

80 MW NECKEHERDIM PAUR HYDROPOWER PROJECT

PROJECT PROFILE



PRIVATE POWER & INFRASTRUCTURE BOARD
MINISTRY OF WATER & POWER
GOVERNMENT OF PAKISTAN

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PROJECT PROFILE

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ABBREVIATIONS:

GOP	Government of Pakistan
PPIB	Private Power and Infrastructure Board
MW	Mega Watt
GWh	Giga Watt Hours
masl	Meters Above Sea Level
mm	Millimeter
m	meter
km	kilo Meter
km ²	Square kilometer
m ³ /s	Cubic Meter per Second
°C	Degree Celsius
BOOT	Build-Own-Operate-Transfer
%	Percentage
HEPO	Hydro Electric Planning Organization
GTZ	German Agency for Technical Cooperation

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1. INTRODUCTION

Pakistan is presently facing acute shortages of electricity while the Government of Pakistan (GOP) is targeting for substantial economic growth in the medium to long term. To achieve these high targets, electricity sector, which is a major input in the industrial production has to grow. Such a high growth rate warrants that all possible resources for power generation be used to sustain the economy. It is estimated that Pakistan would require 4000-5000 MW immediately and around 2000 additional Megawatts (MW) annually for the next few years. The international geopolitical situation and increasing fuel oil and LNG prices in the world compel Pakistan to look for additional resources for diversity and security of supply of power to the country.

Pakistan is a water-rich country and is endowed with a hydropower potential of more than 60000 MW. The GOP is trying to facilitate and encourage private investors for promoting hydropower generation in the country and has allowed private sector to develop hydropower projects on Build-Own-Operate-Transfer (BOOT) basis. First private sector hydropower project – 84 MW has been commissioned in March 2013 whereas second private sector hydropower project -147 MW has entered into construction phase after achieving its financial close successfully in December 2012. Other hydropower projects with accumulative capacity of about 5000 MW are at advance stages of development. 80 MW Neckeherdim-Paur Hydropower Project is one of

the projects ready to enter into development phase in private sector under Policy for Power Generation Projects 2002.

2. LOCATION & ACCESS TO PROJECT SITE



The Proposed Neckeherdim-Paur Project is located in Yarkun Valley on Yarkun River which is upper part of Mastuj River, about 70 km north-east of Mastuj Town and 178 km north-east of Chitral Town. The Project Area is the northern

most and remote part of Khyber Pakhtunkhwa. The weir site is located in the vicinity of Neckeherdim village and power house site in the vicinity of Paur village.

The Project Area is accessible from Mastuj Town by jeepable road. The road runs on the left bank of Yarkun River upto 22 Km where it crosses Yarkun River by a suspension bridge. The average speed to the Project Area remains 15-20 km/h and it takes 4 hours from Mastuj Town to Dobergar village. The road from Chitral to Buni is 75km long, metalled and truckable. The Buni to Mastuj the distance is 33 km, jeepable, unmetalled and at places narrow. The road from Buni to weir site has to be widened, metalled. All bridges need to be strengthen/rebuild.

3. GENERAL TERRAIN

Yarkhun River valley is a long valley and has narrow catchment width. The upper north-eastern part above 4000 m a.s.l is heavily covered with

glaciers. In the glaciated part, Yarkhun River flows from east to west. The River changes its direction near Lasht Village and starts to flow in south-West direction down to Mastuj Town. The catchment area of Yarkhun River down to its confluence with Laspur River is 3151 Km². The River downstream the glaciated area has an average gradient of 1.17% in a length of 72 Km.



this shows that the river in general has mild gradient. Yarkhun Valley between Lasht Village and Mastuj Town is wide. The River has mild gradient and in some portions the River meanders within its width.

Chitral is situated in the extreme northern part of Pakistan, which is sandwiched between Hindu Kush Range in the north and the Hindu Raj Range in the South and has an approximate NE-SE trend. The entire valley is mountainous region cut into deep and steep sided valleys by Chitral River and its numerous tributaries.

4. CLIMATE

The weather of the Project Area is characterized by moderate summer and severe winter. Wide spread snow fall occurs in winter. The mean maximum temperature is 41°C in July the hottest month and 13.5 °C in January the coldest month. The monsoon hardly penetrates the Project Area and the main mechanism for producing rain is western disturbances. Chitral like other areas in extreme north-west of Pakistan receives only 476 mm precipitation of which 75% occurs in Winter and

Spring. Climatological data in the form of average monthly precipitation, maximum and minimum temperature of Chitral Valley is highlighted in Table.

Month	Mean Temperature(°C)		Mean Rainfall (mm)
	Daily Minimum	Daily Maximum	
Jan	-4.80	13.5	67.9
Feb	-3.3	15.8	67.8
Mar	-0.7	22.1	101.0
Apr	3.1	30.0	83.2
May	6.9	34.6	36.2
Jun	11.4	39.5	6.1
Jul	14.4	41.0	7.3
Aug	13.9	39.1	12.3
Sep	8.3	36.2	11.9
Oct	3.7	31.2	21.7
Nov	-1.0	24.3	23.0
Dec	-3.7	16.8	37.6

5. PREVIOUS STUDIES

The Neckeherdim-Paur Hydropower Project was identified by GTZ/HEPO-WAPDA and presented in their report “Identification of Hydropower Development Potential in Chitral Valley” in February 2001.

6. SALIENT FEATURES

The salient features of Neckeherdim-Paur Hydropower Project are as under:

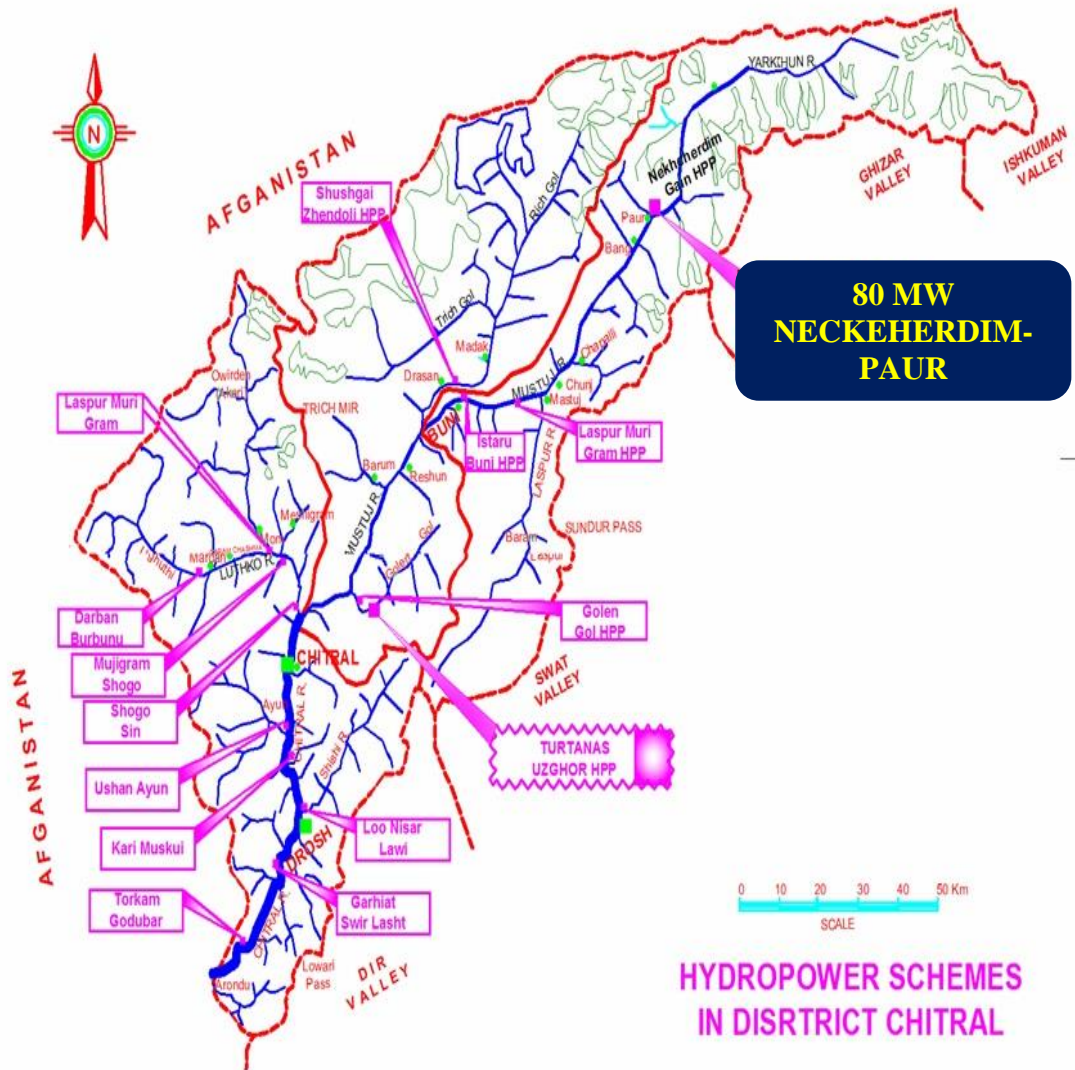
General

- Project Name : Neckeherdim-Paur Hydropower Project
- River : Yarkun
- Location and Distance : 70 Km north-east of Mastuj Town, 178 km north-east of Chitral
- Status : Raw Site

Technical

- Capacity (*estimated*) : 80 MW
- Energy (*estimated*) : 321 GWh
- Project Type : Run of the River
- Design Discharge : 30 m³/s
- Type of Weir : Weir with Lateral Intake
- Gross Head : 341 m
- Plant Factor : 45.8%
- Height of Weir : 15 m
- Length of Weir : 300 m
- Tunnel Length : 17.3 Km
- Diameter of Tunnel : 4.6 m
- No. of Units : 2 Pelton Turbines

9. LOCATION MAP





Private Power & Infrastructure Board
Ministry of Water and Power
Government of Pakistan
50 Nazimuddin Road, F-7/4, Islamabad, Pakistan
Tel: +92 51 9100118-129
Fax: +92 51 9100131-132
Website: www.ppib.gov.pk
Email: ppib@ppib.gov.pk