ASIA CLEAN ENERGY FORUM 2025

Empowering the Future: Clean Energy Innovations, Regional Cooperation and Integration, and Financing Solutions

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From Survival to Sustainability: Grid Interconnection as a Catalyst for Resilient Micro-Hydro Ecosystems and Community Empowerment in Nepal

Session: Thematic Track 4.3 – Building Expertise for Clean Energy Investment

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WISIONS of sustainability

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From Breakdown to Breakthrough: The Story of a 100kW MHP in Baglung (Nisi-II)

In Baglung, a 100kW Micro-Hydro Plant once powered 1,200 homes; running at full capacity for just 2 hours a day

As the national grid arrived, tariff collection dropped, and the system struggled to survive

Collecting 1.8MNPR annually just sufficient to cover operational cost

With support from WISIONS IL, EU/GIZ, and SECF, the community reimagined the MHP-not just as infrastructure, but as a **livelihood ecosystem**

Formed a cooperative, applied for Viability Gap Funding, and began the process of **grid interconnection-**alongside **bioengineering** and **productive-use enterprise** development

Now, financial recovery and improved governance are underway—with 11 similar cases on the ground and 1,000 more possible across Nepal

This is no longer just a story of survival—it's a model for **sustainable replication** in Nepal and beyond.

Micro-Hydro vs. Grid Access - A Paradox of Progress

Isolated MHPs have powered rural Nepal for 30+ years

Over 1800 MHPs installed nationwide, including 190+ plants above 50kW

Played a critical role when grid coverage was below 20%

But now, grid reaches above 90% of the population

Multiple meters per household (grid + MHP)

Many MHPs abandoned or barely operating

Tariff collection drops, financial viability ignored

Large public investment at risk

So, Grid Expansion – Boon or Bane?

(This is the paradox we must confront—and resolve)

MHP Grid Interconnection: A Win-Win Solution

For Country: Optimizes public energy infrastructure

For NEA: Increases renewable share, reduces losses

For Communities: Reliable income, local jobs, stronger services

Strong Policy Momentum

Grid Connected Alternative Electricity Development Procedures (2021)

Net Metering directives (2018)

NEA facilitating **net metering** through **Public-Private Partnerships**

Single Line Diagram & Technical Standards established

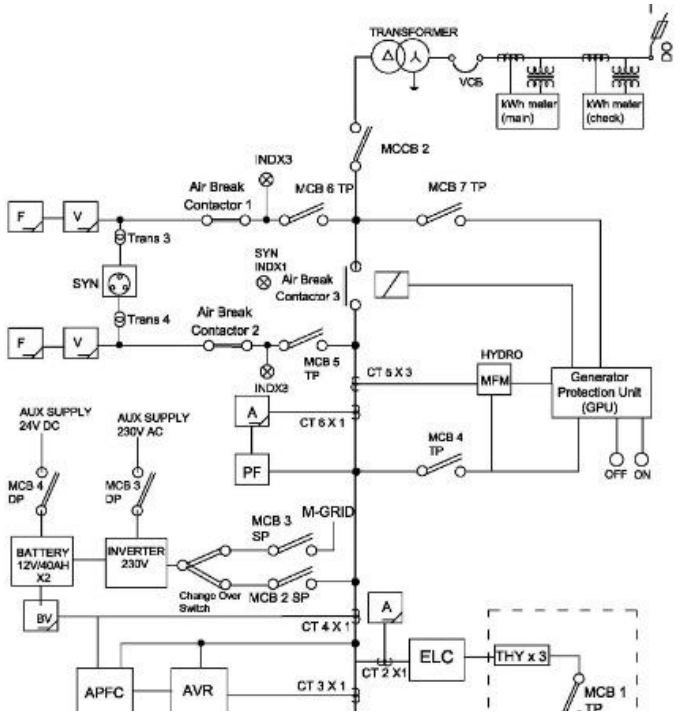
MoEWRI, NEA, AEPC, Local Governments all prioritizing Grid interconnection

But Accountability Remains a Barrier

Most MHPs still under **User Committee (UC)** model

UCs lack technical capacity, commercial outlook

Strong **resistance to private/coop takeover**



"We would rather let this infrastructure rust than hand it over to outside, profit-making businessmen."
— Community Member during Field Visit

WISIONS Innovation Lab: Turning MHPs into Livelihood Ecosystems

- Reframed MHPs as rural livelihood ecosystems
- Assessed infrastructure, community capacity & market potential
- Raised awareness of MHP communities and LGs on grid interconnection
- Lobbied NEA (DCS) and supported technical approvals
- Handholding Supports: feasibility studies, application to funds, procurement
- Provided training for shifting to cooperative governance model
- VGF secured: NPR 4.2M from SECF (EU/GIZ) + LG co-funding
- Promoted slope stabilization, NTFPs business & commercial e-cooking

Lesson Learned

Is **policy** alone sufficient?

Is **funding** alone sufficient?

Is **technical assistance** alone sufficient?

Is there a **standard, one-size-fits-all** model?

What else?

🔑 **No.**

It requires:

- **Community-first design**
- **Flexible financing**
- **Embedded, ongoing support**
- **Transparent, inclusive governance**

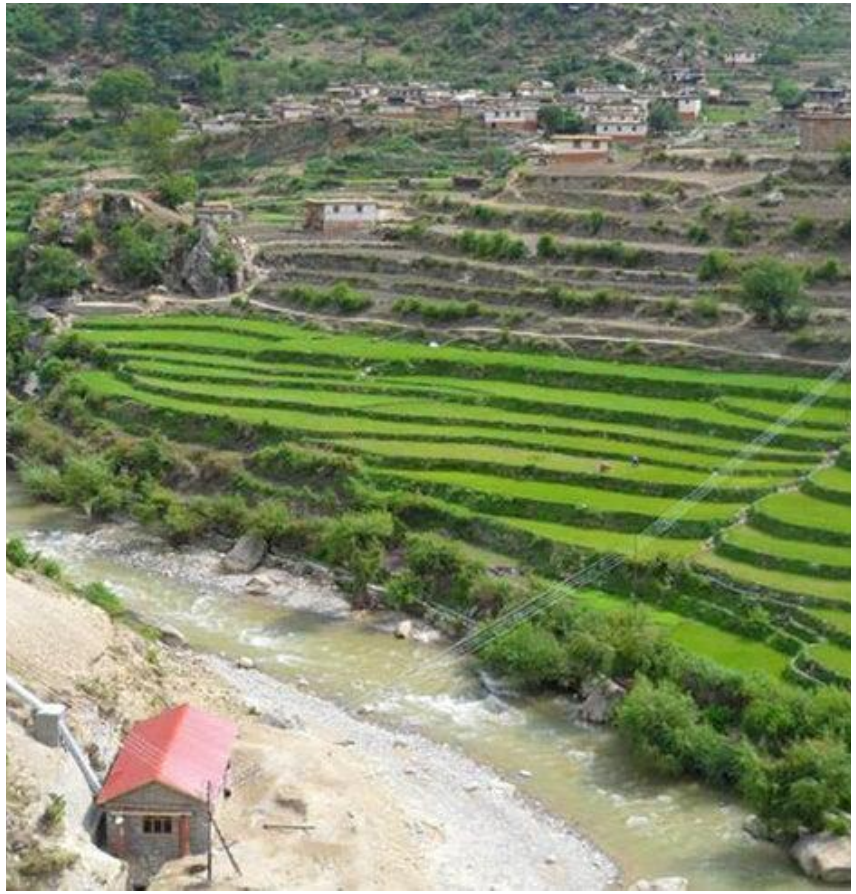
Results & Impact

Proof of Concept: Three MHPs Leading the Way

- ***Nisi-II (100 kW)****:Reduced downtime by 40% via grid sales.*
- ***Chachalghat (100 kW)****: Bioengineered catchment to prevent landslides,* Negotiated **revenue-sharing model with NEA**
- ***Girindi (75 kW):*** Successfully **retained 1,070 consumers** despite grid arrival, Demonstrated viability of **community-first grid integration**

Our intervention aims to:

- Retain local ownership over MHP assets and energy revenues
- Build cooperative governance capacity
- Strengthen linkages between energy, enterprise, and landscape resilience



A Scalable and Replicable Model

Why Nepal's MHP Ecosystem Approach Matters Globally?

Scalability: Adaptable to 1800+ MHPs in Nepal and off-grid systems worldwide.

Key Innovations:

Ecosystem Thinking: Connect energy with **livelihoods, forests,** and **equity**

Community First: Retain **local ownership** while enabling grid interconnection

Upgrading local management model: from user group to formalized cooperative business

Public-Private-Coop Synergy: Build trust and long-term viability

THANK YOU!!
Dhanyabad!!

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Useful Websites:

- Winrock International Global
- Winrock Nepal
- WISIONS
- AEPC
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