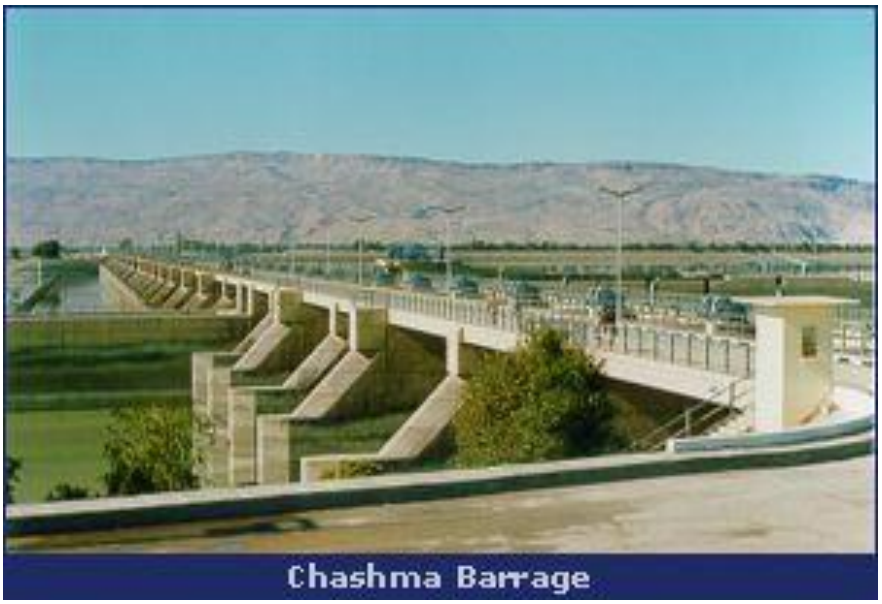
TECHNICAL VISIT TO CHASHMA BARRAGE AND JINNAH HYDROPOWER PROJECT 18-19 FEBRUARY, 2012

A 20-Members delegation of Pakistan Engineering Congress paid a Technical Visit to the Projects on 18-19 February, 2012 under the leadership of Engr. Akhtar Abbas Khawaja Vice-President / Secretary (PEC) and Vice-President Engr. Pir M. Jamil Shah. The visiting team was given detailed briefing by the project authorities on the technical aspects and vital significance of these projects for the economy of the country as well as taken round the project site. Salient features of the project are given below :

Chashma Barrage

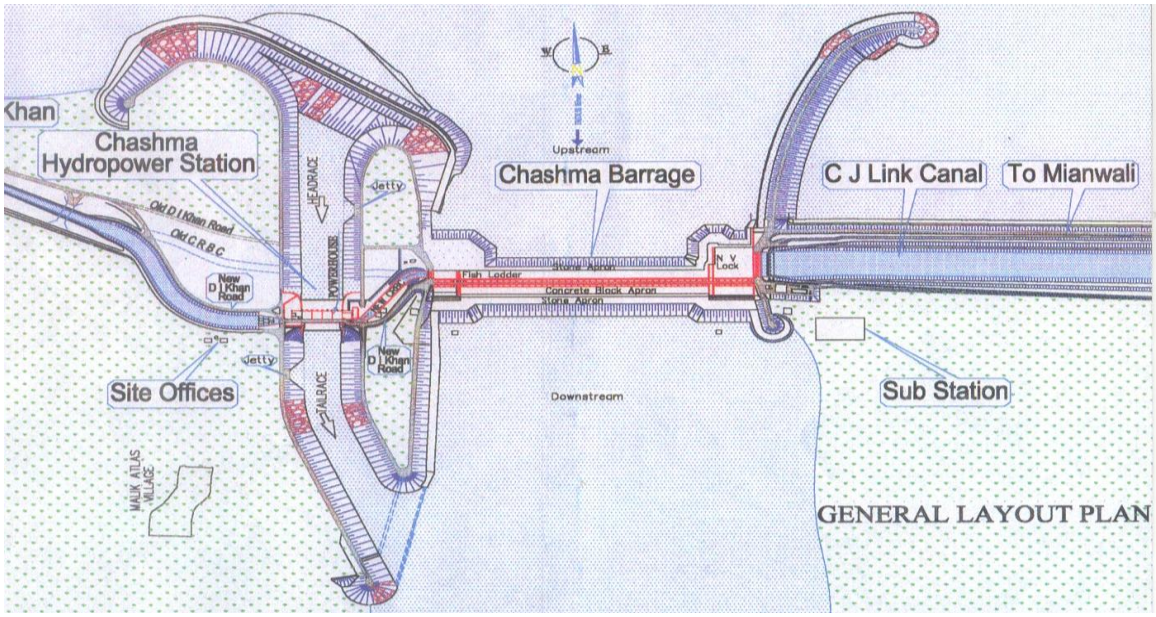
Chashma Barrage is one of the six river structures provided under Indus Basin Project and is the highest amongst all. It is located on river Indus some 56 Kms downstream of Jinnah Barrage near Kalabagh Town. Its purpose is to supply water to CJ-Link Canal on the left and Chashma Right Bank Canal on the right. Un-like other barrages, a small amount of storage has been provided at this Barrage. To pass anticipated maximum design flood discharge of 9,50,000 Cusecs, 52 Gates each 60 ft. wide have been provided in the Barrage. A Fish Ladder and Navigation Lock have also been provided. Two head regulators, one for CJ-Link Canal and the other for CRBC exist on the left and right banks respectively. A low head hydel power station has been recently constructed on the right side of Chashma Barrage.


Chashma Barrage

SALIENT FEATURES

Length between abutments	3556 ft.
Total Bays	52 Nos.
Standard Bays	41 Nos.
Undersluce Bays	11 Nos.
Normal Pond Level	642 ft.
Maximum Storage Level	649 ft.
Maximum Flood Discharge	950000 Cs.
Maximum Intensity of Discharge	300Cs. Per ft.
Width of Carriage Way	24 ft.
Length of Navigation Lock	155 ft.
Width of Navigation Lock	30 ft.
Area of Reservoir	139 Sqm.

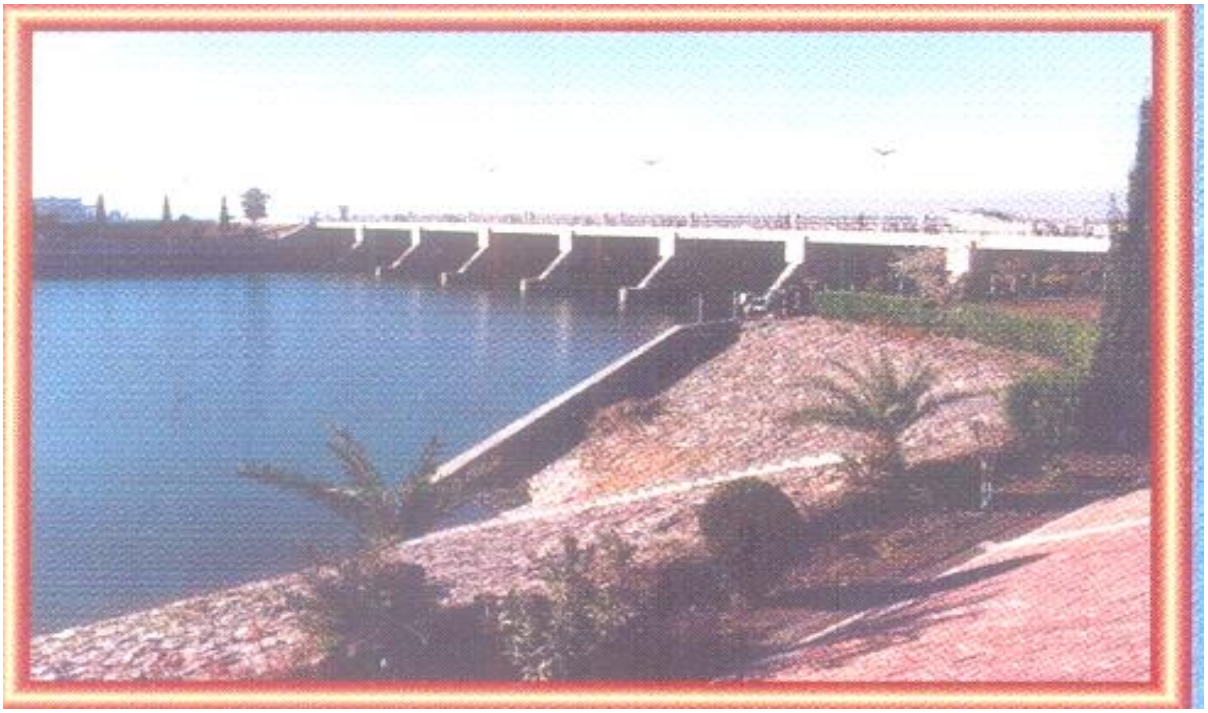
Initial Capacity	0.87 MAF



CJ-Link Canal

CJ-Link Canal off takes from Chashma Barrage on its left bank and conveys water to River Jehlum to meet the requirements of the canals off-taking at Trimmu Headworks on river Jehlum near Jhang. The link is an unlined earthen channel with a design capacity of 21,700 Cusecs, bottom width 380ft. and a full supply depth of 14 ft. WAPDA acquired about 10,800 acres of land for it's construction and 1130 acres for shelter belt plantation. The work on the Canal was started in 1967 and completed in 1971.

A Head Regulator of 8,000 Cusecs capacity for the proposed Greater Thal Canal has been provided at RD 180+200 on the right side of CJ-Link Canal.



Downstream view of Chashma-Jhelum Link

SALIENT FEATURES

Length	64 Miles
Bed Width	380 ft.
Side Slope	2.5:1 & 2:1
Design Discharge	21,700 Cusecs
Design Depth	14 ft.
Bed Slope	1:10,000

Chashma Right Bank Canal

Chashma Right Bank Canal off-takes from Chashma Barrage on its right bank and extends south ward upto Taunsa Barrage on Indus river.

SALIENT FEATURES

Length	274 Km.
Discharge Capacity	7897 Cs.
Cultivable Command Area **NWFP** **Punjab**	606000 Acres 366000 Acres 240000 Acres
Distributaries	76 Nos.
Total Length of Distributaries	1065 Km.

JINNAH HYDRO-POWER PROJECT

GENERAL

Jinnah Hydropower Project (JHPP) is proposed on the right side of the Jinnah Barrage as a bypass arrangement.

Jinnah Barrage is located on the Indus River approximately 5 Km downstream of town of Kalabagh in District of Mianwali. The barrage was constructed in 1945 as a component of the

Thal Irrigation Project. It was built to raise the water level of the Indus River to supply it to the Thal Canal, which irrigates some 800,000 hectares of land between the Indus River and the Jhelum River.

JHPP will generate 96 MW of power under a head of 4.7 m utilizing discharge of 2800 $m^{3/}$ sec. The project will produce annually 688 million KWh of energy.

The project will be completed in 48 months at a cost of US$ 128 millions from the date of commencement.

NEED OF THE PROJECT

The ever-growing energy requirements in Pakistan need to be met in order to achieve further economic and social development of the nation. In the past most of the energy demands have been met through Thermal Power Projects. Although thermal projects do offer benefits, such a short of time for completion of project depending on fossil fuel which is mostly imported and put additional pressure on foreign exchange requirement.

For future requirement, however, the objective is to focus on the development of domestic resources, in particular the country's huge hydropower potential. On a long term basis, such hydropower potential can be exploited and utilized to enhance the nation's power capabilities at much lower costs.

The development of low head hydropower projects should be considered on top priority , as they generally offer advantages such as being free of environmental hazards and relative ease to develop.

PROJECT BENEFITS

- Reduction of dependence on thermal power.
- Saving in foreign exchange.
- Employment opportunity during construction and operation.
- Improved standard of living and infrastructure.
- Socio-economic uplift of the area.

PROJECT IMPLEMENTATION

A contract agreement was signed with M/s Dong Fang Electric Corporation (DEC), China for implementation of the project at a project cost of US$ 128 millions. The project will be completed in 48 months. A joint venture comprising of M/s ACE, NESPAK, MWH and NDC are Project Consultant.

SALIENT PROJECT FEATURES

LOCATION: District Mianwali, 5 Km from Kalabagh Town, Punjab Pakistan

EXISTING JINNAH BARRAGE

Design Flood:	31200 m^3/s
No. of Gates	56 Nos.
Under sluices:	one on each side 7 Nos. Gates

JINNAH HYDROPOWER PROJECT

Power & Energy

Design Discharge:	2400 m^3/s
Maximum Head:	6.2 m
Rate Head:	4.8 m
Minimum Head:	3.2 M
Power:	96 MW
Energy:	688 Million KWh
Project Cost:	128 US & Million

Thal Canal:

Design Discharge:	344 m^3/s
Head Regular Gates:	07 Nos.
Off takes from:	Left bank

TRANSMISSION LINE:
The 132 KV Double Circuit Transmission Line of about 7 Km long between Jinnah Hydropower Project and 220/132 KV Grid Station Mari (Daud Khel) will be constructed

JINNAH HYDROPOWER PROJECT

General Layout Plan