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ENERGY POLICY PROGRAM GOLEN GOL HYDROPOWER PROJECT

CHITRAL SITE VISIT REPORT

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Golen Gol Hydro Power Project, Chirtal Flood Report

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1.0 Brief Description

Golen Gol Hydropower Project is a run-of-the-river hydropower project, located in Chitral District. The district is surrounded by Afghanistan in the North and West, Gilgit district in the East and Dir and Swat districts in the South. The project is located on a tributary of Mastuj River, with total capacity of the powerhouse as 108 MW and is expected to generate 444 GWh of energy annually. The project is

on the national grid and is estimated to cost \$313 million of which \$164 million is already committed by the Saudi, Kuwait and OPEC funds, with WAPDA's cost share being \$149 million. On request of GOP, USAID will grant \$36 million for the procurement & installation of electrical and mechanical equipment (Lot 3.2).

It is the largest development project in the region and subsequent electrification will improve stabilization in the remote area, enhance quality of life of locals, especially women and children, and create job opportunities for enterprise. According to the revised PC-1; Golen Gol has a Benefit Cost Ratio (BCR) of 2.35: 1 and Internal Rate of Return (IRR) of 33%. The project will generate annual revenues of over \$33 million. The project will meet of power demand of Chitral, stimulate local businesses, provide job opportunities to locals and encourage cottage industry in the remote areas besides adding power and stability to the northern part of the National Grid.

2.0 Status of Project

The accumulated overall progress of the project as of August, 2015 is 33.50%, whereas the progress in Dec 2014 was 32.0%. Project progress since Dec is 1.5 %. Lot wise Progress of the project as on August 2015 is as under:

LOT 1: O&M Colony & Infrastructure. Partial Completed and possession is taken by WAPDA

LOT 2: Civil works of intake, diversion, head race tunnel, surge chamber etc. 78.88 %

LOT 3.1: Civil work of power house, tailrace and switch yard 37.21 %

LOT 3.2: Electrical & Mechanical work 12.62 %

LOT 4.1: Transmission Line Phase 1 4.58 %

LOT 4.2: Transmission Line Phase II 0.00 %

Overall Project Progress **33.6 %**

Completion date as of Original PC-1 was January 2015 but was extended due to delay in Lot-2 by 1 year and Lot 3.1, 3.2 and Lot 4 by more than 2 years. The new anticipated date of completion is June 2017.

3.0 Highlighted Issues

3.1 Effect of recent Floods in Chitral District

In July, 2015 District Chitral is badly affected by the floods, Torrential rains and Glacial Lake Outbursts Floods (GLOF). Golen Gol Hydropower Project is also affected by the floods. The damages in the project due to flood is as following:

1. The coffer arrangements were destroyed on July 17, 2015 by the flooding water and entered the rip rap area of the diversion weir (*Figure 1*).
2. The water is now flowing through the diversion weir and flushing section (*Figure 2*).
3. Flood has also minor damaged Gates and Stop Logs structure
4. Water has also destroyed the access roads leading to the weir site (*Figure 3*).
5. The flood is still continued and may further damages if water flow is not decreased.
6. Construction of civil works was suspended for shorter period and now work is resumed.

4.0 Project Other Issues

Beside flood, the project has some contractual and management issues which are explained as under:

4.1. E&M contractor Issue

- The E&M contractor is mobilized at the site but has not started work due to delay in approval of construction drawing for power house and tail race which is delayed due to shortage of Consultants design team due to delay of approval of Amendment 3.

E&M contractor has submitted a schedule of works with the anticipated completion date of April 17. Any delay in resolving issues may further delay the project

4.2. Project Consultants Amendment Issue

- One of the issues for current delay of the project is the Consultants claim for extension of man months as Amendment 3. The Consultant claim that 90 % of their man months are already consumed as per amendment 2 and Consultant needs to get the Amendment 3 approved as early as possible.
- It is imperative that Consultants and contractor issues need to be settled once for all for timely completion of the project.

4.3. Variation Order

- The quantity in head race channel and head race tunnel has considerably increased from the original estimated quantities. There is difference of opinion between WAPDA and SDF which is funding this part of project as such reimbursement of fund from SDF is withheld.

4.4. PC-1 Approval

- WAPDA has not yet submitted the revised PC-1 to Planning Commission for Approval. Approval of PC-1 is a mandatory for USAID funding.

4.5. Increases in Tower Cost

- There is increase in cost due to excess towers proposed in the plan and profile, which resulted dispute between transmission Line contractor and WAPDA. Series of meeting are held and final outcome is yet to come

5.0 Conclusion

- The floods have hampered the projects works and are expected to cause further impact if the water flow not decreases early.
- The delay of the approval of drawings for Lot 3.2 (Mechanical and Electrical Works) of Golen Gol Powerhouse and Switchyard has seriously impact on construction and commissioning of the plant.
- The civil works (SAMBU) contractor is badly affected by the delay of approval of power house/tailrace drawing and is likely cost overrun and time over run.
- Transmission Line issues need to address early to keep the project in with target schedule.



Figure 1: Water flowing towards the diversion weir after destroying the coffer arrangements



Figure 2: Water flowing through the flushing section causing suspension of civil works



Figure 3: Downstream of flushing section.



Figure 4: temporary bridge after water destroyed the access roads



Figure 5: Water flowing through the tailrace channel