



PERFORMANCE AUDIT REPORT
ON
NEELUM JHELUM HYDROPOWER
PROJECT
AUDIT YEAR 2022-23

AUDITOR-GENERAL OF PAKISTAN

PREFACE

The Auditor-General of Pakistan conducts audit under Articles 169 and 170 of the Constitution of the Islamic Republic of Pakistan, 1973 read with Sections 8 and 12 of the Auditor-General's (Functions, Powers, Terms and Conditions of Service) Ordinance, 2001. The performance audit of Neelum Jhelum Hydropower Project was carried out accordingly.

The Directorate General Audit, Water Resources conducted performance audit of the project during February and March, 2023 with a view to report significant findings to the relevant stakeholders. This report is based on an examination of the economy, efficiency and effectiveness aspects of the Neelum Jhelum Hydropower Project. In addition, Audit also assessed, on test check basis, whether the management complied with applicable laws, rules and regulations in managing the project.

Audit findings indicate the need for taking specific actions to realize objectives of the Neelum Jhelum Hydropower Project besides instituting and strengthening internal controls to avoid recurrence of violations and irregularities.

The observations included in this report have been finalized in the light of replies submitted by the management. However, DAC meeting was not conducted despite several requests to Principal Accounting Officer (PAO) as per laid down procedure.

The Audit Report is submitted to the President of Pakistan in pursuance of the Article 171 of the Constitution of the Islamic Republic of Pakistan, 1973 for causing it to be laid before the both houses of Majlis-e-Shoora [Parliament].

Islamabad
Dated: 11 NOV 2024

-sd-
(Muhammad Ajmal Gondal)
Auditor-General of Pakistan

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Abbreviations and Acronyms

AJ&K	Azad Jammu and Kashmir
BoD	Board of Directors
CDL	Cash Development Loans
CDM	Clean Development Mechanism
CEO	Chief Executive Officer
CGGC	China Gezhouba Group Co. Ltd.
CO ₂	Carbon Dioxide
COD	Commercial Operation Date
CPPA-G	Central Power Purchasing Agency (Guarantee) Limited
Cumec	Cubic Meter per Second
D&B	Drill and Blast
DAC	Departmental Accounts Committee
DLC	Defects Liability Certificate
DLP	Defects Liability Period
ECC	Economic Coordination Committee
ECNEC	Executive Committee of National Economic Council
EIA	Environmental Impact Assessments
EL	Elevation
EPA	Environment Protection Agency
FEC	Foreign Exchange Component
FOB	Free on Board
GCC	General Conditions of Contract
GWh	Giga Watt hours
IDC	Interest During Construction
INTOSAI	International Organization of Supreme Audit Institutions
IPC	Interim Payment Certificate
IPOE	International Panel of Experts
IPP	Independent Power Producer
KHEP	Kishenganga Hydro-Electric Project
Km	Kilometer
KV	Kilovolt
kWh	Kilowatt Hour
LC	Letter of Credit

LOA	Letter of Acceptance
MD	Managing Director
MoPD&SI	Ministry of Planning Development & Special Initiatives
MoWR	Ministry of Water Resources
MW	Mega Watt
NBP	National Bank of Pakistan
NEC	National Economic Council
NEPRA	National Electric Power Regulatory Authority
NICL	National Insurance Company Limited
NJHP	Neelum Jhelum Hydroelectric Project
NJHPC	Neelum Jhelum Hydro Power Company
NJS	Neelum Jhelum Surcharge
NOC	No Objection Certificate
NTDC	National Transmission and Despatch Company
O&M	Operations & Maintenance
PAO	Principal Accounting Officer
PCA	Permanent Court of Arbitration
PC-I	Planning Commission Proforma-I
PSR	Preliminary Survey Report
TBM	Tunnel Boring Machine
TOC	Taking-Over Certificate
TPV	Third Party Validation
TRT	Tail Race Tunnel
UNFCCC	United Nations Framework Convention on Climate Change
VHF	Very High Frequency
WAPDA	Water and Power Development Authority

EXECUTIVE SUMMARY

The Directorate General Audit, Water Resources conducted Performance Audit of Neelum Jhelum Hydropower Project during February and March, 2023. The main objectives of the audit were to evaluate the economy, efficiency and effectiveness of the project.

Neelum Jhelum Hydropower Project was designed to divert water from Neelum River through a diversion dam into a tunnel. This 60 meter high dam is located at Nauseri (41 km from Muzaffarabad) whereas the underground powerhouse is located at Chattar Kalas (22 km from Muzaffarabad). It is a run of river hydroelectric power project of 969 Mega Watt (MW) with an annual generation capacity of 5,150 Giga Watt hours (GWh). The project uses a gross head elevation of about 420 meters available between the Neelum River at Nauseri and the Jhelum River near Zaminabad. The powerhouse has four (04) generating units having capacity of 242.25 MW each. The first generating unit of the project was commissioned on July 04, 2018, second on August 27, 2018, third on October 04, 2018 and fourth on December 28, 2018.

The original PC-I of the project was approved by ECNEC on December 31, 1989 at a total cost of Rs.15,012 million. Later on, subsequent to three intermediary revisions of PC-I, fourth revised PC-I of NJHPP was approved by ECNEC on May 22, 2018 at a total cost of Rs.506,808 million against which actual expenditure of Rs.423,446 million was incurred upto June, 2023.

Neelum Jhelum Hydropower Project was funded through Cash Development Loans (CDL) from Government of Pakistan, WAPDA's Equity, Neelum Jhelum Surcharge (NJS) from electricity consumers and local & foreign relent loans.

The audit observations incorporated in this report have been finalized in the light of replies submitted by the management. Several requests for holding of DAC meeting were made, however, DAC meeting was not convened by the management.

Audit was conducted in accordance with International Organization of Supreme Audit Institutions (INTOSAI) Auditing Standards, Performance Audit Manual and relevant rules and regulations. Accordingly, the key audit findings are given below:

a. Key Audit Findings

- i. Non-achievement of objective of the project to generate annual energy of 5,150 Gigawatt hours ¹
- ii. Non-achievement of objective regarding establishment of water rights on River Neelum / Kishenganga ²
- iii. Abnormal time overrun of nine (09) years and cost overrun – Rs.338,944 million ³
- iv. Increase in payback period of the project from five (05) years to twelve (12) years ⁴
- v. Non-earning of revenue as per Clean Development Mechanism – US\$ 50.133 million ⁵
- vi. Reduction in annual generation and serious environmental issues due to improper environmental studies at planning stage – Rs.3,054.664 million ⁶
- vii. Loss of revenue due to non-approval of reference tariff by NEPRA – Rs.70,443.298 million ⁷
- viii. Non-conducting of inquiry for collapse in Tail Race Tunnel resulting into generation loss – Rs.20,387.422 million ⁸
- ix. Loss on account of payment of cost of import of own energy to the CPPA-G – Rs.207.128 million ⁹
- x. Non-execution of punch list items by the contractor ¹⁰
- xi. Non-supply of complete spare parts by the contractor ¹¹
- xii. Unjustified excess payment to the contractor without determining actual quantities of raw stone aggregate – Rs.1,775.418 million ¹²

¹ Para-4.1.1.1

² Para-4.1.1.2

³ Para-4.1.1.3

⁴ Para-4.1.1.4

⁵ Para-4.1.2.1

⁶ Para-4.1.2.2

⁷ Para-4.1.3.1

⁸ Para-4.1.3.2

⁹ Para-4.1.3.3

¹⁰ Para-4.1.4.1

¹¹ Para-4.1.4.2

¹² Para-4.1.4.3

- xiii. Non-recovery of cost of un-executed work of telecommunication system from the contractor – US\$ 1.220 million (equivalent to Rs.341.600 million) ¹³
- xiv. Non-recovery of unspent amount of advance payment from the contractor due to non-construction of 11KV overhead line – US\$ 65,470 (equivalent to Rs.18.331 million) ¹⁴
- xv. Undue benefit to the contractor due to non-reinstatement of the spoil deposits ¹⁵
- xvi. Non-indemnification of insurance claim lodged for loss sustained due to collapse in Tail Race Tunnel – Rs.41,964.645 million ¹⁶

¹³ Para-4.1.5.1

¹⁴ Para-4.1.5.2

¹⁵ Para-4.1.5.3

¹⁶ Para-4.1.6.1

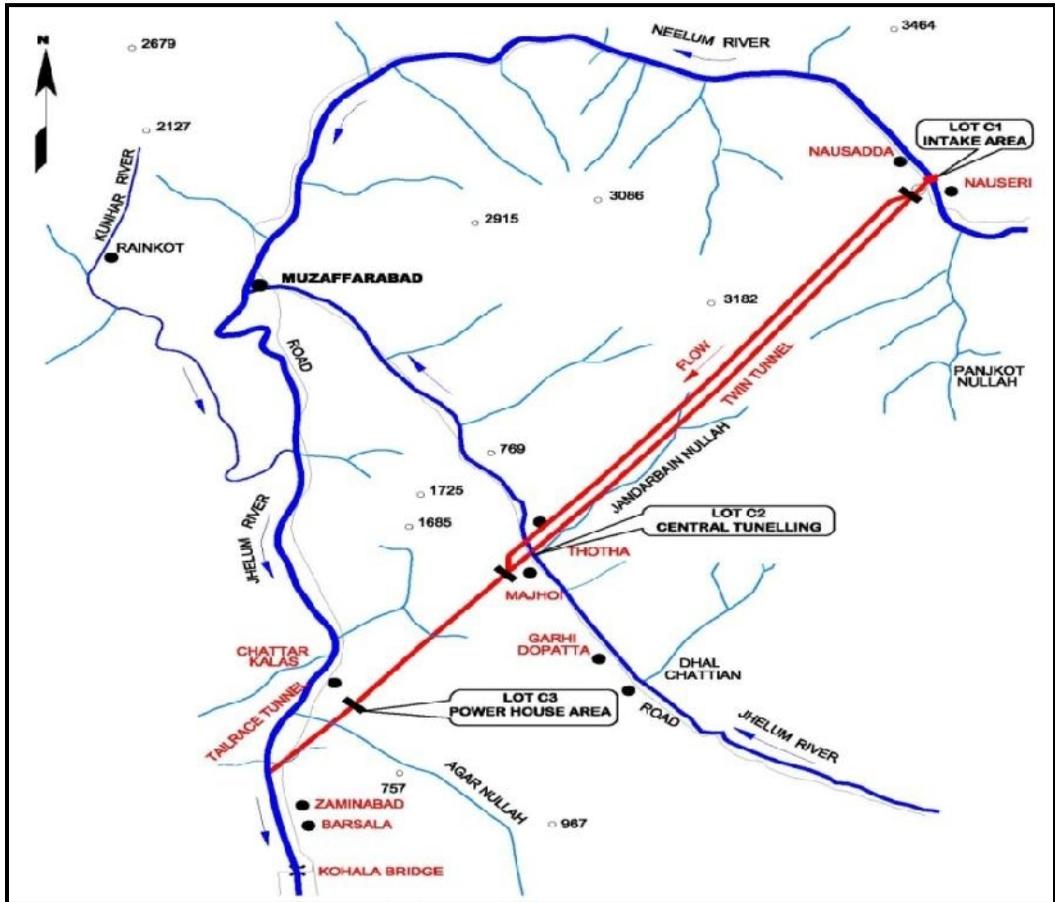
b. Recommendations

In view of the key audit findings, following measures are recommended for the management of WAPDA to improve project management practices. The management needs to:

- i. justify non-achievement of objectives of the project to generate annual energy of 5,150 Gigawatt hours and to establish water rights on River Neelum/ Kishenganga for Pakistan;
- ii. strictly adhere to the mandatory provisions laid down in the Manual for Development Projects, so that timely completion of projects within approved budget could be ensured;
- iii. make efforts for earning revenue through sale of carbon credits under Clean Development Mechanism (CDM);
- iv. conduct an afresh environmental study to address the environmental issues of Muzaffarabad;
- v. expedite the matter with Planning Commission for initiation of Third Party Validation (TPV) of cost of the project in order to obtain the actual tariff from NEPRA without further delay;
- vi. finalize the IPOEs report and ascertain the causes of collapse in Tail Race Tunnel (TRT) to fix the responsibility;
- vii. finalize all pending contractual issues including delivery of spare parts and completion of punch list items in order to conclude the contract;
- viii. ensure all pending recoveries from the contractor; and
- ix. pursue the matter with the concerned insurance company for early indemnification of insurance claim.

1. INTRODUCTION

Neelum Jhelum Hydroelectric Project (NJHP) is located in District Muzaffarabad, the State of Azad Jammu and Kashmir (AJ&K). NJHP is a run of river power project having an installed generation capacity of 969 MW.



The main objectives of the project, as per 4th revised PC-I, were to generate power of 969 MW with an annual average energy of about 5,150 Giga Watt hours (GWh) and to establish water rights of Pakistan over River Neelum / Kishenganga. Moreover, the project would also reap revenues of US\$ 50.133 million per annum through sale of carbon credits under Clean Development Mechanism (CDM).

The original PC-I of the project was approved by ECNEC on December 31, 1989 at a total cost of Rs.15,012 million. Later on, subsequent to three

intermediary revisions of PC-I, 4th revised PC-I of NJHPP was approved by ECNEC on May 22, 2018 at a total cost of Rs.506,808 million against which actual expenditure of Rs.423,446 million was incurred upto June, 2023.

Initially, the project was undertaken by WAPDA. On November 18, 2004, a separate Company i.e. Neelum Jhelum Hydropower Company (Pvt.) Limited (NJHPC) headed by an independent Chief Executive Officer (CEO) / Managing Director (MD) was established to run the affairs of the project.

The NJHP has following three (03) main components of works:

- ‘River Diversion’ consisting of a composite concrete gravity and embankment dam, sedimentation basin and tunnel intake at Nauseri.
- A ‘Tunneling System’ of 68.60 km including Head Race and Tail Race Tunnels for carrying water with 11 km of access adits, and
- ‘Underground power house complex’ for generating electricity at Chattar Kalas.

Initially, excavation was carried out through Drill and Blast (D&B) method and later on, Tunnel Boring Machines (TBMs) were deployed in 2011 at detailed design stage to reduce the implementation time of the project. It was anticipated that early availability of 969 MW power would help in reduction of load-shedding, enhancement of economic activity and would also help Pakistan to gain priority over water rights of Neelum River vis-à-vis Kishenganga Hydropower Project, a run of the river project having installed capacity of 330 MW.

The NJHP could not achieve its intended generation of 5,150 GWh units annually due to decrease in water as a result of losing rights on Neelum River water in the International Court of Arbitration. Annual generation of the project from the year 2019 to 2021 remained at an average of 4,600 GWh against the target of 5,150 GWh and further fell down to 2,476 GWh in the year 2022 before coming to a complete halt on July 06, 2022 when the project suffered a major break down due to collapse in Tail Race Tunnel (TRT). The restoration work of TRT, awarded to the previous contractor M/s China Gezhouba Group Co. Ltd. (CGGC) at a cost of Rs.2.49 billion, was completed on August 10, 2023 and the power house is in operation since then.



Collapse and Blockage of Tail Race Tunnel (TRT) Area



Restoration works at Tail Race Tunnel (TRT) Area



Restoration works at Tail Race Tunnel (TRT) Area

1.1 Responsible Authorities

- | | | |
|------|----------------------|--|
| i. | Controlling Ministry | Ministry of Water Resources,
(Government of Pakistan) |
| ii. | Executing Department | Water and Power Development
Authority (WAPDA) through NJHPC |
| iii. | O&M Agency | NJHPC/WAPDA |

1.2 Project Details

Neelum Jhelum Hydropower Project is a run of river project with a gross head elevation of about 420 m achieved by diverting the Neelum River at Nauseri to the lowest reach of the Jhelum River at Zaminabad through tunnelling system. One of the main purposes of the project is generation and production of clean and cheap energy through hydropower with least environmental impacts as compared to thermal power and other source of generation of energy available in Pakistan.

1.3 Objective of the project

The main objectives of the project were:

- i. Power Generation of 969 MW of electricity with an annual average energy of about 5,150 GWh units
- ii. Establishment of water rights on river Neelum / Kishenganga for Pakistan

1.4 Beneficiaries

People of Islamic Republic of Pakistan and State of Azad Jammu & Kashmir.

1.5 Time Frame

Construction of the project started in January, 2008 with estimated completion period of eight (08) years from the date of commencement and tentative commissioning date of the first unit was November, 2016. The project was substantially completed in 2018.

1.6 Capital Cost

The capital cost of the project is tabulated below:

(Rs. in Billion)

Cost	Date	Local	Foreign Exchange Component (FEC)	Total	Exchange Rate
Original PC-I	31.12.1989	7.928	7.324	15.253	1US\$= Rs. 45.0
1 st Revised PC-I	28.02.2002	37.835	46.667	84.502	1US\$= Rs. 60.3
2 st Revised PC-I	03.07.2013	116.515	158.367	274.882	1US\$= Rs. 86.0
3 rd Revised PC-I	19.12.2015	224.979	179.343	404.321	1US\$= Rs. 101.0
4 th Revised PC-I	22.05.2018	270.428	236.380	506.808	1 US\$=Rs. 105.0

1.7 Sources of Financing

Cash Development Loans (CDL) from Government of Pakistan, WAPDA's Equity, Neelum Jhelum Surcharge (NJS) from electricity consumers, local and foreign relent loans.

1.7.1 Type of Financing

As per 4th revised PC-I, the sources of financing of the project are as under:

Foreign Relent Loans	Rs.150.477 billion
Cash Development Loans	Rs.20.770 billion
WAPDA Equity	Rs.46.963 billion
NJS	Rs.69.306 billion
NBP Loan	Rs.100.00 billion

2. AUDIT OBJECTIVES

The main objective of performance audit was to evaluate / assess whether the objectives of the project as envisaged in PC-I were achieved or not? Moreover, audit sub-objectives were to evaluate the project on the criteria of Economy, Efficiency and Effectiveness in the following areas:

- i. Whether the aspect of economy was duly adhered to in incurring expenditure during construction and operation phase of the project;
- ii. Whether the project succeeded in achieving its core objectives efficiently and effectively;
- iii. Whether the risks regarding payment to the contractors and the consultants was ascertained;
- iv. To determine time and cost overrun of the project as compared to 1st revised PC-I of the project; and
- v. To ascertain effectiveness of environmental measures undertaken during execution of the project.

3. AUDIT SCOPE AND METHODOLOGY

3.1 Audit Scope

3.1.1 Period to be covered

- i. Planning Stage: Project concept during 1988, approval of PC-I in 1989, approval of 1st revised PC-I in 2002.
- ii. Development Stage: Start of construction activities in 2008 and completion of the project in 2018.
- iii. Operational Stage: Commercial Operation Date (COD) i.e. July, 2018 to December, 2022.

3.2 Audit Methodology

The audit work was initiated by formulating detailed Preliminary Survey Report (PSR) and by developing Audit Assignment Plan. Risk based audit

approach was used during the course of audit. Following audit methodology was adopted during the course of execution of performance audit:

- Discussions with the project management;
- Review of original and revised PC-Is of the project;
- Review of contract documents;
- Review of consultancy agreement;
- Examination of progress reports of the project;
- Examination of project's selected record and necessary auditable documents, and
- Site visits.

4. AUDIT FINDINGS AND RECOMMENDATIONS

4.1 Performance Related Paras

4.1.1 Project Management

Project management is the process of organizing the activities in a way to produce synergy effect that enables the completion of works within scheduled timelines. The goal of project management is achievement of all intended objectives of the project within time, cost and quality constraints. Manual for Development Projects (MoPD&SI) emphasizes that without a scientific approach to the task of managing projects, it will be very difficult for the organizations to successfully execute them within the scheduled time, scope, quality and to deliver the required results. Once approved, the executing agency is required to implement the project in accordance with the PC-I provisions. It has no authority to change and modify any approved parameter of the project on its own.

The project is considered to be completed or closed when all the funds have been utilized and objectives have been achieved within the given timelines. The financial impact due to inappropriate planning resulted into non-achievement of objective of the project to generate annual energy of 5,150 Gigawatt hours, non-achievement of objective regarding establishment of water rights on River Neelum / Kishenganga, delayed completion of the project and increase in pay back period as highlighted in Para-4.1.1.1, 4.1.1.2, 4.1.1.3 and 4.1.1.4.

4.1.1.1 Non-achievement of objective of the project to generate annual energy of 5,150 Gigawatt hours

According to 4th revised PC-I of the project approved by ECNEC on May 22, 2018, the prime objective of the NJHP was to generate about 969 MW with an annual average energy generation of about 5,150 GWh units.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that the ECNEC approved the 4th revised PC-I of the project in its meeting held on May 22, 2018 at a total cost of Rs.506,808 million. As per PC-I, the prime objective of the project was annual average generation of 5,150 GWh units but generation statistics showed that the project could not achieve the targeted generation during last five (05) calendar years. The maximum generation achieved was 4,940.67 GWh units during calendar year 2020.

Project mismanagement resulted into non-achievement of prime objective to produce annual energy of 5,150 GWh units.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that project was designed to generate 5,150 GWh units of energy annually, however, output was reduced due to the following reasons:

- i. The design / output of NJHP was optimized without considering the construction of Kishenganga Hydroelectric Project.
- ii. The annual energy of NJHP was reduced due to increase of environmental flow from 9 m³/s to 20 m³/s below the dam site.

The reply was not acceptable as above mentioned factors were required to be taken in to account at the design stage of the project which was not done. Resultantly, prime objective of planned generation of electricity could not be achieved.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to justify non-achievement of objective of the project, as envisaged in PC-I.

4.1.1.2 Non-achievement of objective regarding establishment of water rights on River Neelum / Kishenganga

Cabinet Committee on Wuller Barrage and Storage Project dated February 08, 1988 decided that “Pakistan should seriously consider taking in hand the constructions of all feasible projects on the tributaries of Jhelum for agricultural use and/or hydro-electrical use in order to forestall India from doing so”. In this connection, it was pointed out that there was a scheme in Pakistan to divert the Neelum River (Tributary of the Jhelum) Waters for such use and India had a similar schedule in occupied Kashmir. It was further decided that Pakistan should make serious efforts to complete the scheme earlier than India otherwise India may implement such a scheme in the occupied Kashmir and deprive Pakistan of the advantages which would accrue to Pakistan in terms of Para-9 of

Annexure-C to the Indus Water Treaty. Further, as per 3rd and 4th revised PC-I of the project, it was a stated objective that “the project will establish water rights on River Neelum / Kishenganga for Pakistan”.

During performance audit of the Neelum Jhelum Hydropower Project, it was observed that in compliance to directions of the Cabinet Committee on Wuller Barrage and Storage Project, a PC-I of Neelum Jhelum Hydropower project with proposed installed capacity of 500 MW was approved by ECNEC in 1989 which was to be completed in 1996. The execution of the project was delayed and feasibility study report was revised in 1997 by increasing the generation capacity from 500 MW to 969 MW. Later on, ECNEC approved 1st revised PC-I of the NJHPP in 2002 having installed capacity of 969 MW with completion period of 8 years i.e. up to 2010, however, construction of the project started in 2008. It was further observed that the matter of securing water rights over River Neelum was not mentioned in the objectives section of the PC-I and its 1st & 2nd revisions. However, the objective of securing water rights of Pakistan over River Neelum was explicitly mentioned in objectives section of 3rd and 4th revised PC-Is of the project.

Meanwhile, India started construction of Kishenganga Hydro Electric Power in occupied Kashmir in 2007. The Islamic Republic of Pakistan initiated arbitration proceedings pursuant to terms stated in Annexure-G of the Indus Water Treaty against the Republic of India through a “Request for Arbitration” to the Permanent Court of Arbitration (PCA), Hague dated May 17, 2010. The court initially considered the case of Pakistan with reference to Paragraph-15(iii) of Annexure-D to the Indus Waters Treaty 1960 which states that “where a Plant is located on a Tributary of the Jhelum on which Pakistan has any agricultural use or hydro-electric use, the water released below the Plant may be delivered, if necessary, into another Tributary but only to the extent that the then existing agricultural use or hydro-electric use by Pakistan on the former Tributary would not be adversely affected”. The court examined and concluded that India had a stronger claim to having coupled intent with action at the Kishenganga Hydro-Electric Project (KHEP) earlier than Pakistan achieved the same at the NJHEP, resulting in the former’s priority in right over the later with respect to the use of the waters of the Kishenganga / Neelum River for hydro-electric

power generation. However, the court vide its decision dated December 20, 2013 decided that “India shall release a minimum flow of 9 cumecs into the Kishenganga/ Neelum River below the KHEP at all times at which the daily average flow in the Kishenganga/Neelum River immediately upstream of the KHEP meets or exceeds 9 cumecs”. It was further decided that “at any time at which the daily average flow in the Kishenganga/Neelum River immediately upstream of the KHEP is less than 9 cumecs, India shall release 100 percent of the daily average flow immediately upstream of the KHEP into the Kishenganga/Neelum River below the KHEP”. Resultantly, Pakistan lost priority water rights on Neelum river and one of the objectives of the project to establish water rights on River Neelum could not be achieved due to delayed completion of the project in 2018 instead of 2010.

Project mismanagement resulted into non-achievement of objective regarding establishment of water rights on River Neelum / Kishenganga for Pakistan.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that design / output of NJHP was optimized without considering the construction of Kishenganga Hydroelectric Project.

The reply was not acceptable as the above factor was required to be considered at the design stage of the project which was not done. Furthermore, time overrun of the project was a major factor with regards to non-achievement of the objective of securing water rights over River Neelum for which the management has not provided any justification.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to justify non-achievement of objective of the project regarding establishment of water rights on River Neelum/ Kishenganga for Pakistan, as envisaged by the Cabinet Committee and in the 3rd & 4th revised PC-Is.

4.1.1.3 Abnormal time overrun of nine (09) years and cost overrun – Rs.338,944 million

According to Clause-7.5 of Manual for Development Projects referring Economic Coordination Committee (ECC's) decision dated December 27, 1988, "Those responsible for not undertaking forward planning and causing delays in implementation of projects should be taken to task". According to Chapter-4 (Para 4.5) of Planning Commission's Manual for Development Projects, "National Economic Council (NEC) decided on July 04, 1988 that detailed design and costing should be finalized and submitted to the competent authority within six (06) months of project approval. Implementation of such project components, which require detailed designing, should be started only when these have been finalized".

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that original PC-I of the project was approved by ECNEC on December 31, 1989 at a total cost of Rs.15,012 million and 1st revised PC-I was approved on February 28, 2002 at a total cost of Rs.84,502 million with completion period of eight (08) years. Later on, subsequent to two intermediary revisions of PC-I, fourth revised PC-I of NJHP was approved by ECNEC on May 22, 2018 at a total cost of Rs.506,808 million with completion date of June 30, 2018. The project is yet to be concluded but actual expenditure of Rs.423,446 million has been incurred up to June, 2023 resulting in cost overrun of Rs.338,944 million and time overrun of nine (09) years as compared to the cost of 1st revised PC-I.

Non-adherence to guidelines of Manual for Development Projects resulted into time overrun of nine (09) years and cost overrun of Rs.338,944 million as compared to 1st revised PC-I.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that preliminary design of the project was changed as per actual site conditions. A number of factors like Jhelum River crossing, rock burst in tunnel, identification of the fault line near the dam site, escalation, exchange loss and Interest During Construction (IDC) etc. necessitated the change in design. However, there was a cost saving of Rs.78 billion after approval of 4th revised PC-I.

The reply was not tenable because all the design issues should have been addressed before award of contract. The contract is yet to be concluded despite start of commercial operation in 2018 which also contributed towards high rates of escalation and exchange rate.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to fix responsibility for abnormal cost and time overrun of the project in the light of provisions of Manual for Development Projects.

4.1.1.4 Increase in payback period of the project from five (05) years to twelve (12) years

According to the Clause-8 of the 4th revised PC-I, payback period of the NJHP was 17.17 years. As twelve (12) years was construction period, it will take 5.17 years from the first year of operation to recover the investment cost. Payback period of a project shows the health of its financial returns. Payback period tells numbers of years required to recover the initial investment cost on the project.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that as per 4th revised PC-I of the project, payback period of the project was envisaged as 5.17 years from the first year of operation. However, payback period of the project had been increased from 5.17 years to 12 years as per actual calculations on the basis of average generation of the project from date of commissioning i.e. July 04, 2018. This showed that it would take an extra seven (07) years to recover the initial investment cost of the project.

Non-adherence to the provisions of the PC-I resulted into reduced effectiveness of the project due to increase in the payback period by seven (07) years.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that payback period was calculated on provisional tariff of Rs.9.1184/kWh, whereas, NJHPC has applied for tariff of

Rs.13.0331/kWh. On finalization of tariff, NJHPC would receive its impact retrospectively. Further, current year's energy loss occurred due to collapse of TRT which was also recoverable from M/s National Insurance Company Limited (NICL) through business interruption claim. The payback period of the project would be reduced upon approval of tariff and successful claim from NICL.

The reply of the management was not convincing as tariff of Rs.13.0331/kWh was not approved by NEPRA in July, 2018 onwards due to non-conducting of TPV which was required by ECNEC while approving 3rd revised PC-I of the project. TPV is still pending since more than 8 years. The insurance claim lodged with M/s NICL is also pending since February 2023. Moreover, the actual payback period after taking effect of increase in tariff and claim from insurance company would still be beyond the payback period approved in the PC-I.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to justify non-achievement of payback period as envisaged in PC-I.

4.1.2 Environment

Hydropower projects can have significant environmental impacts, both positive and negative. While they provide a clean source of energy that can help reduce greenhouse gases emission, they can also have negative effects on ecosystems, habitats, and water quality. The construction and operation of hydropower projects can alter the natural flow of rivers and affect the habitat of aquatic species. Changes in water flow can cause sedimentation, erosion and flooding downstream, affecting the health of riparian ecosystems. The construction of dams can result in the displacement of local communities and loss of cultural heritage. To minimize the environmental impacts of hydropower projects, Environmental Impact Assessments (EIAs) should be conducted to identify the potential environmental impacts of these projects. Achievement of positive benefits of environmental impacts and development of mitigation

measures depends on quality of environment studies conducted at planning stage of the project.

The management failed to earn revenue under Clean Development Mechanism as highlighted in Para-4.2.1. Due to deficiency in EIA studies and implementation of mitigation measures, the desired benefits could not be reaped as highlighted in Para-4.1.2.2.

4.1.2.1 Non-earning of revenue as per Clean Development Mechanism – US\$ 50.133 million per annum

According to Clause-4.6, regarding Clean Development Mechanism (CDM) revenues, of the 4th revised PC-I of the NJHP, the benefits arising from sale of carbon credits will be valued at US\$ 5 per ton of Carbon Dioxide (CO₂) gas produced. The Government will claim carbon credits from United Nations Framework Convention on Climate Change (UNFCCC) amounting to US\$ 12.533 million per annum.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed from 4th revised PC-I of the project that after completion of the project, carbon credits @ US\$ 5 per ton of CO₂ gas produced could be claimed by the management from UNFCCC. As such, the project could earn CDM revenue amounting to US\$ 12.533 million per annum. It was further observed that the project had been commissioned for four (4) years but no efforts were made by the management to avail financial benefits amounting to US\$ 50.133 million (US\$ 12.533 million*4 years) under CDM.

Non-adherence to the PC-I provisions resulted into non-earning of revenue amounting to US\$ 50.133 million per annum.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that a case for CDM was prepared and submitted to WAPDA for onward submission to the concerned departments but the same could not be materialized before the implementation of the project.

The reply is not tenable as no responsibility was fixed for non-earning of CDM revenue as envisaged in PC-I of the project.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were

also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to fix responsibility for non-earning of CDM revenue from UNFCCC besides making efforts towards earning of the same.

4.1.2.2 Reduction in annual generation and serious environmental issues due to improper environmental studies at planning stage – Rs.3,054.664 million

According to Clause-4.7(iv) of the Planning Commission's Manual for Development Projects, "PC-I form should clearly indicate that the environmental aspects of the project have been duly taken into account. Moreover, as per PC-I of the project, Environmental Impact Assessment (EIA) report provides an Environment Management & Mitigation Plan and the monitoring is recommended during construction and operation stage of the project". Environmental Protection Agency (EPA), Muzaffarabad issued conditional NOC vide letter No. 00/EPA/209-13/2011 dated January 22, 2011.

During performance audit of the Neelum Jhelum Hydropower Project, it was observed that Prime Minister of Pakistan constituted a Commission on October 09, 2018 on the request of Prime Minister of AJ&K in order to furnish a report on the issue of reduction in natural river flow passing through Muzaffarabad city due to diversion of water at the existing NJHP and proposed Kohala Hydropower Project. As per Commission's Report, EIA report prepared by the WAPDA and later on conditionally approved by the EPA was found deficient as it had not taken into account the social and environmental impact regarding aquatic ecology and dilution of routine urban contaminations etc. Moreover, it also lacked presenting trade-off options for various possible mitigation measures for controlling environmental damage. Due to such deficiencies, among others, the minimum environmental flow (water flow) of 9 cumec appeared as deficient when executed on trial basis by NJHPC. Furthermore, increasing the environmental flow release to 20 cumec from Neelum Jhelum Dam during its operational phase would also directly reduce the energy generation benefits from the project. As per calculations of the management, the project would suffer reduction in generation of 335 million

kWh units annually @ Rs.9.1184/kWh amounting to Rs.3,054.664 million (approximately). This situation arose due to lack of exercising due diligence at the time of project planning and not taking in to account all the aspects on the basis of which reduction of river flow was causing serious environmental issues in Muzaffarabad.

Non-adherence to the Planning Commission's Manual for Development Projects and PC-I provisions resulted into reduction in annual generation amounting to Rs.3,054.664 million and serious environmental issues due to improper environmental studies at planning stage.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that all the mitigation measures to address the environmental issues were taken in consultation with the concerned department of Government of AJ&K. The increase in the environmental flow from 9 to 20 cumec was on the basis of actual recorded facts after the operation of the plant. This increase was approved by the Cabinet Committee on Energy in September, 2020.

The reply was not acceptable as all the mitigation measures to address the environmental issues were required to be taken up at the planning stage to avoid reduction in annual generation which was not done.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to justify deficiencies in the EIA Studies at planning stage of the project besides conducting a comprehensive environmental study to determine the environmental flow.

4.1.3. Organization and Management

Organization and Management refers to the art of getting people together on a common platform to make them work towards a common pre-defined goal. It provides the project management with the tools and skills needed for optimum utilization of resources through meticulous planning and control while executing a project. It helps in coordinating different activities of the project for efficient

execution and successful completion of project for achieving envisaged benefits. Achievement of envisaged benefits of any project depends on its successful planning, execution and completion within stipulated time frame. In case of any delays, the envisaged benefits cannot be reaped well within the timelines and may result in lost opportunities.

During approval of 3rd & 4th PC-I of the project, ECNEC approved the revised cost of the project subject to the condition that Third Party Validation (TPV) of cost estimates of PC-I may be carried out within three months to ensure transparency, however, TPV could not be conducted till date due to which reference tariff had still not been approved by NEPRA. This aspect of management failure is explained in detail in Para-4.1.3.1. Similarly, TRT of the powerhouse partially collapsed due to which powerhouse was completely shut down since July 06, 2022, but no inquiry was conducted to fix the responsibility of collapsed tunnel that caused huge generation loss. This issue is highlighted in Para-4.1.3.2. Achievement of optimum performance of the project depends upon execution of original work with due care by covering all technical aspects. The financial impact due to improper installation of metering equipment is highlighted in Para-4.1.3.3.

4.1.3.1 Loss of revenue due to non-approval of reference tariff by NEPRA - Rs.70,443.298 million

According to 3rd revised PC-I of the NJHP dated December 19, 2015, ECNEC approved the revised cost of the project subject to the condition that TPV of cost estimates of PC-I may be carried out within three (03) months to ensure transparency of cost estimates.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that ECNEC while approving 3rd revised PC-I of the project directed to carry out TPV of the cost estimates of the PC-I within three (03) months. However, TPV of the project had not so far been conducted despite repeated instructions of ECNEC while approving 4th revised PC-I of the project on May 17, 2018. As per Tariff Petition filed with NEPRA, NJHPC demanded a reference tariff of Rs.13.0331/kWh for first ten (10) years, however, NEPRA accorded approval for provisional tariff of Rs.9.1184/kWh due to non-conducting of TPV of cost estimates by independent consultants. This difference between

reference tariff claimed by NJHPC and provisional tariff allowed by NEPRA due to non-conducting TPV by the management resulted in a loss of Rs.70,443.298 million to the company from July, 2018 to July, 2022.

Non-adherence to the instructions of ECNEC and subsequent non-approval of reference tariff by NEPRA resulted in loss of revenue amounting to Rs.70,443.298 million.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the matter was being pursued with the Ministry of Planning, Development and Special Initiatives (MoPD&SI). It was informed that bidding process for hiring of TPV consultants was initiated twice but remained unsuccessful. The matter was also discussed in 83rd Board of Directors (BoD) meeting held on October 30, 2023, in which it was decided to submit the case to MoWR for taking up with the MoPD&SI for its settlement.

However, further progress achieved regarding TPV of cost of NJHP was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to pursue the matter to obtain approval of reference tariff from the NEPRA without further loss of time.

4.1.3.2 Non-conducting of inquiry for collapse in Tail Race Tunnel resulting into generation loss – Rs.20,387.422 million

According to Clause-III(i) of WAPDA Guidelines for Enforcing Responsibility for Losses, “all losses whether of public money or of stores, shall be subjected to preliminary investigation by the officer in whose charge they were, to fix the cause of the loss and the amount involved”.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed from incident report that unusual water seepage/leakage was observed in powerhouse on July 04, 2022 due to increased pressure in TRT. This blockage forced the management to completely shut down the generation plant on July 06, 2022. After initial inspection, it was found that major collapse had

occurred in the TRT between field chainage of 0+250 to 0+293. As per reports of International Panel of Experts (IPoE), main collapse was identified downstream from the first lined section at about 0+251 of field chainage. As per root cause analysis conducted by the IPOE, besides other factors, probability of occurrence of collapse due to insufficient ground support and absence of concrete lining was 'high'. Further, as per joint inspection of the TRT carried out on January 19, 2019, the shotcrete of crown, left wall and right wall of the TRT in many locations including area falling within 0+260 to 0+297 of field chainage was found spalled because this area had weak rocks. Furthermore, as per Geology Report and technical specifications of the contract, most of the area between chainage 0+250 to 0+293 had poor/very poor rock quality for which additional support of spiles/lattice girders was required which was not provided. The closure of powerhouse since July, 2022 had resulted in generation loss of 2,235.85 million energy units (approx.) till December, 2022, which eventually caused revenue loss of Rs.20,387.422 million to the company. Audit holds that after receipt of report from IPOE a formal inquiry to fix responsibility of loss should have been conducted which was not done.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that IPOE was engaged to identify the root causes of the TRT incident. The final draft report received from IPOE was under consideration with the consulting firms. The fate of inquiry would be decided upon finalization of the report. Moreover, first interim claim for Business Interruption of Rs.41.965 billion had already been lodged with M/s NICL, whose outcome is still awaited.

The reply of the management was not convincing as the claim for Business Interruption of Rs.41.965 billion lodged with M/s NICL has not so far been realized. Further, the IPOE had submitted its 1st interim report on October 17, 2022. Since then, eighteen (18) months had been elapsed and the report was not finalized yet.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to finalize the report and fix responsibility for defective inspection before DLP leading to collapse in TRT, closure of generation plant and resulting revenue loss to the company.

4.1.3.3 Loss on account of payment of cost of import of own energy to the CPPA-G – Rs.207.128 million

According to Clause-PMC-2.1(h) of Grid Code approved by NEPRA, “Installation of revenue meter and ancillary equipment at the substation for the point of connection shall be the generator and other code participant/ users’ responsibility. The generators and other user connecting to the National Transmission and Despatch Company (NTDC) Transmission System shall be submitted to the NTDC for approval of the engineering design for revenue metering, proposed location of metering equipment and ancillaries complete with wiring and installation drawings and bill of materials. The proposed metering location shall be adjacent to any telemetering, communication and data logging equipment”.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that an amount of Rs.207.128 million was paid to the CPPA-G on account of import of energy recorded at the billing meters from April, 2018 to September, 2022. The Chief Engineer (O&M) vide letter dated May 20, 2021 informed the Project Consultants about flaws in design of Auxiliary System of Neelum Jhelum Power Stations. Further probe into the matter revealed that Main Auxiliary Power Transformers is energized from its own electricity fed from unit No.1 & 3 when unit No.2 & 4 are shut down. However, due to auxiliary network design and location of meters, utilization of its own energy through unit No.1 & 3 was also recorded as ‘import of energy’. Therefore, payment for import of its own energy to the CPPA-G was loss to the Company.

Non-adherence to the Grid Code resulted into a loss of Rs.207.128 million from April, 2018 to September, 2022 on account of payment of cost of import of its own energy to the CPPA-G.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that scheme for the auxiliary consumption in the Neelum Jhelum plant has no design fault as similar schemes were also being implemented at other hydel power stations. NEPRA/CPPA-G treats

NJHPC as an Independent Power Producer (IPP) and the implementation of this scheme for energy import / export is applicable to all IPPs.

The reply was not tenable because Chief Engineer (O&M) NJHP vide his letter dated May 20, 2021 had already pointed out design flaws in auxiliary system of Neelum Jhelum Power Station which contributed towards erroneous energy import.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to resolve the technical issues of installation of billing meters in collaboration with NTDC besides ensuring recovery of amount in question from CPPA-G.

4.1.4 Contract Management

Contract management is the process of managing contract from the inception to execution and eventually successful completion. Key activities involve drafting of contract documents, clauses negotiation, execution and performance monitoring to optimize operational & financial performance and to ensure risk mitigation. Efficient contract management is backbone for successful completion of works as well as achieving envisaged benefits from the project.

As per contract clauses, the contractor had failed to complete the remaining punch list items and deliver the spare parts despite commissioning of the project. Further, payment was made to the contractor without determining actual quantities of raw stone. These aspects of contract management are highlighted in Para-4.1.4.1, 4.1.4.2 and 4.1.4.3.

4.1.4.1 Non-execution of punch list items by the contractor

According to Clause-49.1 of appendix to tender, DLP of NJHP was twelve (12) months. As per Clause-49.2 of GCC, the contractor shall: (a) complete the work, if any, outstanding on the date stated in the TOC as soon as practicable after such date, and (b) execute all such work of amendment, reconstruction, and remedying defects, shrinkages or other faults as the engineer may, during the DLP or within fourteen (14) days after its expiration, as a result

of an inspection made by or on behalf of the engineer prior to its expiration, instruct the contractor to execute. Further as per Clause-49.4 of GCC, “In case of default on the part of the contractor in carrying out such instructions within a reasonable time, the Employer shall be entitled to employ and pay other persons to carry out the same and if such work is work which, in the opinion of the engineer, the contractor was liable to do at his own cost under the contract, then all costs consequent thereon or incidental thereto shall, after due consultation with the Employer and the contractor, be determined by the engineer and shall be recoverable from the contractor by the Employer, and may be deducted by the Employer from any monies due or to become due to the contractor”.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that TOCs of different sections of works were issued during 2016 to 2019 and final TOC for whole of the works was issued w.e.f September 22, 2020. Further, all generating units of powerhouse were put in commercial operation since 2018. As per provisions of contract, DLP for executing punch lists items under respective lots was twelve (12) months from issuance of respective TOCs. However, 118 punch list items pertaining to different works were still outstanding despite lapse of a considerable period of time. Major punch list items include non-rectification of flap gates, non-construction of access stairs for berms at EL.1040 and EL.1056, non-installation of two (02) standpipe piezometers, non-construction of concrete boundary wall fence and non-installation of septic tank, screening chamber and sewerage system at C1 site. Due to non-execution of remaining punch list items, Defects Liability Certificate (DLC) could not be issued to the contractor causing delay in conclusion of the contract. As per Clause-49.4, in case of failure of the contractor to complete the punch list items, these works were required to be completed by employing other contractor(s) at the risk & cost of defaulted contractor but needful was not done.

Non-adherence to the provisions of contract resulted into non-execution of punch list items by the contractor.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied on April 22, 2024 that major punch list items had been rectified by the contractor. However, the delay occurred due to COVID-19, Indian shelling/ firing on the project site C1 and non-payment of US

dollars to the contractor due to foreign exchange crises in the country. The contractor was directed to complete the punch list items by the end of December, 2023, failing which, the amount would be recovered and remaining works would be executed at the risk and cost of the contractor.

The reply was not acceptable as only 05 punch list items out of 118 were rectified as per detail provided vide letter dated June 14, 2023. Moreover, the evidence of rectified punch list items was also not provided.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to justify delay in completion of punch lists items besides taking action against the contractor as per contract provisions.

4.1.4.2 Non-supply of complete spare parts by the contractor

According to Clause-1.12 (Volume-2B & 2C), the contractor shall manufacture the spare parts and deliver them to site at the same time as the rest of the plant. Spares shall be handed over to the Employer not later than at the date twenty-eight (28) days prior to the start of the tests upon completion. As per Clause-7.1 (Volume-4) of the contract agreement, the successful tenderer shall prepare and at the time of preparation of Letter of Acceptance (LOA) submit to the Employer the unit rates of all individual items of the spare parts. The unit rates of the spare parts for the required quantities shall give a total cost equal to the amount entered in the schedule of price for spare parts.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that TOCs of four (04) generating units of powerhouse were issued during December 28, 2018 to July 04, 2019. As per list of spare parts of power house, total quantity of items of spare parts was 2,900, out of which 1,289 items were not delivered as yet. Due to non-provision of complete spare parts, the management was facing problems in maintenance works. Further, the contractor had also not provided itemized price lists (unit rates) of spare parts which were required to enable the management to maintain proper inventory record. No

action was taken against the contractor for non-provision of spare parts.

Non-adherence to the provisions of contract resulted into non-supply of complete spare parts by the contractor.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the required spare parts were of specialized nature and were mostly manufactured by the supplier in China but not randomly available in the local market. Moreover, 272 spare parts had been delivered after March, 2023. The matter had already been taken up with the contractor to supply the remaining spare parts. The contractor argued that due to foreign currency issues in Pakistan like opening of Letter of Credit (LCs) and custom clearance etc., remaining spare parts could not be delivered on time.

The reply was not convincing because complete spare parts were required to be handed over to the Employer not later than 28 days prior to the start of tests upon completion, which was not done.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to justify delay in delivery of spare parts by the contractor besides ensuring receipt of the same without further loss of time.

4.1.4.3 Unjustified excess payment to the contractor without determining actual quantities of raw stone aggregate – Rs.1,775.418 million

According to Clause-56.1 of General Condition of Contract, “the engineer shall, except as otherwise stated, ascertain and determine by measurement the value of works in accordance with the contract and the contractor shall be paid that value”. As per Clause-60.4, “the engineer may by any IPC make any correction or modification in any previous IPC which shall have been issued by him and shall have authority, if any work is not being carried out to his satisfaction, to omit or reduce the value of such work in any IPC”. Further, as per Clause-3.1.1 of the Consultancy Services Agreement (CSA), “the consultants shall always act, in respect of any matter relating to this contract or to the

services, as faithful advisers to the client and shall at all times support and safeguard the client's legitimate interests in any dealings with sub-consultants or third parties”.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that a variation order (VO-40) amounting to Rs.1,310 million for procurement of 800,000 m³ raw stone for aggregate to be used in different works at Lots C1 and C2 was issued by the consultants. The consultants calculated the quantities of raw stone for aggregate to be procured under VO-40 by analyzing the available quantities with demanded quantities. As per IPC-111, an amount of Rs.3,085.418 million was paid to the contractor for procurement of 1,884,224 m³ of raw stone against approved amount of Rs.1,310 million, which resulted in unjustified excess payment of Rs.1,775.418 million. Due to abnormal increase in quantities, the Employer reminded / requested the engineer vide letters dated November 11, 2019, July 06, 2021, and October 21, 2021 to furnish final evaluation / determination of VO-40 on the basis of following grounds:

- i. Actual quantity used according to as-built quantities of concrete;
- ii. Tender quantities of concrete / aggregate for which the contractor was responsible;
- iii. Quantities of SS-I stone / aggregate recovered from tunnel excavation;
- iv. Quantities of SS-I stone / aggregate obtained from tender stage designated quarries;
- v. Quantities of SS-I stone / aggregate made through VO-40, and
- vi. Detail of VOs wherein separate aggregate procured cost was paid on unit rates.

Despite lapse of more than three (03) years, the engineer had failed to determine actual amount of VO which showed that the engineer / consultant was not performing duties/services with due diligence to safeguard the interest of the Employer.

Non-adherence to the provisions of the contract and CSA resulted into unjustified excess payment of Rs.1,775.418 million to the contractor.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the matter was being pursued with

the consultants and the excess paid amount would be recovered from the contractor's pending retention money at the time of upcoming IPC or final bill.

However, further progress regarding recovery from the contractor was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to inquire the matter of excess payment made to the contractor without determination of actual quantities of raw stone and to fix responsibility upon the person(s) involved in certifying and verifying the quantities besides ensuring recovery of the excess paid amount from the contractor.

4.1.5 Construction and Works

Accurate execution of works is one of the key elements of project implementation life cycle in public sector projects. The decisions taken by the project management during the execution stage do not only have implications on successful completion of the project but also have far reaching impacts on the economy. Moreover, Manual for Development Projects (MoPD&SI) also emphasizes that the implementing agency is charged with the responsibility of successful completion of project's components within the scheduled time, scope, quality and with delivery of the required results.

Audit observed that the management could not properly monitor the construction activities during execution of the Neelum Jhelum Hydropower Project. Improper monitoring resulted in non-completion of telecommunication system, non-recovery of unspent amount of advance payment from the contractor due to non-construction of 11KV overhead line and re-instatement of spoil deposits by the contractor after completion of excavation work. These aspects of contractual mismanagement and poor monitoring affecting the economy of the project are highlighted in Para-4.1.5.1, 4.1.5.2 and 4.1.5.3.

4.1.5.1 Non-recovery of cost of un-executed work of telecommunication system from the contractor – US\$ 1.220 million (equivalent to Rs.341.600 million)

According to Clause-60.1A of Conditions of Particular Application, advance payment of 5% & 25% shall be made to the contractor against Free on Board (FOB) value of plant and equipment. Further, as per Clause-60.4 of the GCC, the consultants may by any IPC make any correction or modification in any previous IPC which shall have been issued by him and shall have authority, if any work is not being carried out to his satisfaction, to omit or reduce the value of such work in any IPC.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that a variation order No.78 for up-gradation of Radio Link / VHF System to Optical Fiber Link and Satellite Communication System (Site C1 to C3) and additions to the existing telephone system was approved by the Employer on November 09, 2018. Despite lapse of a considerable period of time, the said telecommunication system could not be made operational. The matter was discussed in a joint meeting of the Employer, contractor and the consultants held on November 16, 2022, wherein, it was decided to recover the certified cost of items related to Radio Link, VHF System (Changed to Fiber Optic/Satellite Communication System). As per IPC No.EMH-75, 85% FOB price of this item i.e. US\$ 1.220 million was already paid to the contractor, therefore, the said amount was required to be recovered from the contractor but needful was not done.

Non-adherence to the provisions of contract and minutes of meeting resulted into non-recovery of US\$ 1.220 million (equivalent to Rs.341.600 million @ Rs.280/US\$) from the contractor on account of cost of un-executed work of telecommunication system.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the matter had already been taken up with the consultants on November 16, 2022 for working out the cost of unexecuted works and on finalization, the amount would be recovered from the contractor's retention money.

However, the status of recovery was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to ensure recovery of agreed amount of unexecuted work from the contractor without further loss of time.

4.1.5.2 Non-recovery of unspent amount of advance payment from the contractor due to non-construction of 11KV overhead line – US\$ 65,470 (equivalent to Rs.18.331 million)

According to Clause-60.1(A) of Conditions of Particular Application, advance payment of 5% & 25% shall be made to the contractor against FOB value of plant and equipment. Further, as per Clause-60.4 of the GCC, “the consultants may by any IPC make any correction or modification in any previous IPC which shall have been issued by him and shall have authority, if any work is not being carried out to his satisfaction, to omit or reduce the value of such work in any IPC”.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that an advance payment of US\$ 65,470 was made to the contractor for purchase of material for construction of 11 KV overhead transmission line. However, instead of constructing new line, the Employer decided to use the already erected line and the contractor executed only connection work with the said existing line. Due to non-construction of new line, unspent amount out of advance payment for supply of material was required to be recovered from the contractor which was not done.

Non-adherence to the provisions of contract resulted into non-recovery of US\$ 65,470 (equivalent to Rs.18.331 million @ Rs.280/US\$) from the contractor on account of unspent amount of advance payment.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the matter was taken up with the consultants for clarification. In response, they worked out the recovery from the

contractor and same would be made from the contractor's retention money.

However, the status of recovery was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to ensure recovery of unspent amount of advance payment from the contractor without further loss of time.

4.1.5.3 Undue benefit to the contractor due to non-reinstatement of the spoil deposits

According to Clause-3.9.3.1 of Technical Specification of Lots C1, C2 and C3 of contract agreement, "top soil shall be stockpiled for later use on top of levelled spoil deposit areas as shown on the drawings. Stockpiled top soil material shall be properly deposited and protected. The contractor shall carry out the forming of the spoil deposits in accordance with the drawings and shall adhere to the slope, levels, depths and heights shown thereof or as directed by the engineer". Further, as per Clause-3.13 (Measurement and Payment), "for all earthworks shaping, cleaning and other finishing of surfaces in cut & fill shall be deemed to be included in the excavation or fill except where a separate item is included in the bill of such work. Furthermore, all loading and transport to fill or spoil, and all works required at the place of disposal, shall be inclusive. Any extra handling of material if required will not be measured and paid".

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that an amount of Rs.7,776.444 million was paid to the contractor on account of different types of excavations (soil excavation, rock excavation and underground excavation) at C1 and C2 sites. The excavated material was deposited by the contractor in different spoil areas. As per provisions of contract, the contractor was required to reinstate the spoil deposits as per drawings but needful was not done despite lapse of a period of almost five (05) years from issuance of TOC. The consultants vide letter dated February 16, 2022 notified the contractor about his failure to carry out their instructions to undertake the reinstatement of spoil deposits at both C1 and C2 sites. Audit holds that as the

cost of levelling / reinstating the spoil deposits was included in the rate of excavation, therefore, cost impact of said outstanding work was required to be worked out and recovered from the contractor but needful was not done.

Non-adherence to the provisions of contract resulted into undue benefit to the contractor due to non-reinstatement of the spoil deposits.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the matter had already been taken up with the consultants for working out actual amount for reinstatement of the spoil deposits as per contract provisions and on finalization, the amount would be recovered from the contractor's retention money.

However, the status of recovery was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to ensure determination and recovery of amount of outstanding works from the contractor without further loss of time.

4.1.6 Assets Management

Hydropower projects play a crucial role in meeting the energy demand of millions of people nationwide. These projects require significant investment and their assets must be managed effectively to ensure optimal performance, reliability and sustainability. Assets management in hydropower projects involves strategic planning, procurement, installation, operation and maintenance of assets to ensure optimal performance, reliability and efficiency throughout the project life cycle. Asset management should include predictive and preventive maintenance, monitoring of health of equipment and risk assessment of different categories of assets throughout their life cycle. For this purpose, the management needs to develop a comprehensive assets management plan that includes asset inventory, condition assessment, risk assessment, maintenance planning and optimization strategies. Modern monitoring technologies such as remote sensing, drones, and sensors to monitor assets and identify anomalies can be used to detect potential failures before they occur. The management should prioritize

assets maintenance based on the risk of failure and the criticality of the assets to the project's performance.

Audit observed that the management could not properly predict / manage the reliability of the powerhouse infrastructure due to which collapse occurred in its TRT causing closure of powerhouse. The management could not get indemnification of insurance claim of loss from the insurance company despite lapse of a considerable period of time. This aspect of poor assets management is highlighted in Para-4.1.6.1.

4.1.6.1 Non-indemnification of insurance claim lodged for loss sustained due to collapse in Tail Race Tunnel - Rs.41,964.645 million

According to General Condition-4 of the Insurance Policy with M/s NICL, “in the event of loss insured hereunder, interim claim payments will be made to the insured if desired by the insured subject to claim being admissible under the policy and recommendation of the loss adjuster.”

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that power house was forced shut down since July 06, 2022 due to collapse in the TRT. The management lodged an insurance claim worth Rs.41,964.645 million with the M/s NICL on February 06, 2023. However, neither interim claim payment of 50% could be recovered from the insurer nor final settlement of the claim was intimated by the insurer to the Company.

Non-adherence to the insurance policy resulted into non-indemnification of insurance claim amounting to Rs.41,964.645 million.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the documents required by the M/s NICL had been provided which were under evaluation by the loss adjuster. NJHPC has also requested M/s NICL for on account payment of interim claim.

However, status of indemnification of insurance claim was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to pursue the matter with the concerned insurance company for early indemnification of insurance claim for the amount of business loss till August 10, 2023 i.e. date of re-operation of power house.

4.2 Compliance Related Paras

4.2.1 Non-submission of Completion Report (PC-IV) and Annual Review Reports of Operations and Maintenance (PC-V) of the project

According to Clause-1.55 of Manual for Development Projects, PC-IV form is required to be submitted at the time when the project is adjudged to be completed while the PC-V form is to be furnished on an annual basis for a period of five (05) years by the agencies responsible for operation & maintenance of the projects.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that the project achieved its COD on July 04, 2018 and was under operation from last five (05) years. As per Manual for Development Projects, completion report of the project on PC-IV form was required to be furnished to the Planning Commission by the Project Director / Executing Agency soon after completion of the project. However, despite lapse of five (05) years from COD, project completion report (PC-IV) was not submitted by the management to the Planning Commission. Moreover, O&M Annual Review Report (PC-V) form was required to be furnished on an annual basis w.e.f COD for a period of five (05) years but the same was also not submitted by the management.

Non-adherence to the provisions of Manual for Development Projects resulted into non-submission of Completion Report (PC-IV) and O&M Annual Review Reports (PC-V) of the project.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that PC-IV was prepared and submitted to WAPDA for review but due to non-finalization of remaining contractual matters like clearing of the punch list items, settlement of claims and variation orders, it could not be submitted to the Planning Commission. Further, PC-IV and PC-V would be submitted upon finalization of these issues.

However, progress achieved regarding submission of PC-IV and PC-V to the Planning Commission was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to fix responsibility for delay in finalization of remaining contractual issues and to submit PC-IV & PC-V without further loss of time.

4.2.2 Non-implementation of Power Safety Code and recommendations of NEPRA regarding Occupational Health, Safety and Environment Management System in the project

According to Clause-3.2 of the NEPRA's Power Safety Code for the Licensee, 2021, Licensee shall ensure compliance with Power Safety Code, together with NEPRA Performance Standards Rules and other applicable national and provincial legal requirements as necessary. The Safety Code enables the Licensee to operate in a manner that protects and promotes the health & safety of employees, contractors, the general public, visitors and protect the environment. As per Clause-3.2, Licensee shall establish, implement, monitor and maintain a system to identify Health, Safety and Environment (HSE) hazards and to reduce risks to 'As Low as Reasonably Practicable'.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that SOPs to monitor the Occupational Health, Safety and Environment (HSE) as required under NEPRA's Power Safety Code, since its issuance, were not devised. The mechanism for conducting internal HSE Audit of NJHP to detect and correct unsafe practices, conditions and deficiencies at site was also not established. Neither the dispensary to provide basic health facilities was established at site nor Fire-fighting officer(s)/official(s) and paramedics staff were hired despite purchase of fire-fighting vehicles and ambulances. Further, vehicle for emergency evacuation of the staff working in the powerhouse was also not deputed which lead to poor monitoring and internal control system prevailing at the project site. It was further observed that NEPRA also conducted

site HSE performance evaluation of the project in May, 2022 to ensure maintenance of an acceptable level of HSE management system. The purpose of the evaluation was to secure the plant and manage potential risks to public, employees and the contractors. As per evaluation report, NEPRA gave certain recommendations for implementation of HSE system to avoid any potential incident. However, despite lapse of a considerable period of time, neither provisions of Power Safety Code nor recommendations of NEPRA's evaluation report were implemented by the management.

Non-adherence to Power Safety Code resulted into non-implementation of recommendations of NEPRA regarding Occupational Health, Safety and Environment Management System in the project.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that all observations of the NEPRA were addressed except hiring of Health and Safety Engineer which was under process.

The reply was not acceptable as evidence to address the observations of NEPRA was not provided by the management. Moreover, progress achieved regarding hiring of Health and Safety Engineer was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to substantiate their stance with supporting documents besides ensuring compliance of provisions given in Power Safety Code.

4.2.3 Non-preparation / handing-over of operation & maintenance manuals by contractor

According to Clause-28 of Special Provisions of contract agreement signed between WAPDA and consortium of M/s CGGC and CMEC Ltd. on December 19, 2007, the contractor shall provide the Employer with complete detailed instruction manuals covering the operation and maintenance of the plant (O&M Manuals). The contractor shall submit twelve (12) final copies of the

complete manuals to the consultants not less than three (3) months before the end of the Defects Liability Period (DLP) for first unit.

During Performance audit of the Neelum Jhelum Hydropower Project, it was noticed that the first unit (Unit No.3) of the project was commissioned on July 04, 2018. The contractor was required to provide complete detailed O&M Manuals before the end of DLP of first unit i.e. up to July 04, 2019. However, despite lapse of more than three (03) years, the same were not provided by the contractor and the plant was being operated and maintained without availability of requisite O&M manuals.

Non-adherence to the provisions of contract resulted into non-preparation / handing-over of O&M manuals by contractor.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the contractor provided complete soft copies of the O&M manuals. Hard copies of the same would be provided by the end of December, 2023.

However, further progress achieved regarding provision of O&M manuals was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to justify delay in preparation and handing-over of final draft of O&M manuals by the contractor besides ensuring receipt of the same without further loss of time.

4.2.4 Non-conclusion of contract due to non-finalization of variation orders

According to Clause-60.5, “not later than eighty-four (84) days after the issue of the TOC in respect of the whole of the works, the contractor shall submit to the engineer six copies of the ‘Statement at Completion’ with supporting documents”. Moreover, as per Clause-60.8, “within 28 days after receipt of the ‘Final Statement’, and the written discharge, the engineer shall issue to the Employer (with a copy to the contractor) a Final Payment Certificate stating: (a)

the amount which, in the opinion of the engineer, is finally due under the Contract or otherwise”.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that TOC of whole of the work was issued to the contractors w.e.f September 22, 2020 but despite lapse of more than two (02) years, twenty-four (24) Appropriation Requests (APs) / Variation Orders (VOs) of already executed works were not yet signed by the contractors as required under Clause-52.1. As per Clause-60.5 of contract, the contractor was required to submit ‘Statement at Completion’ within eighty-four (84) days of issuance of TOC but the same was not done by the contractor M/s CGGC due to non-conclusion of pending contractual issues including approval of variation orders. It showed unprofessional attitude of the contractors towards conclusion of the contract and negligence of the consultants in discharging their professional duties timely to safeguard the client's legitimate interests.

Non-adherence to the provisions of contract resulted into non-conclusion of contract due to non-finalization of variation orders.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that a meeting was held with the contractor and the engineer on September 13-14, 2023 in which contractor agreed to sign outstanding VOs provided the terms of price escalation and payment currency proportion are indicated. The engineer issued a letter to the contractor on September 20, 2023 for early signing of the pending VOs.

However, further progress achieved in this regard was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to justify delay in signing of variation orders by the contractors despite lapse of a considerable period of time besides ensuring resolution of pending contractual issues and conclusion of the contract at the earliest.

4.2.5 Non-recovery on account of sale of energy from CPPA-G - Rs.40,426.789 million

According to Clause-4.2 of Interim Tripartite Power Purchase Agreement (PPA) between CPPA-G, NJHPC and WAPDA “the company (NJHPC) shall submit one invoice monthly in arrear in original along with all relevant supporting information in reasonable detail to the Purchaser, provided that such invoice shall state the price, amount of invoice and the unit of Net Electrical Output (NEO) at the Metering point, in kWh, for the relevant month. The purchaser shall make payment for verified and undisputed amounts against each invoice submitted by the Company on or before the thirtieth (30th) day (due date) following the day the invoice is delivered by the company provided that, in case the 30th day is not a business day, the following business day shall be the due date”.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that claims of Rs.40,426.789 million pertaining to sale of energy during July, 2021 to July, 2022 were raised by the company and verified by the CPPA-G. As per PPA, amount of sale of energy was required to be paid by the CPPA-G to the company on monthly basis but no amount was received during the year 2021-22 despite lapse of a considerable period of time.

Non-adherence to the PPA resulted into non-recovery of Rs.40,426.789 million on account of sale of energy from CPPA-G.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that CPPA-G remits the outstanding invoices on First-in First-out (FIFO) basis and presently payment of invoices of September, 2020 was in process. CPPA-G also pays the delayed payment surcharge @ KIBOR + 2% as per the interim PPA.

However, further progress achieved in this regard was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to pursue the matter for early recovery of outstanding amount from CPPA-G at appropriate level.

4.2.6 Non-recovery of cost of oil of turbine guide bearings from the contractor – US\$ 70,000 (equivalent to Rs.19.600 million)

According to Clause-49.3 of the GCC, “all work referred to in sub-clause 49.2(b) shall be executed by the contractor at his own cost if necessity thereof is, in the opinion of the engineer, due to: (a) the use of material, plant or workmanship not in accordance with the contract, (b) where the contractor is responsible for the design of part of the permanent works, any fault in such design, or (c) the neglect or failure on the part of the contractor to comply with any obligation, expressed or implied, on the contract’s part under the contract”. Further, as per Clause-49.4 of the GCC, “in case of default on the part of the contractor in carrying out such instructions within a reasonable time, the Employer shall be entitled to employ and pay other persons to carry out the same and if such work is work which, in the opinion of the engineer, the contractor was liable to do at his own cost under the contract, then all costs consequent thereon or incidental thereto shall, after due consultation with the Employer and the contractor, be determined by the engineer and shall be recoverable from the contractor by the Employer, and may be deducted by the Employer from any monies due or to become due to the contractor”.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that issue of oil leakage in the turbine guide bearings was not fully resolved by the contractor and oil was being continuously wasted due to leakage. The matter was discussed in a joint meeting of the Employer, contractor and the consultants held on October 28, 2022 wherein it was decided to recover an amount of US\$ 70,000 against cost of oil skimmer, transportation, taxes and installation charges from the contractor but needful was not done.

Non-adherence to the provisions of contract resulted into non-recovery of US\$ 70,000 (equivalent to Rs.19.600 million) from the contractor on account of cost of oil of turbine guide bearings.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the said recovery of US\$ 0.07 million would be made from the contractor’s upcoming IPC.

However, further status of recovery from the contractor was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to ensure early recovery of agreed amount of cost of bearing oil from the contractor. Further, the issue of leakage in the turbine guide bearings be resolved without any delay to avoid future loss.

4.2.7 Less billing of electricity sales to the CPPA-G – Rs.11.534 million

According to Clause-7.4 (c) of the standard PPA relating to hydroelectric power generation, “the metering system shall be used to measure the net electrical output, provided that during any period when the metering system is out of service as a result of maintenance, repairs or testing, then the best available information which may include the back-up metering system, shall be used to measure the Net Electrical Output (NEO) and the provisions of Section-7.4(a) and Section-7.4(b) shall apply to the reading of the back-up metering system.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed from joint monthly meter reading sheet for the month of December, 2019 that NEO was 150.839 million kWh as per main energy meters, whereas, NEO was 152.104 million kWh as per back-up meters. It was further observed that the main primary meter of Unit No.02 was found tripped. As per standard PPA, reading of the back-up meters was required to be used for invoicing to CPPA-G in case of fault in primary meters, however, the billing was made as per reading of primary meters which resulted in less billing of 1.265 million kWh amounting to Rs.11.534 million.

Non-adherence to the standard PPA resulted into less billing of electricity sales amounting to Rs.11.534 million to the CPPA-G.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that invoice for the difference amount

(Rs.11.534 million) had been submitted to the CPPA-G and they had accepted the subject invoice.

However, further progress towards recovery was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to ensure recovery of accepted invoice from CPPA-G at the earliest.

4.2.8 Non-recovery of excess paid amount from the contractor after approval of variation order – Rs.67.456 million

According to Clause-52.1 of the GCC, “all variations referred to in Clause-51 and any additions to the contract price which are required to be determined in accordance with Clause-52, shall be valued at the rates and prices set out in the contract if, in the opinion of the engineer, the same shall be applicable. If the contract does not contain any rates or prices applicable to the varied work, the rates and prices in the contract shall be used as the basis for valuation so far as may be reasonable, failing which, after due consultation by the engineer with the Employer and the contractor, suitable rates or prices shall be agreed upon between the engineer and the contractor. In the event of disagreement the engineer shall fix such rates or prices as are, in his opinion, appropriate and shall notify the contractor accordingly, with a copy to the Employer. Until such time as rates or prices are agreed or fixed, the engineer shall determine provisional rates or prices to enable on-account payments to be included in certificates issued in accordance with Clause-60”.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that a provisional amount of Rs.271.430 million was paid to the contractor for precautionary measures against rock burst under AP No.022-13R6. After completion of works, actual amount of varied works based on revised rates was determined and approved by the Employer on June 28, 2022 as Rs.203.973 million against already paid amount of Rs.271.430 million. The excess paid amount of Rs.67.456 million was required to be recovered from the contractor

but needful was not done.

Non-adherence to the provisions of the contract resulted into non-recovery of excess paid amount of Rs.67.456 million from the contractor.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the contractor had not submitted further IPC for payment. The recovery would be made on submission of upcoming IPC by the contractor.

However, further progress regarding recovery from the contractor was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to ensure recovery of excess paid amount from the contractor without further loss of time.

4.2.9 Unjustified payment to the contractor on account of cost of gate operators – Rs.51.003 million

According to Clause-30 of Special Provisions of Contract Agreement, when the contractor considers the erection work is sufficiently advanced to commence commissioning of the works, the engineer shall be given not less than twenty one (21) days' notice of the date on which operating personnel will be required. The Employer will then provide operators to assist the contractor in operating the works. The contractor shall be responsible for the operation of the plant during the commissioning period until the issuance of the TOC. Further, as per Clause-23.4, appointment of "Plant Operator" shall be subject to the approval of the Employer and the contractor shall submit names, qualifications and experience records of the proposed personnel to the Employer before the scheduled commissioning of the plant.

During performance audit of Neelum Jhelum Hydropower Project, it was noticed that an amount of Rs.51.003 million was paid to the contractor on account of reimbursement of cost of gate operators at C1 site @ Rs.80,000 per day for two operators. As per contract provisions, the contractor was required to

give notice to the consultants twenty-one (21) days prior to the requirement of the operating personnel and operators were to be arranged and provided by the Employer but needful was not done. Moreover, as per provision of Plant Operator, the contractor was required to submit names, qualifications and experience records of the proposed personnel for approval to the Employer before the scheduled commissioning of the plant but the same was also not done. Furthermore, this amount was paid for operation of gates before issuance of TOC which was issued on June 01, 2019. Audit holds that the payment of Rs.51.003 million during commissioning period, without ensuring reasonability of rates charged by the contractor for gate operators, was not justified.

Non-adherence to the provisions of contract resulted into unjustified payment of Rs.51.003 million to the contractor on account of cost of gate operators.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the contractor was responsible for the operation of the plant during the commissioning period until the issuance of TOC, however, operating staff was to be provided by the Employer. The Employer tried to arrange the services of experienced operators but could not succeed. The contractor claimed the cost of operators amounting to Rs.119.27 million, whereas, the Employer paid only Rs.51.003 million. Thus, the Employer saved the cost of pay and allowance of the staff, if hired.

The reply was not acceptable as evidence in support of reply was not provided. Further, the prescribed procedure for appointment of plant / gate operators as per the relevant contract clauses was not adopted. Furthermore, payment of Rs.80,000/day for two (02) operators was also not justified.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to justify the payment in violation of provisions of the contract besides ensuring recovery from the contractor.

4.2.10 Excess payment on account of installation of rock anchors – Rs.37.481 million

According to Clause-56.1 of the GCC, “the engineer shall, except as otherwise stated, ascertain and determine by measurement the value of works in accordance with the contract and the contractor shall be paid that value”. Further, as per Clause-60.4, “the engineer may by any IPC make any correction or modification in any previous IPC which shall have been issued by him and shall have authority, if any work is not being carried out to his satisfaction, to omit or reduce the value of such work in any IPC”.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that an amount of Rs.56.154 million on account of installation of 827 strands tendon rock anchors (15 meter long each) was paid to the contractor under Variation Order No.18. Further probe into the matter revealed that actual quantity of supplied strands tendon rock anchors was 275 instead of 827. It showed that installation charges for 552 rock anchors were paid in excess of actual supplied / used material which resulted in excess payment of Rs.37.481 million to the contractor.

Non-adherence to the provisions of contract resulted into excess payment of Rs.37.481 million to the contractor on account of installation of rock anchors.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the matter was taken up with the consultants for clarification and on determination, recovery would be made from the contractor’s retention money.

However, the status of recovery was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to inquire the matter regarding excess payment to the contractor for fixing responsibility upon the consultants / Employer besides ensuring recovery of the same from the contractor.

4.2.11 Excess payment to the contractor on account of drilling of holes for anchors – Rs.8.660 million

According to Clause-56.1 of the GCC, “the engineer shall, except as otherwise stated, ascertain and determine by measurement the value of works in accordance with the contract and the contractor shall be paid that value”. As per Clause-60.4, “the engineer may by any IPC make any correction or modification in any previous IPC which shall have been issued by him and shall have authority, if any work is not being carried out to his satisfaction, to omit or reduce the value of such work in any IPC”.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that an amount of Rs.29.797 million was paid to the contractor on account of 5,212 meters long drilling of holes for installing 454 anchors under item V-3.5.3.08 (V0-22). As per Item No.V-3.5.3.07, the length of each anchor was 10 meters and total length of drilling for 454 anchors was to be 4,540 meters instead of 5,212 meters. Due to excess certification of length of drilling, an amount of Rs.8.660 million was paid to the contractor in excess of due amount.

Non-adherence to the provisions of contract resulted into excess payment to the contractor Rs.8.660 million on account of drilling of holes for anchors.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the matter was taken up with the consultants for clarification. They clarified that no excess payment was made as 56 bars of 12 meters each were also used.

The reply of the management was not acceptable because no documents were provided in support of their stance.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to substantiate their stance regarding use of additional 56 bars of 12 meters with documentary evidence.

4.2.12 Non-recovery of cost of Employer's assets from the contractor – Rs.26.492 million

According to Clause-13.1 of the Special Provisions of Contract, “unless otherwise instructed, upon completion of the contract after receiving approval in writing from the consultants, the contractor shall dismantle and remove all structures forming part of his camp, and shall arrange for the disconnection of utilities, remove drains and culverts, backfill trenches, fill in all latrine pits, soak ways and other sewage disposal excavations, with the exception of items and services which are required to revert to the ownership of the Employer or which may be transferred to other contractors.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that as per engineer's clarification dated July 30, 2021, some material pertaining to variation order No.26 having salvage value of Rs.26.492 million was property of the Employer. As per contract provisions, ownership of these assets was required to be reverted to the Employer by the contractor but needful was not done. Upon failure of the contractor to handover these assets, the consultants vide letter dated November 04, 2021 recommended to recover the amount of these missing items from the contractor. However, despite lapse of more than one year, the amount had not so far been recovered from the contractor.

Non-adherence to the provisions of contract resulted into non-recovery of cost of Employer's assets amounting to Rs.26.492 million from contractor.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the consultants had been directed to recover the salvage value of scrap material from the contractor's retention money.

However, the status of recovery was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to ensure recovery of amount of material from the contractor without further loss of time.

4.2.13 Non-handing over of dismantled material to the Employer by the contractor after completion of work – Rs.17.504 million

According to Clause-5.5 of the Variation Order No.22 (R2) dated April 12, 2012, all such equipment shall become the property of the Employer following completion of the storage facilities, site, and security measures by the contractor.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that different types of material (fish plates & bolts and pressing & sleepers plates) was dismantled from track of TBM. As per contract, these items were the property of the Employer and the contractor had to handover these items to the Employer. However, neither the dismantled material was received from the contractor nor salvage value of these items amounting to Rs.17.504 million, as determined by the consultants, was recovered from the contractor despite lapse of three (03) years.

Non-adherence to the provisions of contract resulted into non-handing over of dismantled material amounting to Rs.17.504 million to the Employer by the contractor after completion of work.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that on failure of returning the material by the contractor, the Employer would recover the salvage value of these scrap material from his retention money.

However, the status of recovery was not intimated to Audit till finalization of the report.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to either receive dismantled material from the contractor or to ensure recovery of its salvage value from the contractor without further loss of time.

4.2.14 Non-disposal of surplus material – Rs.16.401 million

According to Para-1.4.2 (a) of the WAPDA Disposal Procedure, “Once declared unserviceable, beyond economical repairs or dead by the competent authority, the material should be disposed-off with minimum delay”.

During performance audit of the Neelum Jhelum Hydropower Project, it was noticed that a survey report No.42 for disposal of material having reserve price of Rs.16.401 million was approved by the MD/CEO NJHPC on May 11, 2022. After preparation of survey report, the material was required to be disposed-off timely but needful was not done. Audit holds that the delay in disposal of material would cause further deterioration and decrease in value.

Non-adherence to the WAPDA Disposal Procedure resulted into non-disposal of surplus material amounting to Rs.16.401 million.

The matter was taken up with the management and reported to MoWR in March, 2023. The management replied that the tendering process was started in September, 2021 but could not be successful. In June, 2023, tendering process was re-initiated after preparation of fresh survey reports but the same was annulled due to receipt of lower bid prices than the reserve price. Subsequently, the annulment order was suspended by the AJ&K High Court upon being approached by the locals and matter is under litigation.

The reply was not acceptable because evidence to substantiate the reply was not provided by the management.

The PAO was requested to schedule a DAC meeting vide this office letter dated March 31, 2023. Subsequently, as per procedure, two (02) reminders were also issued on September 13, 2023 and October 10, 2023, however, DAC meeting could not be scheduled.

Audit recommends the management to pursue the court case vigorously for disposal of material.

4.3 Overall Assessment

Overall assessment of the project with reference to its intended objectives is as follows:

Economy

Economy means spending only that much which is barely essential to achieve the project's goals. The executing agency was required to implement the project in accordance with the PC-I provisions. The project was delayed for almost eight (08) years due to which its cost was increased from Rs.84.502 billion (1st revised PC-I) to Rs.419.454 billion, thereby resulting into cost overrun of Rs.334.952 billion.

Efficiency

Efficiency implies maximizing output from the given resources or minimizing input for the given outputs. The project was not executed according to the parameters of PC-I because available resources were not properly managed to complete the work within the time frame provided in the PC-I. Moreover, the contract could not be concluded due to non-finalization of pending contractual issues on the part of the contractors.

Effectiveness

Effectiveness refers to the extent the objectives have been achieved. The project was envisaged to generate cheap electricity and to establish water rights over Neelum River. However, due to collapse in TRT, the powerhouse remained under forced shut down till March, 2023 causing huge generation loss and increase in span of load shedding in the country. Further, neither the envisaged benefits for generating 5,150 GWh electricity units could be achieved nor water rights over Neelum River established due to losing Kishenganga case in International Court of Arbitration.

5. CONCLUSION

Audit concluded that the project was delayed considerably despite provision of TBMs for acceleration of tunnel excavation work due to subsequent design changes.

The project could not reap envisaged benefits of generation of planned electricity, establishment of water rights over Neelum River, selling of carbon credits under CDM and completion of mitigation measures to safeguard the environment.

Despite commissioning of first unit in 2018, the contractors failed to complete the remaining punch list items, conclude the contractual obligations and provide the complete spare parts for smooth operation of powerhouse.

Major collapse in the TRT of the powerhouse after few years of construction also casts doubt about the quality of design and works.

ACKNOWLEDGEMENT

We wish to express our appreciation to the management and staff of the Neelum Jhelum Hydropower Company for the assistance and cooperation extended to the Auditors during this assignment.