

Mountain Energy for a Sustainable Future

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Introduction

- We critically examine HKH's energy demand and supply patterns, prevailing national energy policies, programs and institutions, emerging challenges and opportunities, and possible future transformational pathways for sustainable energy solutions.
- We offer insights on national, regional, and global linkages of HKH energy resource bases and delineate potential avenues for seizing opportunities by creating a supportive environment for regional integration and cooperation.
- Under the current state of technology and the poor quality of energy infrastructure, energy poverty and its consequences will continue to be a predominant challenge in the HKH in the foreseeable future unless timely actions on massive investment are not in place.
- Transitioning from the current unsatisfactory situation on energy supply and demand to one where energy can to fulfil its role as a driver for sustainable development will require some systemic transformations (see Box 4).

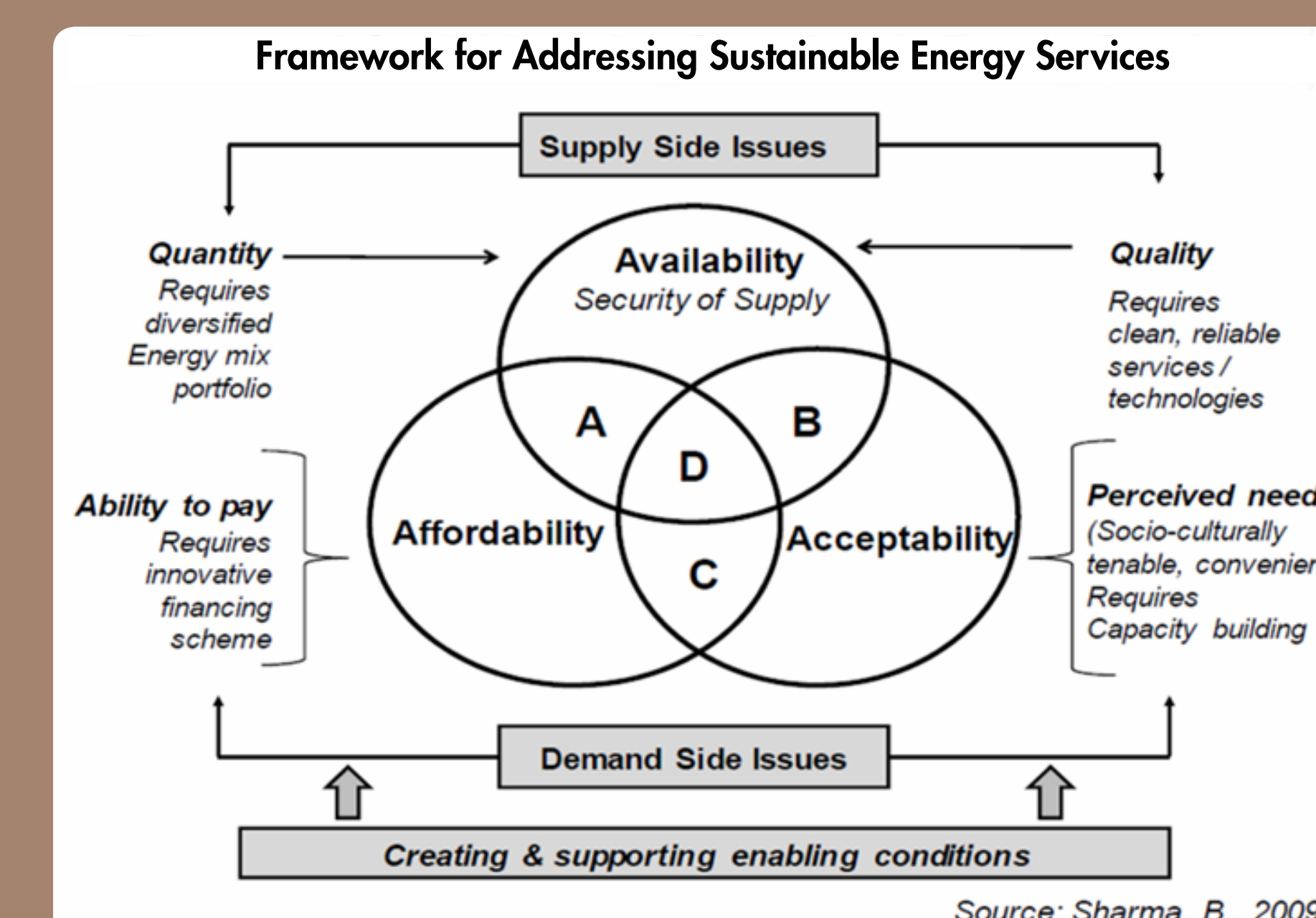


Policy Implications

1. **Establishing a sound energy database for the HKH is a necessary first step toward creating new strategies for sustainable energy provision.** Policy makers need data on supply and demand that is spatially disaggregated for the mountains.
2. **To make the transition to sustainable energy, the HKH urgently needs to shift away from past energy policies and priorities toward off-grid renewable energy solutions.** Most existing off-grid rural electrification programmes in the HKH are in the initial stages. They have not yet realized scale economies—nor have they created vibrant markets to meet the strong, latent demand for decentralized sustainable energy in the mountains.
3. **The sustainable energy transition will require a holistic approach to development needs.** Energy policies must form a nexus of mutual support, with policies in all sectors—and at all levels—to provide renewable energy that is not only economically efficient, but socially and environmentally acceptable. Only such an approach will enable the HKH to concurrently meet multiple Sustainable Development Goals (SDGs; see box).
4. **To ensure universal access to modern forms of energy in the HKH, policy makers must tailor energy programmes to various contexts—considering local needs and resources alongside existing institutions and capabilities.** Such efforts will involve a broad portfolio of technologies, and they will include various business and energy-service delivery models (institutional and innovative).
5. **To achieve universal access to electricity and cleaner cooking fuels by 2030, the HKH will require large investments.** Considerable resources will be needed, both to provide major clean-energy infrastructure and to leverage private funding.
6. **Gender perspectives must inform energy policy planning—at every step—for the HKH to make an equitable transition to sustainable energy.** Women disproportionately bear the burden of energy poverty. They also lack knowledge, opportunities, and resource ownership. To ensure that their voices will help to shape energy choices, policy planning processes must mainstream gender in ways that reflect women's needs, interests, and capabilities.
7. **The slow rate of progress in regional energy cooperation invites further thinking about a new, multi-level approach to regional energy governance.** Because energy resources are complementary across national boundaries, energy trade and cooperation are essential. Yet only a few local, bilateral hydropower exchanges exist in the HKH today. The region needs a new, mutually agreed institutional model for integrated energy planning and trade, with a mission that includes meeting national and global sustainability goals.

Mountain related targets for SDG 7

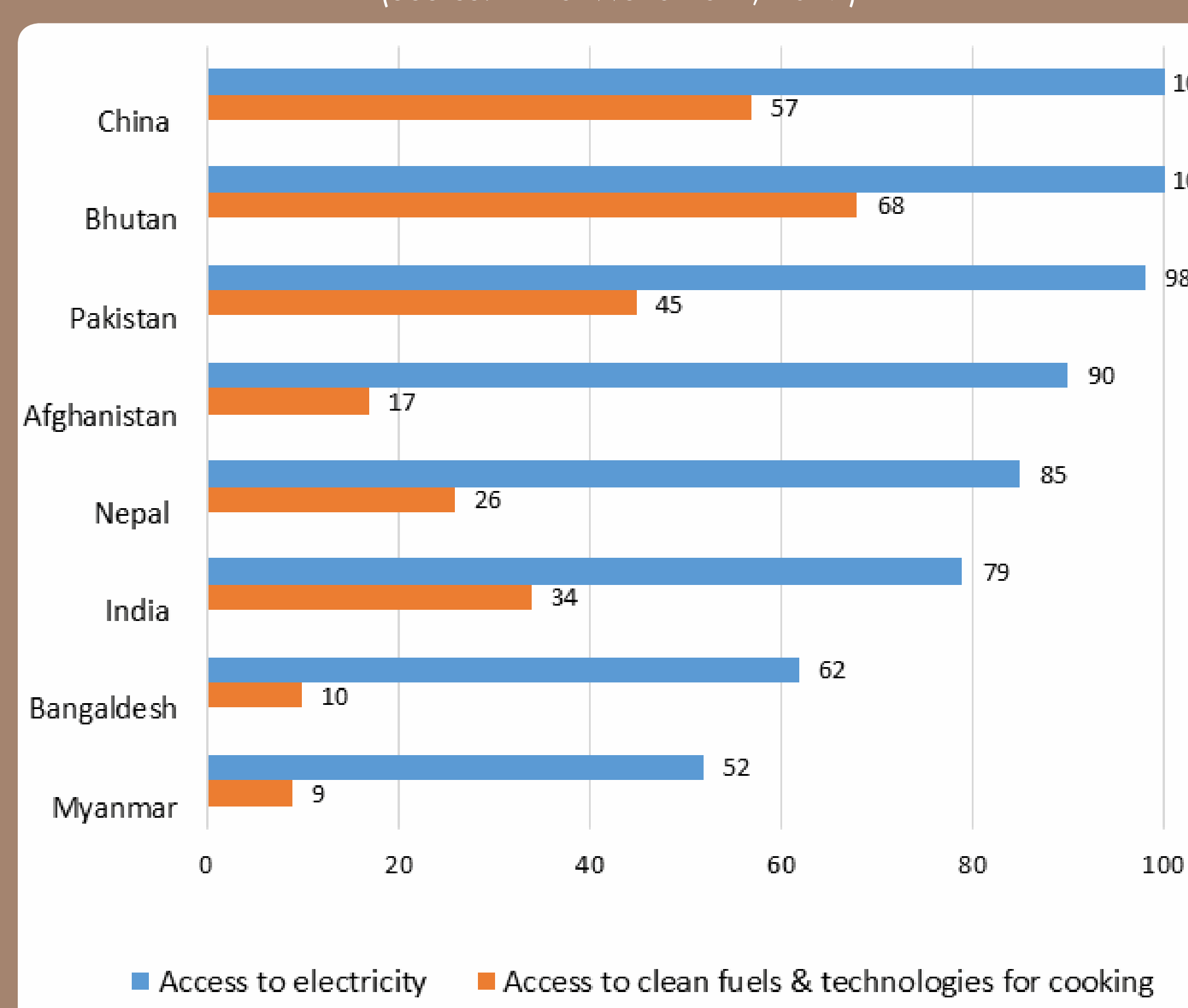
- Energy goal (SDG7) and its associated three targets need to be customized according to specific needs and priorities of the HKH taking into account the sectorally integrated energy plus approach to maximize synergies and manage possible trade off.
- Putting mountain clean energy access agenda at the center of the SDGs based national strategies should be the first and foremost priority to meet energy goal as a vehicle for making many other SDGs possible in the HKH.
- The priority focus for clean energy access (target 7.1) in the HKH should go beyond binary access measures (yes/ no) to a multi-tier mountain specific energy sustainability assessment framework that better captures both quantity and quality of electricity supplied, as well as the efficiency, affordability, safety and convenience of modern clean cooking facilities.
- The priority focus for target 7.2 in the HKH should be to double the share of modern renewable energy consumption (derived mostly from hydropower and other renewables other than traditional solid biofuels) in the total final energy consumption. This calls for massive investment in harnessing the huge hydropower potential of the region through proper global and regional clean energy financing strategy and cooperation.



Key Messages

- **The HKH remains energy-poor, with rural households still overwhelmingly reliant on traditional solid biomass fuel for cooking and heating.** More than 80 percent of rural households in the HKH lack a modern energy source for cooking. Without massive investments now, energy poverty and its effects will persist in the region for the foreseeable future.
- **Measures to enhance energy supply in the HKH have often failed to address mountain-specific challenges, in part because demand and supply data are not disaggregated for mountain areas (except in Nepal and Bhutan, which are fully parts of the HKH).** Policies that merely mimic national energy strategies are likely to be distortionary for the mountain context—and their results less than ideal.
- **Energy development policy in the HKH remains focused on supply and growth—it does not yet centre on sustainability, despite the region's huge potential for hydropower and other renewables.** So long as policies remain biased toward supply, the HKH cannot address energy poverty in a way that meets related development challenges. Nor would it be possible for any countries in the region to achieve both rapid development and energy self-sufficiency without energy cooperation.

% of population having access to electricity & clean fuel for cooking in 2014
(Source: IEA & World Bank, 2017)



% of population with access to electricity and clean cooking fuel

	Access to electricity		Access to clean fuels & technologies for cooking	
	2012	2014	2012	2014
Afghanistan	69	90	18	17
Bangladesh	59	62	10	10
Bhutan	92	100	64	68
China	100	100	56	57
India	80	79	33	34
Myanmar	51	52	8	9
Nepal	76	85	23	26
Pakistan	94	98	42	45

International Energy Agency (IEA) and the World Bank. 2017. "Sustainable Energy for All 2017—Progress toward Sustainable Energy". World Bank, Washington, DC.

Energy Vision for the HKH

- An ambitious and new energy vision for the HKH is a must, one that is oriented towards building an inclusive green society and economy, where mountain communities can enjoy modern, affordable, reliable, and sustainable energy for improving their lives and environment.
- Although HKH countries need to chart their own individual energy transition pathways into the future, the region must aspire to a 100% renewable energy future as a long term goal with two possible pathways for electrification and sustainable cooking energy
 - Electrification:** Centralized (on-grid) and decentralized (off-grid) electricity with improved efficiency, including a balanced portfolio
 - Cooking:** Full electric cooking and clean/efficient cooking fuels and technology
- Underpinning the implementation of this vision is the guiding principle that sustainable energy is a shared responsibility, which can be accelerated meaningfully if all key stakeholders regionally and nationally partner with each other and synergize their efforts to make this transition possible