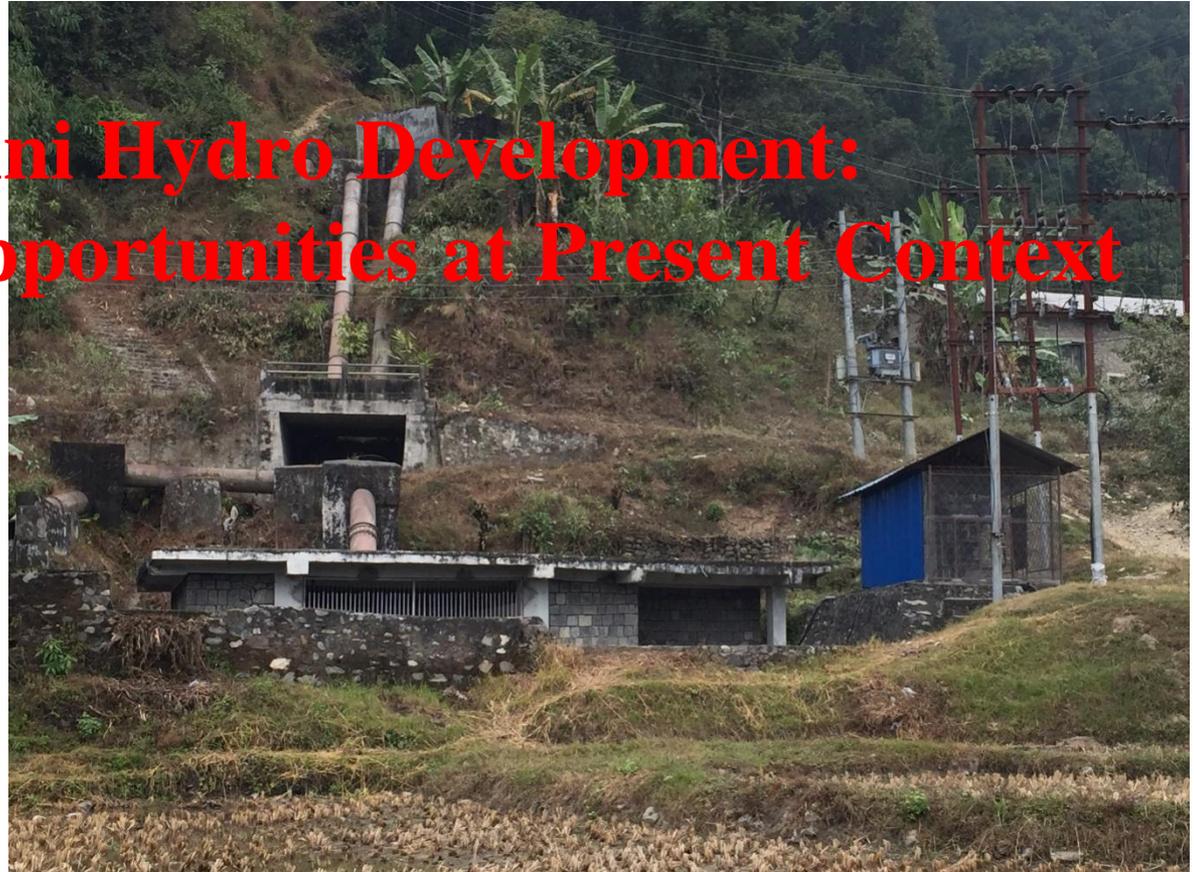


Renewable Energy Confederation of Nepal (RECON)-Webinar 2020 on "Prospects of Mini-grid in Nepal"



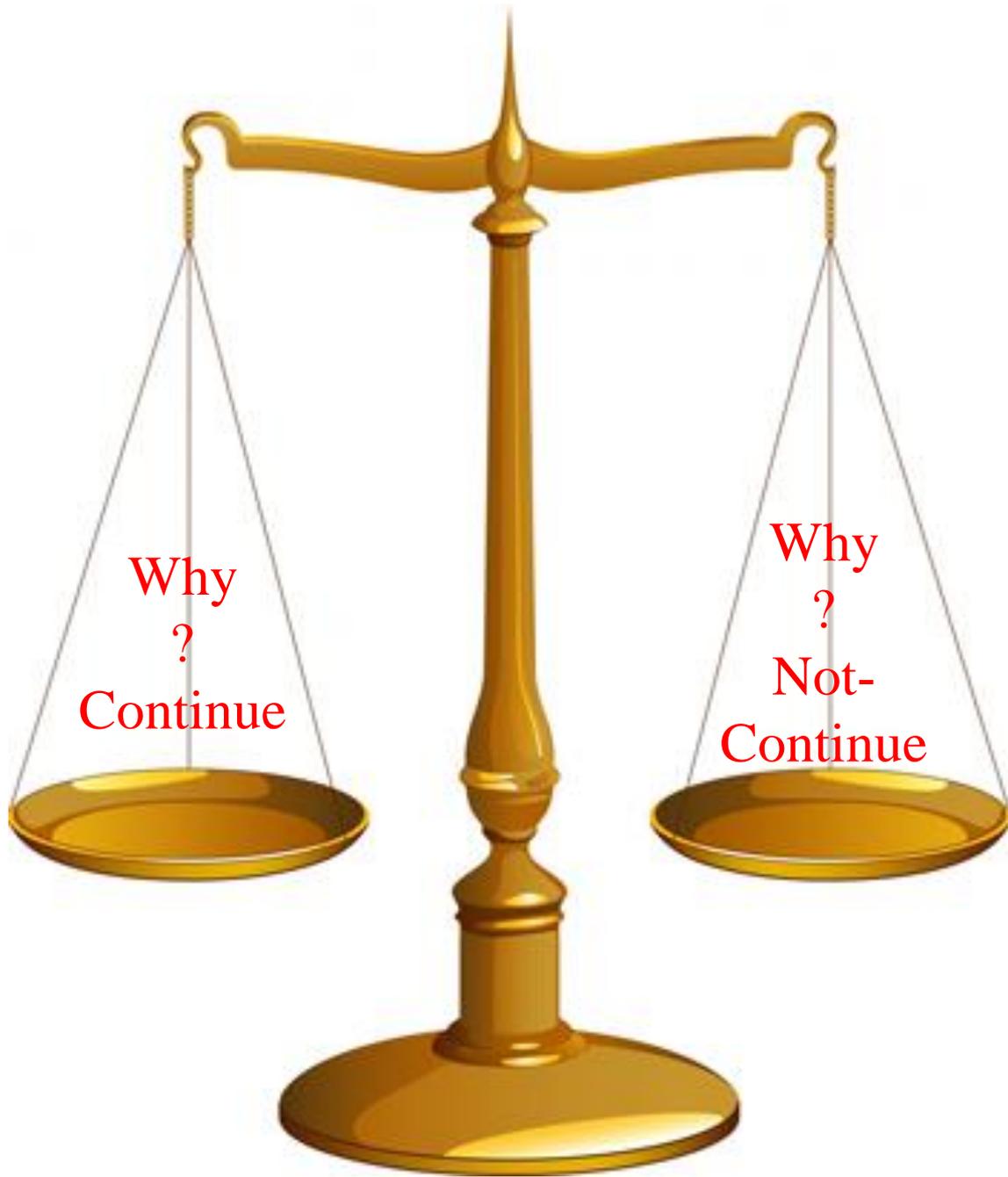
Micro/Mini Hydro Development: Challenges & Opportunities at Present Context



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SHALL
WE
STILL
CONTINUE
TO
WORK
ON
MICRO/MINI
HYDRO





Why
?
Continue

Why
?
Not-
Continue

Why ? to continue

- Industry has started to work since the decade of 1960
- Private companies has acquired knowledge since 1960's
- People of Rural areas were able to turn to light from 1980's
- Massive investment has been done during 2000-2010 terms of,
 - Government and Development Partners support
 - Community contribution
 - Private sector investment

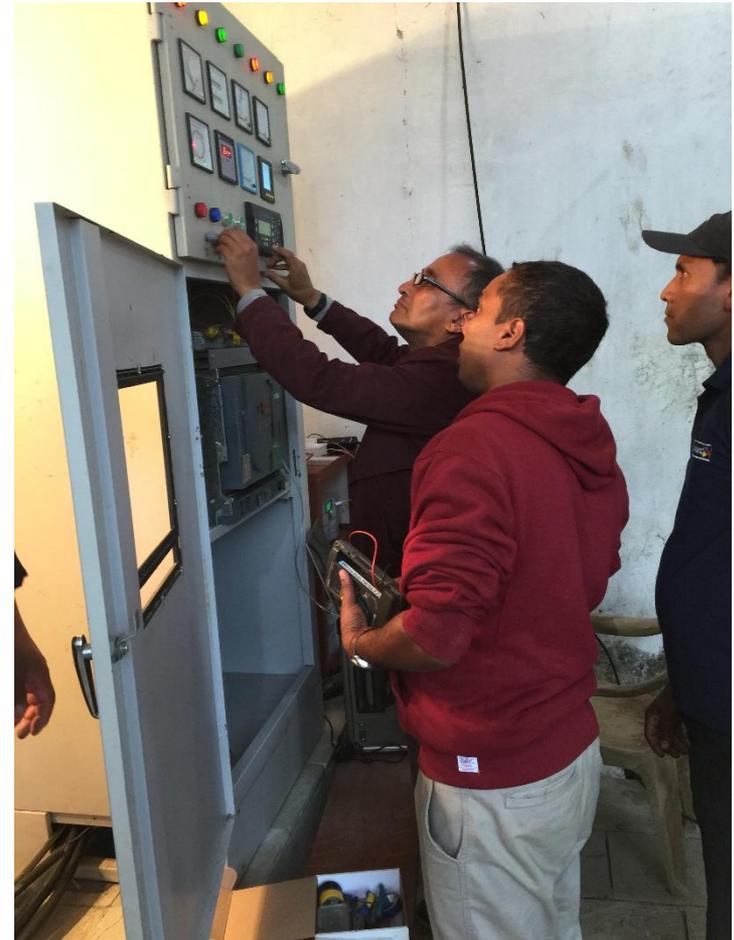


Why? to continue

- As a result,
 - More than 3200 MHPs (including pico hydro) has been developed
 - More that 350,000 households of the remote areas got the access to electricity
 - Complete cycle of Micro/Mini hydrocould be done nationally/locally
 - Survey & Design
 - Manufacturing of Equipment
 - Installation and after sale service
 - Human Resource Development
 - Operation and Maintenance
 - Study shows that more than 90% Micro Hydro Projects (>10 kW) are functioning

Why ? to continue

- Developed Grid Connection Technology in Nepal
- Already connected 4 MHPs into National Grid which provide;
 - Good source of Income to the Entrepreneur
 - Good Voltage improvement in the Grid System
- A 23 kW MHP connected into the National Grid found able to;
 - Earn more than NRs.50,000/month
 - Improve at least 10 V in the grid system



Why ? to continue

- Our MH development model is well known and tried to be adopted in Asian and African Countries
- Most of the Hydropower Professionals and Officials have grown from micro hydro
- Simply, we can say, MHP is the recognition of Nepal

OR

“ Made in Nepal”

- Possible to generate significant employment

Why ? not-continue

- Expecting massive development of Mega Hydro Power & Grid Extension so that;
 - Per kW cost of Micro/Mini Hydro is higher
 - Power will be surplus
 - Operation/maintenance part of micro/mini hydro seemed difficult
- Solar Technology developed massively in the world which is;
 - Fast in installation
 - Cost is comparative
- Subsidy Provision
 - Community Electrification – 90%
 - Solar Mini Grid – 90%
 - Micro/Mini Hydro – 40-50%
- Existing Government Policy and Plan as well as Budget has less priority to Micro/Mini Hydro

Existing National Grid Status

SN	Grid Connection Status	% Electrified	No. of Municipalities
1	Not Electrified	0-5	117
2	Partially Electrified	5-35	55
3		35-65	106
4		65-90	253
5	Fully Electrified	90-100	222
	Total		753

Source:

<https://www.unescap.org/sites/default/files/Rural%20Electrification%20for%20Electricity%20Access%20Current%20situation%20C%20Initiatives%20%26%20institutional%20mechanism%20by%20Mr.%20Hara%20Raj%20Neupane%20C%20DMD%20C.pdf>

Micro/Mini Hydro Vs Solar Mini-Grid

Description	Micro Hydro	Solar Mini-Grid	Remarks
Cost/kW	297,000	545,000	Average of 3 MHP (100 kW) & 3 Solar project (two 100 & one 150 kW)
Construction Time	12-18 Months	6-9 Months	
Energy Available	24 hours	6 hours	
Subsidy Provision	~50%	90%	
National/Import	>90% national	>80% import	
Employment Opportunity	High	Low	3-5 hundred could be generated per MHP

Challenges

- Sustainable operation of the installed MHPs
- Up-gradation and Grid Connection
 - Need simplified Grid Connection Modality for Micro/Mini Hydro
- **Completion of the sick projects and payment Clearance**
 - Completed Projects not yet paid to companies (RERL Projects)
 - Uncompleted or damaged due to disaster
 - Uncompleted due to other different reasons
- **Most of the manufacturing/installation companies are going to shut down or change scope**
- Integration of MHPs with Agriculture/irrigation and other activities
- Employment crisis due to COVID-19



Opportunities

- Possibility of developing Micro/Mini Hydro or Solar Mini-Grid in collaboration with Municipalities
- Maintain the existing micro hydro projects & assure sustainable operation & use of induction stove
- Connection of MHP into National Grid with simplified modality and support
- Integration of MHP with like health, water supply, irrigation and other activities
- Employment Generation
 - At least one electricity generation project at one Municipality
 - If we only consider the partially and non-electrified municipality (>200 projects)
 - Upgrading and grid connection projects also add the no. of employment significantly (>200,000)

Budget 2076-76

- आगामी २ वर्ष भित्रै नवीकरणीय ऊर्जाको पहुँच पुर्याइ उज्यालो नेपालको अ भयान सम्पन्न गरिनेछ ।
- प्रदेश २, बागमती प्रदेश, गण्डकी प्रदेश र प्रदेश ५ का सबै घरमा आगामी वर्ष तथा प्रदेश १, कर्णाली प्रदेश र सुदूरपश्चिम प्रदेशमा आगामी दुई वर्ष भित्र आधुनिक ऊर्जाको पहुँच पुर्याइनेछ ।
- ग्रामीण वद्युतीकरणका लागे रु. ४ अर्ब वनियोजन गरेको छु ।
- राष्ट्रिय ग्रड प्रणाली नपुगेका हिमाली तथा उच्च पहाडी क्षेत्रका ९७ स्थानीय तहमा **२ सय वटा सौर्य मनि ग्रड** सञ्चालन गरी वद्युतीकरण गरिनेछ ।
- वैकल्पिक ऊर्जा कार्यक्रमका लागे रुं ४ अर्ब १३ करोड वनियोजन गरेको छु ।

Let's ask ourselves ! Whether we are in right track ?





Thanks !