Connecting Himalayan Communities

Connecting Himalayan Communities:

Addressing Internet & Digital Access Inclusion Needs of the Vulnerable Himalayan Communities in India, Nepal and Bhutan in South Asia

AN ISSUE BRIEF

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Summary

Internet and technology are constantly changing the way humans navigate their socioeconomic worlds. Yet, internet access is not universally accessible, and most communities are in a state of transition. Pressing issues have emerged, such as the digital divide, misinformation, surveillance and inequalities in the digital economy. The prospects of digitalisation among Himalayan communities that can catapult discoveries and provide sustainable solutions to everyday challenges experienced by these communities are real, including dealing with climate change and environmental challenges with technology support. The Himalayan communities are diverse and rich in cultural heritage occupying eco-sensitive zones. These communities face a dual crisis of underdevelopment and are simultaneously vulnerable to climate change.

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Introduction

The Himalayas is a mountain range globally recognised as a hotbed of ecological biodiversity. It spreads over 2500 kms in length and is estimated to be 300 kms wide. The region encompasses ecologically sensitive zones and is home to many ethnicities, economies and cultures. Typically, the Himalayas pass through countries such as India, Nepal, Pakistan, Afghanistan, Bhutan, China, Myanmar and Bangladesh (Rao, Saxena and Tiwari, 2015). However, the degree of Himalayan coverage can vary from partly to fully. These frontiers are sensitive ecological zones with the paradoxical characteristic of being remote and possibly a bridge between the geopolitical imagination of nations and states. Furthermore, the geographical landscapes are biodiversity hotspots and can range from foothills, lush grasslands, valleys and steep mountain slopes; each carrying its local economy, challenges and resources.

According to the Human Development Index (UNDP, 2022), the Himalayan countries ranked poorly; Bhutan ranked the highest at 127, and Afghanistan ranked the lowest at 180. This generally is a reflection of the quality of life of the population. A dilemma that hinders internet access is directly related to access to electricity and technology. It has been noted that within the Hindu Kush Himalayas (India, Pakistan and Nepal), 26-37% of the rural population is without electricity (Hussain et al., 2019). Remoteness, terrain and inaccessibility are challenges that provide barriers to mainstream development. Lack of industrialisation due to ecological fragility is an additional layer. Roadways are the primary source of transportation, but most rural areas are inaccessible and pursuing livelihoods becomes a strenuous physical task (Sati, 2015). The issues that the highlands face require alternative solutions that digitalisation and technology could offer; however investigative studies are needed to provide a baseline assessment.

The Problem Area

Energy and connectivity are the primary pillars for digitalisation to take place. Internet access depends on reliable energy, internet connectivity and a technological device (mobile phone, smartphone or laptop). In addition, the digital skill gap is a reality for most communities deprived of equal opportunity to access tools for digital skill enhancement.

The need for socio-economic development within the Himalayan regions must be addressed, particularly in the rural sector. To further our understanding of the challenges that persist for the Himalayan communities, the secondary research below can provide an overview of the digital and socioeconomic landscape for the Indian Himalayan Region (IHR), Bhutan and Nepal, respectively.

Indian Himalayan Region (IHR)	Niti Aayog Multidimensional Poverty Index (2021)	NITI Aayog SDG- 4 (2020-21)	National Family Health Survey (NFHS-5) 2019-2020			
	Percentage of the population who are multidimensionally poor in the states (%)	Schools with access to computers for pedagogical services (%)	Women who have interacted with the internet (%)		Men who have interacted with the internet (%)	
			UR	UR	UR	UR
Jammu and Kashmir	12.58	28.31	55.0	38.9	79.4	68.8
Himachal Pradesh	7.62	34.94	78.9	45.2	83.7	65.1
Uttarakhand	17.72	41.59	58.4	39.4	82.1	71.2
Arunachal Pradesh	24.27	26.61	70.0	49.6	86.9	68.5
Sikkim	3.82	78.78	90.0	68.1	94.2	69.5
Assam	32.67	16.22	49.0	24.4	67.4	37.8
Meghalaya	32.67	14.67	57.8	28.0	59.2	38.5
Manipur	17.89	33.29	50.8	40.4	81.5	68.2
Nagaland	25.23	47.11	66.5	40.3	81.0	55.2
Tripura	16.65	21.52	36.6	17.7	47.0	45.2
Mizoram	9.80	51.44	83.8	48.0	92.7	63.9

RR- Rural; UR – Urban

Table 1.1

From **Table 1.1**, it is evident that poverty is rampant for most states, with Assam and Meghalaya registering the highest (32.67) percentage of poor, according to MDPI. In addition, access to computers, as per the component of SDG-4 (Quality Education), highlights the availability of access to strengthen computational skills. Sikkim was the highest performer with 78.78 %, and Meghalaya registered the lowest with 14.67%. Furthermore, through the National Family Health Survey (NFHS-5) indicators on internet access, it is evident that an urban-rural and men-women digital divide exists, and the degree of the divide varies from state to state. However, NFHS-5 only represents "interaction with the internet", and more in-depth research is required to gain deeper insights.

Table 1.2 is a representation of the MPDI of Bhutan across indicators of internet access (National Statistics Bureau of Bhutan)

Bhutan (Districts)	National Statistics Bureau of Bhutan (2017) National Family Health Survey (NFHS-5) 2019-2020			
	Percentage of the population who are multidimensionally poor in the districts (%)	Internet Access (%)	Reliability of Internet Access (%)	Broadband Access (%)
Gasa	29.0	69.6	32.9	1.5
Haa	11.4	71.1	58.3	0.0
Dagana	8.8	33.0	20.0	2.3
Samste	8.7	45.2	24.4	0.3
Tsirang	8.2	41.3	62.6	0.7
Trashi Yangste	8.1	18.7	63.0	4.6
Chhuka	7.9	64.0	46.5	1.9
Sarpang	7.2	42.7	31.5	3.3
Trashigang	7.2	47.11	30.6	1.9
Trongsa	6.8	58.3	48.3	0.4
Wangdue Phodrang	6.7	66.8	44.6	3.7
Samdrup Jongkhar	5.7	54.0	37.1	0.8
Punakha	5.2	65.7	37.5	1.2
Monggar	4.8	45.1	44.8	4.4
Lhuentse	4.5	58.3	36.1	6.4
Zhemgang	4.3	41.3	27.3	0.8
Bumthang	3.9	67.4	27.5	2.9
Thimphu	2.6	84.4	45.5	3.6
Paro	2.1	70.7	19.4	0.5
Pema Gatshel	1.7	42.4	53.9	0.0

Table 1.2

In the case of Bhutan, from **Table 1.2**, it can be observed that MDPI (%) is highest (29%) for the Gasa district, and the least impoverished is the Pema Gatshel district which recorded 1.7 %. In the category of internet access, Thimphu recorded the highest with 84%, and Trashi Yangtse recorded the least with 18.7 %. Interestingly, the National Statistical Bureau of Bhutan provided a category on the Reliability of Internet Access. Trashi Yangtse recorded the highest with 63 %, and Paro recorded the least with 19.4%. In addition, broadband access registered extremely low figures for all the districts.

Nepal (Provinces)	Government of Nepal, National Planning Commission. (Multidimensional Poverty Index: Analysis Towards Action)		Nepal: Central Bureau of Statistics; and UNICEF Nepal. (Nepal Multiple Indicator Cluster Survey 2019, Survey Findings Report.)		
	Headcount Ratio of Multidimensional Poverty (in %)	Headcount Ratio of Population that does not have access to electricity (in %)	Percentage of households that have access to the internet by any device from home	Percentage of women aged 15-49 years who used the internet in the past 3 months	Percentage of men aged 15-49 years who used the internet in the past 3 months
Province 1	15.9	11.6	51.3	40.0	59.6
Province 2	24.2	3.7	44.6	29.3	49.8
Bagmati Province	7	2.7	68.7	63.8	75.1
Gandaki Province	9.6	1.0	57.4	59.6	76.5
Lumbini Province	18.2	9.2	46.9	32.3	57.3
Karnali Province	39.5	55.0	25.8	14.7	33.1
Sudurpashchim Province	25.3	22.8	24.3	17.0	46.2

Table 1.3 Represents the percentage of multidimensional poor in Nepal and the degree of internet access in the provinces.

For Nepal, the MDPI and other indicators are based on the data captured in the last Nepal Multiple Indicator Cluster Survey (NMICS) published in 2019. Nepal's NMICS is focused much more on the quality of usage of internet than quality of connectivity and access to internet with added raiders of 1) whether one has used the internet in the last 3 months, and 2) whether one has used the internet at least once a week in the past 3 months. The NMICS also recorded the ICT and digital abilities of the respondents across 9 different skills such as whether one has 1) sent e-mail with attached file, such as a document, picture or video; 2) found, downloaded, installed and configured software; etc.

MDPI (%) is highest (39.5%) for Karnali province, with the least impoverished province being Bagmati (7%), where Kathmandu valley is located. Karnali (55.0%) also had a sizeable population without access to electricity, followed by Sudurpaschim Province (22.8%), and Province 1 (11.6%). Nepal Multiple Indicator Cluster Survey (NMICS) also focuses on urban-rural and men-women digital divide.

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Mapping the Key Digital Access and Inclusion Challenges of the Himalayan Mountainous communities

- **Limited digital and internet Infrastructure:** The Mountainous regions have limited or unreliable internet connectivity due to the difficult terrain and remote locations. The absence of adequate broadband infrastructure makes it challenging for communities to access the internet and digital services.
- **Inadequate Meaningful Connectivity:** Even in areas with internet access, the connectivity is slow, inconsistent, or limited in bandwidth. This hampers the ability of mountainous communities to engage in online activities, access educational resources, or utilize digital services effectively.
- **Geographic / Terrain Barriers:** The rugged terrain and difficult topography of mountainous regions are posing huge physical barriers to digital access. Laying down cables or establishing communication towers in these areas are challenging and costly, making it less economically viable for service providers to invest in digital infrastructure.
- **Lack of Awareness and Digital Skills:** Mountainous communities often face a lack of awareness and understanding of digital technologies. Community members are largely unfamiliar with the benefits of digital tools or lack the necessary digital skills to access and use them effectively. This digital divide is furthering leading to marginalisation of these communities.
- **Language and Cultural Barriers:** The mountainous communities have their own distinct languages / dialects and cultures. The availability of digital content and services in local languages / dialects are limited, hindering access for these non-English speakers. Additionally, cultural factors and traditional practices are influencing the adoption and acceptance of digital technologies within these communities.
- **Affordability and Financial Constraints:** Digital devices, internet plans, and other technology-related expenses are becoming costly for individuals and families in mountainous areas, where income levels are lower compared to urban areas. The affordability of technology and ongoing internet access are posing financial constraints for community members.
- **Limited Access to Essential Services / public entitlements digitally:** Inaccessibility to digital services are affecting access to critical services like healthcare, education, and government schemes and services. Telemedicine, online education resources, and digital government services are less accessible, depriving mountainous communities of vital opportunities and support systems.

Key Questions

The key questions around digital connectivity, access and inclusion for the Himalayan Mountain Communities?

Digital connectivity, access, and inclusion are crucial for the Himalayan Mountain Communities to overcome geographical barriers, improve their livelihoods, and enhance their overall development. Some key questions surrounding these issues include:

1. **Infrastructure:** What are the challenges in establishing reliable and robust digital infrastructure in remote Himalayan regions? How can the lack of adequate power supply, network coverage, and internet connectivity be addressed?
2. **Affordability:** How can digital services be made affordable for the Himalayan communities, considering the economic constraints and limited resources in these areas? What strategies can be implemented to reduce the cost of devices, internet plans, and other related expenses?
3. **Digital Literacy:** What initiatives are needed to enhance digital literacy among the Himalayan communities? How can individuals be trained to effectively use digital tools, access online information, and navigate various digital platforms for their benefit?
4. **Local Language Support:** How can digital connectivity and online platforms be made accessible in local languages spoken by the Himalayan communities? What efforts are required to bridge the language barrier and ensure inclusivity for those who are not proficient in widely used languages?
5. **Content and Relevance:** How can digital content be created and curated to address the specific needs and aspirations of the Himalayan communities? What strategies can be adopted to promote local cultural heritage, traditional knowledge, and sustainable practices through digital platforms?
6. **Gender Inclusion:** How can digital connectivity and access be improved for women in the Himalayan communities, who often face additional barriers and social constraints? What initiatives can be taken to empower women through digital literacy, entrepreneurship, and access to online resources?
7. **Environmental Sustainability:** How can digital connectivity be established in a manner that respects and preserves the fragile Himalayan ecosystem? What measures should be taken to ensure minimal environmental impact, such as reducing electronic waste and promoting energy-efficient solutions?
8. **Disaster Resilience:** How can digital connectivity and access be strengthened to support disaster preparedness, early warning systems, and post-disaster relief efforts in the Himalayan regions? What technological solutions can be employed to enhance the resilience of these communities against natural calamities?
9. **Collaborative Partnerships:** How can collaborations between government agencies, private sector entities, non-profit organizations, and local communities be fostered to address the challenges of digital connectivity, access, and inclusion in the Himalayan Mountain Communities? What models of public-private partnerships can be established to ensure sustainable development?
10. **Data Privacy and Security:** How can concerns related to data privacy and security be addressed while promoting digital connectivity and access in the Himalayan regions? What policies and regulations should be in place to protect the rights and interests of individuals and communities in the digital realm?

Addressing these key questions is essential to bridge the digital divide and empower the Himalayan Mountain Communities to leverage the benefits of digital technology for their social, economic, and environmental progress.

Why this Problem Area?

An assessment of Tables 1.1, 1.2 and 1.3 provides an overview of the socioeconomic and digital landscape of the proposed areas of study. However, the data does not represent the present digital practices, digital skill gap and challenges which limit or restrict participation. It essentially reflects a broad overview which requires further insights into the complexities and nuances associated with the Himalayan communities and their process of digitalisation and economic upliftment. Internet access is still limited to a few; however, measures need to be introduced in an increasingly digital world to provide opportunities to bridge the digital gap.

Technological developments have never been distributed evenly, and political history, geography and disparity in wealth all contribute to marginalisation. The internet provides itself as a medium which could ease access to government and digital public services, job applications, education, and finance which are some of the arenas enforcing digitisation at an increasingly rapid pace. Meanwhile, the Himalayan region happens to be one such region on which there is not enough information as a second layer due to the paucity of internet and ICT access, relegating many of the users to the role of consumers more often than producers. Interventions and alternative solutions must be produced to enhance inclusive digital community participation. The internet is a transformative resource that can empower communities through the prospects of digitalisation. Yet, digitalisation is not built on inclusivity and requires grounded inquiries into the relationship between digitalisation, technology and society. The lack of literature concerning digitalisation in and between the Himalayan communities calls for a comprehensive investigation into understanding the digital landscape of the communities on the fringes of connectivity and remoteness.

The internet and technology can be explored as a resource that can offer alternative solutions to strengthen the following verticals:

i. Power and ICTs
ii. Education
iii. Healthcare
iv. Entitlements
v. Livelihoods and employment
vi. Entrepreneurship
vii. Digital Skill

Addressing digital access and inclusion challenges for Himalayan Mountain communities

Addressing these challenges requires a multi-faceted approach that involves infrastructure development, awareness campaigns, digital skills training, and collaboration between governments, organizations, and local communities. Efforts should focus on improving connectivity, expanding digital literacy programs, creating culturally and linguistically appropriate content, and making digital services more affordable and accessible to mountainous communities.

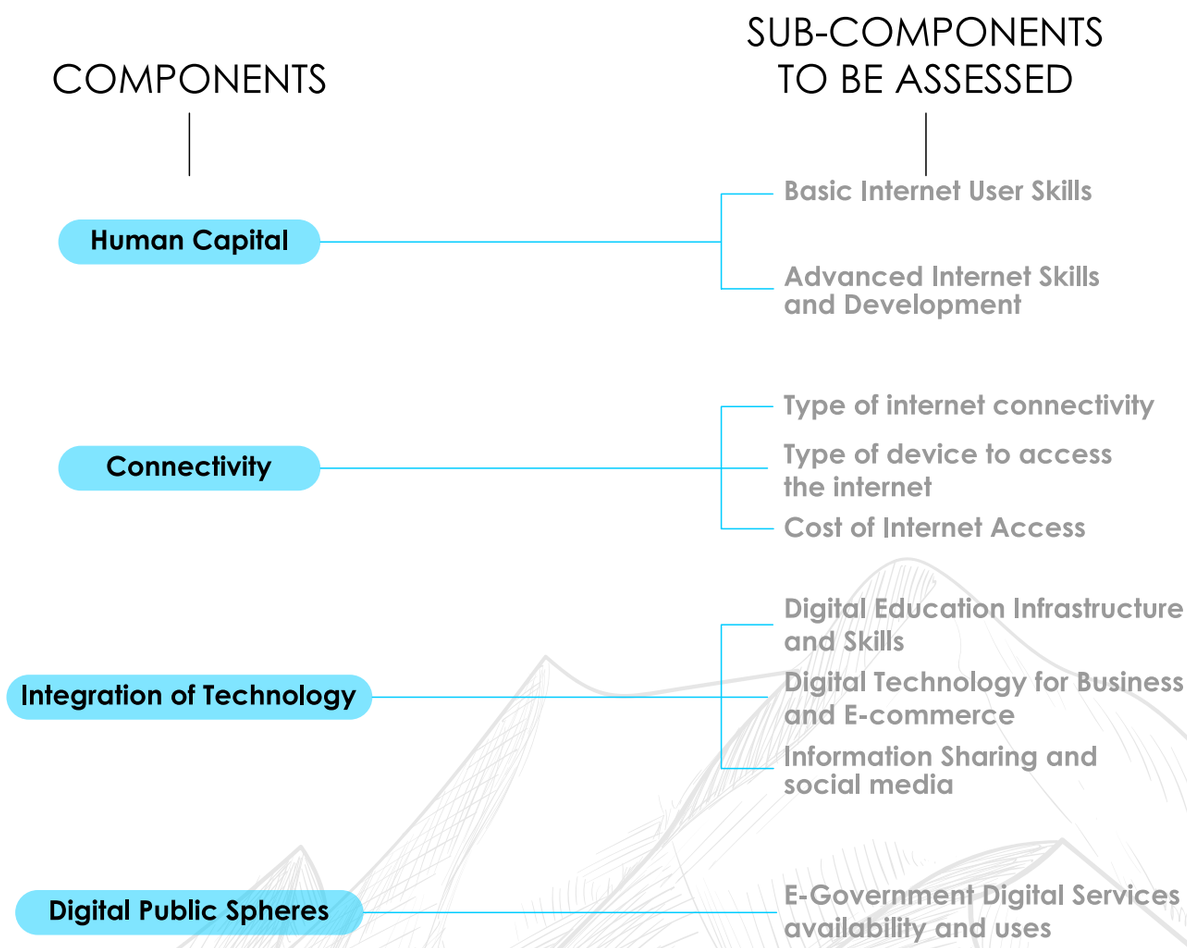
- **Internet and Digital Infrastructure Development:** Investing in the development of digital infrastructure, including broadband connectivity and communication towers, to improve internet access in remote Himalayan areas is a key step. Governments and organizations must collaborate to fund and implement projects that expand network coverage and enhance connectivity.
- **Community Engagement and Participation:** Involving the local Himalayan communities in the decision-making process regarding digital infrastructure development and digital service initiatives is critical. Understanding their unique needs, concerns, and aspirations is key to ensure that the solutions implemented align with their requirements and realities.
- **Digital Literacy and Skills Training:** Providing regular and sustained digital literacy programs and training will be important to empower Himalayan communities with the necessary skills to access and utilize digital technologies effectively. These programs can include basic computer skills, internet usage, online safety, and specific training on relevant applications and tools.
- **Localized Content and Language Support:** Creating and promoting digital content that is culturally and linguistically appropriate for Himalayan communities is key to getting benefits from a digital world. It must be ensured that digital platforms, applications, and services are available in local languages to reduce language barriers and increase accessibility.
- **Mobile and Alternative Technologies:** Given the challenging terrain of the Himalayan region, mobile technologies can play a crucial role in bridging the digital divide. Exploring, promoting the use of mobile devices and leveraging alternative technologies such as satellite-based connectivity and mesh networks will be critical to extend internet access to remote areas.
- **Collaboration and Partnerships:** This will require fostering collaborations between governments, non-profit organizations, private sector entities, and local community organizations to jointly address digital access and inclusion challenges. These partnerships can help pool resources, expertise, and funding to implement sustainable initiatives.
- **Affordability and Subsidies:** It calls for exploring options to make digital devices and internet services more affordable for Himalayan communities. Introducing subsidies or incentive programs to reduce the cost burden on individuals and families, particularly those with limited financial resources can hold key to digital access and empowerment.

- **Local Entrepreneurship and Innovation:** This calls for encouraging and supporting local entrepreneurship and innovation in the digital space. This will require facilitation of the establishment of start-ups, tech hubs, and incubation centers in Himalayan communities to foster technological solutions that cater to their specific needs.
- **Multi-Purpose Community Centers:** Establish multi-purpose community centers (example Community Internet Libraries) equipped with digital infrastructure, where community members can access the internet, receive training, and avail various digital services will provide last mile access. These centers can also serve as spaces for collaboration, networking, and community development.
- **Tailored Solutions for Essential Services:** Focusing on providing digital access to essential services like healthcare, education, and government services will be largely required. Developing initiatives that integrate technology into these sectors, such as telemedicine programs, e-learning platforms, and digital government services, ensuring they are accessible and user-friendly for Himalayan communities will be required at a sustained level.

By implementing these recommended strategies and continuously assessing the evolving needs of Himalayan Mountain communities, stakeholders can make significant progress in addressing digital access and inclusion challenges and empower these communities with the benefits of digital technologies.

Need for a Comprehensive Digital Access Ecosystem for the Himalayan Communities

A comprehensive approach would call for the following strategic investments to mainstream the rural and remote communities with digital society and economic gains:



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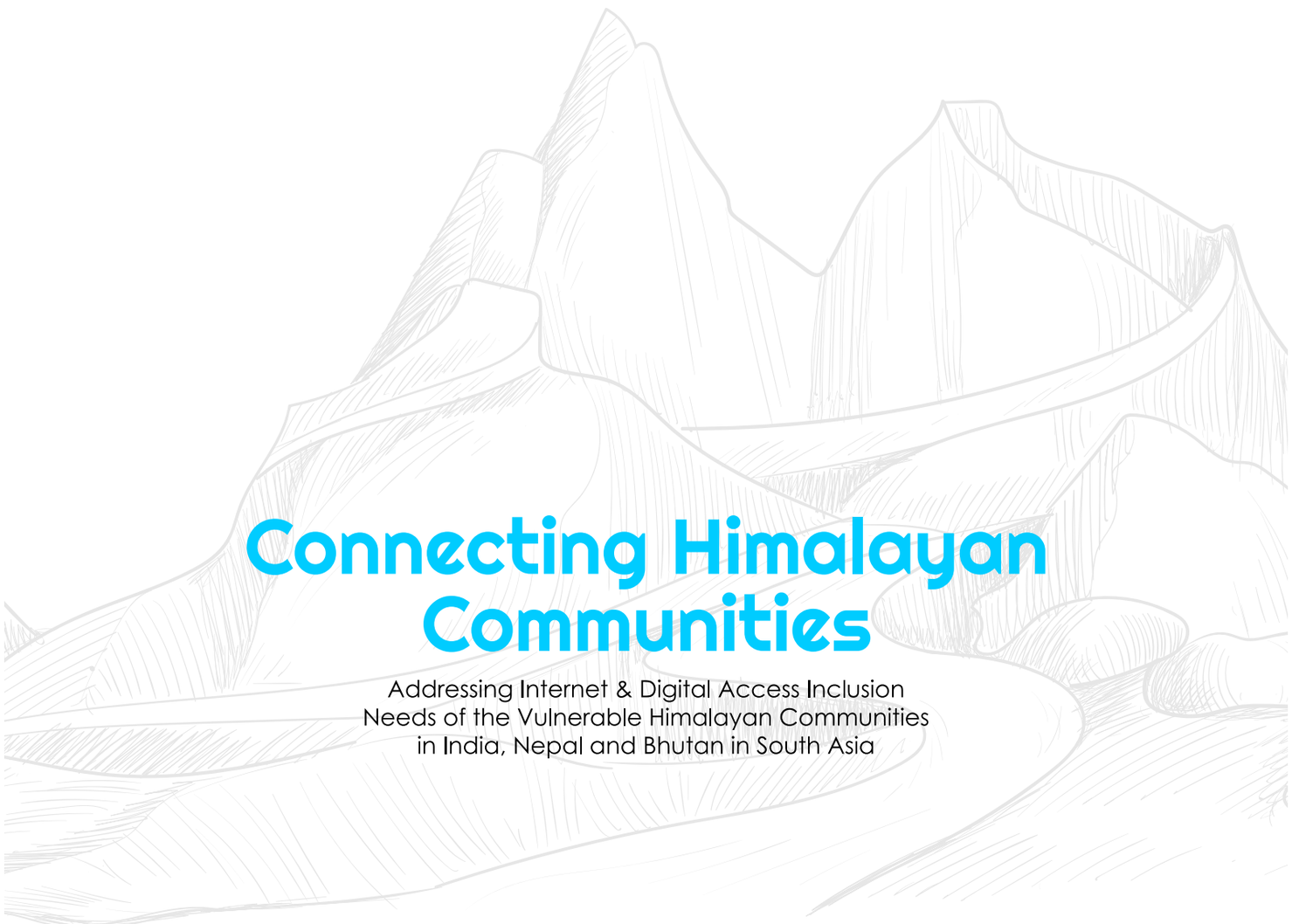

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