**Smart Village: Rural Development with Wireless Internet Services**

**Integrated Report on the Field Immersion Project**

Submitted to

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Sincerely

MBA IT 8TH BATCH

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# **Preface**

Many villages around the world lack internet access, limiting their connection to essential services, education, and economic opportunities. This report explores the impact of bringing wireless internet to Nangi village, Myagdi.

A team of students from the MBA IT program (8th batch) spent four days in Nangi to understand how internet access, provided by the "Nepal Wireless Networking Project" led by Dr. Mahabir Pun, has affected the lives of villagers. We focused on sectors like healthcare, education, tourism, and handicraft sales.

This report presents our findings in a clear and simple way. We believe it offers valuable insights for others working to bridge the digital divide and empower remote communities in Nepal.

Chapter 1: Introduction

## **1.1 Background**

Nepal is a destination that attracts both adventurers and those seeking spiritual growth. In the western Himalayas lies Nangi village, a small but lively community where tradition and nature blend seamlessly. This village shows the strength and unity typical of Nepal's rural areas. Despite being small, Nangi is rich in cultural traditions. The villagers are committed to preserving their heritage while also looking for ways to progress and improve their lives (Adhikari et al., 2020).

Surrounded by the stunning Annapurna and Dhaulagiri ranges, Nangi offers more than just scenic beauty. Its cultural heritage, attractive landscapes, and extensive trekking routes attract tourists seeking authentic experiences and meaningful connections with local communities. The village serves as a gateway to exploring the natural wonders of the region while immersing oneself in the warmth of Nepalese culture, providing visitors with a glimpse into the heart and soul of the nation (Bhattarai & Rijal, 2019).

However, Nangi faces challenges due to its remote location, particularly in accessing essential services and participating in the digital economy. In response, efforts have been made to introduce wireless internet connectivity to the village. This initiative aims to leverage technology to improve various aspects of community life, including local businesses, healthcare, and education, empowering residents and fostering inclusive development (Acharya & Adhikari, 2017).

The introduction of wireless internet connectivity in Nangi represents a significant step towards harnessing the power of information and communication technology (ICT) to drive socio-economic progress and promote inclusivity in rural Nepal. By providing residents with access to digital resources, rural communities like Nangi can overcome geographical barriers and actively engage in the global economy, contributing to the overall prosperity of the nation and fostering a sense of connectivity and belonging.

As Nepal advances towards sustainable development, communities like Nangi serve as symbols of resilience and innovation. Through investments in ICT infrastructure and digital literacy initiatives, alongside efforts to preserve cultural heritage and promote sustainable tourism, Nepal aims to create a future where all its citizens can thrive in harmony with nature and one another, ensuring a brighter tomorrow for generations to come.

## **1.2 Objectives**

The primary objective of the study is to identify the impact of internet usage on the residents of Nangi village. The major objectives of this field visit are as follows:

* To assess the impact of Information and Communication Technology (ICT) on the lifestyle of the people of Nangi village and to analyze the patterns and extent of internet utilization within Nangi village.
* To explore and understand the impacts of the availability of wireless internet facilities on the health, education, tourism, and business sectors of the village.
* To examine the current digital landscape in Nangi village, including internet access, technology usage, and internet related behavior.

## **1.3 Methodology**

The methodology of our field immersion includes the site description, date and duration of the visit, participants, data collection methods, and ethical considerations.

### **1.3.1 Research Design**

This study has investigated how wireless internet access impacts the lives of people in Nangi village, Myagdi. It has examined how this technology influences economic growth and cultural heritage in the community. Using a mix of surveys and interviews with villagers, the research has aimed to understand how internet use affects their daily lives. Through this descriptive approach, the study has explored the role of Information and Communication Technology (ICT) in shaping life in Nangi village. Data analysis has used both statistical methods to spot trends and thematic analysis to understand the specific effects of ICT on villagers' lives. Additionally, the study has compared current and past data to see how internet access has changed life in the village over time. Ethical considerations have been a priority to ensure the respect of participants' rights and cultural values throughout the research process.

### **1.3.2 Site Description**

Traveling from Kathmandu to Pokhara, the second-largest city in Nepal, offers two main transportation options: a 7-hour bus journey or a quick 35-minute flight. To reach Beni, the closest town to Nangi accessible by bus, travelers can embark on a 3 to 5-hour drive from Pokhara or opt for a direct 10 to 12-hour bus ride from Kathmandu. From Beni, visitors can arrange for jeeps to navigate the final stretch to Nangi Village, nestled at an altitude of approximately 2,260 meters (around 7,345 feet).

### **1.3.3 Date and Duration of the Visit**

Following approval from the college administration, we allocated a dedicated span of seven days, spanning from Chaitra 1 to 7, 2081, for the purpose of conducting an immersive field trip. This extended duration allowed us ample time to delve deeply into our predetermined objectives, facilitating a comprehensive and thorough exploration of our study focus.

### **1.3.4 Population and Sampling**

The primary participants in our field study were predominantly residents of the area. Furthermore, we expanded our research scope by conducting interviews at Himachal Secondary School, and engaging with the headteacher, teaching staff, and students. Additionally, we visited the local health post and interviewed with the employees working there. Moreover, we conducted a thorough exploration of the nearby paper mill, engaging for a short period to gather further insights.

### **1.3.5 Data Collection Methods**

Three different approaches have been employed to collect data: focus group discussions (FGDs), structured and semi-structured interviews, and event or phenomenon observation. Government websites, local government papers, and a variety of research articles have been the sources of secondary data.

Numerous descriptive statistical techniques have been used to analyze the data. For data analysis, Microsoft Excel has been the main tool of choice. Furthermore, a thorough analysis of the observation and interview data has been carried out.

### **1.3.6 Ethical Considerations**

Ethical considerations must be considered during a field visit project. Some of the do’s and don’ts that were taken into strict consideration during our study are as follows:

**Do's:**

1. Before initiating any research activities, secure informed consent from every participant involved.
2. Be mindful of and respect the cultural norms and traditions of the community throughout the research.
3. Guarantee the privacy and anonymity of all participants in the handling and storage of data.
4. Focus on reducing any potential harm to participants, addressing risks proactively, and offering necessary support when needed.
5. Uphold honesty and ethical standards in the presentation of results and openly disclose any possible conflicts of interest.

**Don'ts:**

1. Don't initiate any research activities without first securing explicit informed consent from all participants.
2. Don't overlook or undervalue cultural differences, nor impose your cultural perspectives on participants.
3. Don't reveal any identifiable personal information about participants without their explicit consent.
4. Don't carry out research that has the potential to harm participants physically, psychologically, or socially.
5. Don't engage in academic dishonesty, such as fabricating data or committing plagiarism.

## **1.4 Limitations**

Field visits are crucial components of research and practical projects, offering valuable firsthand experience and data. However, they present their own set of challenges and limitations. Some common limitations encountered during our field visit include:

* **Time Constraints:**

Field visits often have time limitations, making it difficult to thoroughly cover all relevant topics or fully engage with the subject matter. These constraints may also affect the quantity and quality of gathered data. We experienced similar challenges during our field visit as we were unable to dedicate sufficient time to explore our research further.

* **Environmental Conditions:**

Unfavorable weather or difficult terrain can hinder the success of a field visit and impede data collection. Additionally, safety concerns may arise for the study team due to environmental conditions. The challenging terrain and surroundings of the settlement made it difficult for us to navigate during our visit.

* **Logistical Challenges:**

Transportation and accommodation posed significant challenges during our field visit, impacting the entire schedule and itinerary. This logistical issue disrupted our plans and affected the efficiency of the visit.

# **Chapter 2: Literature Review**

**Leveraging ICT for Rural Development: Bridging the Digital Gap**

In the review titled "Leveraging ICT for Rural Development: Bridging the Digital Gap," Aitkin (2009) and Chapman & Slaymaker (2002) shed light on the potential of wireless networking projects to bridge the digital divide and bolster socio-economic development in rural communities. Aitkin (2009) underscores the role of Information Communication and Technology (ICT) in empowering rural areas, citing the Nepal Wireless Networking Project (NWNP) as a pioneering effort despite challenges like poor infrastructure and technical skills (T1). Despite the proven benefits of ICT in enhancing quality of life and social capital, issues such as high illiteracy rates and language barriers hinder their full potential (T2). Scholars, drawing on theories of social capital, development communication, and technology adoption, stress the importance of considering socio-economic perspectives for sustainable implementation (T4). However, debates persist regarding challenges like technical knowledge and infrastructure, necessitating tailored solutions to meet community needs (T2).

**Leveraging ICT Actors and Networks for Sustainable Development: Exploring ICT Actors in ICT4D Projects**

Aitkin (2009) conducted a study on "The Role of Wireless Networking Projects in Rural Communities: A Case Study of Nepal." The research aimed to explore the impact of wireless networking projects on rural communities, particularly focusing on the Nepal Wireless Networking Project (NWNP) initiated in 1997. Despite challenges such as poor infrastructure and technical skills, the NWNP has been instrumental in bringing Information Communication and Technology (ICT) to remote villages in Nepal (T1). Aitkin (2009) emphasized the significance of ICT in empowering rural communities by providing access to education, healthcare, and communication facilities. However, issues such as high illiteracy rates and language barriers have hindered the full potential of these projects (T2). Chapman and Slaymaker (2002) also contributed to the literature by highlighting the importance of integrating ICT in remote areas to enhance socio-economic development. They emphasized the need to understand community members' thoughts and feelings towards these initiatives to ensure their effectiveness (T3). Additionally, scholars have drawn on theories of social capital, development communication, and technology adoption to analyze the impact of ICT in rural communities (Aitkin, 2009). This includes considering socio-economic perspectives to ensure the sustainability of wireless networking projects (T4).

**Rural Development with ICTs in Nepal: Integrating National Policy with Grassroots Resourcefulness**

Baniya (2007) conducted a study titled "Rural Development with ICTs in Nepal: Integrating National Policy with Grassroots Resourcefulness". The main objective of the study was to illuminate grassroots efforts led by individuals like Mahabir Pun and underscore the importance of bottom-up approaches in driving ICT interventions. The study employed qualitative methods to explore grassroots initiatives and their impacts. Findings from the literature review included insights into the potential of ICT interventions to enhance community well-being and socio-economic outcomes, while also highlighting persistent challenges such as limited internet usage for economic purposes and unequal access to ICT resources. In conclusion, the study emphasized the crucial role of government support and sustainable funding mechanisms in ensuring the long-term viability and scalability of ICT-led development initiatives in rural Nepal.

**Impact of Information and Communication Technologies (ICTs)**

Karki (2011) and Chilimo (2008) both conducted studies on the impact of Information and Communication Technologies (ICTs) on rural livelihoods in Nangi Village of Ramche VDC, Nepal. Karki's study focused on how access to ICTs, facilitated by the Nepal Wireless Networking Project (NWNP), influences rural livelihoods. The research identified human capital, financial capital, and social capital as key factors directly affecting rural livelihoods, while physical and natural capital played a lesser role. Data collection involved interviews with telecenter users and non-users, telecenter operators, health workers, and project leaders, and focus group discussions with community members and village leaders. Similarly, Chilimo's study aimed to understand the effects of ICTs on the quality of life in rural areas. The research emphasized the importance of human, financial, and social capital in shaping rural livelihoods, with physical and natural capital playing a secondary role. Data collection methods included interviews with telecenter users and non-users, telecenter operators, health workers, project leaders, and focus group discussions with community members.

**ICT and the Rural Nepal**

Dawadi (2011) explores "ICT and the Rural Nepal," emphasizing the pivotal role of Information and Communication Technology (ICT) in rural development. The article aims to underscore the significant strides made in Nepal's telecommunications and ICT sectors following liberalization policies, while also noting a disparity between targeted achievements and the current state of ICT implementation in rural areas. The objectives include examining the multifaceted approach required to address challenges in ICT penetration, evaluating various technologies' suitability for different geographic terrains and community needs, and assessing policy frameworks such as the National Telecentre project and Telecom Policy of 2004. Although specific details such as sample size, sampling method, research design, and data analysis techniques are not provided in the given text, the article likely involves qualitative and quantitative analysis methods to evaluate findings. The study concludes by stressing the importance of tailored solutions, affordability, accessibility, and sustainability in deploying ICT infrastructure and services to bridge the digital divide and promote rural development in Nepal.

**Nepal’s ICT Education Policy Implementation**

Rana (2024) delves into "Nepal’s ICT Education Policy Implementation," unveiling a dynamic ecological model governing educational policy execution, particularly concerning ICT. While the government spearheads policy formulation, a deficit in funding for infrastructure and teacher training persists. This void is bridged by NGOs like Open Learning Exchange (OLE), which provide resources and training in rural locales, establishing interconnected systems led by governmental bodies and NGOs, vital for policy realization in rural contexts. Through qualitative methods involving interviews and observations, the study uncovers a symbiotic relationship between governmental bodies and NGOs, albeit with fragmented responsibilities. Despite this fragmentation, collaboration has facilitated successful ICT integration in resource-limited rural settings (Rana, 2024). The ecological model anticipates future changes, emphasizing the significance of comprehending relationships and environmental dynamics. By scrutinizing current practices, the study furnishes insights into challenges and opportunities shaping the future of ICT in Nepalese education.

**Literacy for Livelihoods**

Gagliardi (2010) conducted a study on "Literacy for Livelihoods" in Nangi Village, Nepal, focusing on the impact of formal and informal literacy programs on livelihood strategies and outcomes. The research examined the influence of education provision, including formal, informal, and non-formal literacy programs, on the Magar community's livelihood. By utilizing the Livelihoods Analysis Framework and Buttimer's concepts, the study assessed the role of literacy in enhancing social, economic, and ecological aspects. The findings underscored the importance of literacy in improving livelihoods, social vitality, and economic growth, emphasizing the significance of community input in shaping future educational initiatives for sustainable development.

**Telemedicine for Rural and Underserved Communities of Nepal**

Subedi, Peterson, and Kyriazakos (2011) examine "Telemedicine for Rural and Underserved Communities of Nepal," highlighting the significant challenges faced in rural healthcare due to geographic isolation and a scarcity of medical professionals. They emphasize the urgent need to enhance healthcare accessibility, aligning with the global discourse on health equity. The authors suggest telemedicine as a promising solution to bridge healthcare gaps in underserved areas, enabling remote delivery of medical services. However, successful implementation faces barriers like technological constraints and inadequate infrastructure, requiring a comprehensive approach involving infrastructure development, policy support, and capacity building for healthcare workers.

**Enhancing Sustainable Agriculture Practices for Smallholder Farmers in Developing Countries**

Altieri (1995), Gliessman (2007), and Pretty (2008) explore sustainable agriculture practices in developing countries, emphasizing the importance of integrating long-term environmental health, economic profitability, and social equity into agricultural practices. Their discussions illuminate a shift toward ecologically integrated systems such as agroecology and highlight ongoing debates between yield maximization and sustainability. Methodological focuses in the literature, such as agroforestry (Nair, 1993) and organic farming (Reganold & Wachter, 2016), reveal significant gaps in understanding the socio-economic impacts on smallholders and the challenges of scaling sustainable interventions. The research underscores critical areas like soil conservation, water management, crop diversification, and farmer empowerment, particularly stressing the value of participatory approaches (Uphoff, 2002) and the resilience benefits of agroecological methods (Badgley et al., 2007). Despite the variety of approaches, limitations regarding the transferability of results and the necessity for longitudinal studies are evident. This comprehensive review supports the formulation of policies, guides agricultural extensions, and shapes future research agendas, advocating for interdisciplinary, participatory methods and tailored interventions to enhance the robustness of sustainable agriculture across diverse ecological and social contexts.

**ICT as a Rural Livelihood Option: A Study of Nangi Village, Nepal**

In Ghimire's (2018) paper, "ICT as a Rural Livelihood Option: A Study of Nangi Village, Nepal," the author delves into the multifaceted impact of Information and Communication Technologies (ICTs) on rural livelihoods, focusing on Nangi Village in Nepal. Drawing upon Chambers and Conway's (1992) framework of sustainable rural livelihoods, Ghimire meticulously examines the interplay between physical, human, financial, and natural capital in the context of ICT interventions. Through field observations and survey data, the paper highlights both the potential and challenges associated with ICT-led development initiatives. It underscores the significance of community ownership and demand-driven approaches in fostering sustainable outcomes, while also shedding light on the complexities of technology adoption in resource-constrained settings. Moreover, Ghimire's analysis underscores the importance of contextual factors, such as socio-cultural norms and state support, in shaping the effectiveness of ICT interventions. The paper contributes valuable insights into the dynamics of rural development and offers practical implications for policymakers, practitioners, and researchers seeking to harness ICTs for sustainable livelihood enhancement in similar contexts.

**ICT in Rural Primary Schools in Nepal: Context and Teachers' Experiences**

Karna Rana's (2018) comprehensive exploration of Nepal's progress in implementing ICT in rural primary schools reveals multifaceted challenges and opportunities. Rana delves into the government's ICT education policy and its connection to global ICT development, emphasizing the risks inherent in the current strategy. The study sheds light on the diverse status of teachers in rural schools, highlighting disparities in salaries and their impact on motivation and professional practices. Furthermore, Rana highlights the role of NGOs in providing ICT infrastructure and training, underscoring the potential risks of dependency on external funding sources. Through qualitative analysis, the study uncovers insights into teachers' perceptions of ICT integration and classroom dynamics, as well as the limitations of internet access in rural areas. Overall, Rana's work underscores the need for nuanced policy approaches and sustainable strategies to address the complex challenges of integrating ICT in rural education settings.

**Using Wireless Networks to Fight Poverty: Success in Nepal's Mountains**

Ganesh Prasad Adhikari’s (2021) examination of the Nepal Wireless Networking Project (NWNP) illuminates its significant impact on remote communities in Nepal, particularly in terms of enhancing educational, healthcare, and economic opportunities through internet access. Adhikari situates the NWNP within the broader context of social development and poverty alleviation, aligning with theoretical perspectives that emphasize the role of technology in fostering sustainable development. The study highlights the positive outcomes of NWNP, such as advancements in e-learning, telemedicine, and e-commerce. However, it also identifies areas for further investigation, including the socio-economic implications, scalability challenges, and the long-term sustainability of internet services in remote regions. Adhikari’s research underscores the importance of comprehensive approaches and continued efforts to overcome barriers and maximize the benefits of digital connectivity in Nepal's isolated communities.

# **Chapter 3: Analysis and Findings**

The Nepal Wireless Networking Project (NWNP) was initiated in 1997 by social activist Mahabir Pun, beginning in the village of Nangi in the Myagdi district. Pun initiated the project in collaboration with foreign organizations and individuals, establishing the first wireless connection at Himanchal Higher Secondary School in Nangi. Following its success in Nangi, the demand for wireless connectivity surged in neighboring villages, prompting the expansion of the project to adjacent communities. Despite encountering various challenges such as limited government support, financial constraints, technical expertise shortages, and political instability, the NWNP triumphed in rural Nepal. Presently, the project extends its services to numerous communities and their neighbors. Notably, the Nepal Wireless Networking Project (NWNP) serves as a pioneering initiative in Nepal, showcasing the applicability of information and communication technologies (ICTs) in rural settings. The project, supported by volunteers, various foundations, and a $20,000 contribution from the World Bank, incurred a total cost of $30,000.

This chapter analyzes and interprets the data collected from the study. It presents the results of the questionnaire survey.

## **3.1 Basic Information**

Table 2.1.1

*Basic Information of the Respondents* n=40

| Particulars |  | Frequency | Percent |
| --- | --- | --- | --- |
| Age Group | Below 25 | 7 | 17.5 |
| 25 – 29 | 8 | 20 |
| 30 – 34 | 5 | 12.5 |
| 35 and above | 20 | 50 |
|  |  |  |  |
| Gender | Male | 18 | 45 |
| Female | 22 | 55 |
|  |  |  |  |
| Occupation | Student | 7 | 17.5 |
| Agriculture | 25 | 62.5 |
| Business | 3 | 7.5 |
| Other | 5 | 12.5 |
|  |  |  |  |
| Highest level of education completed | Below SLC | 13 | 32.5 |
| SLC | 18 | 45 |
| +2 | 9 | 22.5 |
| Bachelor | 0 | 0 |
| Household size | 1 - 2 | 1 | 2.5 |
| 3 - 4 | 25 | 62.5 |
| 5 - 6 | 11 | 27.5 |
| 7 and above | 3 | 7.5 |

*Source: Field Survey, 2024*

In table 4.1.1, shows the basic information of the respondents. In the age section, out of 40 respondents, 7 respondents lie below the age of 25, 8 respondents lie in the range of 25-29 years, 5 respondents lie in the range of 30-34 years and 20 respondents lie in the range of 35 and above. In the gender section, 18 are male and 22 are female. In the occupation section, 7 were students, 25 are in agriculture, 3 in business and 5 are involved in other occupations. In the highest level of education completed, below SLC are 13, SLC completed are 18, +2 completed are 9 and no one among the respondents completed a bachelor's degree. In the household size section, 1 respondent lies in 1 - 2, 25 respondents lie in 3 - 4, 11 respondents lie in 5 - 6 and 3 respondents lie in 7 and above household size.

## **3.2 Internet Access**

Table 2.2.1

*Information regarding internet access of respondents*  n = 40

| Particulars |  | Frequency | Percent |
| --- | --- | --- | --- |
| Do you have access to the internet at your home? | Yes | 40 | 100 |
| No | 0 | 0 |
|  |  |  |  |
| How do you access the internet at your home? | Data | 35 | 87.5 |
| Wi-Fi | 5 | 12.5 |
|  |  |  |  |
| How much do you pay for internet access per month? | Below Rs. 500 | 5 | 12.5 |
| 500 - 700 | 7 | 17.5 |
| 701 - 900 | 25 | 62.5 |
| 901 - 1100 | 3 | 7.5 |

*Source: Field Survey, 2024*

In table 2.2.1, the data reveals that all respondents have internet access at home, indicating widespread connectivity within the surveyed group. Most (87.5%) use mobile data to access the internet, and a smaller portion (12.5%) utilize Wi-Fi at home. In terms of costs, the majority (62.5%) pay between Rs. 701 - Rs. 900 per month for internet access, with 17.5% in the Rs. 500 - Rs. 700 range, and smaller percentages in the below Rs. 500 and Rs. 901 - Rs. 1100 categories.

## **3.3 Technology Usage and Internet Habits**

Table 2.3.1

*Information regarding the technology usage and internet habits of the respondents* n = 40

| Particulars |  | Frequency | Per cent |
| --- | --- | --- | --- |
| What are you comfortable using? | Computer | 0 | 0 |
| Smartphone | 40 | 100 |
|  |  |  |  |
| For what purpose do you use the internet most? | Social Media | 30 | 75 |
| YouTube | 5 | 12.5 |
| Educational Purpose | 2 | 5 |
| News | 3 | 7.5 |
|  |  |  |  |
| Do you actively seek out educational resources or courses online? | Yes | 25 | 62.5 |
| No | 15 | 37.5 |
|  |  |  |  |
| Do you fact-check information you find online before believing it? | Yes | 10 | 25 |
| No | 30 | 75 |
|  |  |  |  |

*Source: Field Survey, 2024*

In Table 2.3.1, the data regarding digital literacy and internet usage patterns in a village community are presented. The findings reveal that all 40 respondents, constituting 100% of the sample, reported being comfortable using smartphones, while none of the respondents indicated being comfortable using them. The primary use of the internet among respondents is for social media, with 75% (30 individuals) indicating this as their main purpose. Additionally, 12.5% (5 individuals) reported using the internet for watching videos on YouTube, 5% (2 individuals) for educational purposes, and 7.5% (3 individuals) for staying updated with news. In terms of seeking out educational resources online, 62.5% (25 individuals) actively do so, while 37.5% (15 individuals) do not. However, when it comes to fact-checking information found online, only 25% (10 individuals) of respondents reported doing so, while the majority, 75% (30 individuals), do not. These findings provide insights into the digital literacy landscape and internet usage preferences within the village community.

## **3.4 Impact of Wireless Internet on the Health Sector**

In Nangi village, every one of the 40 respondents agreed that healthcare saw significant improvements after internet access was introduced. Mr. Bir Bahadur Pun shared how it simplified the process of obtaining medicine and accessing hospitals, particularly during urgent situations. This change has been especially beneficial in remote areas where healthcare services were previously limited. Moreover, the rise in tourist visits, driven by the availability of WiFi, indirectly contributed to strengthening healthcare resources during emergencies. This underscores the pivotal role of Internet access in enhancing healthcare services in rural regions.

Mr. Sheuba emphasized the convenience brought about by internet connectivity in accessing medical services. He mentioned that the ability to quickly inform medical staff about health issues and emergencies has led to improved healthcare response times, contributing to better healthcare outcomes for residents.

Mr. Bir Bahadur Pun, a middle-aged resident of Nangi village in Nepal, highlighted the positive influence of internet connectivity on healthcare accessibility, noting the convenience of being able to call for medicines and the improvement in transportation options to reach the hospital in Ramche, contrasting with the previous need to walk a long distance.

The integration of wireless internet technology in Nangi has significantly improved healthcare services, enabling enhanced communication with doctors in urban centers like Kathmandu, thereby elevating the standard of medical care within the village, as noted by Mr. Pun.

The introduction of wireless internet has transformed healthcare accessibility in Nangi village. Residents like Mr. Bir Bahadur Pun now find it easier to procure medicine and reach hospitals swiftly, especially in times of urgent need. This shift has been particularly significant in remote regions. Additionally, the surge in tourist visits, facilitated by WiFi availability, has indirectly supported healthcare services by bringing in extra resources during emergencies. This emphasizes the crucial contribution of internet access in bolstering healthcare provisions in rural communities.

## **3.5 Impact of Wireless Internet on the Education Sector**

Out of the 40 respondents surveyed, a significant majority of 35 individuals shared their consensus regarding the positive changes observed within the Education Sector. Mr. Barta Bahadur Chachanji Pun underscored the transformative role played by internet tutorials in enhancing farming techniques. Moreover, he highlighted the pivotal role of internet access in introducing computers and laptops into local schools, all thanks to the dedicated efforts of Mahabir Pun. This illustrates how internet connectivity has enriched education by presenting new learning opportunities and avenues for growth.

In our interview with the staff of Himachal Secondary School, including the Dean Mr. Chitra Bahadur Budhathoki and Computer Teacher Mr. Krishna Pun, insights into the impact of internet access on education and community dynamics in Nangi village, Nepal, were revealed. The school, with its 21 staff members, pioneered computer science studies in 2000, marking it as a trailblazer in the region.

The internet serves as a platform for skills development, with students leveraging online resources to learn diverse skills such as guitar playing, video editing, and makeup applications. This highlights the transformative potential of the internet in providing opportunities for personal growth and self-expression. Moreover, the integration of internet-based learning into the school curriculum, including computer classes from the 6th grade equips students with essential digital literacy skills, empowering them to navigate the digital landscape with confidence.

Mr. Sheba acknowledged the growing reliance on online resources among children for studying purposes. However, he also expressed concerns about potential distractions caused by excessive internet usage, leading to a decreased concentration on academic studies among younger generations.

In education, the arrival of wireless internet has made it possible to bring computers and laptops to schools in Nangi. This is a big step forward in the village's education efforts led by Mr. Mahabir Pun. Now, learning has changed a lot with online tutorials and resources available.

Furthermore, students themselves expressed the profound impact of internet access on their educational journey. Despite encountering limitations in-home internet access, they actively utilize online resources to acquire new skills and prepare for examinations. The incorporation of internet-based learning into the school curriculum emerges as a cornerstone in equipping students with indispensable digital literacy skills, crucial for their academic success and future endeavors in the digital era.

## **3.6 Impact of Wireless Internet on the Tourism Sector**

Out of 40 respondents, all the respondents agreed that there has been a positive impact on the tourism sector. Mr. Rana Bahadur Sheuba discussed the impact of internet availability on tourism in Nangi. He mentioned a guest house being built and noted the increase in tourists, particularly during certain seasons. This tourism growth has led to more employment opportunities, such as guiding tourists and working in lodges, illustrating the positive correlation between internet connectivity and tourism development.

Mr. Parta Bahadur Purja highlighted how internet connectivity has transformed communication with tourists and promoted the village as a hub of connectivity. He mentioned the development of Mohare Danda, attributing it to increased internet usage. Additionally, he discussed kiwi plantation promotion through word of mouth, indicating the potential for internet-based marketing to further boost tourism.

Mr. Sheuba highlighted the significant impact of internet availability on tourism in Nangi village, noting increased tourist flow, particularly following the opening of the road to Galeshwor (Myagdi). This surge in tourism has led to the construction of new guesthouses and created employment opportunities for locals in guiding, cooking, and portering roles.

The impact of wireless internet on tourism in Nangi is evident through easier market access for local products, fostering economic growth and development, as highlighted by Mr. Pun, indicating a clear correlation between internet connectivity and the prosperity of the local economy.

The increased connectivity has facilitated easier communication with tourists, promoting the village as a desirable destination. As a result, there has been a noticeable growth in tourist numbers, particularly during peak seasons. The development of new facilities like guesthouses, as mentioned by Mr. Rana Bahadur Sheuba, demonstrates how internet connectivity acts as a motivation for tourism infrastructure growth. Moreover, initiatives like kiwi plantation promotion, facilitated by internet word-of-mouth, showcase the potential for internet-based marketing to further enhance tourism activities. Overall, the availability of wireless internet has transformed Nangi village into a thriving tourist destination, offering economic opportunities and showcasing the village's natural beauty to a wider audience.

## **3.7 Impact of Wireless Internet on Communication**

The data collected from informant interviews in Nangi village highlights the profound impact of wireless internet on communication within the community. Middle-aged residents like the woman interviewed at the local shop, Mrs. Tilija, have embraced internet-based communication methods to connect with relatives abroad, leveraging social media platforms for easy interaction. Similarly, Mr. Rana Bahadur Sheuba, the husband of another informant, emphasized the increasing reliance on the internet for communication within household members, particularly among younger generations.

Furthermore, educators at Himanchal Secondary School, including Mr. Chitra Bahadur Budhathoki and Computer Teacher Mr. Krishna Pun, highlighted the positive impact of internet access on education, enabling students to access the wealth of information and educational resources beyond traditional classroom settings. Meanwhile, residents like Mr. Parta Bahadur Purja emphasized the transformative role of internet technology in revolutionizing communication and agricultural practices within the village.

The availability of wireless internet has significantly transformed communication patterns within Nangi village, fostering connections locally and globally. Informants like Mrs. Tilija, Mr. Rana Bahadur Sheuba, and educators from Himanchal Secondary School underscored the multifaceted benefits of internet access, from enhancing educational practices to improving connectivity with family members and accessing valuable information for agricultural development.

Wireless internet technology has revolutionized communication in Nangi, shifting from traditional methods like letter writing to convenient video calls, facilitating easier communication with family members abroad and enhancing connectivity within the community, thus transforming social interaction and networking within the village.

## **3.8 Impact of Wireless Internet on the Business Sector**

Out of 40 respondents, 38 respondents agreed that there had been significant changes in the business sector as well. Mr. Barta Bahadur Chachanji Pun, a middle-aged man interviewed, provided compelling support for the transformative impact of wireless internet facilities on the business sector in Nangi. His insights into the effective utilization of previously wasted kiwi fruit, facilitated by internet tutorials on platforms like Facebook and YouTube, underscore the tangible benefits of internet connectivity. Mr. Pun's discussion on the correlation between internet access and economic prosperity, particularly in the tourism sector, highlights the practical implications for local businesses. Additionally, his mention of advancements in healthcare services and educational initiatives due to internet integration further solidifies the argument for the positive influence of wireless internet facilities on business development in Nangi.

Despite the challenges of limited internet access, the use of data has facilitated certain activities, particularly for the younger generation. Children utilize YouTube videos and tutorials for learning purposes, including cooking and agricultural practices, indicating the potential for िnternet resources to enhance educational opportunities and skill development. However, concerns were raised about the negative impact of excessive gaming when internet access was available, prompting some to feel that a lack of internet may actually foster better focus on studies.

# **Chapter 5: Conclusion and Suggestions**

## **5.1 Conclusion**

The introduction of wireless internet services in Nangi village, Myagdi has triggered significant progress across pivotal sectors: healthcare, education, tourism, and business. This technological leap has reshaped how residents access vital services, learn, attract visitors, and bolster local enterprises, marking a profound shift towards socio-economic advancement and community empowerment.

Primarily, the healthcare landscape has witnessed a notable evolution. With the advent of wireless internet, residents, particularly those in remote locales, now benefit from expedited access to medical aid. The ability to swiftly procure medications and arrange emergency transportation to hospitals has mitigated long-standing challenges in healthcare accessibility, enhancing overall well-being within the community.

Similarly, the educational domain has undergone a transformative journey. Internet-enabled learning resources have empowered students to explore new avenues in education. From leveraging online tutorials to enhance agricultural techniques to the integration of digital tools in school curricula, students are actively engaging in skill development and academic enrichment, transcending barriers posed by limited home internet access.

Furthermore, the tourism sector has experienced a resurgence, buoyed by the allure of wireless connectivity. Nangi village has emerged as a coveted destination for tourists, particularly during peak seasons, propelling economic opportunities and catalyzing infrastructural enhancements such as the establishment of guest-houses. This tourism surge not only generates employment but also showcases the natural charm of the village to a broader audience, fostering cultural exchange and economic vitality.

Lastly, the business landscape has undergone a renaissance in the wake of widespread internet adoption. Local enterprises, particularly in the tourism sector, have witnessed unprecedented growth and prosperity. The symbiotic relationship between internet connectivity, economic expansion, and community development underscores the profound impact of this technological advancement on the village's economic ecosystem.

In summary, the introduction of wireless internet services has precipitated a paradigm shift in Nangi village, Myagdi, ushering in an era of progress, opportunity, and resilience. This transformative journey exemplifies the transformative power of technology in fostering inclusive development and enhancing the quality of life in rural communities.

## **5.2 Suggestions**

Despite the favourable outcomes stemming from the implementation of wireless internet facilities in Nangi village, there remain areas for further enhancements and initiatives aimed at maximizing benefits for the community.

Primarily, regarding internet access, endeavours should be directed towards ensuring equitable and affordable availability for all residents. While it's encouraging that all respondents in our study reported having internet access at home, initiatives aimed at expanding coverage and reducing costs could extend the reach to a broader demographic.

Secondly, prioritizing digital literacy programs holds promise in empowering residents to optimize internet resources effectively. Although our study indicated residents' comfort in using computers, there exists potential for skill enhancement to enhance utilization. Educational workshops and training sessions focusing on internet usage for diverse purposes, spanning from online learning to business development, could significantly enrich the community.

In the realm of healthcare, sustained efforts in leveraging internet connectivity for telemedicine and health information dissemination stand to further augment healthcare accessibility. Establishing online platforms for remote consultations with healthcare professionals could bridge gaps in service provision, particularly in remote regions. Moreover, partnerships with healthcare entities to promote online health-related resources, including preventive health tips and information on local services, could empower residents to actively manage their well-being.

Lastly, within the tourism and business sectors, continuous promotion of Nangi village as a tourist destination is pivotal for sustaining observed positive growth. Leveraging social media platforms and online travel portals to spotlight the village's distinctive attractions, such as trekking routes and cultural experiences, holds promise in attracting a broader tourist demographic. Additionally, extending support to local businesses through online marketing tools and platforms could bolster their visibility and customer engagement. Collaborative efforts among local authorities, tourism board, and business associations are instrumental in fostering these initiatives to ensure sustainable growth.

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# **Chapter 7: Annex**

## **6.1 Field visit schedule**

Reaching Nangi village involves a journey from Kathmandu, either via a 7-hour bus ride or 35-minute flight to Pokhara, followed by a 3–5-hour bus/taxi ride to Beni and a jeep ride to the village itself, located at an elevation of 2,260 meters. The field visit schedule of our trip was conducted in the following way:

| **Day** | **Place** | **Time** | **Work** |
| --- | --- | --- | --- |
| 1 | Kathmandu-Beni | 9:00 AM – 9:00 PM | Travel to Beni |
| 2 | Beni – Nangi | 10:00 AM – 2:00 PM | Travel to Nangi |
| Nangi Community Lodge | 5:00 PM – 7:00 PM | Discussion for identifying possible research topics and location |
| 3 | Nangi Ward no. 2 | 8:00 AM - 7:00 PM | Visiting the main tower of ‘Nepal Wireless Networking Project’ located at Mohare Danda |
| 4 | Nangi Ward no. 2 | 9:00 AM – 12:00 PM | Meeting with representative |
| Himanchal Secondary School | 2:00 PM – 6:00 PM | School visit |
| 5 | Nangi Ward no. 2 | 8:00 PM – 12 PM | Nangi village visit |
|  | Parbat | 1:00 PM – 3:00 PM | Parbat village visit and interaction with the villagers |
|  | Nangi Ward no. 2 | 4:00 PM – 5:00 PM | Health Post Visit |
| 6 | Nangi – Tatopani | 6:30 AM – 11:00 PM | Travel to Tatopani |
| Tatopani | 11:00 AM – 2:00 PM | Meet up with the Ward Chairperson of Annapurna Rural Municipality as well as Ward Chairpersons of Ward 7 and Ward 8 |
| Tatopani – Beni | 2:00 PM – 4:00 PM | Travel to Beni |
| 7 | Beni – Kathmandu | 6:00 AM – 9:00 PM | Back to Kathmandu |

## **6.2 List of meetings and interviews**

Interview 1: A Local Shop

Interview 2: House 1 (Mr. Barta Bahadur Chachanji Pun)

Interview 3: House 2 (Mr. Parta Bahadur Purja)

Interview 4: House 3 (Mr. Bir Bahadur Pun)

Interview 5: House 4 (No internet, no smartphone)

Interview 6: Himanchal Secondary School (Principal and Teachers)

Interview 7: Himanchal Secondary School (Plus 2 Students)

Interview 8: Residents of the Village Parbat

## **6.3 Self-assessment**

The first day involved a lot of travel, preparing for a 12-hour journey that turned out to be quite tiresome. Departing from college around 8:30 AM, we finally reached Beni by 10:00 PM. However, there were some unexpected changes to the itinerary due to a miscommunication between the management and the professor. Unfortunately, breaks were not included in the initial plan, teaching us the importance of incorporating lunch breaks in future itineraries. The following day, we set off for Nangi after having breakfast. Initially, there were some invoicing difficulties with transportation, but Ram sir and Prabesh managed to resolve the issue. Our journey to Nangi was delayed due to a traffic jam, causing our arrival at the community lodge hotel around 2 PM. After a brief rest, we discussed our plans with the head teacher of Himanchal Higher Secondary School, Mr. Raman Pun, and in charge of the rural healthcare center, Mr. Raj Adhikari, seeking their recommendations for our activities. The head teacher suggested us to visit Mohare Dada since next day wasSaturday and the school would be closed. Our plan for the next day was to visit Mohare Dada, involving a 45-minute vehicle ride followed by a 2-hour hike. Despite intending to depart early, we found ourselves running behind schedule as some team members took longer to get ready, pushing back our itinerary. However, we enjoyed the hike, soaking in the beauty of nature until we reached Mohare Dada at 3310 meters. After a restful lunch, we conducted interviews with locals and a technician setting up a wireless router in the tower. We also took photographs of the power and network rooms in the lodge.

As we prepared to return to our lodge from Mohare Dada, we made a decision to visit a pond and Fulbari through an alternative route. Though everyone agreed, the detour caused a delay, particularly as one team member had difficulty walking and required assistance from Mr. Rabin Adhikari. His presence was a blessing during this time, preventing what could have been a difficult situation. We learned the importance of taking the shortest route back. Our dinner plan, having Kalij, further delayed our return. Given everyone's fatigue, it might have been better to save it for the next day. The subsequent day, due to everyone being tired, we opted not to rush. We visited a popular temple and then began our surveying with questionnaires. Splitting into two teams, we started surveying residents and then visited Himachal Higher Secondary School to interview teachers and students. Initially facing some challenges with student responses, Subash sir's simplified questioning technique provided insight into better engagement. We collected data according to our questionnaires and took photos with the teachers and students, who graciously gave us flowers in gratitude.

Visiting the village health post, we received information from medical staff - Mr. Rabin Adhikari on the project's impact on Nangi villagers' health. The following day in Parbat, we split into groups to interview school staff and locals. Our team interviewed school personnel, leading to a team discussion on our progress and learnings from our four-day stay and village surveys. On the sixth day, we departed from Nangi Community Lodge for Beni, stopping at Tatopani to meet with the chairperson of Annapurna Rural Municipality as well as Ward chairpersons of Ward 7 and Ward 8, who were on an official program. Though brief, we managed to ask questions about village development and their future plans. Arriving at our hotel in Beni, we rested. Finally, on the seventh day, we left for Kathmandu, stopping to visit a bridge and Baglung Kalika Mandir en route. By 9 PM, we had arrived our homes.

The seven-day field immersion was full of excitement and learning for us students. It was my first time visiting a village, and contrary to expectations, the village's infrastructure was quite developed, making me feel comfortable. Surveying the residents revealed that even elderly villagers were adept at using technology, more so than our parents or grandparents. It was disheartening to see the poor road conditions, forcing people and students to endure long walks. However, the school impressed us with its technology, including laptops and a TV. The student's proficiency in computer use was notable, with most accessing data and some using Wi-Fi distributed in limited areas like the canteen, health post, and lodge. Throughout the field visit, we faced itinerary challenges, but we adapted and completed our data collection with the invaluable guidance of Mr. Rabin Adhikari. I learned the importance of time management and completing tasks within set timeframes during field projects.

Moreover, I gained a deeper appreciation for the impact of knowledge and technology on people's lives. Information and technology play pivotal roles in various sectors, from tourism to health and education. Experiencing everything firsthand has broadened my understanding of their significance in our world.

**6.4 Questionnaires**

Namaste! We are students of MBA IT at the School of Management Tribhuvan University. As a partial fulfillment of our course, we are conducting a field survey on the topic **Smart Village: Rural Development with Wireless Internet Services.** The data collected from the interviews/ questionnaires will be kept confidential and used for academic purposes only.

1. **Basic Information**

1) Age:

i) Below 25 years ii) 25-29 years

iii) 30 – 35 years iii) above 35 years

2) Gender:

i) Male ii) Female

3) Occupation:

i) Student ii) Agriculture

iii) Business iv) Other

4) Highest level of education completed

i) Below SLC ii) SLC

iii) +2 iv) Bachelors

5) Household size

i) 1 - 2 ii) 3 - 4

iii) 5 - 6 iv) 7 and above

1. **Internet Access:**
2. Do you have access to the internet at home?

i) Yes ii) No

1. How do you access the internet at your home?

i) Data ii) Wi-Fi

1. How much do you typically pay for internet access per month?

i) Below Rs. 500 ii) Rs. 500 - Rs. 700

iii) Rs. 701 - Rs. 900 ii) Rs. 901 - Rs. 1100

1. **Technology Usage and Internet Habits**
2. What are you comfortable using?

i) Computer ii) Smartphone

1. For what purpose do you use the internet most?

i) Social Media ii) YouTube

iii) Educational Purpose iv) News

1. Do you actively seek out educational resources or courses online?

i) Yes ii) No

1. Do you fact-check information you find online before believing it?

i) Yes ii) No