>● Reviewed previous hydrology and hydraulics design studies and drawings for the existing spillways, irrigation outlets and ancillary works.</li> <li>● Estimated various flood frequencies for various Annual Exceedance Probabilities.</li> <li>● Reviewed and prepared a feasibility-level design of the alternative spillways and downstream training works.</li> <li>● Proposed additional safety measures and spillway model studies.</li> </ul>
	<p><b>Hydraulic Expert</b></p> <p><b>Water &amp; Power Development Authority (WAPDA), Pakistan</b></p> <p><b>Project:</b></p> <p>First Periodic Inspection of Ghazi Barotha Hydropower Project, Pakistan</p>

Jan 1982 - May 2018

**Activities Performed:**

- Reviewed the condition and the operation of the Ghazi Barrage, power channel, power complex, and ancillary works i.e. spillway, embankments, cross drainage structures, training works, outlet works, and identified areas of potential risks. Proposed required remedial measures
- Studied the previous hydrology and hydraulics design studies and drawings to review the different project components.

**Vice President / Head Water & Agriculture Division NESPAK**

**National Engineering Services Pakistan (Pvt) Limited (NESPAK), Lahore**

**Activities Performed**

**Leadership:**

- Led NESPAK's Water & Agriculture Division with over 300 professionals across multiple specialties, including Hydraulics, Dams & Hydropower, Hydrology, Irrigation & Flood Management, GIS, and more.
- Directed strategic planning, policy implementation, financial oversight, and institutional performance.

**Project Management:**

- Supervised key projects including WRMIS, DSS, Rehabilitation of Balloki Barrage, LBDC System, Lower Chenab Canal, Warsak Canal, Kachhi Canal, and Jinnah Barrage.
- Coordinated the National Flood Protection Plan IV (NFPP-IV) and engaged with federal agencies and the Planning Commission.

**Representation & Advisory:**

- Represented NESPAK in workshops, seminars, and high-level government meetings on strategic water planning, National Water Policy, Punjab Water Act, and transboundary issues.
- Served as Chairman/Member of the Board of Management for critical projects like the rehabilitation of major barrages and canal systems across Pakistan.

Aug 2009 - Jul 2018

**General Manager NESPAK / Project Manager/ Lead Design Engineer**

**Irrigation Department, Govt. of the Punjab Donor Agency: Asian Development Bank (ADB), Punjab, Pakistan**

**Punjab Irrigated Agriculture Investment Program (PIAIP)**

**Main Project Features:**

- Feasibility and detailed design for Rehabilitation & Upgrading (R&U) of Sulemanki, Trimmu, and Panjnad Barrages.
- R&U of Pakpattan Canal System and Thal Branch Canals.
- Seepage and waterlogging control along TS Link Canal.
- Water resource development in Cholistan desert.
- Reclamation of waterlogged agricultural land in Bahawalnagar, Bahawalpur, and Rahimyar Khan.

**Activities Performed:**

- Led the preparation of strategic documents, sector assessments, and bankable documents for the client and ADB.
- Managed relationships with Punjab Irrigation Department (PID), Punjab Government, and ADB, ensuring timely and quality delivery.
- Supervised Environmental & Social Impact Assessments, economic analysis, construction planning, PC-1, and tender documents.
- Assisted in government and ADB approval processes and strategic meetings.
- Oversaw bid evaluations for ICB contracts worth Rs. 50 billion.
- Gained deep insight into the transformation needs of the Punjab Irrigation Department over 10 years of collaboration.

Jun 2009 - Jun 2010

**General Manager NESPAK / Barrage Design Specialist**

**NESPAK, Dhaka, Bangladesh**

**Description:** Led the design team in preparing feasibility-level designs for the Ganges Barrage. Guided physical and mathematical model studies, ensuring alignment with project objectives for the effective utilization of Bangladesh's share of Ganges River flows.

Sep 2007 - Aug 2009

■ **General Manager / Project Manager / Lead Design Engineer**

**NESPAK, Punjab, Pakistan**

**Detailed Design of Islam Barrage Rehabilitation Project**

Managed the comprehensive rehabilitation of Islam Barrage, including the design of flood management systems and refurbishment of aging infrastructure. Directed all project activities, coordinated with the client and World Bank, and ensured quality control and timely delivery. Oversaw feasibility review, detailed design, climate change assessments, and preparation of tender and pre-qualification documents.

Apr 2008 - Sep 2008

■ **Chief Engineer / Project Manager**

**HK Consortium, Punjab, Pakistan; Lahore**

**Description:** Supervised and conducted the feasibility study for the 40 MW Raw Site Powerhouse project, including report preparation.

Dec 2006 - Sep 2007

■ **Chief Engineer / Head Hydraulics, Dams & Hydropower Section of Water & Agriculture**

**Division, NESPAK**

As section head responsible for the hydraulics studies of the following projects:

- Feasibility study of Bara Dam Project, Pakistan
- Review of Sharda Hydropower Project
- Feasibility studies of Ravi Syphon & Melsi Syphon Projects
- Design of small reservoirs & flood carrying channels of the new GHQ Islamabad
- Master Planning of Bagh City, Azad Jammu & Kashmir.
- Design of Spillway & flood-carrying channel on Keenjer Lake Project, Pakistan.

Jun 2005 - Dec 2006

■ **Chief Engineer / Hydraulic Specialist**

**Water & Power Development Authority (WAPDA), Pakistan**

**Project:**

WAPDA General Consultants for vision 2025 Projects Period: June 2005 to December 2006

Client: Water & Power Development Authority (WAPDA), Pakistan

**Activities Performed:** Reviewed and proposed improvements in the design and operation of the following major water sector projects of Pakistan being executed by WAPDA:

- Mangla Dam Raising Project
- Duber Khawar, Alli Khawar Vision and Khan Kwar Hydropower Projects
- Mirani Dam Project
- Kachhi Canal Project
- Chashma Right Bank Canal Project
- Sehwan Barrage Project

Apr 2005 - Jun 2006

■ **Deputy Team Leader / Hydraulic Design Engineer**

**Ministry of Regional Municipalities Environment and Water Resources, Mascot, Sultanate of Oman**

**Project:**

Kalboh Dam

**Project Features:** Design & Construction of a Recharge Dam.

**Activities Performed:** Carried out planning and design of dam for the feasibility studies required for Kalboh Recharge Dam, Oman. Coordinated with different specialties/client and prepared the feasibility report.

Jan 2004 - Apr 2005

■ **Chief Engineer (Hydraulics)**

**Irrigation and Power Department, Government of Punjab, Punjab, Pakistan**

**Project:**

Feasibility Studies for the Rehabilitation of Taunsa, Sulemanki, and Khanki Barrages, Pakistan (Funded by the World Bank)

**Activities Performed:** As Chief Hydraulic Engineer designed the New Khanki Barrage to replace the existing about century-old Khanki Headworks. Also carried out the Feasibility Studies for Remodelling of Taunsa Barrage and Sulemanki Barrage. Plan and supervised Physical Model Studies for Taunsa Barrage and Khanki Barrage.

Aug 2002 - Dec 2003

### Chief Engineer (Hydraulics)

**Water & Power Development Authority (WAPDA), Pakistan**

#### Project:

Basha Diامر Dam Project, Pakistan

**Project Features:** The Basha Diامر Dam Project was proposed to be located on the river Indus 314 km upstream of the Tarbela Dam.

The salient features of the project are:

Catchment Area 153,200 sq-km Average rive discharge at Dam site 1,968 cumecs PMF Peak Inflow 49,400 cumecs Reservoir Volume 11.15 BCM (9.04 MAF) Type & Height of Dam 250 m high Concrete Gravity Ultimate Installed Capacity 4,500 MW

#### Activities Performed:

- Worked with NEAC Consultants, a joint venture of NESPAK, ACE, Binnie Black & Veatch, UK, and MWH Energy & Infrastructure Inc. USA for this 5 billion U.S. \$ project.
- Carried out planning and design of spillway and, outlet works. Developed river rating curves using HEC-RAS.
- Also assisted project management in overall project planning activities.

Sep 2002 - Present

### Hydraulic Specialist

**Government of Iran, Iran**

**Activities Performed:** Reviewed the planning and design, studied site problems, and suggested improvements in the design:

- Kalagan Dam Project, Iran
- Zemkhan Dam Project, Iran
- Dez to Qom Roud Water Transmission Tunnel Project, Iran

Jan 1990 - Dec 1992

### Hydraulic Design Engineer

**Water & Power Development Authority (WAPDA), Lahore-Pakistan**

#### Project:

Ghazi Barotha Hydropower Project, Pakistan (cost 2.2 Billion US \$)

**Consultants:** A joint venture of NESPAK, ACE, EwbankPrece Ltd. Harza Engineering Co. International, and Binnie and Partner (Overseas) Ltd.

**Funded By:** World Bank Positions held: Hydraulic Design Engineer Main **Project**

**Features:** It is a major run-of-the-river power project with 1,450 MW installed capacity. The project has three main components; a barrage, a power channel and a power complex. The barrage located about 7 km downstream of Tarbela dam, can, pass the design flood of 660,000 cusecs (18,700 cumecs). The 52 km long, concrete-lined power channel conveys upto 56,500 cusecs (1,600 m<sup>3</sup>/s) from the barrage to the power complex. The power complex includes five 290 MW power units with average annual energy output of 6,600 GWh.

#### Activities Performed:

- Carried out the hydraulics design of the barrage and power channel and a large number of different ancillary works i.e. cross drainage structures, outlet works etc.
- Carried out the mathematical model studies and supervised physical model studies to verify the design of the barrage and other hydraulic structures.
- Also involved in different environmental and social studies Worked on this project during feasibility, detailed design and construction stages.

Dec 1993 - May 1995

### Senior Hydraulic Engineer

**NESPAK, Lahore**

#### Activities Performed:

- Carried out the mathematical model study and other hydraulic studies involved for the design of "Bridge on River Chenab at Shershah", Pakistan. Also supervised physical model studies.
- Reviewed the "Baglihar Hydroelectric Project, India", and prepared an alternate design of the project in the light of the Indus Waters Treaty of 1960. This includes calculation of Firm power, bondage, the capacity of a powerhouse, design of spillway and power intake, etc.
- For "Flood Protection and Drainage Scheme for Bukha Town", Sultanate of Oman, designed the flood protection scheme. This includes the the design of about 6 km long



Sep 1992 - Dec 1993

flood by-pass channels along the flood protection dikes, design of culverts at road crossings, and the design of the protection works.

#### Senior Design Engineer

**Ministry of Water Resources, Government of Iran, Iran; Tehran, Iran**

**Project:** Sistan River Flood Works Rehabilitation Project, Iran

**Project Features:** At the point of entry into Iran, the Hirmand River bifurcates into two branches namely the Sistan River and Parian River. Sistan river runs across Iranian territory for about 60 km before outfalling into Hamun-e-Hirmand. Three barrages (Kohak, Zahak, River, and Sistan) have been constructed across the Sistan river to divert water for irrigation purpose. Sistan river overflows its banks during floods and causes extensive flood damage. This project aimed at mitigating the flood losses mainly through improvement and upgrading of existing flood protection works and construction of some new works. Rehabilitation of Kohak Barrage was also included in this project, which became un-operative due to the silting up of off taking canal. Activities Performed: Designed the river training works of the Sistan river. Analyzed flood profiles from mathematical models, and optimized the location of the dykes. Designed the dykes, and the Kohak Barrage rehabilitation works.

Jan 1982 - Dec 1990

#### Junior Engineer/Senior Engineer

**Hydraulics Division NESPAK**

**Feasibility Study for Dredging of Baran Dam Reservoir, Pakistan**

- **Role:** Active Project Member
- **Key Features:** Evaluated dredging as a solution to restore 32% of lost storage capacity in Baran Dam due to siltation after 22 years.

**Rehabilitation of Khirthar Canal System, Pakistan (Jan 1989 – Jun 1989)**

- **Role:** Project Engineer
- **Key Features:** Redesigned canal sections, regulators, and flood protection bunds; managed water distribution and silt control for a system serving 321,349 acres.

**Flood Protection Studies for Area Development Scheme, Dabara & Karak, Pakistan**

- **Role:** Project Engineer
- **Key Features:** Designed flood protection channels for new residential schemes in flood-prone areas near Dabara and Karak.

**Kalabagh Dam Project, Pakistan (Jan 1984 – Dec 1988)**

- **Role:** Hydraulic Engineer
- **Key Features:** Conducted river diversion studies, hydraulic design of spillways, and supervised physical model studies for a 7.9 MAF storage capacity dam.

**Zubair Irrigation Project, Iraq**

- **Role:** Design Engineer
- **Key Features:** Designed irrigation channels and structures for a system irrigating 1,500 ha, with a total length of 43 km.

**Rumaitha Irrigation and Drainage Project, Iraq (Jan 1983 – Jun 1983)**

- **Role:** Design Engineer
- **Key Features:** Designed 475 km of canals and 350 km of drains for an irrigation project covering 51,625 ha.

**Euphrates East Drain Project, Iraq**

- **Role:** Design Engineer
- **Key Features:** Designed drainage systems for 411,860 ha, managing 121 cumecs of discharge for ultimate disposal into the Arabian Gulf.

**Remodeling of Kabul River Canal System, Pakistan (Jul 1982 – Dec 1982)**

- **Role:** Project Engineer
- **Key Features:** Conducted sedimentation studies and designed control structures to prevent landslide damage and silt entry for a 59 km canal.

**Remodeling of Warsak High Level Canal System, Pakistan (Jan 1982 – Jul 1982)**

- **Role:** Design Engineer
- **Key Features:** Designed canal sections, regulators, and syphons; estimated quantities and prepared drawings for a system serving 48,700 acres.

## Skills

**Software Engineering**

**Critical decision-making**

**Leadership**

**Teamwork**

**Flood and Drought Risk Management**

**Strategic Planning**

**Bid Evaluation and Procurement**

**Feasibility Studies**

**Policy and Regulation Development**

**Technical Consulting**

## Languages

**English**

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**Urdu**

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