

# ANGEL ENGINEERING: FOR YOUR DREAM HYDRO



Your One-Stop Solution for Turning Hydropower Dreams into Reality



## Comprehensive Engineering Services

- \* **Strategic Guidance** - Policy-level interventions for industry growth
- \* **Holistic Implementation** - End-to-end project execution
- \* **Integrated Solutions** - Technical and financial viability
- \* **Advanced Technology** - Cutting-edge engineering tools
- \* **Quality Assurance** - Excellence at every stage
- \* **Client-Centric Approach** - Tailored project solutions
- \* **Stakeholder Collaboration** - Strengthening partnerships
- \* **Sustainability Commitment** - Environmental & social safeguards
- \* **Health & Safety** - Prioritizing well-being
- \* **Regulatory Compliance** - Adhering to legal standards
- \* **Training & Innovation** - Future-focused expertise
- \* **Design Vetting** - Mitigating defects for efficiency

## Technology at work for you

CONNECTING YOUR BUSINESS TO THE TECHNOLOGICAL RESOURCES YOU NEED

Welcome to **Angel Engineering Consultancy P Ltd. (AECPL)**—your trusted partner in delivering exceptional engineering and financial solutions for hydropower development. We specialize in transforming visionary hydropower projects into reality while safeguarding stakeholder interests.

As the only service provider covering all aspects of hydropower development—technical, financial, and operational—we offer comprehensive solutions from project conception to implementation and operation.

### Expertise You Can Rely On

Our team of specialists excels in:

- \* **Investigations & Feasibility Studies** – Ensuring data-driven decisions for project success
- \* **Design & Detailing** – Cutting-edge civil, mechanical, electrical, and transmission line designs
- \* **Project Implementation** – Seamlessly integrating technical and financial solutions
- \* **Operations & Optimization** – Enhancing efficiency through innovative approaches

## Your One-Stop Hydropower Solution

DELIVERING EXCELLENCE WITH EVERY PROJECT

### Why Choose AECPL?

- \* **Proven Track Record** – Successfully delivering projects from concept to operation
- \* **Comprehensive Services** – A single point of contact for all technical and financial needs
- \* **Experienced Professionals** – A dedicated team ensuring industry-best practices
- \* **Stakeholder Commitment** – Safeguarding your investment with integrity and expertise
- \* **Cost & Time Efficiency** – Smart strategies for optimal results within budget and schedule

At AECPL, we are committed to working with dedicated clients who share our vision for sustainable hydropower development. With our expertise, experience, and unwavering commitment, we turn your hydropower ambitions into reality.

**Your Success is Our Priority.**

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## Our Services

- \* **Technical Services**
  - \* Feasibility Studies & Site Investigations
  - \* Design, Engineering & Validation
  - \* Computer Simulation & Performance Optimization
  - \* Technology Integration & Cost Optimization
  - \* Construction Management, Supervision & Monitoring
  - \* Bill Vetting, Commissioning & Operation
- \* **Financial Services**
  - \* Financial Feasibility & Due Diligence
  - \* Financial Modeling & Risk Assessment
  - \* Project Financing & Investment Structuring
  - \* Cash Flow Projection & Sensitivity Analysis
- \* **Environmental Services**
  - \* IEE & EIA Studies
  - \* Supplementary Environmental Assessments
- \* **Water Resource Services**
  - \* Water Supply & Irrigation Solutions



### OUR VALUABLE PARTNER PROJECTS

S N	Project	AECPL Scope	Status (Job/Project)
1	668 MW Betan Karnali PROR HEP, Achham	Review Work on Feasibility Study Report (Pushpa Chitrakar)	Completed/PPA
2	512 MW Bharbhung Storage Hydropower Project, Dolpa	Review of Draft Interim Design Report	Completed
3	132 MW Lower Barun Khola Hydroelectric Project, Sankhuwasabha	Feasibility Study, Detail Project Report	Completed/PPA
4	110 MW Dudhkoshi 5 Hydropower Project (Peaking RoR)	Detailed Design	Completed/PPA
5	57.5 MW Nupche-Likhu Hydro-electric Project	Due Diligence Study	Completed/Under construction
6	41.06 MW Sankhuwa Khola Hydropower Project	Detailed Design	Completed/Underconstruction
7	40.27 MW Super Nyadi Hydro Power Project	Due Diligence Study	Completed/Under construction
8	38.46 MW Upper Kalanga Gad Hydro Electric Project, Bajhang	Feasibility study, detailed design and construction supervision	Operation
9	30 MW Lower Likhu Hydro Power Project, Ramechhap	Feasibility Study	Completed / Underconstruction
10	24.88MW Luja Khola Hydropower Project, Solukhumbu	Due Diligence Study	Completed/Under construction
11	25 MW Singati Khola Hydropower Project, Dolakha	Review and Evaluation study	Completed / Operation
12	25 MW Ilep (Tatopani) Khola Hydropower Project, Dhading	Upgraded feasibility Study and detailed design	Completed/PPA
13	23.5 MW Upper Solu Hydroelectric Project	Topographical Survey and preparation of maps of 132 kV Transmission Line	Completed / Operation

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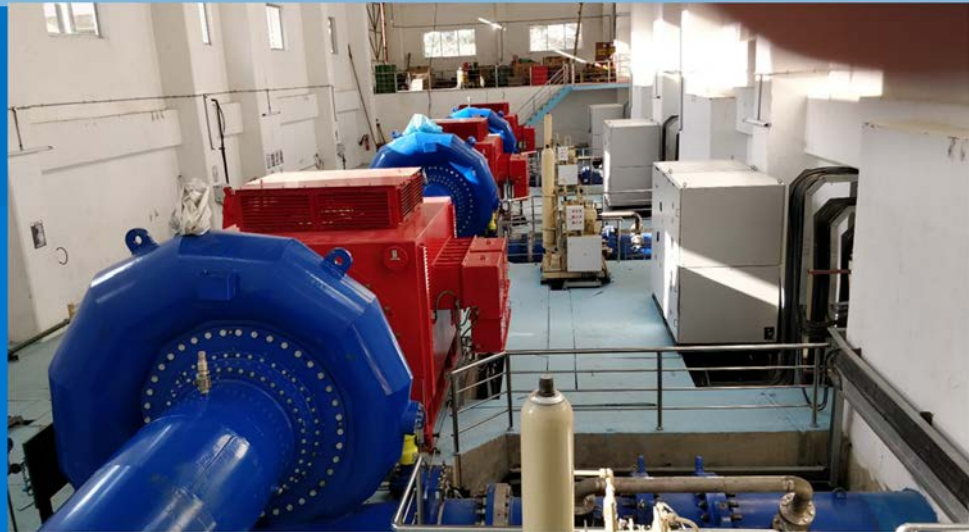
## MEET THE FOUNDERS



**PUSHPA CHITRAKAR**  
Founder, AECPL

Pushpa Chitrakar is a distinguished hydraulic and structural design engineer with expertise in hydropower financial analysis. With a visionary approach to Nepal's hydropower potential, he seamlessly integrates technical expertise with financial acumen to drive industry growth.

A skilled computer programmer, he has developed hydropower design tools used in over 26 countries, along with widely adopted Gravity Water Supply System Design Tools. He excels in technical and financial spreadsheet modeling for mega hydropower projects, including Storage and Peaking RoR projects, and is proficient in numerical modeling and simulation software. Pushpa Chitrakar holds a Master's in Hydropower Planning and Development from the University of Science and Technology, Trondheim, Norway, and an MBA from Tribhuvan University. With extensive experience in Nepal and internationally, he has held key positions such as CEO, General Manager, Chief Technical Advisor (United Nations, Afghanistan), and Project Manager.



## OUR VALUABLE PARTNER PROJECTS ...

S N	Project	AECPL Scope	Status (Job/ Project)
14	18 (upgraded to 19.8) MW Upper Solu Hydropower Project, Solukhumbu	Upgraded feasibility Study and 18MW detailed design	Operation
15	15.33 MW Kalanga Gad Hydro Electric Project, Bajhang	Feasibility study, detailed design and construction supervision	Operation
16	22.5MW Upper Thulo Khola - A Hydropower Project, Myagdi	Due Diligence Studies of 15MW & 22.5MW	Completed/ Under construction
17	14.9 MW Maya Khola Hydropower Project	Due Diligence Study and Hydraulic Construction Design, Bill Vetting, Hydraulic design	Completed/ Operation
18	14.3 MW Upper Mailung A Hydropower Project	Topographical survey and mapping	Completed
19	10.7 MW Upper Sanigad Hydro Electric Project, Bajhang	Feasibility study, detailed design and construction supervision	Operation
20	10.5 MW Down Piluwa Khola Small Hydropower Project	Technical Review and Due Diligence Study of 9.5MW Bill Vetting	Completed /Under construction
21	9.98 MW Upper Mai Hydro-power Project, Ilam	Headwork design modifications of main and secondary headworks. Secondary off-take system detailed design	Completed / Operation
22	8.5 MW Upper Hewa Khola Small Project	Due Diligence Study	Completed/ Operation
23	8 MW Lower Kalanga Gad Hydro Electric Project, Bajhang	Feasibility Study and Detailed Project Design	Completed/PPA
24	6.35 MW Buku Khola Small Hydropower Project	Due Diligence Study	Completed/PPA
25	6.1 MW Upper Mai C Hydro-power Project	Detailed Construction Design, Bill Verification and monitoring	Completed/ Operation

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## MEET THE FOUNDERS



**BIBASH KUMAR AMATYA**  
Co-founder

With over two decades of engineering expertise, Bibash Kumar Amatya specializes in field investigations and project implementation. His leadership has been instrumental in successfully managing and delivering numerous hydropower projects across Nepal while ensuring professional execution and client satisfaction.

Bibash has held key roles, including Project Manager for the Lower He-wa Khola Hydropower Project and Assistant Project Manager for the Upper Mailung Hydropower Project. He was also seconded as Managing Director to an A-Class Construction Company, where he recently completed three hydropower projects with a total installed capacity of 71MW in the Kalanga Basin, Bajhang District. Currently, he is overseeing the civil construction of the 25.4MW Super Aankhu HEP in Dhading.

His early experience includes working as a surveyor at Sanima Hydro Engineering, handling multiple hydropower projects. With strong interpersonal and project management skills, Bibash has played a crucial role in the growth and success of AECPL.



## OUR VALUABLE PARTNER PROJECTS ...

S N	Project	AECPL Scope	Status (Job/ Project)
26	5.2 MW Junbesi Khola Hydro-power Project	Topographical Survey and preparation of maps for 33 kV transmission line	Completed /Under construction
27	4.3 MW and 2 MW Tungun-Thosne and Khani Khola Schemes	Bill verification and site monitoring	Completed / Operation
28	4 MW Puwa Khola-1 Hydro Power Project	Bill verification	Completed/ Operation
29	4 MW Upper Jeuligad Hydro Power Project	Feasibility Study	Completed/PPA
30	2.4 MW Jiri Khola Hydropower Project	Mitigation for technical trouble shooting of final phase construction	Completed / Operation
31	1.8 MW Chaku Khola Small Hydropower Project	Site Visit and Earthquake Damage Assessment Report	Completed / Operation
32	1.8 MW Middle Chaku Hydro Power	Rehabilitation of Headworks; Upgrade main headworks and secondary off take system detailed design	Completed / Operation, this is the first AECPL double slotted intake
33	1 MW Jeuligad Hydro Power Project	Feasibility and Detailed Construction Design	Completed / Operation
34	5.0 MW Bhawanipur Solar Power Project, Bara District	Feasibility Study	Completed/PPA
35	Alternative Energy Promotion Center: Mini Hydro Guideline	Guidelines for detailed Feasibility of Mini Hydropower Design	Completed/ Endorsed
36	26MW Upper Khudi HEP, Lamjung	Bill verification	Completed/ Under construction
37	Madan Bhandari University, Multi Energy Project	Feasibility Study of Hydro-Pump, Solar, Grid Project	Ongoing

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**RITA CHITRAKAR**  
Chairperson, AECPL

Rita Chitrakar brings over 30 years of expertise in engineering consulting, specializing in hydropower design, estimation, planning, and project/contract management, including environmental studies.

She holds an M.Sc. in Hydropower Planning and Development from NTNU, Norway, and an MBA from Kathmandu University. As a strong advocate for women's empowerment, Rita plays a pivotal role in fostering sustainable development in Nepal through her leadership at AECPL.



**ROBIN LALL CHITRAKAR**

With over 40 years of engineering experience, Robin Lall Chitrakar leads AECPL as its CEO, bringing a wealth of expertise in water supply, sanitation, hydrology, and hydropower engineering. He holds an M.Sc. in Water Supply and Sanitation Engineering (USSR) and another in Hydrology and Environmental Engineering (IHE, Netherlands). Throughout his career, he has held key managerial roles in mega projects, serving as Deputy Project Manager, Team Leader, WSS Specialist, Regional Director, and Design Coordinator.

Robin's extensive contributions to both water supply and hydropower sectors have solidified his reputation as a leader in the field.



**OUR VALUABLE PARTNER PROJECTS ...**

S N	Project	AECPL Scope	Status (Job/ Project)
38	45/84MW Kasuwa Khola HP	Detailed Eng Design Review and Design Recommendation	Completed/ Under construction
39	40km Pauta-Chameliya 132kV Transmission Line for 28.46+15.33+10.7MW Kallanga Basin HEP	Surveying, Design and Construction Supervision	Completed / Operation
40	14.70MW Phalankhu Hydroelectric Power Project	Detailed Design & Construction Supervision	Supervision going on
41	7MW Menchet Hydropower Project	Detailed Design/Updated to 10MW	Completed
42	8.2 MW Shyam Khola Hydropower Project	Construction Design	Completed except Powerhouse
43	21.6 MW Lower Hewa Hydro Electric Project, Pachthar	Feasibility study, detailed design and construction supervision	Completed / Operation
44	44.52 MW Sani Bheri Hydropower Project, Rukuim	Due Diligence Study	Completed/PPA
45	30 MW Sunkoshi Marin Diversion Cascade Hydropower Project	Pre-Feasibility Study	Ongoing
46	5.5MW Middle Tadi Khola Hydropower Project	Due Diligence Study	Ongoing

Services	Total MW	Nr of Projects	Remarks
Bill Vetting	53.45	6	
Detailed Design & Construction Monitoring	35.20	4	
Due Diligence Study	1534.87	15	
Feasibility & Detailed Construction Design	1.00	1	
Feasibility Study	64.00	3	
Feasibility Study and Detailed Project Design	195.30	5	
Feasibility Study Integrated Energy	0.00	1	Pump, Solar Hydro
Guidelines	0.00	1	Mini Hydro Guidelines
Solar Feasibility Study	5.00	1	
Surveying	14.30	1	
Surveying & Detailed Design	110.00	1	
Surveying, Detailed Design & Construction Design	41.06	1	
Surveying, Detailed Design & Construction Design & Supervision	100.79	5	
TL Surveying	23.50	1	11km 132kV
TL Surveying, Design & Construction Supervision	5.20	1	33kV
TL Surveying, Detailed Design & Construction Design & Supervision	0.00	1	36km 132kV
Upgradation Study	14.18	3	
<b>Grand Total</b>	<b>2197.85</b>	<b>51</b>	

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Starting of projects by training the HO design team



Briefing the design to the implementation teams at site



Flow measurement:30MW Lower Likhu HP, Ramechhap District



Surveying at Lower Hewa Khola HEP (21.6MW, Pachther, Ilam District)



Monitoring SPT test at Powerhouse, USHEP



Monitoring geo-physical surveying



Site visit (132MW Lower Barun)



Lunch time during a visit (132MW Lower Barun)



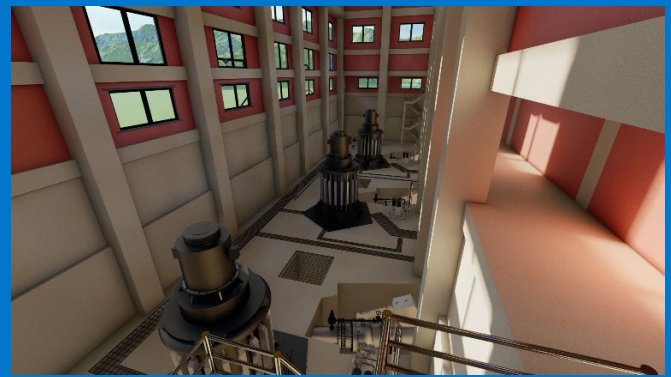
Interacting with local females



Interacting with local people



We **model** the design before we build (10.77MW USGHP powerhouse)



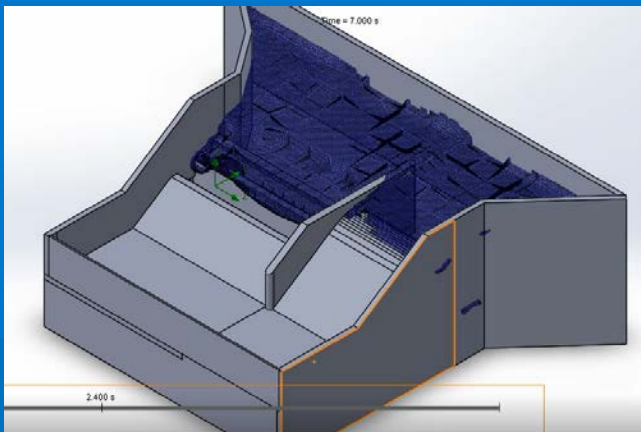
38.46MW UKHEP PH **model**



We **model** the design before we build (10.77MW USGHP powerhouse)



We assist implementing the design (15.33MW) KGHEP PH under construction)



The first advanced drop intake in Nepal (**model**)



Prototype of the first advanced drop intake in Nepal (5.1MW Mai Chhedi)

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Quality in hydro-mechanical works is vital



Quality in civil works is vital



Safety first (at site)



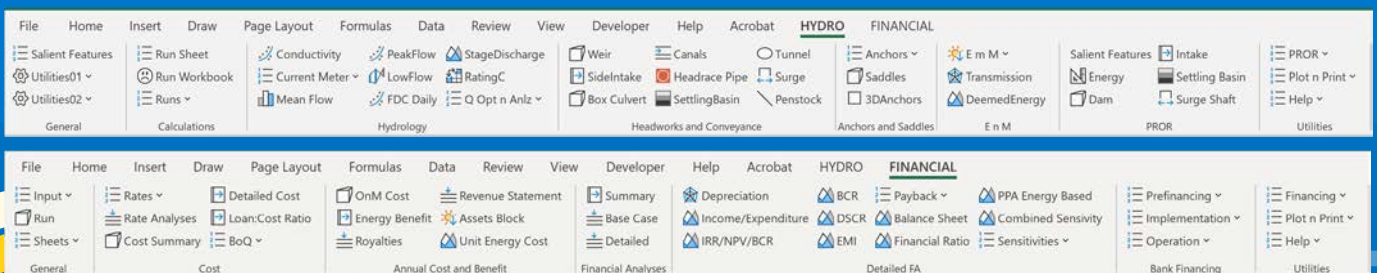
Safety first (we were as active as usual during pandemics)



Pipe inspection in China



EM equipemt inspection in India



In-house hydropower design and financial analyses models  
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## INNOVATIONS AND LEAD DESIGNS IN NEPAL



## PIONEERING INNOVATIONS AND NEW TECHNOLOGIES IN NEPAL

- Double Slotted Intakes for Severe Sediment Handling
- Double-Row Sediment Handling Settling Basins
- Efficient Bottom Intakes
- Fusion of Two River Flows at Penstock Pipe Level
- Combined Conveyance Systems at Headrace Level
- USBR IX Energy Dissipater Structure Implementation
- Integrated Software for Technical and Financial Solutions

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