

PROCEEDINGS

# Consultative workshop on renewable energy solutions for enterprise development in the Hindu Kush Himalaya

20 November 2019, Kathmandu, Nepal



**Published by**

International Centre for Integrated Mountain Development  
GPO Box 3226, Kathmandu, Nepal with support from the  
International Renewable Energy Agency,  
P.O. Box 236, Abu Dhabi, UAE.

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Samuel Thomas (Senior editor)  
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**Photo**

Cover: ICIMOD archive

**Citation**

ICIMOD (2020). Proceedings of the *Consultative workshop on renewable energy solutions for enterprise development in the Hindu Kush Himalaya*. ICIMOD and IRENA

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PROCEEDINGS

# **Consultative workshop on renewable energy solutions for enterprise development in the Hindu Kush Himalaya**

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## SECTION 1

# Background

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Mountains are extremely important assets. They occupy 22% of the world's land surface and are home to 13% of the world's population (FAO, 2015). Among all the mountain regions, the Hindu Kush Himalayan region (HKH) is considered among the world's most important water towers –it is the source of 10 major river basins and covers an area of over 4.2 million sq. km (Bajracharya & Shrestha, 2011). The HKH region's mountains and hills are home to more than 240 million people, and the changes that occur in these higher elevations affect the lives of 1.9 billion people downstream of the rivers that originate in the region's upper reaches (Wester et al., 2019).

The HKH region, a geologically fragile area, is undergoing rapid change owing to climate change, ecosystem degradation, migration, and urbanization, among other factors. These changes, especially environmental degradation and those brought about by climate change, have various implications on mountain people's livelihoods. Local enterprises, comprising households, communities, and micro, small, and medium enterprises (MSMEs), are the backbone of the mountain economy, creating jobs, supporting livelihoods for hundreds of millions of people, and providing critical goods and services. In the face of growing climate risks and high incidence of poverty in the mountains, achieving inclusive growth and development demands that the competitiveness and resilience of value chains and local enterprises be strengthened.

To this end, access to modern, reliable, affordable, and sufficient energy is an important enabler. Lack of energy access limits the production and processing of high-volume and quality mountain products, as well as delivery of services. The lack of access also results in the use of traditional fuels at the expense of the environment, missed opportunities for livelihood diversification and value creation, and drudgery that disproportionately affects women. Increasingly cost-competitive and highly adaptable renewable energy (RE) solutions are now available to meet diverse energy needs across economic value chains in mountain contexts. Such solutions offer the opportunity to meet Sustainable Development Goal (SDG) 7 on Energy in the HKH while also contributing to several other SDGs related to poverty, jobs, food security, health, water, and employment. These solutions also preserve the fragile environment and limit emissions.

## SECTION 2

# ICIMOD–IRENA partnership on RE solutions for enterprise development in the HKH

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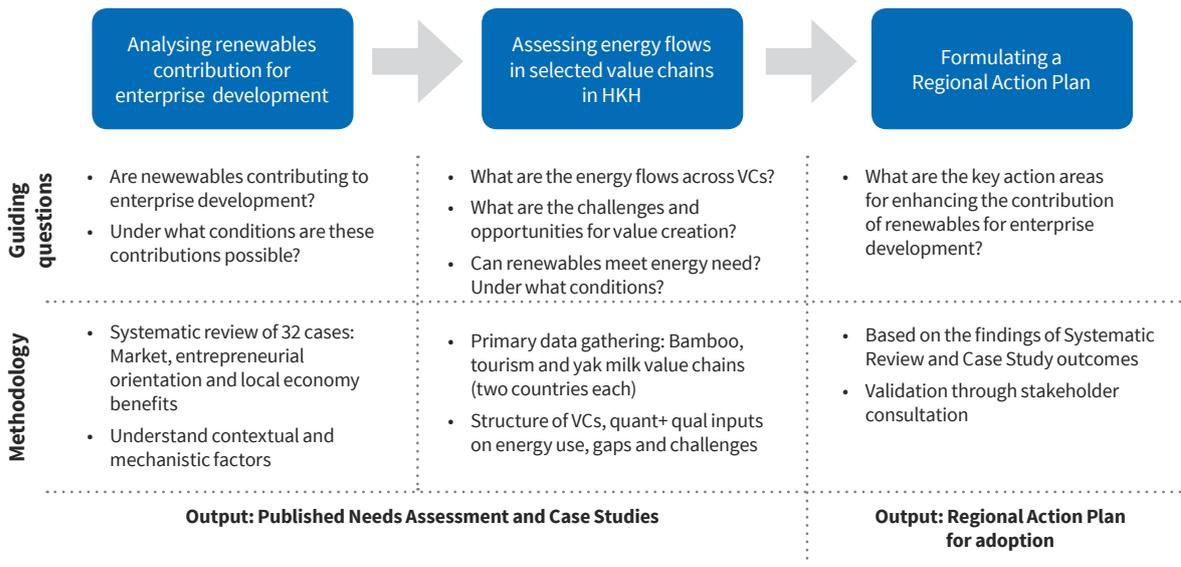
The International Renewable Energy Agency (IRENA) and the International Centre for Integrated Mountain Development (ICIMOD) have established an action-oriented partnership to accelerate the pace of RE adoption for strengthening economic value chains and developing resilient enterprises in the HKH region. The partnership aims to leverage the two institutions' expertise and strong buy-in from governments as intergovernmental organizations.

Within the framework of this partnership, ICIMOD and IRENA are conducting a comprehensive scoping exercise to analyse energy needs and gaps in selected key economic value chains in the HKH region and the opportunities offered by RE solutions. The scoping exercise further identifies actions needed for scaling up the use of RE and energy efficiency (EE) solutions. The stages of the scoping exercise along with the guiding questions, methodology, and outputs are illustrated in Figure 1 below.

To share the preliminary findings of the assessment and gather feedback, IRENA and ICIMOD jointly organized a consultative workshop on “Renewable energy solutions for enterprise development in the Hindu Kush Himalaya” on 20 November 2019 in Kathmandu, Nepal. The workshop convened over 50 experts mainly comprising the three major stakeholder groups needed to deploy RE solutions at speed and scale across the HKH region: local enterprises; policy makers; and enablers such as financing institutions, development agencies, and foundations.

FIGURE 1

**DIFFERENT STAGES OF THE SCOPING EXERCISE TO ANALYSE ENERGY NEEDS AND GAPS IN SELECTED KEY ECONOMIC VALUE CHAINS IN THE HKH REGION**



**SECTION 3**

# Workshop summary

The consultation workshop was opened by David Molden, Director General, ICIMOD, and Gurbuz Gonul, Director, Country Support and Partnerships, IRENA. Both highlighted the urgency for action to support resilient enterprise development in the HKH region and the role RE and EE interventions could play to support this objective. They underscored how the institutions were perfectly positioned to work with and support various partner organizations in countries where RE could be deployed by enterprises and vulnerable communities to strengthen their livelihoods and increase resilience to climate change impacts.

David Molden talked about the need to look at the role RE can play in building people’s and entrepreneurs’ resilience, and to also take a regional perspective regarding the sharing of knowledge about RE. He also pointed out that because RE infrastructure is often transboundary in nature, ICIMOD makes for the perfect platform for sharing ideas, developing joint action plans, and implementing these actions together with the Centre’s partners. ICIMOD’s consultations with all workshop attendees, especially IRENA, is therefore important to work on creating a joint vision for RE and EE in the HKH and for mapping the path forward.

Gurbuz Gonul said that IRENA supports countries in their transition to a sustainable energy future and serves as the principal platform for international cooperation as an intergovernmental centre of excellence and a repository of policy, technology, resources, and financial knowledge on RE. He shared insights from IRENA’s regional programmes to support the widespread adoption of renewables in pursuit of sustainable development, energy access, energy security, and low-carbon economic growth and prosperity. He noted the importance of the partnership with ICIMOD to replicate the scale and speed of the global energy transition in the HKH mountain context to ensure inclusiveness and that no one is left behind, a key pillar of the 2030 Agenda for Sustainable Development. He also emphasized the need for action-oriented and cross-sectoral partnerships among local enterprises, international organizations, financing institutions, and development agencies.

The remainder of the consultation workshop was structured as four main technical sessions:

Session 1 presented findings from the ICIMOD–IRENA scoping exercise, including insights from i) the systematic review of 32 cases on the impact of renewables on enterprise development; and ii) the primary data gathered on energy use in bamboo, yak dairy, and tourism value chains in HKH countries.

Sessions 2 and 3 engaged experts in an interactive discussion on what actions are needed to scale up the adoption of renewables specifically for strengthening value chains for various mountain

goods and services and improving the resilience of enterprises in the HKH. The different pillars of an enabling ecosystem addressed included policy, technology, financing, regional partnerships, market linkages, and capacity development.

Session 4 presented a draft action plan for rapid adoption of renewables across the HKH to solicit feedback from the experts participating in the workshop.

## **Outcomes of the ICIMOD–IRENA scoping exercise: Systematic review and case studies**

The main highlights from the scoping exercise comprising the systematic review and the case studies that were presented at the workshop are noted below. The detailed findings from the scoping exercise will be separately published as part of the project.

### **SYSTEMATIC REVIEW**

The rationale for promoting RE in the HKH was highlighted through a presentation by Udisha Saklani, ICIMOD visiting scholar, that outlined the main findings of a systematic review of 32 global cases. The review sought to address two primary questions: i) Can RE support enterprise development, and ii) under what contextual and mechanistic conditions has RE uptake impacted enterprise development?

The review's key insights were the following:

- While RE technologies exist and are being increasingly deployed, these are often not tailored for productive end-uses across value chains. Productive use must be defined as a targeted objective at the design stage of RE programmes.
- Monitoring and evaluation processes should be streamlined to improve reporting on impacts of electricity access on productive uses and livelihoods.
- Only when an enabling ecosystem is in place (particularly technology, partnerships, skills, and finance) can RE enhance livelihoods, offer opportunities for value addition, and improve the resilience of enterprises.

### **CASE STUDIES**

As part of the scoping exercise, three value chains were selected – tourism, bamboo, and yak milk – and primary data were gathered for cases in two

countries within the HKH region for each value chain. The focus of the data gathering was to map out the energy flow across the value chain, including understanding the energy demand, current fuels being used, and challenges and potential opportunities for RE applications. The preliminary findings from the case studies were presented during the workshop and are briefly summarized below. For more details, please visit: <https://www.icimod.org/event/consultation-workshop-on-renewable-energy-solutions-for-enterprise-development-in-the-hindu-kush-himalaya/>

RE in mountain tourism enterprises: Case studies from India and Nepal

Ayush Dhungel, ICIMOD, presented the case study focusing on the energy flow and possibilities for RE's contributions to mountain tourism destinations in several locales in the HKH, including Ladakh, India. The case study analysis identifies the following needs to facilitate adoption of RE solutions:

- Need for more knowledge and awareness on climate impacts on tourism and on business models for sustainable/green tourism
- Need for enhanced institutional capacity to promote RE solutions for resilient enterprise development
- Need for leveraging of public and private investment in RE solutions
- Need for policy and regulatory instruments to promote sustainable production and consumption and encourage sustainable tourism

RE in bamboo value chain: Case studies from Bangladesh and Myanmar

This case study by Samikchhya Kafle, ICIMOD, analyses the existing energy flow and RE and EE in bamboo value chains in Bangladesh and Myanmar. The following are the key messages from the analysis:

- Productive energy use needs to be prioritized
- RE-induced demands need to be taken into account
- Financial institutions need to deliver innovative financing mechanisms for mountain enterprises (pertaining to start-up costs and financial instruments – grants, concessional loans, private equity, household equity)
- Equitable tariff pricing needs to be created for both grid and distributed systems
- An enabling business environment needs to be created for bamboo enterprises

## RE in yak value chain: Case studies from Bhutan and China

The case study by Erica Udas, ICIMOD, examined the existing energy flow and the potential for RE adoption for yak value chains in Bhutan and China. The following were the key messages derived from the study:

- Access to reliable and affordable energy can improve the enterprises' entrepreneurial and market orientation, reduce drudgery, enable the managing of risks, and help innovate and diversify production
- Off-grid and on-grid RE solutions can enhance greater productive end uses in the dairy sector
- Higher installation costs for RE use demand enabling policy, including for the provision of subsidies
- Financial institutions should increase access to capital for investments in RE infrastructure across the yak value chain

## Interactive discussion on actions to support renewables deployment for enterprise development

For RE solutions to support resilient enterprise development, an enabling ecosystem is needed that is based on enabling policies, affordable

and accessible financing, tailored and efficient technology design, skills availability, and access to data and information. This was also corroborated from the cases analysed as part of the scoping exercise.

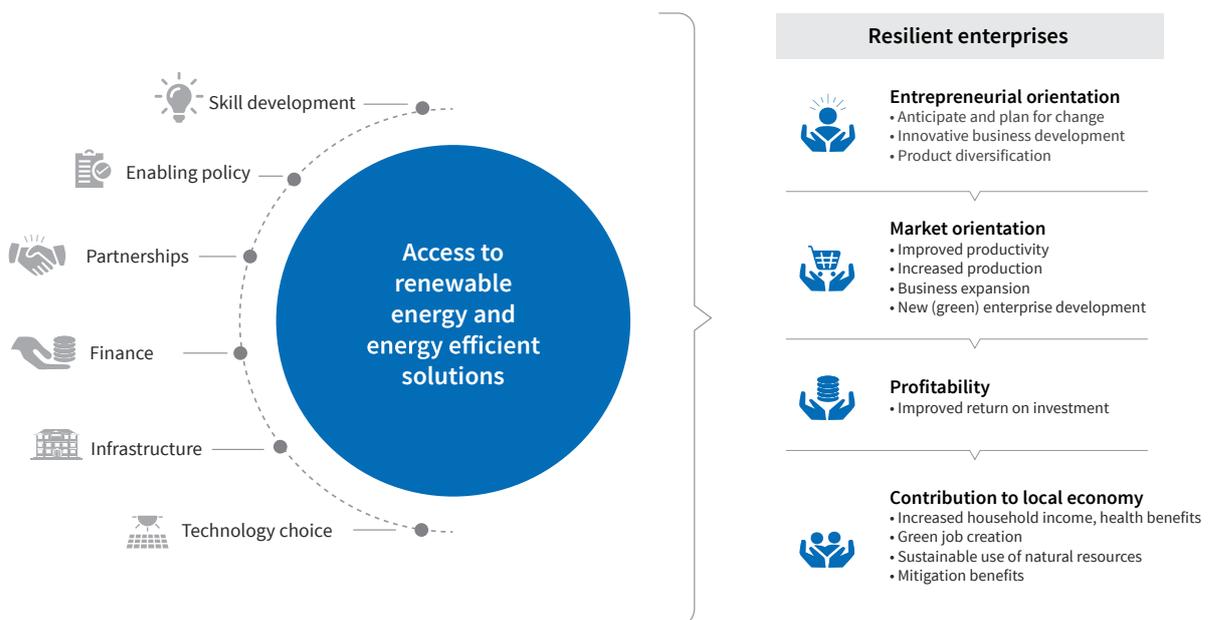
The majority of the workshop focused on a dynamic discussion among the attendees on how the enabling ecosystem can be created and what actions are needed and by whom. The discussants comprised a mix of entrepreneurs, policymakers, and development experts. Some of the key points that emerged from the discussion are highlighted below:

### TECHNOLOGY

- Increased focus is needed on using RE and EE for productive end-uses across various value chains; currently, RE is mostly used for household consumption.
- Increased awareness on the energy use, gaps, and opportunities at each stage of the different economic value chains is needed to guide the technology innovation and adaptation processes.
- A conducive ecosystem is needed for local and regional technology suppliers to experiment and innovate with RE and EE solutions, including partnerships with technical institutions and access to high-risk financing.

FIGURE 2

ENABLING FACTORS FOR IMPROVED ACCESS TO RE AND EE SOLUTIONS FOR ENTERPRISE DEVELOPMENT



- Better energy storage solutions, especially with regards to the mountain context, need to be implemented.
- Before adopting RE solutions, it is important that users and policymakers account for RE's accessibility, context-specificity, affordability, acceptability, and adaptability.
- Participatory technology transfer is essential. Platforms for South–South knowledge-sharing need to be supported, focusing on RE applications as well as complementary technologies such as appliances and metering devices.
- There is a strong cooperatives ecosystem in some countries of the HKH region and these could form a key pillar of a partnership to finance and implement RE and EE solutions together with development partners and the private sector.
- Community partnerships are exceedingly important for encouraging the uptake of RE and EE technology.
- Development finance institutions/national development banks, alongside other ecosystem actors, have an important role to play through partnerships and on-lending instruments with local financial institutions.

## **CAPACITY BUILDING**

- Capacity development aimed at encouraging the upgrade and uptake of technology should be addressed. The experience of countries in the region with more mature value chains for specific mountain goods and services can be leveraged.
- If end users are not aware of RE technologies and their benefits, RE adoption will not scale up rapidly.
- Strong incubation programmes should be encouraged at the grassroots level to increase the capacity of micro, small, and medium enterprises that are the backbone of the HKH economy.
- Capacity-building programmes are needed for government officials, development practitioners, technology providers and financing institutions on the uniqueness of the mountain context. This would allow them to tailor solutions, such as financing, to the local contexts.
- Suitable technical skills need to be developed to ensure the long-term operation of RE systems in remote areas. Partnerships with local technical institutions to develop skills could be developed.

## **PARTNERSHIPS**

- Depending on the local context and the value chains, action-oriented partnerships need to be created involving the private sector, government, development practitioners, financing institutions, and communities. Such partnerships are crucial to identify needs, design suitable technology solutions, and create the ecosystem for deployment.

## **POLICY**

- Policies tailored to the mountain contexts are needed to create a conducive environment for local enterprises to adopt and deploy RE solutions.
- There is no follow up on the policies that have been drawn up (owing to lack of mechanisms for monitoring implementation). Policy implementation roadmaps should be embedded in the project designs (rather than merely suggesting that the government implement them). And organizations such as ICIMOD and IRENA could monitor whether the governments are implementing RE-friendly policy.
- Various sectoral ministries need to work together when designing country-level RE policy and master plans. The policy needs to be commercially-oriented, account for cross-sectoral needs, and ultimately improve enterprises' market outlook.
- Submissions of governments' Nationally Determined Contributions need to more fully reflect SDG 7 and its linkages to the other SDGs across sectors such as agriculture.
- The targets set in RE and EE policy need to be specific to the mountain context.
- Local resource use, ownership models, and gender-sensitive delivery models need to be supported to strengthen sustainability and inclusive access and benefits of sustainable energy investments.

## FINANCE

- Developing new ways to channelize affordable and accessible financing to end users for productive use of RE is essential, and to effectively monitor the use of funds.
- Mechanisms need to be created to reduce, especially in rural areas, the lending rates for procuring RE technology. Targeted subsidies may be needed in the initial period, especially to support long-term market development.
- A basket fund (set up by the government, cooperatives, and the private sector to implement CSR activities) could be created; from the fund, money could also be loaned to end users of RE technology.
- Priority sector lending has been successful in the past. The central banks should deem RE loans as priority loans with mandates for lending to end users in the mountains.
- Digital technologies could facilitate financial inclusion, especially in areas with limited infrastructure.
- Develop the capacity of local financing institutions – ranging from commercial banks and cooperatives to micro-financing institutions and sector-specific development banks – to design tailored financing products for local enterprises as well as evaluate proposals.
- Strengthen the capacity of value chain actors and enterprises to evaluate investment opportunities in RE, prepare bankable project proposals, and access available financing products.

## KNOWLEDGE

- Improve the data and information base available on energy flows across the value chains for various mountain goods and services.
- Data should be updated and shared with partners to avoid duplication in knowledge development efforts.
- Know-how on the costs and benefits of adopting RE technology, in lieu of the current energy use practices, should be developed.
- Invest in evidence generation and training to create investor confidence in the viability of RE-based productive end-use investments. Further, improve knowledge of existing financing and support programmes available for end users and enterprises.

- Knowledge generation through partnerships with technical institutions – to come up with RE and EE solutions via hackathons etc. – should be encouraged.
- Sharing of success stories helps in RE uptake.

## SECTION 4

# Way forward

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The consultation workshop hosted a dynamic, stimulating discussion on how the adoption of RE solutions can be scaled up to strengthen value chains of mountain goods and services. The presence of local enterprises, policy makers, and various ecosystem actors (e.g. financing institutions, development agencies, and international organizations) brought together different perspectives on the actions needed towards integrating sustainable energy solutions across value chains in the HKH region.

Based on the findings of the scoping exercise conducted by IRENA and ICIMOD, as well as the feedback received from the consultation workshop, a draft action plan has been prepared to guide future action of various stakeholders.

## SECTION 5

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