

# Middle Phawa Khola Mini-hydro Project (360 kW) Taplejung

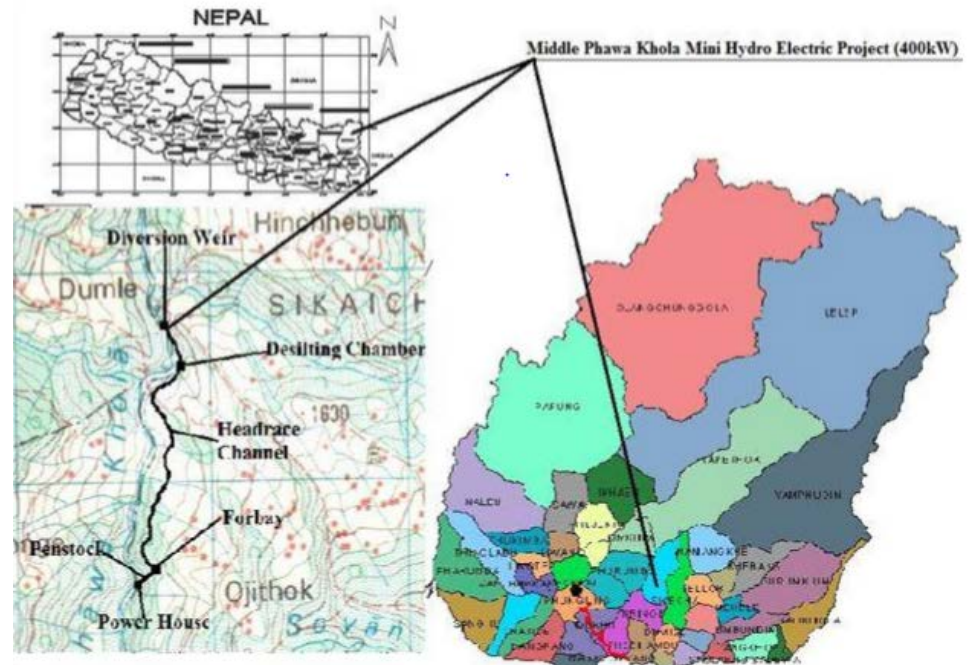
**Sanjeev Pokhrel**  
**Consultant**

**Email: [sanjeev@smartconsult.com.np](mailto:sanjeev@smartconsult.com.np)**



# Background

1. No National Grid
2. Small and decentralized MHPs are the only source of energy
3. Acute shortage of energy (Peak demand 1000 kW, available 160 kW)
4. Mini Grid construction underway ( 8 MHP interconnection, 900kW)
5. Middle Phawa HEP power be supplied to Phungling Bazar



# Salient Features

---

Installed Capacity : 360 kW

Total Energy generated: 1.83 GWh (designed at Q80, PLF >65%)

Head= 48 m, Canal length= 1100 m, Access Road=3.8 km

Energy Trading rates :Rs 4.25/kWh

Load Center: Taplejung District Headquarter

Offtaker: Taplejung Electricity Users Committee (Minigrid being constructed by AEPC)

Total Project Cost: NRs 144.98 million



# Investment Mix/Financial Ask

SN	Source	Amount (Million NPR)	Share (%)	Remarks
1	AEPC subsidy	58.68	40.5	
2	DoLIDAR	30.00	20.7	NPR 6.9 M received
3	Community share	20.93	14.4	NPR 8 M collected
4	BFI loan	35.36	24.4	
	<b>Total Investment Required</b>	<b>144.9</b>	<b>100</b>	

Looking for Bank Financing of NPR 35.36 Million  
At 7% for 7 yrs



# Status of the Project

---

- Feasibility Completed 2014
- Land purchased for the project= 10.5 ropani (75%)
- Access road of 2.8 km excavated out of 3.8km (74%)
- 410 m headrace canal constructed out of 1100m canal length (37%)
- NRs 16.3 million collected from co-operative shareholders and Donors



# Progress so far

---



SUSTAINABLE  
ENERGY FOR ALL



# Execution Strategy and Expertise in User Committee

---

1. Ambar Kumar Shrestha- President of Phawa khola MHEP
  - Developer of Phawa Khola HEP (5MW), Thechambu VDC, Taplejung.
  - President of Underconstruction Minigrid
  - Treasurer of Taplejung Electricity Users Committee (Leased NEA distribution network)
  - Highly experienced person working in the sector of rural electrification
2. Bishnu Khatiwada- Station Manager of Sobuwa MHEP (NEA Owned)
  - Developer of Phawa Khola HEP (5MW), Thechambu VDC, Taplejung.



# Why Finance this project

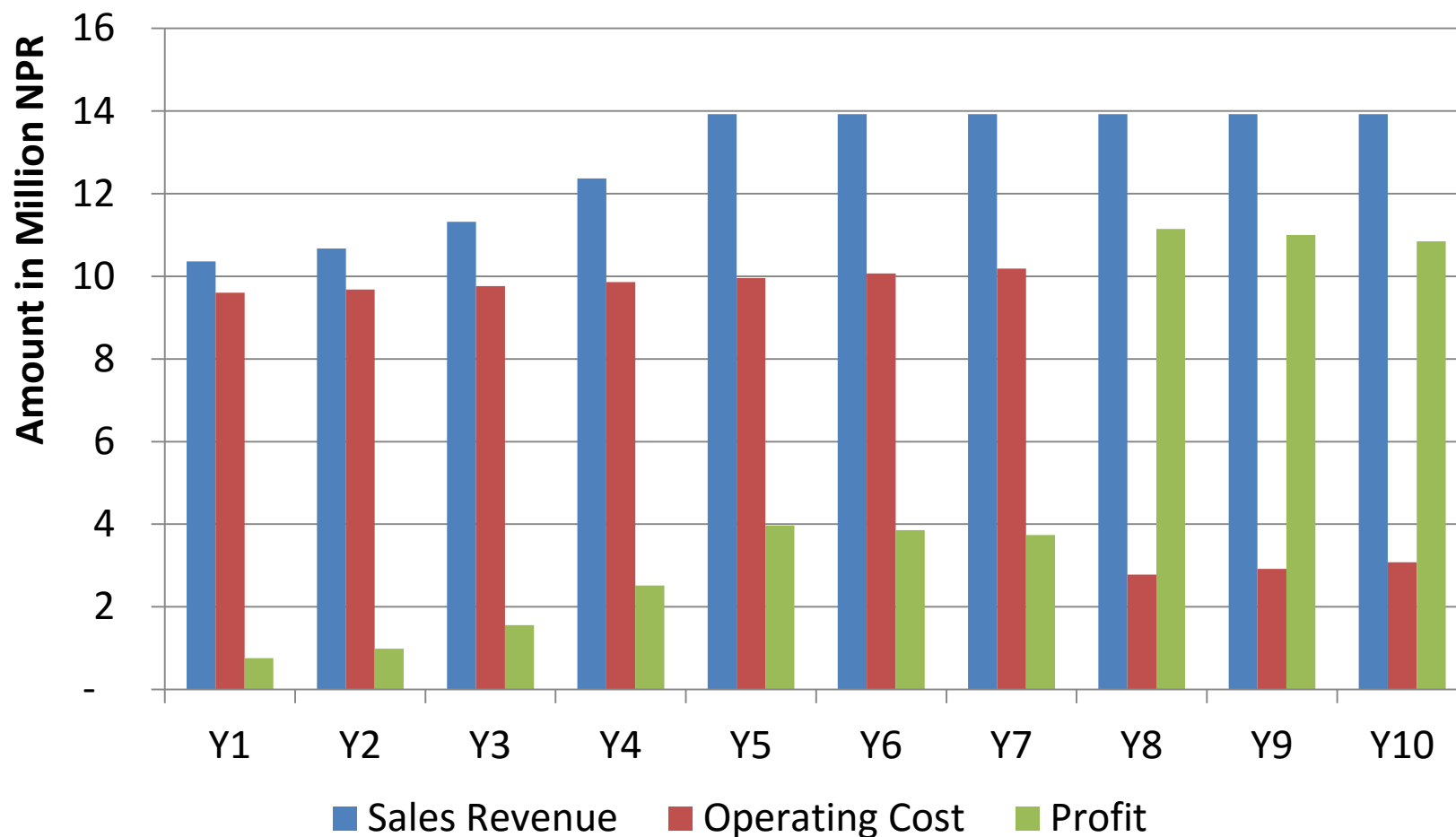
---

1. Acute energy crisis (high demand)
2. High Plant Factor due to grid connectivity
3. Already secured 75% fund
4. Construction started
5. Co-operative already invested
6. This is ready to invest project
7. Risk identified mitigated.
8. Lower off-taker risk
9. Highly experienced User Committee and execution team

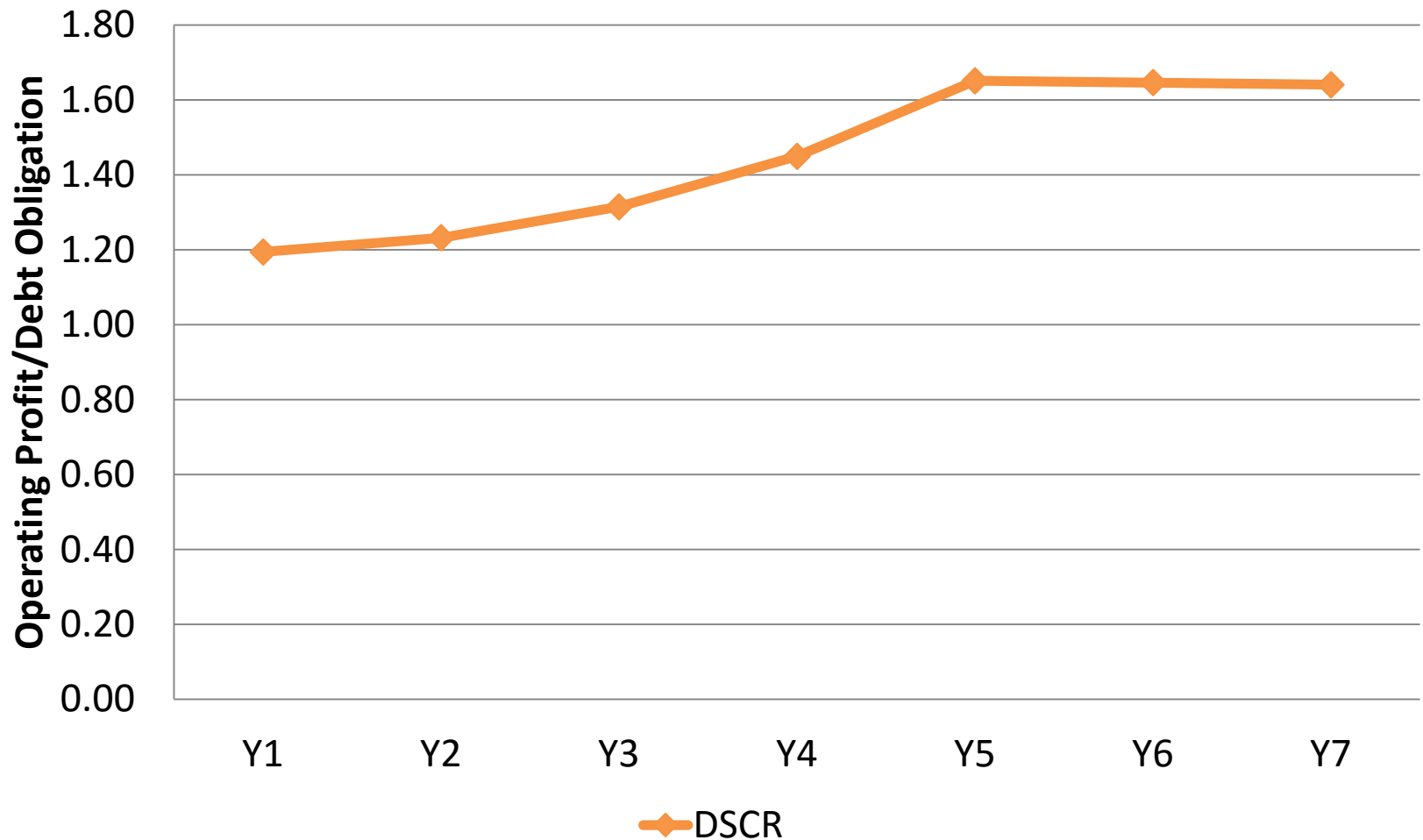




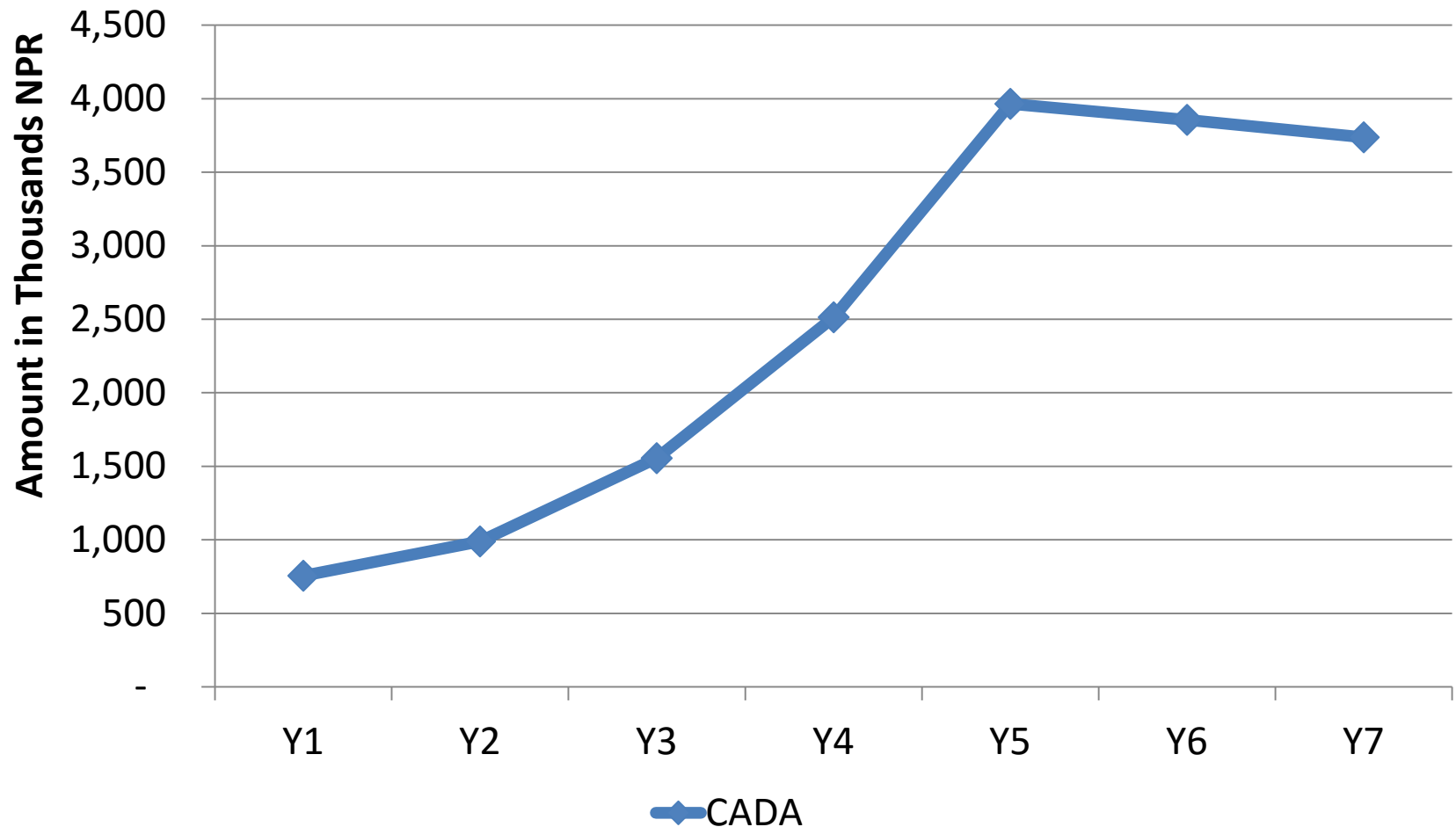
# 10 Year Total Revenue, Cost and Profitability



# 7 Year Debt Service Coverage Ratio (DSCR)



# 7 Year Cash After Debt Amortization (CADA)



# Project Risks Profile

Major Risks	Mitigation Strategy
Tariff collection	Very minimal risk since all electricity will be sold to mini-grid not to direct users. The PPA will have with mini-grid and Phawa Khola Cooperative
Mini-grid construction and management	Very minimal risk since this is in construction phase with the financial support from World Bank
Project management	Very low risk since the project will be managed by established cooperative and experienced team
Off-taker Risk	Reserve Fund/LOP Insurance
Mini-grid sustainability	Very low since it has sizable power (900 kW) and very good market centre (Phungling Bazar)



# Conclusion

---

1. Technically and financially feasible
2. DSCR is above 1 and CADA is positive
3. Project has excellent Plant factor (>65%) -connected to Mini-grid
4. Experienced team and operates through established cooperative
5. High Socio-economic impact
6. Low Risk of Repayments (Credit risk)
7. Finance this project and leverage yourself



---

# Thank you

