



**PERFORMANCE AUDIT REPORT**  
**ON**  
**KHAN KHWAR HYDROPOWER**  
**PROJECT BESHAM**  
**AUDIT YEAR 2016-17**

**AUDITOR GENERAL OF PAKISTAN**



## **PREFACE**

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 require the Auditor General of Pakistan to conduct audit of Expenditure and Receipts of Government of Pakistan.

This Report is based on performance audit to examine the economy, efficiency and effectiveness aspects of Khan Khwar Hydropower Project, Besham for the period upto June, 2016. The Directorate General of Audit WAPDA (Water Resources) conducted performance audit of the Khan Khwar Hydropower Project, Besham during December, 2016 with a view to reporting significant findings to the relevant stakeholders. In addition, Audit also assessed, on test check basis, whether the management complied with applicable laws, rules and regulations in managing the Khan Khwar Hydropower Project, Besham.

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

Audit observations have been finalized in the light of discussion in Departmental Accounts Committee (DAC) meeting.

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

Dated: 10 OCT,2018  
Islamabad

**Sd/-**  
**Javid Jehangir**  
Auditor General of Pakistan



# TABLE OF CONTENTS

## EXECUTIVE SUMMARY

SECTIONS	Page
1. INTRODUCTION	1
2. AUDIT OBJECTIVES	2
3. AUDIT SCOPE AND METHODOLOGY	3
4. AUDIT FINDINGS AND RECOMMENDATIONS	3
4.1 Financial Management	3
4.2 Procurement and Contract Management	9
4.3 Construction and Works	12
4.4 Assets Management	17
4.5 Monitoring and Evaluation	19
4.6 Overall Assessment	24
5. CONCLUSION	28
ACKNOWLEDGEMENT	29
ANNEXES	
Annex-1	30
Annex-2	32
Annex-3	33



## **Abbreviation and Acronyms**

CDP	Central Design Office
CoC	Conditions of Contract
CPI	Consumer Price Index
DAC	Departmental Accounts Committee
DEC	Dongfang Electric Corporation
DLC	Defect Liability Certificate
DLP	Defect Liability Period
ECC	Economic Coordination Committee
ECNEC	Executive Committee of the National Economic Council
EPC	Engineering Procurement Construction
ESP	Economic Survey of Pakistan
FEC	Foreign Exchange Component
GoP	Government of Pakistan
GM-CCC	General Manager-Central Contract Cell
GWH	Gaga Watt Hour
HEPO	Hydro Electric Power Planning
ICB	International Competitive Bidding
IDC	Interest During Construction
KKHP	Khan Khwar Hydropower Project
KV	Kilo Volt
KW	Kilo Watt
KWH	Kilo Watt Hour
LC	Local Component
LoA	Letter of Acceptance
MKWh	Mega Kilo Watt Hour
MoU	Memorandum of Understanding
MoWP	Ministry of Water and Power
MW	Mega Watt
MWH	Mega Watt Hour
NCR	Non Compliance Report
NEC	National Economic Council
NSL	National Soil Level

NTDC	National Transmission and Despatch Company
O&M	Operation and Maintenance
ODA	Overseas Development Authority
PKR	Pakistani Rupees
PSDP	Public Sector Development Programme
RTR	Reliability Test Run
SBLC	Standby Letter of Credit
SC	Supplier's Credit
ToC	Taking over Certificate
TRCM	Trash Rack Crane Machine
US\$	United State Dollar
VO	Variation Orders
WAPDA	Water and Power Development Authority



## EXECUTIVE SUMMARY

Director General Audit WAPDA (Water Resources) conducted performance audit of Khan Khwar Hydropower Project in November, 2016. The main objectives of the audit were to evaluate the economy, efficiency and effectiveness of the project. The audit was conducted in accordance with the prevailing rules and regulations. Khan Khwar Hydropower Project, Besham was planned to be constructed on the Khan Khwar, a right bank tributary of River Indus located near Besham town in the Distt: Shanghla of Khyber Pakhtunkhwa Province. It is 265 km from Islamabad on the famous Silk Rout called Karakoram Highway. This Project is a part of WAPDA's Vision-2025 Programme .The proposed height of Concrete Gravity Dam was 30 m on Khan Khwar for diverting 35 m<sup>3</sup>/Sec of water through a 4,540 m long tunnel creating a gross head 254 m and generating 306 GWh annual energy. Hydro Power potential for the project was 72 MW. The Project was approved by the Executive Committee of National Economic Council (ECNEC) in September 2, 2002 at a cost of Rs. 5,362.71 million which was revised on September, 2009 at Rs. 8,301.48 million. The management submitted 2<sup>nd</sup> Revised PC-I for Rs. 10,732.79 million in June, 2012 to ECNEC for approval which was awaited till finalization of the report. The project has been completed and started its commercial operation in April, 2012.

### KEY AUDIT FINDINGS AND RECOMMENDATIONS

#### a. Key audit findings

1. Loss due to execution of project without proper and complete design – Rs. 10,372.29 million (Para No. 4.3.1)
2. Cost incurred over and above the PC-I – Rs. 5,370.08 million (Para No. 4.6.1)
3. Loss on account of foreign exchange saving due to delay in completion of the project – Rs. 3,894 million (Para No. 4.5.1)
4. Generation loss due to non-achievement of plant availability factor – Rs. 3,060.04 million (Para No. 4.5.2)
5. Loss of revenue collection due to delay in completion of project – Rs. 1,835.78 million (Para No. 4.5.3)
6. Generation loss due to delay in completion of the project – Rs. 1,028 million (Para No. 4.3.2)

7. Loss due to extra contractual payment to the contractor – Rs. 403.31 million (Para No. 4.2.1)
8. Loss due to delay in issuance of construction order to the contractor – Rs. 366.84 million (Para No. 4.2.2)
9. Non-contractual payment on account of financial assistance to the contractor and non charging of interest thereupon – Rs. 321.60 million (Para No. 4.1.1)
10. Non-rectification of faults during defect liability period – Rs. 195.83 million (Para No. 4.3.3)
11. Loss due to double payment to the contractor – Rs. 113.70 million (Para No. 4.1.3)
12. Anticipated loss due to non-compliance of contract provisions – US\$ 3.15 million and Rs. 67.23 million (Para No. 4.1.4)
13. Loss due to lapses in design – Rs. 29.26 million (Para No. 4.3.5)
14. Irregular issuance of refund of Withholding Tax – Rs. 25.02 million (Para No. 4.1.5)
15. Non-execution/rectification of defects/deficiencies and remaining works – Rs. 18 million. (Para No. 4.5.4)
16. Loss due to non-handing over of consultant's assets – Rs. 11.04 million (Para No. 4.4.1)
17. Illegal deletion of insurance clause from contract – Rs. 3.63 million (Para No. 4.2.3)
18. Award of contract without calling tenders – Rs. 2.58 million (Para No. 4.2.4)
19. Time over-run (Para No. 4.6.2)

**b. Recommendations**

1. To conduct an inquiry at appropriate level to fix responsibility by ascertaining the real causes of delay in the Khan Khwar Hydropower Project.
2. To ensure proper surveys/investigations for any hydropower project to avoid subsequent diversion / distraction in the works entailing extra project cost.

3. To keep WAPDA's interests intact while entering into any contract, thereby ensuring insertion of clauses, besides LD clause, for making the contractor /supplier liable for the loss occurred due to his fault
4. To avoid giving extra contractual financial assistance to the contractors, and if given for any reason, the interest thereupon may be charged at the rate being charged to WAPDA against any loan under utilization.
5. To ensure preparation of realistic estimates for PC-1 and discourage issuance of subsequent variation orders as much as possible that also cause delay and cost escalation of the project.
6. To keep performance guarantees of the contracts should intact and duly renewed in case of extension in the construction as well as maintenance period.
7. To protect WAPDA's interests while signing any Memorandum of Understanding during currency of the contractual works.
8. To ensure completion of works lying pending even after commencement of commercial operation and ending of Defect Liability Period.
9. To fix responsibility where any loss occurred due to negligence/carelessness



# 1. INTRODUCTION

Khan Khwar Hydropower Project, Besham was planned to be constructed on the Khan Khwar (Khan Nullah), a right bank tributary of River Indus located near Besham Town in the Distt: Battagram of Khyber Pakhtun Khwa Province. It is 265 km from Islamabad on the famous Silk Rout called Karakuram Highway. This Project is a part of WAPDA's Vision-2025 Programme. The proposed height of Concrete Gravity Dam was 30 m on Khan Khwar for diverting 35 m<sup>3</sup>/Sec of water through a 4,540 m long tunnel creating a gross head 254 m and generating 306 GWh annual energy. Hydro Power potential for the project was 72 MW. The Project was approved by the Executive Committee of National Economic Council (ECNEC) in September 2, 2002 at a total cost of Rs. 5,362.71 million which was revised on September 2009 at Rs. 8,301.49 million. The management submitted 2<sup>nd</sup> Revised PC-I for Rs.10,732.79 million in June, 2012 to ECNEC for approval, which was awaited till finalization of the report.

## 1.1 Objectives of the Project

The objectives of the project were as under:-

- Generation of 306 GWh electricity annually with installed capacity of 72 MW
- Addition of cheaper electricity in the national grid system
- Saving foreign exchange otherwise spent on fuel for thermal potential
- Saving environment from toxic oxides of Carbon and Sulphur
- Employment opportunities during construction
- Socio-economic uplift of the area
- Minimizing production cost of Electricity

## 1.2 Beneficiaries

Local community  
People of Pakistan

## 1.3 Time Phasing

Construction period including detail engineering design was 48 months.

#### 1.4 Capital Cost Approved by ECNEC

Original Rs. 5,362.71 million (September, 2002)  
1<sup>st</sup> Revision Rs. 8,301.48 million (August, 2009)  
2<sup>nd</sup> Revision Rs. 10,732.79 million (June, 2012) cleared by CDWP  
June 18, 2012. Approval of ECNEC is yet awaited till finalization of this report.

#### 1.5 Source of Finance

- Islamic Development Bank (IDB) – US\$ 30.81 M (effective January, 2009)
- Public Sector Development Programme (PSDP)

#### 1.6 Type of Finance

*(Rs. in Millions)*

Approvals	Local	FEC	Total
Original PC-I Cost Dated 02.09.2002	2,717.73	2,644.98 (1 US\$=Rs.64)	5,362.71
1 <sup>st</sup> Revised PC-I Cost dated 20.08.2009	4,573.69	Rs.3,727.79 (1US\$=Rs.60)	8,301.48
2 <sup>nd</sup> Revised PC-I Cost (Rationalized) dated submitted on 14.04.2015	5,407.49	5,325.30 (1 US\$=Rs.90)	10,732.79
Actual expenditure up to November 2016			10,372.29

## 2. AUDIT OBJECTIVES

The main objectives of performance audit were to:

- Evaluate the factors causing the significant delay in completion of the project
- Evaluate whether the project was succeeded in achieving objectives as per PC-I
- Evaluate whether the risks to value for money have been addressed
- Evaluate whether the internal controls were operative and functioning effectively
- Evaluate whether there was any cost or time over run
- Evaluate the economy and efficiency in completion and operation of the project and assess effectiveness of Project

### **3. AUDIT SCOPE AND METHODOLOGY**

#### **3.1 Audit Scope**

Audit period to be covered for performance audit was from June, 2003 to June, 2016. During this period an expenditure of Rs. 10,195.37 million was incurred. The auditable record of the project was available at the office of the General Manager Projects (Northern Areas), GBHP Colony, Hattian and Chief Engineer (O&M), Khan Khwar Hydropower Project, Besham.

#### **3.2 Audit Methodology**

Audit activity started with detailed Preliminary Survey Report (PSR), Audit assignment plan and development of Audit program.

Following audit methodology was adopted during the course of performance audit:-

- a) Site visits of Power House and Weir
- b) Interview and discussion with Project Management and
- c) Examination of record/documents of the project on sample basis

### **4. AUDIT FINDINGS AND RECOMMENDATIONS**

#### **4.1 Financial Management**

##### **4.1.1 Non-contractual payment on account of financial assistance to the contractor and non-charging of interest thereon – Rs. 321.60 million**

There is no contractual provision for financial assistance to the contractor.

During performance audit of the Khan Khwar Hydropower Project, it was observed that financial assistance of Rs. 240 million made to the contractor M/s Sinohydro Corporation for Lot C&HS Works (for timely completion of project i.e. Feb 28, 2010) was beyond the contractual obligations of the Employer. As a matter of fact an amount of Rs. 81.6 million on account of interest/mark-up @ 17 % on Rs. 240 million for two year was due to be charged to the contractor as the Employer had to pay the mark-up @ 17 % on the IDB loan acquired for the project.

Non-adherence to the contract provision resulted in non-contractual

payment of Rs. 240 million on account of financial assistance and non-charging of interest thereon valuing Rs. 81.60 million.

The matter was taken with the management in December, 2016 and reported to Ministry in February, 2017. The management explained that the payment made to the contractor was sanctioned under Authority's decision dated January 10, 2009 against the outstanding claim of the contractor and being on-account payment, imposition of LD/ interest was neither directed by project office / GM CCC nor by Authority. The reply was not tenable as there was no provision in PC-I of such payment.

The DAC in its meeting held on May 08, 2017 directed the management to get verified documentary evidence from Audit.

Audit recommends that the management needs to investigate the matter for fixing responsibility regarding payment to contractor beyond the contract provisions. (Para No. 4.1.5)

#### **4.1.2 Irregular adjustment of advances from sister organizations – Rs. 254.81 million**

According to Rule-109 Section-III of Audit code of office of Auditor General of Pakistan all transactions which are ultimately removed either by payments or recovery in cash or by book adjustment are kept under suspense heads. Audit of transactions under suspense heads is carried out by applying the ordinary procedure of audit of expenditure.

During performance audit of Khan Khwar Hydropower Project, it was noticed that an amount of Rs. 1,342.98 million was paid to NTDC for construction of Transmission line 3-HHPs as advance payment and Rs. 1.09 million to Central Design Office (CDO) WAPDA. Out of which an amount of Rs. 254.81 million was adjusted from NTDC on provisional basis subject to provision of Audit Certificate. Adjustment of advance without any audit certificate was irregular and required proper justification.

Non-adherence to the Government rules resulted in irregular adjustment of advances amounting to Rs. 254.81 million from sister organizations.

The matter was reported to the management in December, 2016 and reported to the Ministry in February, 2017. The management replied that NTDC



had provided audit certificate for whole cost of the transmission line. The cost was chargeable to all the 3 HHPs projects on proportionate basis and Rs. 254.81 million appearing in the para was partial share of Khan Khwar Project. Therefore it was covered in the audit certificate provided by the NTDC as mentioned above. Adjustment account of Rs. 1.09 million was being provided for verification. The reply was not tenable as no documentary evidence was provided.

The DAC in its meeting held on May 08, 2017 directed the management to submit revised reply and get the relevant supporting documents verified from Audit of final adjustment/audit certificate.

Audit recommends that the management needs to implement DAC's directives besides fixing the responsibility. (Para No. 4.2.5)

#### **4.1.3 Loss due to double payment to the contractor – Rs. 113.70 million**

According to Clause-10 of MoU signed between the contractor and WAPDA on 24<sup>th</sup> August, 2010 for Rs. 110 million, Agreement has been reached between the parties to the contract that through the agreed payment to the contractor, as per Para-6 above, all pending commercial issues, as raised under contractor's proceeding correspondence stand mutually resolved/settled.

During performance audit of Khan Khwar Hydropower Project, it was noticed that a Variation Order No.KC01-06 (Interim) for Rs. 113.70 million priced at BOQ base unit prices was paid to the contractor of Lot C&HS in IPC-72 relating to Switchyard Area, Retaining Wall near Khan Khwar Hydropower Road. The Switchyard retaining wall was included at S. No. 6 of MoU at a cost of Rs. 1,100 million. Since the work of switchyard retaining wall had already been included in the amount of MoU and subsequent payment through VO tantamounts to making double payment to the contractor.

Non-adherence to MoU clauses resulted in loss of Rs. 113.70 million due to double payment made to the contractor.

The matter was reported to the management in December, 2016 and to the Ministry in February, 2017. The management replied that VO No. KC01-06 was included in the Memorandum of Understanding No. 2 signed on August 24, 2010, after which all the payments pertaining to the Variation Order

No. KC01-06 amounting to Rs. 113.70 million were adjusted in the total amount of its MoU i.e. Rs. 1,100 million. As such no double payment had been made to the contractor. The reply was acceptable as no documentary evidence was provided.

The DAC in its meeting held on February, 2017 directed the management to get relevant record verified from Audit. i.e. recovery and adjustment verification.

Audit recommends that the management needs to provide recovery record for verification. (Para No. 4.3.4)

#### **4.1.4 Anticipated loss due to non-compliance of contract provisions – US\$ 3.15 million and Rs. 67.23 million**

As per Clause-10.2 (Period of Validity) of the Contract the Performance Security shall be valid until the contractor has executed, completed and remedied defects in the Works in accordance with the Contract.

During performance Audit of Khan Khwar Hydropower Project Besham, it was noticed that a Contract No. KC-01 for Lot C&HS was awarded to M/s Sinohydro Corporation but punch list works were not completed by the contractor till to date despite the fact that Performance Security had also been expired on April 15, 2016. The said Guarantees were required to be kept valid till issuance of the Defects Liability Certificate (DLC) in accordance with the provisions of Sub-Clause 10.2 of Conditions of Contract (CoC) but the needful was not done. Similarly, a contract No. KE-04 Lot E&M was awarded to M/s. Dongfang Electric Corporation (DEC) but contractor could not complete the punch list works whereas the Performance Security had already been expired on 8<sup>th</sup> August, 2014 which were required to be extended up to issuance of Defect Liability Certificate.

Non-fulfillment of contractual provisions resulted in an anticipatory loss of US\$ 3.15 million and Rs. 67.23 million for both the contracts respectively.

The matter was reported to the management in December, 2016 and the Ministry in February, 2017. The management replied that the contractors substantially completed the works. Meanwhile most of the defect were rectified by the contractor except some minor rectification works. That's why the DLP has

not been issued to the contractor till now. The reply was not acceptable as no justification for non-renewal of securities was provided.

The DAC in its meeting held on May 08, 2017 directed the management that documentary evidence in respect of extended performance guarantee up to April 16, 2016 along with a certificate to the fact that DLP has satisfactorily been completed and employer reserves no further rights to claim from the contractor. The same may please be got verified from Audit.

Audit recommends that the management needs to investigate the matter at appropriate level for fixing responsibility regarding non-observance of contractual provisions. (Para No. 4.3.6)

#### **4.1.5 Irregular issuance of refund of Withholding Tax - Rs. 25.02 million**

According to the provisions of Sub-Clause-73.2 of conditions of particular application, “nothing in the contract shall relieve the contractor from his responsibility to pay any tax that may be levied in Pakistan on profits made by him in respect of the contract”.

During performance audit of Khan Khwar Hydropower Project, it came to notice that an amount of Rs. 25.02 million was refunded to the contractor M/s CWH-HE JV (up to IPC No.CoP-KC01-72) on account of re-imburement of 1% withholding tax in contravention of the above clause of contract which was irregular.

Non-adherence to the contract clauses resulted in irregular refund of withholding tax amounting to Rs. 25.03 million.

The matter was taken with the management in December 2016 and reported to Ministry in February, 2017. The management replied that the above the amount would be recovered from the contractor’s final dues/ retention money.

The DAC in its meeting held on May 08, 2017 directed the management to get the recovery verified from audit along with other documentary evidence i.e., Minutes of Authority meeting, Clause-70.8”Change of Legislation”. No further progress was intimated.

Audit recommends that the management needs to implement DAC’s

directives besides investigating the matter for fixing responsibility.

(Para No. 4.1.3)

#### **4.1.6 Non-production of record – Rs. 6.21 million**

According to the directives of the Public Accounts Committee issued on June 3, 2004, “make available all information/record to Audit as and when required by them. Otherwise disciplinary action will be initiated against person(s) responsible for the delay under Section 14 (2, 3) of the Auditor General’s Ordinance, 2001.”

During performance audit of Khan Khwar Hydropower Project, it was noticed that works for “Construction of Boundary Wall along PTDC Hotel Road, Gate of Power House Road” 04 Security Cabins and 01 Bathroom at Weir Site of the project was awarded to M/s Faja Akbar and Brother. Scrutiny of payments record revealed that payment to the contractor’s final bill was made for an amount of Rs. 6.21 million but complete relevant record/supporting documents i.e. Measurement Book etc were not made available to Audit.

Non-adherence to above instructions resulted in non-production of record amounting to Rs. 6.21 million.

The matter was reported to the management in December, 2016 and reported to the Ministry in February, 2017. The management replied that para related to the Chief Engineer (O&M) WAPDA Besham. Reply from RE (O&M) was awaited which would be furnished to Audit on its receipt. Further progress was not intimated till finalization of the report.

The DAC in its meeting held on May 08, 2017 directed the management to submit revised reply and get the relevant supporting documents verified from Audit.

Audit recommends that the management needs to investigate the matter regarding non-production of record besides expediting disciplinary action against the person(s) responsible for the lapse.

(Para No. 4.2.6)

## **4.2 Procurement and Contract Management**

### **4.2.1 Loss due to making extra contractual payment to the contractor – Rs. 403.31 million**

As per contract agreement there was no clause relating to the provision construction power supply.

During performance audit of Khan Khwar Hydropower Project, it was noticed that an amount of Rs. 403.31 million was paid to contractor on account of claim against employer's non-provision of construction power supply. As the contract has no such provision relating to provision of power supply to contractor at site, therefore payment against the claim of contractor was extra contractual and loss to WAPDA.

Non-adherence to the contract provisions resulted in loss of Rs. 403.31 million due to extra contractual payment to the contractor.

The matter was reported to the management in December, 2016 and to the Ministry in February, 2017. The management replied that said amount was part of Rs. 1,100 million package which had already been discussed through DP-1376 in detail at the highest level. The reply was not tenable as no documentary evidence was provided.

The DAC in its meeting held on May 08, 2017 directed the management to submit revised reply duly supported with relevant record

Audit recommends that the management needs to implement DAC's directives besides fixing responsibility. (Para No. 4.3.3)

### **4.2.2 Loss due to delay in issuance of construction order to the contractor – Rs. 366.84 million**

All losses whether of public money or of store shall be subjected to inquiry to fix responsibility for the losses as per guidelines for enforcing the responsibility for losses issued by WAPDA vide letter dated July 17, 1982.

During performance audit of Khan Khwar Hydropower Project, it was noticed that an amount of Rs. 366.84 million was paid to the contractor against his claim No.KC01-01 pertaining to the recovery of additional costs due to the delay in the issuance of the construction order. Inordinate delay in issuance of

construction order showing mismanagement of the project authorities, resultantly the Authority sustained a loss to the stated extent.

Non-adherence to the Authority's instructions resulted in loss of Rs. 366.84 million due to delay in issuance of construction order.

The matter was reported to the management in December, 2016 and reported to the Ministry in February, 2017. The management replied that the said claim was entertained by the Engineer under Clause-53.1 and 53.3 of the contract agreement as EoT claim and an amount of Rs. 65 million was determined. The claim was part of the Global settlement package which was finally decided and approved by the Authority. The reply was not tenable as no documentary was provided.

The DAC in its meeting held on May 08, 2017 directed the management to submit copy of Inquiry report along with implementation status of recommendation of the enquiry committee.

Audit recommends that the management needs to investigate the matter regarding delay in issuance of construction order besides making the loss good.

(Para No. 4.3.1)

#### **4.2.3 Illegal deletion of insurance clause from contract – Rs. 3.63 million**

According to Section-166.3 of Insurance Ordinance 2000, “all insurance business relating to any public property or to any risk or liability appertaining to any public property, shall be placed with the National Insurance Company only and shall not be placed with any other insurer”.

During performance audit of Khan Khwar Hydropower Project, it was noticed that a contract for “Construction of Boundary Wall along PTDC Hotel Road, Gate of Power House Road, 4 Security Cabins and 01 Bathroom at Weir Site of Khan Khwar Power Station Besham” was awarded to M/s Faja Akbar and Brother at a contract price of Rs. 3.63 million. The Insurance clause from contract was deleted by the project management which was against the interest of Authority.

Non-adherence to the Insurance Ordinance resulted in endanger of public money amounting to Rs. 3.63 million due to illegal deletion of insurance clause.

The matter was reported to the management in December, 2016 and reported to the Ministry in February, 2017. The management replied that para related to the Chief Engineer (O&M) WAPDA, Besham. Reply from RE (O&M) was awaited which would be furnished to Audit on receipt. Further progress was not intimated till finalization of report.

The DAC in its meeting held on May 08, 2017 directed the management to submit detailed revised reply to Audit.

Audit recommends that the management needs to investigate the matter for fixing responsibility regarding deletion of insurance clause from contract agreement. (Para No. 4.3.7)

#### **4.2.4 Award of contract without calling tenders – Rs. 2.58 million**

According to Rule-20 of Public Procurement Rules 2004, “the procuring agencies shall use open competitive bidding as the principal method of procurement for the procurement of goods, services and works”.

During performance audit of Khan Khwar Hydropower Project, it was noticed that the work valuing Rs. 2.58 million “boundary wall on the Tail Race Side / River Indus side” was awarded to contractor without tendering which tantamount to mis-procurement.

Non-observance of Public Procurement Rules resulted in mis-procurement of works valuing Rs. 2.58 million.

The matter was reported to the management in December, 2016. It was replied that the matter related to Chief Engineer (O&M). Detailed reply would be furnished by R.E. (O&M) KKPS after scrutiny of record. No further progress was intimated.

The DAC in its meeting held on May 08, 2017 directed the management to submit detailed revised reply to Audit.

Audit recommends that the management needs to investigate the matter for fixing responsibility regarding non-observance of Public Procurement Rules. (Para No. 4.3.8)

#### **4.2.5 Unjustified expenditure in violation of instructions of competent authority – Rs. 2.58 million**

According to instructions issued by the General Manager Hydel Operation vide his memo dated August 13, 2015, “civil works shall require to be monitored by Director Civil Hydel.”

During the performance audit of Khan Khwar Hydropower Project, it was noticed that a work for the Construction of Boundary Wall along PTDC Hotel Road, Gate for Power House Road, 4 Security Cabins and 1 Bathroom at Weir Site of the project was awarded to M/s. Haji Faja Akbar and Brothers, Pattan at original contract price of Rs. 3.63 million. Subsequently the contract price was revised at Rs. 6.20 million. It was further noticed that the contractor applied for EOT of 120 days. Instead of sending the case of EOT to the Director Civil, the XEN Civil Khan Khwar Project (KKP) got approval of EOT from the RE KKP by violating above instruction.

Non-adherence the Authority’s instructions resulted in unjustified expenditure of Rs. 2.58 million.

The matter was taken with the management in December, 2016 and reported to Ministry in February, 2017. The management explained that para related to the Chief Engineer (O&M) WAPDA. Reply from RE (O&M) was awaited which would be furnished to Audit on receipt. No further progress was intimated.

The DAC in its meeting held on May 08, 2017 directed the management that ex-post facto approval of the competent authority be got verified from Audit. Further progress was not intimated till finalization of the report.

Audit recommends that the management needs to implement DAC’s directives besides investigating the matter for fixing the responsibility.

(Para No. 4.1.4)

### **4.3 Construction and Works**

#### **4.3.1 Loss due to execution of project without proper and complete design – Rs. 10,372.29 million**

The Khan Khwar Hydropower Project is located on Khan Khwar River, a tributary of Indus River near Besham, District Shangla in KPK Province at a



distance of 264 KM from Islamabad. The Khan Khwar Hydropower Station Units No. 1 and 2 of 34 MW each were commissioned in November 2010. The 4 MW Auxiliary unit was commissioned in July, 2012.

During performance audit of Khan Khwar Hydropower Project it was noticed that the Employer decided to execute the Khan Khwar HPP on fast-track Construction basis under the Vision 2025 Program of the Government of Pakistan. The work was awarded and execution started on the basis of Feasibility-level Design (conceptual design) instead of proper and complete design by the Employer/Consultants. The Operation and Maintenance Staff of the power house experienced some serious design deficiencies in the project on execution of project without proper and complete design causing loss to WAPDA for Rs. 10,372.29 million.

The matter was reported to the management in December, 2016 and reported to the Ministry in February, 2017. The management replied that the tender documents were based on GTZ feasibility report without any detailed investigation. Owing to unforeseen geological/ devastating earthquake and floods of 2010, some inevitable additional works as well as alteration to the existing designs were carried out with employer's approval. However, matter has already been investigated through conducting of an inquiry. Further progress was not intimated till finalization of report.

The DAC in its meeting held on May 08, 2017 directed the management to submit detailed reply to audit.

Audit recommends that the management needs to investigate the matter for fixing responsibility regarding deficiencies pointed out by O&M staff.

(Para No. 4.6.1)

#### **4.3.2 Generation loss due to delay in project completion – Rs. 1,028 million**

According to Letter of Acceptance issued to M/s. Sinohydro Corporation for Khan Khwar Hydropower Project No. GM(H)Dev.D-III-21/2274 dated 31 March 2003, the contractor was bound to complete the work of design, execution and completion of the works within the prescribed time of completion of project.

During performance audit of Khan Khwar Hydropower Project Besham, it was noticed that M/s. Sinohydro Corporation failed to complete the project by

the due date of Feb 28, 2010 and the corresponding delay caused loss in power generation approximately amounting to Rs. 1,028 million till June 30, 2010 at average rate of Rs. 7.96 per KWh. A claim regarding the amount of loss was lodged against the contractor but the recovery of the same was not forthcoming from record.

Non-adherence to above instructions resulted in loss of Rs. 1,028 million due to non-recovery from contractor on account of generation loss due to delay in project completion.

The matter was pointed out in December, 2016 and reported to the Ministry in February, 2017. The management replied that inquiry had already been conducted while another additional inquiry was being conducted by Ministry of Water and Power as per instructions of ECNEC/Planning Commission to determine the causes of delay and fixing responsibility for lapses in designing. Findings were awaited and would be communicated to Audit as and when received. Further progress was not intimated till finalization of the report.

The DAC in its meeting held on February, 2017 directed the management to submit detailed reply along with documentary evidence to Audit for verification.

Audit recommends that the management needs to implement DAC's directives besides investigating the matter for fixing responsibility.

(Para No. 4.3.5)

#### **4.3.3 Non-rectification of faults during defect liability period from contractor – Rs. 195.83 million**

Clause-30.5 of Conditions (Failure to Remedy Defects) Contract No.KE 04 Lot E&M provides that if the contractor fails to remedy a defect or damage within a reasonable time, the Employer may;

- (a) Carry out the work himself or by others at the contractor's risk and cost, provided that he does so in a reasonable manner. The costs properly incurred by the Employer in remedying the defect or damage shall be deducted from the Contract Price.

During performance audit of Khan Khwar Hydropower Project Besham, it was noticed Contract No.KE 04 Lot E&M Electrical and Hydro-Mechanical

Equipment was awarded to M/s. Dongfang Electric Corporation on April 5, 2003 at a Contract Price of US\$ 12.207 million. The work was completed in November, 2010 but defects and faults were not rectified by the contractor during his Defect Liability Period. However, the defects / faults were later on rectified by the Operation and Maintenance Staff of Power House at cost of Rs. 195.83 million which was required to be recovered from the contractor but the same was not done.

<b>Sr.No.</b>	<b>Reference No.</b>	<b>Description of defect / fault</b>	<b>Item No. in BOQ</b>	<b>Amount in BOQ US\$</b>
1.	Main Unit No.1 Sr.No.5	The Inlet Valve Operation Seal has water leakage when inlet valve is closed and operation seal applied.	4.3	796,386
2.	Main Unit No.1 Sr.No.6 & Main Unit No.2 Sr.No.1	100% stator earth fault protection has not been enabled by the contractor since commissioning of the unit	3.7.1	133,544
3.	Switchyard Sr.No.2	Projection and Telecommunication system for 132KV T/Line between Khan Kkwar and Dubair Khwar as well as between Khan Khwar and AllaiKhwar Power Station	3.13	175,606
4.	Trouble Reports S.No.2	HVAC is inoperative	3.11	241,389
<b>Total (In US\$)</b>				<b>1,346,925</b>
<b>Total (In Rupees) @ Rs. 107/US\$</b>				<b>144,120,975</b>
5.	Expenditure incurred on rectification of defects / faults through O&M management-(In Rupees)			<b>51,710,418</b>
<b>Grand Total (In Rupees)</b>				<b>195,831,393</b>

Non-adherence to contract clauses resulted in non-recovery Rs. 195.83 million from the contractor due to non-rectification of defects.

The matter was reported to the management in December, 2016 and reported to the Ministry in February, 2017. The management replied that the contractor committed to resolve all the outstanding/pending issued. Further progress was not intimated till finalization of the report.

The DAC in its meeting held on May 08, 2017 directed the management to get verified relevant record of testing done from Audit alongwith waiver of test from competent Authority.

Audit recommends that the management needs to investigate the matter for fixing responsibility besides expediting recovery from contractor.

(Para No. 4.4.1)

#### **4.3.4 Irregular payment to contractor on compassionate grounds – Rs. 72.60 million**

General Financial Rule 10 (i) “standards of Financial Propriety” provides that every officer incurring or authorizing expenditure from public funds is expected to exercise the same vigilance as a person of ordinary prudence would exercise in respect of expenditure of his own money.

During performance audit Khan Khwar Hydropower Project, it was noticed that an amount of Rs. 72.60 million was recommended for approval in respect of recoveries effected / to be recovered from the contractor by the Advisor to Authority for Projects (Northern Areas). The said recommendations were made on sympathetic grounds to release the amounts already recovered from the contractor on account of liquidated damages in individual milestone. As execution of works included in contract agreement was obligatory in the light of contractual provisions governing rules and regulation not on the sympathetic grounds and Advisor is not empowered enough to release such payments.

Non-adherence to Government rules resulted in irregular payment of Rs. 72.60 million to the contractor on compassionate grounds.

The matter was reported to the management in December, 2016 and reported to the Ministry in February, 2017. The management replied that the para had been based on noting but the recommendations were not materialized/ approved nor implemented. The reply was not tenable as no documentary evidence was provided.

The DAC in its meeting held on May 08, 2017 directed the management to submit revised reply along with documentary evidence. i.e., record in support of payment not made.

Audit recommends that the management needs to investigate the matter for fixing responsibility regarding irregular payment to the contractor.

(Para No. 4.2.4)

#### **4.3.5 Loss due to lapses in design – Rs. 29.26 million**

According to General Condition-3.4 (Liability of the Consultants) relating to Consultancy Services agreement for implementation of the Indus Tributaries High-Head Hydropower Complete Project (Khan Khwar – Dubair Khwar – Allai Khwar), If the client suffers any losses or damages as a result of proven faults, errors or omissions in the design of a project, the Consultants shall make good such losses or damages.

During performance audit of Khan Khwar Hydropower Project, it was noticed that a Variation Order No.KC01-05 for Rs. 29.26 million, not priced at BOQ base unit prices, was paid to the contractor of Lot C&HS. An amount of Rs. 29.26 million against this VO was paid to the contractor due to design lapses on the failure of consultants on account of non-provision of earthing work in design. Authority sustained loss due to negligence of consultants.

Non-adherence to the contract clauses resulted in loss of Rs. 29.64 million due to lapses in designs

The matter was reported to the management in December, 2016 and reported to the Ministry in February, 2017. The management replied that the findings of inquiry committee being conducted by Ministry of Water and Power as per instructions of ECNEC would be communicated to Audit as and when received from the competent Authority. Further progress was not intimated till finalization of report.

The DAC in its meeting held on May 08, 2017 directed the management to conduct technical inquiry for justification of use of cooper instead of steel and get verified complete record from Audit.

Audit recommends that the management needs to investigate the matter for fixing responsibility upon the person(s) at fault besides making the loss good.

(Para No. 4.3.2)

#### **4.4 Assets Management**

##### **4.4.1 Loss due to non-handing over of consultant's assets – Rs. 11.04 million**

At Khan Khwar Hydro Power Project the consultancy agreement was awarded to M/s High-Head Hydropower Consultants. According to the

agreement assets valuing Rs. 11.04 million (detail attached) were provided to the consultants for supervision of works.

During performance audit of Khan Khwar Hydropower Project Besham, it came to notice that the project was completed during April, 2012 and handed over to O&M staff but the valuable assets were not handed over to Employer (WAPDA) by the consultants till now. Moreover, no inventory record of these assets was available / maintained by the employer. Hence, chances of misappropriation of the same could not be ruled out.

Non-adherence to the contract clauses resulted in loss due to non-handing over of consultant's assets valuing Rs. 11.04 million.

The matter was taken with the management in December, 2016. The management explained that there were no assets of Consultants associated with Khan Khwar Hydropower Project rather the said assets were accounted for in Dubair Khwar Hydropower Project.

The DAC in its meeting held on May 08, 2017 directed the management that the details of all assets with contractor along with expiry date of services to be provided to Audit.

Audit recommends that the management needs to investigate the matter for fixing the responsibility besides implementing DAC's directives.

(Para No. 4.5.1)

#### **4.4.2 Un-justified transfer of project assests at the time of closing of project – Rs. 11.89 million**

All losses whether of public money or of store shall be subjected to inquiry to fix responsibility for the losses as per guidelines for enforcing the responsibility for losses issued by WAPDA vide letter dated July 17, 1982.

During performance audit of Khan Khwar Hydropower Project Besham, it came to the notice that the project was completed during April, 2012 and project office was closed during the year 2014. Assets valuing Rs. 11.89 million including communication equipment, arms, office equipment, computers, furniture and fixtures and vehicles were transferred to O&M of Khan Khwar Project but the same not received in the records of RE Power Station (O&M). Handing/Taking over record was also not available at both the offices. Hence, the

chances of misappropriation of valuable assets could not be ruled out.

Non-adherence to Authority's instructions resulted in misappropriation of the project assets valuing Rs. 11.89 million at the time of closing of the project.

The matter was reported to the management in December, 2016 and reported to the Ministry in February, 2017. The management replied that assets pertaining to Khan Khwar Hydropower Project had already been handed over to RE Khan Khwar in accordance with the instruction issued by the competent authority. Chief Engineer (O&M) was being requested to furnish relevant record for verification by Audit. No further progress was intimated till finalization of the report.

The DAC in its meeting held on May 08, 2017 directed the management to get verified relevant record from Audit i.e., handing/taking over and accountal of assets in books of accounts.

Audit recommends that the management needs to investigate the matter for fixing the responsibility besides implementing DAC's directives.

(Para No. 4.5.2)

## **4.5 Monitoring and Evaluation**

### **4.5.1 Loss on account of foreign exchange differential due to delay in completion of the project – Rs. 3,894 million**

According to Para-18(i) of PC-I of the project, "the project will save an amount of Rs. 778.80 million annually that would otherwise be required for import of Oil needed for equivalent thermal plant".

During performance audit Khan Khwar Hydropower Project, it was noticed that the project was started during June, 2003 with a completion period of 48 months i.e. up to June, 2007. The project could not be completed on scheduled date of completion and delayed up to 57 months i.e. completed during March, 2012. The benefits of the project could not be achieved up to 57 months and WAPDA sustained a loss of Rs. 3,894 million (Rs. 778.8 million x 5 years) on account of foreign exchange on import of oil needed for equivalent thermal plant.

Non-adherence to the PC-I provisions resulted in loss of Rs. 3,894 million on account of foreign exchange savings due to delay in completion of the project.

The matter was taken with management in December, 2016 and reported to Ministry in February, 2017. The management replied that the intended inquiry had already been conducted to investigate the causes of delayed completion of the project. No further progress was intimated.

The DAC in its meeting held on May 08, 2017 directed the management to obtain inquiry report from MoW&P and get it verified from Audit along with submission of approved 2<sup>nd</sup> revised PC-I.

Audit recommends that the management needs to expedite the inquiry proceeding and provide 2<sup>nd</sup> revised PC-I. (Para No. 4.2.3)

#### **4.5.2 Generation loss due to non-achievement of plant availability factor – Rs. 3,060.04 million**

According to PC-I of the project, plant availability factor was fixed as 49% and it would generate an annual energy of about 306 GWh.

During performance audit of Khan Khwar Hydropower Project Besham, it was noticed that plant achieved availability factor 40 % instead of 49% as per PC-I of the project. Resultantly 1196.36 MKWH Units were generated up to September, 2016 since its date of operation i.e. November, 2010 against limit of 1,836 MKWh. Resultantly, the Authority sustained a loss of Rs. 3,060.04 million (639.64 MKWh x Rs. 4.78 per KWh).

Non-adherence to PC-I provisions resulted in generation loss of Rs. 3,060.04 million due to non-achievement of plant availability factor.

The matter was reported to the management in December, 2016 and reported to the Ministry in February, 2017. The management replied that since commissioning of Unit 1 on November 25, 2010, Unit 2 on November 08, 2010 and Auxiliary Unit on July 10, 2012 Power Generation for Khan Khwar Power Station was 1,236 MKWh, despite various outages and disruptions of power plants which was a routine phenomenon in power projects. The reply was not acceptable as no documentary evidence was provided.

The DAC in its meeting held on May 08, 2017 directed the management to submit detailed revised reply to Audit along with documentary evidence.

Audit recommends that the management needs to investigate the matter



for fixing responsibility regarding non-observance PC-I provision besides making the loss good. (Para No. 4.6.2)

#### **4.5.3 Loss of revenue collection due to delay in completion of project – Rs. 1,835.78 million**

According to Para-17.2 of PC-I of the project the estimated revenue collection on sale of energy after the completion of the project was Rs. 611.93 million per annum.

During the performance audit of Khan Khwar Hydropower Project, it was noticed that according to Original PC-I the scheduled completion period of the project was 48 months i.e. up to June, 2007. The implementation of the project was started during June, 2003 but could not be completed up to November, 2010. Revenue collection on sale of energy could not be earned due to delay in completion of project. The Authority sustained a loss of Rs. 1,835.78 million (Rs. 611.93 x 3 years) due to delay in completion.

Non-adherence to the PC-I provisions resulted in loss of revenue amounting to Rs. 1,835.78 million due to delay in completion of the project.

The matter was taken with management in December, 2016 and reported to the Ministry in February, 2017. The management replied that the intended inquiry had already been conducted to investigate the causes of delayed completion of the project. No further progress was intimated.

The DAC in its meeting held on May 08, 2017 directed the management to obtain inquiry report from MoW&P and get it verified from Audit along with submission of approved 2<sup>nd</sup> revised PC-I.

Audit recommends that the management needs to expedite the inquiry proceeding and provide 2<sup>nd</sup> revised PC-I. (Para No.4.1.1)

#### **4.5.4 Loss due to non-execution/rectification of defects/deficiencies and remaining works – Rs. 18 million**

According to the Sub Clause-49.2 of the condition of the Contract, “the completion of the remaining items of work, as well as making good of any defects and deficiencies, arising after the issuance of the Taking Over Certificate (TOC), shall, remain the responsibility of the contractor”.

During performance audit of Khan Khwar Hydropower Project Besham, it was noticed that contractor was issued Taking Over Certificate in two parts after substantial completion of work on December 08, 2010 and April 16, 2012. Defects/ deficiencies and remaining construction/ erection and commissioning works valuing Rs. 18 million were left incomplete by M/s Sinohydro Corporation contractor for execution of Contract Lot C&HS. This resulted in loss on accounts of less generation resulting in financial loss of Rs. 18 million.

Non-adherence to the contract clauses resulted in loss of Rs. 18 million due to non-execution/rectification of defects and remaining works.

The matter was reported to the management in December, 2016 and reported to the Ministry in February, 2017. The management replied that the contractor also rectified the defects which developed during DLP and which were pointed out by the O&M Staff. At present no physical work is pending for execution. The reply was not acceptable as no documentary evidence was provided.

The DAC in its meeting held on May 08, 2017 directed the management to get relevant record verified from Audit.

Audit recommends that the management needs to investigate the matter for fixing responsibility besides making the loss good. (Para No.4.6.3)

#### **4.5.5 Generation loss due to shut down of power plant – Rs. 178.30 million**

As per Clause-3.1.1 of Consultancy Agreement “the consultant shall perform the services and carry out their obligations with all due diligence, efficiency and economy in accordance with generally accepted professional techniques and practices and shall observe sound management practices and employ appropriate advanced technology and safe methods. 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 time support and safeguard the client’s legitimate interests in any dealings with sub consultants or third parties”.

During performance audit of Khan Khwar Hydropower Project Besham, it was noticed from the generation data since commissioning that the generation of Power House never exceeded more than 40% against installed capacity as compared to percentage provided in PC-I i.e. 49%. In the year

2015-16 Power House mostly remained shut down / closed due to sever damages to turbines of Unit-1 and 2 as a results of sediments / Boulders coming from Khan Khwar / Tunnel and hitting the machine which was a failure on the part of contractor, Engineer and Employer as they could not adequately study and foresee these aspects well in time and could not take precautionary measures to avoid such happenings. The average energy loss during the shutdown period of Khan Khwar power station on the basis of previous two years generation comes out approximately 17.83 million units. This resulted into loss of Rs. 178.30 million (17.83 million units @ Rs.10/-per unit).

Non-adherence to the contract clause resulted in generation loss of Rs. 178.30 million due to shut down of power plant.

The matter was pointed out in December, 2016 and reported to the Ministry in February, 2017. The management replied that the project was in operation and handed over to O&M since November, 2010 and achieved maximum generation of 297 GWh in 2012-13. In 2015-16 the issue of sediments occurred because the dam did not carry sediment flushing since 2010 for which the Chief Engineer (O&M) is responsible. Reply is not acceptable as the power house never exceeded more than 40 @ against installed capacity as compared to percentage provided in PC-I i.e. 49%.

The DAC in its meeting held on May 08, 2017 directed the management to submit detailed revised reply to Audit along with documentary evidence.

Audit recommends that the management needs to investigate the matter for fixing responsibility regarding non-observance PC-I provision besides making the loss good. (Para No.4.6.5)

#### **4.5.6 Non-preparation of PC-IV i.e. Project Completion Report / Project Close out Report**

It was mandatory for the project authorities to prepare PC-IV i.e. Project Completion Report/project close out report as per requirement of the Planning Commission, Government of Pakistan, Islamabad.

During performance audit of Khan Khwar Hydro Power Project, it was noticed that project was completed on March 2012 and its defect liability period had been expired on 15.04.2015. Thereafter, PC-IV i.e. Project Completion

Report was to be prepared in order to assess the performance of plant of the project for want of comparison of envisaged benefit as per PC-I with the actual benefit achieved. This caused hindrances to draw certain conclusions.

The matter was pointed out in December, 2016 and reported to the Ministry in February, 2017. The management replied that the Draft PC-IV Performa of the Project was prepared by the Consultants in August, 2016 and submitted to Member Finance for further review and vetting. Further progress was not intimated till finalization of report.

The DAC in its meeting held on May 08, 2017 directed the management to provide approved PC-IV to Audit.

Audit recommends that the management needs to investigate the matter for fixing responsibility regarding non preparation of PC-IV. (Para No.4.6.4)

#### **4.6 Overall Assessment**

Overall assessment refers to performance of project with reference to three “E” i.e. Economy, Efficiency and Effectiveness.

##### **Economy**

The economy aspect of the project was affected to the extent that the project was delayed for almost 5 years due to which the project cost raised from Rs. 5,362.71 million to Rs. 10,732.79 million, thereby putting loss of Rs. 5,370.08 million as on June 30, 2016. However, on its completion per unit cost of the running project in 2012-13 was 275.18 Paisa/KWh, in 2014-15 per unit cost was 473.04 paisa/KWh and in 2015-16 per unit cost was Rs. 31.50/KWh as against the projected per unit cost of Rs. 2.28/ KWh, so the project proved to be economically not viable. Had the project been completed within the stipulated period of four (4) years, the loss on account of project cost as well as the prospective cheap hydropower could have been avoided.

##### **Efficiency**

The dismal performance of the project management with reference to efficiency could be gauged from the following factors:

- The project was scheduled to be completed within stipulated period of four (4) years but it took nine (9) years for its completion
- Proper surveys/investigations were not made at the outset of the project that caused subsequent diversions/variations resulting in substantial delay in works and increase in project cost.
- Due to delay in completion of the project, WAPDA was deprived of the benefits on account of revenue generation of Rs. 1,835.78 million and saving of Rs. 3,894 million in foreign exchange by reducing dependence on thermal power option, as envisaged in PC-1.
- The pre requisite completion of access roads, obligatory upon the Employer, was considerably delayed for a period of more than two (2) years, that contributed a lot in delay of the project

### **Effectiveness**

The effectiveness of the project due to its affordable low per unit cost and environment friendly nature can well be assessed from the following benefits attributed to the project:

- Per annum revenue will be on higher side in the context of increasing trend in the tariffs of electricity.
- The project, though completed late, has contributed in reducing dependence on thermal power option to be incurred otherwise on fuel would save foreign exchange amounting to Rs.4,672.8 (778.8 x 6) million in six years of time after its completion.
- It has added to social up-lift and employment opportunities for the local peoples.
- It has minimized the CO<sub>2</sub> and SO<sub>2</sub> effects.
- It has added cheaper hydro potential in the national grid.

The observations noted by audit regarding over-all performance were as follows:-

#### **4.6.1 Cost incurred over and above the PC-I – Rs. 5,370.08 million**

As per Original PC-I, the project was to be completed at a total cost of Rs. 5,362.71 million approved by the ECNEC on September 02, 2002.

During the performance audit of Khan Khwar Hydropower Project, it was noticed that an amount of Rs. 10,732.79 million was incurred up to June, 2015 against the original PC-I cost of Rs. 5,362.71 million. Resultantly, the project cost was increased to the tune of Rs. 5,370.08 million as on June 30, 2016 about 100% above the approved cost. The cost of the project was inflated due to delay in award of contract, delay in commencement, price escalation, delayed compensation cost, currency devaluation. Thus, WAPDA had to sustain extra cost for completion of project.

Non-adherence to the PC-I provision resulted in cost overrun to the tune of Rs. 5,370.08 million.

The matter was reported to the management in December, 2016 and reported to the Ministry in February, 2017. The management replied that the actual reasons for not achieving envisaged benefits as planned in the PC-I were the delay causing factors which were beyond the control of the Employer and the contractor. As stated earlier, an inquiry has already been conducted to investigate the causes of delayed completion and resultant cost over-run of the project. The reply was not tenable as no documentary evidence was provided.

The DAC in its meeting held on May 08, 2017 directed the management to obtain inquiry report from MoW&P and get it verified from Audit along with submission of approved 2<sup>nd</sup> revised PC-I.

Audit recommends that the management needs to expedite the inquiry proceedings besides making the loss good. (Para No. 4.2.1 and 4.2.2)

#### **4.6.2 Time over-run**

According to original PC-I, project was required to be completed within a period of 48 months from the date of commencement i.e. June, 2003.

During the performance audit of Khan Khwar Hydropower Project, it was noticed that the project was required to be completed within 48 months from the date of commencement i.e. June 2007 but the project could not be completed

within the scheduled period. However it was completed after delay of 57 months. The main reasons of time over-run were:

- Delay in award of contract
- Late signing of contract agreement
- Delay in issuance of construction orders
- Late commencement of the work by the contractor due to delay in making advance payment by the Employer, and delay in financial closure by the Employer.

This state of affairs reflected project mismanagement, right from the award of contract till its completion. Resultantly envisaged benefits were not achieved timely and caused generation loss.

The matter was taken with the management in December 2016 and reported to Ministry in February, 2017. It was replied that main reason for delay in commencement was non-completion of access roads by local contractors. Further delay was beyond the control of employer i.e. earthquake 2005. Therefore the management could not be held responsible for delays. The reply was not satisfactory as no proper facts finding inquiry was constituted.

The DAC in its meeting held on May 08, 2017 directed the management to conduct a fact finding inquiry.

Audit recommends that the management needs to constitute a fact finding inquiry for ascertaining actual causes of delay besides fixing the responsibility.

(Para No. 4.1.2)

## 5. CONCLUSION

Khan Khwar Hydropower Project, Besham was approved under WAPDA's vision 2025 program of Water Resources and Hydro Power Development. The project management could not manage and closely monitor all the activities timely resultantly envisaged benefits as per PC-I could not be achieved well in time for more than five (5) years and were delayed accordingly due to the cost increased by Rs. 5,370.08 million against the original PC-I cost of Rs.5,362.71 million due to following factors:-

- Delay in construction of access roads for mobilization of the contractor to site.
- Delay in commencement of work by the contractor.
- Slow / poor progress of works by the contractor due to lack of supervision by the Client as well as the Engineer.
- Change in design of tunnel.
- Rectification works against Punch list items were not carried out by the contractor during Defect Liability Period.
- Weak financial position of the contractor that caused financial assistance for completion of project but even then the works could not be completed within the scheduled time.
- Neither provisions of PC-I nor that of contract were followed in letter and spirit.
- Extension of Time (EoT) were granted frequently to the contractors, specially to M/s Sinohydro Corporation, engaged for civil works, the delay of which also caused delay in E&M works
- Parallel engagement of contractor at the Allai Khwar Hydropower Project and Dubair Khwar Hydropower Project thereby diverting the attention that effected the works.



## **ACKNOWLEDGEMENT**

We wish to express our appreciation to the management and staff of Khan Khwar Hydropower Project, Besham for the assistance and cooperation extended to the auditors during this assignment.

**PROJECT DIGEST**

<b>Name of Project</b>	Khan Khwar Hydropower Project (KKHP).		
<b>Location of the Project</b>	Project is located in Besham town in the Distt: Battgram of Khyber Pakhtun khwa Province 265 Km distance from Islamabad		
<b>Sponsoring:-</b>	Ministry of Water and Power (MoWP) through Government of Pakistan (GoP).		
<b>Execution:-</b>	Water	and	Power Development Authority(WAPDA)
<b>Operation and Maintenance:-</b>	Water	and	Power Development Authority (WAPDA)
<b>Project Objectives</b>	The prime objective of the implementation of Khan Khwar Hydropower Project (KKHP) is to provide the cheaper and most needed power future power requirements of Pakistan through Generation of 306 GWh electricity annually with installed capacity of 72 MW		
<b>Approval of PC-Is by ECNEC</b>	PC-I (Original) approved on September 02, 2002 PC-I (1 <sup>st</sup> Revised) approved on August 20, 2009 PC-I (2 <sup>nd</sup> Revised) Proposal was submitted for approval of ECNEC in April, 2015 which is not yet approved.		
<b>Project Completion</b>	The Project was required to be completed within a period of 48 months after award of contract in June, 2003. However, commercial operation was started in November, 2010		
<b>Approved Cost of PC-I (in Million)</b>	<b>Local Costs</b>	<b>Foreign Exchange</b>	<b>Total</b>
(Original)	Rs.2,717.73	Rs.2,644.98	Rs.5,362.71
(1 <sup>st</sup> Revised)	Rs.4,573.69	Rs.3,727.79	Rs.8,301.50
(2 <sup>nd</sup> revised)	Rs.5,407.49	Rs.5,325.30	Rs.10,732.79

**Source of Financing****IDB LOAN    PSDP Total**

Rs.5,325.30    Rs.5,407.49    Rs.10,732.79

(US\$.30.805) (As Per 2<sup>nd</sup> Revised proposed PC-I**Previous approval / anticipatory**

German Agency for Technical Cooperation, (GTZ) reviewed the feasibility study prepared by Lahmeyer International, in May, 2000 which was approved by ECNEC on September 02,2002. The contracts for Civil and Hydraulic Steel and Electrical and Mechanical works were awarded in June, 2003 to be completed tentatively in forty eight (48) months. Project location was feasible for the high head hydropower plants on Run-off River of the tributaries of River Indus ie, Khan Khwar near Besham in the province Khyber Pakhtun Khwa

**Completion**

The access roads to the site were not completed in time. Hence, the Construction order to the main contractor was issued in August, 2005. The project became further late due to earth-quake, 2005, Chinese evacuation from the Site due to law and order situation, 2007 and floods, 2010. The Geological conditions were also un-favourable. However, the project started its commercial operation in November, 2010.

**Annex- 2**

**STATEMENT SHOWING PSDP ALLOCATION AND FUNDS  
RELEASED**

*(Rs. in millions)*

Year	PC- 1 Phasing		PSDP Allocation		Releases		Expenditure	
	Foreign	Total	Foreign	Total	Foreign	Total	Foreign	Total
2001-02		6.769		6.765		6.765		6.765
2002-03	273.819	434.909	264.965	428.141	264.965	428.141	264.965	428.141
2003-04	148.173	319.985	148.171	312.266	148.171	312.266	148.171	312.266
2004-05	107.702	224.091	12.806	224.091	12.806	224.091	12.806	224.091
2005-06	184.927	532.678	156.187	532.678	156.187	532.678	156.187	532.678
2006-07	228.807	849.996	248.203	849.996	248.203	849.996	248.203	849.996
2007-08	544.155	1,369.723	498.462	1,369.723	498.462	1,369.723	498.462	1,369.723
2008-09	1,514.500	2,719.135	625.000	1,905.000	796.436	1,432.595	796.436	1,432.595
2009-10	725.708	1,844.193	1,002.000	2,230.000	909.150	1,978.107	909.150	1,978.107
2010-11			791.000	1,915.693	506.443	1,030.277	506.443	1,030.277
2011-12			198.000	1,360.000	394.645	1,084.427	394.645	1,084.427
2012-13			78.389	560.396	90.304	560.396	90.304	560.396
2013-14			55.686	95.572	118.668	95.572	118.668	95.572
2014-15			-	-	-	-	-	-
2015-16			-	-	-	-	-	-
2016-17			277.455	467.254	277.455	467.254	277.455	467.254
<b>Total</b>	<b>3,727.791</b>	<b>8,301.479</b>	<b>4,356.324</b>	<b>12,257.575</b>	<b>4,421.895</b>	<b>10,372.288</b>	<b>4,421.895</b>	<b>10,372.288</b>

The above financial data have been derived from PC-I, monthly progress reports, trial balance, Interim Payment Certificates, project record/documents available in the office of General Manager, Northern Areas, Hattian and Project Director Khan Khawar Hydropower Project, Besham.

**CHRONOLOGY OF PROJECT HISTORY**

- Date of review of feasibility Study by MoWP May, 2000
- Date of approval of PC-I by ECNEC 02.09.2002
- Date of Contract for Lot C&HS signed by M/s Sinohydro 31.03.2003
- Date of Contract for Lot E&M signed by M/s DEC 05.04.2003
- Date of issuance of construction order 12.01.2004
- Date of Earthquake, 2005 08.10.2005
- Date of completion of the project ( original contract) 06.2007
- Date of evacuation of Chinese/contractor from site 07.11.2007
- Date of return of Chinese/contractor 20.02.2008
- Date of devastating flood, 2010 July,2010
- Date of signing of Memorandum of Understanding-2 24.08.2010
- Date of start of Defect Liability Period (DLP) 15.04.2012
- Date of inauguration 08.11.2010
- Date of substantial completion 15.04.2012
- Date of commercial operation of unit No.1 25.11.2010
- Date of commercial operation of unit No.2 08.11.2010
- Date of commercial operation of Auxiliary Unit 10.07.2012
- Date of submission of 2<sup>nd</sup> Revised PC-1 for approval of ECNEC 14.04.2015
- Date of end of Defect Liability Period (DLP) 06.01.2016