

Mini-grid Webinar Series

Productive End Use (PEU) of Mini-Grids using Micro/Mini Hydro – Three Examples of How to Make it Happen



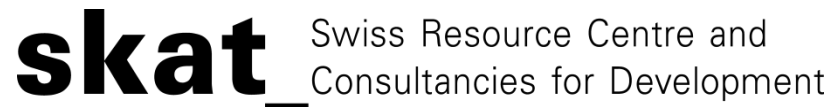
Organizers



EnergyPedia UG is a non-profit organization that runs and maintains the wiki-based platform, www.energypedia.info. EnergyPedia.info is an online platform for collaborative knowledge exchange on renewable energy, energy efficiency and energy access in the context of development cooperation



The **Hydro Empowerment Network (HPNET)** is a knowledge exchange and advocacy platform for micro/mini hydro practitioners in south and southeast Asia, focusing on policy, technology, and socio-environment solutions for long-term sustainability. Core support for HPNET comes from the **VISIONS** initiative at the Wuppertal Institute for Climate, Environment and Energy.



Skat Foundation was established by Skat Consulting in 2002 to foster the exchange of knowledge and experience in development cooperation through generating, sharing and transferring knowledge about what works and how in selected thematic areas.

Skat Foundation has also funded this webinar series.

Be a part of our upcoming webinar series!

→ We are looking for sponsors

- PEU in Afghanistan and Pakistan - South Asia's largest mini-grid programs , always over looked
- Why and how to map mini-grid potential, in particular for MHP and biomass
- Role of local entrepreneurs in **scaling-up** mini-grids
- Why and how to integrate **existing initiatives and know-how** (e.g. Myanmar)
- Mini-grids within rural electrification programs - **What NOT to Do!**
- Successful **finance options** for mini-grids
- A day in the life of **mini-grid community organizers**



Mini-grid Webinar Series

Why mini-grid technologies -- PV, biomass, diesel, micro/mini hydro, wind, and hybrid systems -- need to be differentiated (Watch the recordings)

Grid-interconnection of micro/mini hydro mini-grids: What happens when the national grid arrives? (Watch the recordings)

Productive End Use of Mini-Grids using Micro/Mini Hydro – Three Examples of How to Make it Happen (July 5, 2017)



skat Swiss Resource Centre and
Consultancies for Development

Webinar Content

What are the presentations about?

- ✓ 3 case studies from **Indonesia** (7.5 kW), **Nepal** (50 / 130 kW) and **Myanmar** (200 kW)
- ✓ **General features** of the micro/mini hydro systems
- ✓ Information on **types** of productive end use, **how** it developed, how it was **financed**, who **owns and operates** PEU, operational hours etc.
- ✓ **Tariff** and metering systems
- ✓ Change in load factor – revenue generation – **profitability** of the MHP
- ✓ **Technical** pre-conditions, challenges
- ✓ **Lessons learned**

Agenda

	Scheduled time
Presentation 1: Indonesia (Amalia Suryani)	15 min
Q & A	10 min
Presentation 2: Myanmar (Dipti Vaghela)	15 min
Q & A	10 min
Presentation 3: Nepal (Bir Bahadur Ghale)	15 min
Summary on key conclusions (Hedi)	5 min
Q & A	10 min
Knowledge products and closing remarks	3 min



Amalia Suryani has been working in energy sector since 2006. She started her career as an Analyst of Fuel Price and Subsidy in the Indonesian Ministry of Energy and Mineral Resources. In 2010 she shifted to Clinton Foundation, working on energy efficiency with the Jakarta City Government. In 2011 she joined GIZ as Renewable Energy Advisor specifically dealing with rural electrification in Indonesia. Currently she is the Team Leader of Energising Development (EnDev) Indonesia and an active member in the network of micro-hydro power practitioners in South and Southeast Asia (HPNET).



Dipti Vaghela holds a B.S. in Mechanical Engineering from the University of California, Berkeley and a M.S. in Environment Studies from San Jose State University. Inspired by her family's roots in rural India, Dipti focuses on sustainability of decentralized rural renewable energy solutions. Since 2006 her parallel roles as researcher, practitioner, and facilitator have helped to synergize communities, local entrepreneurs, field-based NGOs, policy makers, and funding agencies in implementing community-based energy initiatives in south and southeast Asia. In 2012 she co-founded the Hydro Empowerment Network (HPNET), a knowledge exchange platform for local practitioners. In 2014 and 2015, she assisted the Renewable Energy Association of Myanmar REAM to conduct practice-to-policy exchanges that promote renewable energy mini-grids in Myanmar. Since last year, Dipti is a Fulbright-Clinton Public Policy Fellow placed in Myanmar to support mini-grids integration in the National Electrification Plan.



Bir Bahadur Ghale, has more than 25 years of experience in the micro/mini hydropower sector. In 1995, he founded his own company Hydro Energy Concern Pvt. Ltd. He has been awarded the Ashoka Fellowship for having excelled in Social Entrepreneurship. After his first mini hydro project in Barpak (130 kW), he started promoting awareness and social benefits of hydropower systems. So far, his contribution has helped to electrify more than 4,000 household. Bir Bahadurji is convinced that the economic and social development as well as the low environmental impact related to MHP represent the three inseparable pillars of sustainable development of Nepal.



Direct drive of agro-processing machines

- Less energy loss / high efficiency
- Possible even without load control
- BUT: location is fixed!

Conclusions: consider PEU from beginning!

- PEU is **key element** for livelihood improvement through energy access
- Two possible options: “modernize” existing activities or develop new ones (often requires awareness raising and “participatory assistance”)
- To be considered already during **planning phase** to avoid that **businesses are prevented from growing** (load limiters rather for households)
- Appropriate **metering and tariff scheme** → increase / maximise revenues
→ more profitable and more sustainable MHP system

Conclusions: how to finance PEU

- Access to **attractive credit schemes and/or subsidies** to purchase machines for **privates** and/or **community** organisations
- Incentivize **local private developers** to contribute equity! → have intrinsic high interest in PEU to get their invested money back
- Consider what happens when the national **grid arrives** (feed-in options)
- **Promotion and targeted support:**
 - Get developers' input to design **soft skills** aspects of PEU
 - give them **resources** to help support PEU in the village (e.g. in Myanmar PEU is mandatory for proposals in national program, but no support provided)

Conclusions: a conceptual change is needed

- **PEU often neglected** because it is neither “natural element” of energy projects nor of business development projects
- Only **few donors** and organisations (e.g. GIZ in Energising Development, Practical Action / Nepal) provide financial and technical assistance
- Good **lessons to be learned from Myanmar’s “self-replicated” mini grids**



Relevant Knowledge Products

Knowledge Product	Where to Access
Hydro Empowerment Network (HPNET) PEU Portal with general information, case studies, summary of regional best practices, videos etc. Developed by Practical Action in partnership with Energising Development /EnDev) / GIZ, Indonesia	http://www.hpnet.org/peu-portal.html
Mini Hydropower Library (under Energypedia) PEU database with examples , Indonesian pilot projects , PEU through training of cooperatives , etc.	https://energypedia.info/wiki/Special:RunQuery/MicroMini Hydropower Library (MHL) Search PEU
Participatory Market System Development PMSD Methodological approach developed by Practical Action / Nepal	http://www.pmsdroadmap.org/
Productive Use of Energy PRODUSE joint initiative of the Energy Sector Management Assistance Program (ESMAP), the Africa Electrification Initiative (AEI), the EUEI Partnership Dialogue Facility (EUEI PDF) and GIZ	http://www.produce.org/thermal/

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Interested sponsors please contact: any of the following:

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Stay tuned for our next webinar series in early autumn

Webinar material will be shortly available on energypedia

Feedback survey



Thank you!

Amalia Suryani	Energising Development (EnDev) Indonesia
Bir Bahadur Ghale	Hydro Energy Concern Pvt. Ltd. Nepal
Dipti Vaghela	Hydro Empowerment Network (HPNET), Fulbright-Clinton Public Policy Fellow
U Sai Htun Hla	Sai Htun Hla & Brothers Hydropower Pvt. Ltd.
Manjari Shetha	Practical Action South Asia, Nepal
Hedi Feibel	Swiss Resource Centre and Consultancies for Development (Skat)
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