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# Sustainable Development of ICT in Chin State

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Empowering Communities  
Through Technology

Funded by APNIC Foundation  
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Thank you to everyone involved for your unwavering support and commitment to sustainable development in Chin State.

Techno Valley

# **A Sustainable Development of ICT in Chin State**

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## **Abstract**

Chin State, located in western Myanmar, is characterized by its sparse population. With approximately 478,000 residents according to 2014 census, it ranks among the least developed regions economically, boasting a staggering poverty rate of 73%. Hindered by its rugged, mountainous terrain and inadequate infrastructure, the delivery of essential services faces significant challenges. Moreover, the onset of substantial conflicts since early 2021 has led to the displacement of numerous individuals. Compounded by a dearth of natural resources and limited transportation networks, the region struggles to foster industrial or Information Communication Technology (ICT) advancements. This study aims to develop an ICT plan for Chin State by identifying the root causes of the digital divide and exploring potential interventions to bridge this gap, thereby fostering ICT-driven economic growth.

# Chapter 1

## Introduction

Chin State in western Myanmar, with a population of around 478,000 according to the 2014 census, is one of the country's least developed regions, with a poverty rate of 73%. Its rugged terrain and inadequate infrastructure hinder essential services, and significant conflicts since early 2021 have displaced many residents. The lack of natural resources and limited transportation further impede industrial and ICT advancements. This study aims to develop an ICT plan for Chin State by identifying the root causes of the digital divide and exploring potential interventions to bridge this gap, fostering ICT-driven economic growth.

### 1.1 Research questions

We will conduct studies to address the following research inquiries:

- What factors contribute to the digital divides in Chin State?
- What negative consequences result from these disparities?
- How can we establish an infrastructure that promotes digital equity in Chin State?
- What are the existing requirements among the local populace regarding digital literacy and awareness?
- What measures can be implemented to meet these requirements effectively?

The research outcomes will culminate in an ICT development blueprint for Chin State, comprising: enhanced comprehension of the root causes, empowering policymakers and government officials to enact appropriate infrastructure initiatives in Chin State. A variety of intervention strategies tailored to address the digital gap in Chin State, aligning with the specific needs of the local population. A foundational framework and adaptable model for analogous regions across Myanmar, offering a template for progress and advancement.

### 1.2 Research method

This research will employ a mixed-method approach, integrating qualitative and quantitative methodologies. Data collection will involve structured interviews, case studies, focus group discussions, and literature reviews.

Structured interviews will gather data on the local population's living conditions, including their ownership and access to digital devices, internet access, and experiences with poverty. Data was collected by a focal person in each of the nine townships in Chin State, with 400 to 500 households from each township. Case studies and focus group discussions will engage community leaders, as well as members of local organizations such as Civil Society Organizations (CSOs) and Non-Governmental Organizations (NGOs), to explore ICT awareness levels, past challenges in ICT-based development, and underlying causes. These insights will address key research questions and

inform actionable solutions. Additionally, literature reviews will compare and contrast findings with successful initiatives from other countries.

Sampling methods such as snowball sampling, cluster sampling, and judgment sampling will be applied as appropriate for structured interviews, focus groups, and case studies.

Primary data will be sourced from user studies conducted through interviews and discussions, supplemented by secondary data from literature reviews, providing insights into current trends, existing technologies, and the political landscape in Chin State and Myanmar. The collected qualitative data will be analyzed using an inductive approach, while quantitative data such as the percentage of mobile phone users and internet usage will undergo descriptive, regression, and variance analysis techniques.

### **1.3 Focal persons**

Given that the research will cover 9 townships in Chin, focal person from each township who will support research data collection are:

- Niang It Nuam (Tedin)
- Man Sian Muang (Tonzang)
- Nay Mana (Kanpetlet)
- Hning Nai (Mindat)
- Obed Sang (Falam)
- Biak Sung (Thantlang)
- Ralpeng Thang (Matupi)
- Isaac Khen (Paletwa)
- Bawi Hlawn Sung (Hakka)

### **1.4 Samples**

To In order to grasp the current needs of the local population regarding digital literacy and awareness. Data was collected by a focal person in each of the nine townships in Chin State, covering 400 to 500 households per township, resulting in a total of 4,400 participants.

To gain insight into the current efforts towards ICT infrastructure and the challenges in developing ICT in Chin State, interviews were conducted with community leaders and government officials from each township, aiming to address the longstanding digital gap.

Group discussions were also performed. Ten telecommunications experts have been chosen to provide profound insights into the analyzed data and contribute to the formulation of an optimal ICT development plan for Chin State.

## Chapter 2

### Literature Reviews

The literature review encompasses the demographic background and economic landscape of Chin State, as well as the development of ICT for disadvantaged communities along with case studies in countries with similar contexts.

#### 2.1 Demographic Background and Economic Landscape of Chin State

##### Geography

The entire state is about 14,400 square miles. Chin State is located in the southern part of northwestern Burma (Myanmar), bordered by Bangladesh and India to the west, Rakhine State to the south, and Magwe and Sagaing Divisions to the east. Covering an area of about 14,400 square miles, it is slightly smaller than Switzerland. Known as the "Chin Hills" due to its mountainous terrain, the state has an average elevation of 5,000-8,000 feet. The highest peak is Mt. Victoria, which rises 10,017 feet above sea level (Center for Applied Linguistics, 2007).



Figure 1. Location of Chin State in Myanmar

##### Population

As of March 29, 2014 census, the total population of Chin State was 478,801. This included 229,604 males and 249,197 females. The population of Chin State constituted 0.93 percent of Myanmar's total population. Since 1973, the population of Chin State has grown from 323,295 to



368,949 in the 1983 Census, and further to 478,801 in the 2014 Census. This marks a 30 percent increase in population between the 1983 and 2014 Censuses. Despite this growth, Chin State's population remains among the three lowest compared to other States and Regions in the country.

In March 2014, Chin State had a population density of 13.3 persons per square kilometer, the lowest among all States and Regions, significantly below the national average of 76 persons per square kilometer. The population density of Chin State has risen from 9 persons per square kilometer in 1973 to 10 persons per square kilometer in 1983, and to 13.3 persons per square kilometer in 2014.

In Chin State, 79 out of every 100 people live in rural areas, while 21 reside in areas classified as urban by the GAD. Nationally, 70 percent of the population lives in rural areas, with the remaining 30 percent in urban areas. The female population exceeds the male population. There are 229,604 males and 249,197 females, resulting in 19,593 more females than males. The sex ratio (number of males per 100 females) is 92.

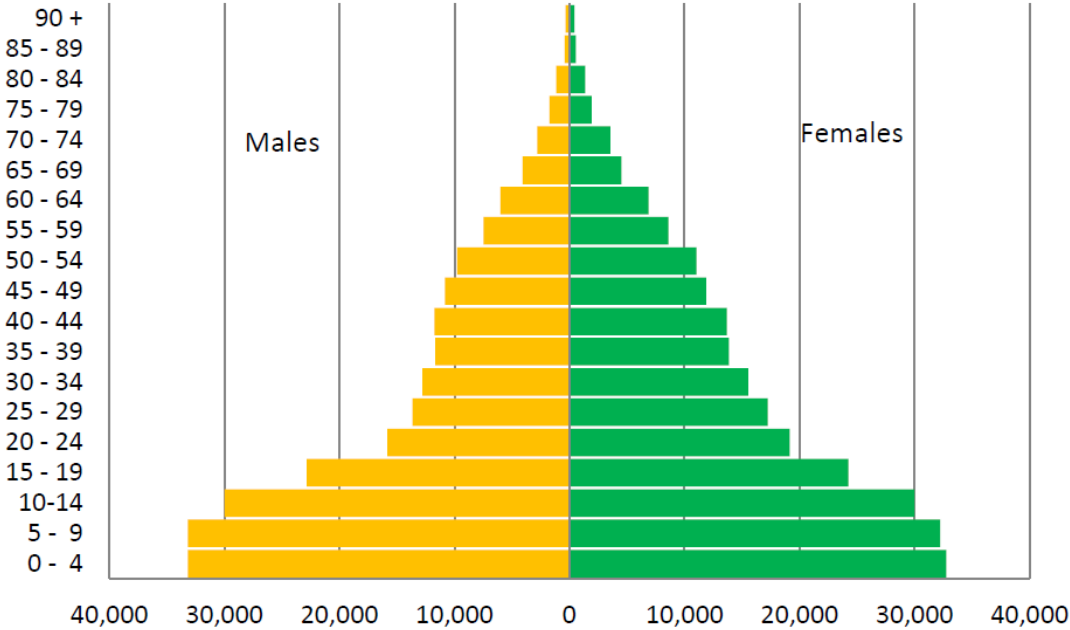


Figure 2. Population Pyramid, Chin State, 2014  
 (Source: *The 2014 Myanmar Population and Housing Census, Chin State*)

**Infrastructure**

Isolation is a prevailing condition for Chin State, affecting its political identity, ethnicity, culture, and language, largely due to its geographical realities. The road network requires constant repair due to landslides, and communication networks are underdeveloped with poor mobile coverage and

limited availability of mobile phones. As of May 2019, there are only 272 physical mobile towers in Chin State. The rural population has very limited access to information, with weak radio and television signals and almost no access to newspapers outside towns. Intellectual input is scarce, and the region struggles to attract professionals, such as educators and healthcare workers, due to its poor infrastructure.

In rural areas of Chin State, the presence of state apparatus is minimal beyond township capitals. In education, government-employed teachers are present at the village level, but their numbers are insufficient, requiring the community or church to finance additional teachers. In the health sector, villages are served by itinerant midwives providing antenatal care and child immunizations. However, access to health services for treatment and childbirth is severely hampered by the need to travel long distances, coupled with a lack of transport options and resources to cover transport costs.

### **Economic**

Chin State, located in western Myanmar, has a small and underdeveloped economy, making it one of the country's least developed regions. With nearly 60% of its population living below the poverty line, Chin State has the highest poverty rate among all states and regions. Several factors contribute to this poverty, including its remote location, poor road transport, lack of natural resources, forced labor, and the migration of young people seeking employment elsewhere.

Employment scarcity is a structural issue across all townships in Chin State, exacerbating the vulnerabilities and socio-economic dependencies of women. Unemployment also heightens household stress, often leading to various forms of gender-based violence, especially domestic violence. Women in Chin State face lower levels of education compared to men, making it difficult for them to secure jobs, receive equal pay, and access leadership positions that could empower them as decision-makers. The isolation of many villages, inadequate infrastructure, and limited networking opportunities further challenge the formation of networks, information sharing, and collaboration among gender initiatives and like-minded organizations and individuals.

No.	Region and State	Myanma Post & Telecommunications (MPT)					Ooredoo Myanmar Limited			Telenor Myanmar Limited			Telecom International Myanmar Co.,Ltd (Mytel)				Total Physical Tower					
		Ground Base	Roof Top	Small Cell	Tower Share	Total	Ground Base	Roof Top	Total	Ground Base	Roof Top	Total	Ground Base	Roof Top	Other	Total	Ground Base	Roof Top	Small Cell	Other	Tower Share	Total
1	Kachin State	143	-	3	208	354	194	7	201	307	14	321	187	60	1	248	831	81	3	1	208	1124
2	Kayah State	29	-	3	33	65	53	1	54	70	6	76	42	24	-	66	194	31	3	-	33	261
3	Kayin State	107	-	2	116	225	127	7	134	275	18	293	187	4	-	191	696	29	2	-	116	843
4	Chin State	57	-	-	25	82	39	-	39	126	0	126	18	7	-	25	240	7	-	-	25	272
5	Sagaing Region	394	9	1	580	984	509	19	528	799	22	821	608	20	2	630	2310	70	1	2	580	2963
6	Tanintharyi Region	155	3	12	134	304	138	3	141	273	27	300	176	19	-	195	742	52	12	-	134	940
7	Bago Region	297	5	11	366	679	437	12	449	752	25	777	625	9	-	634	2111	51	11	-	366	2539
8	Magway Region	338	-	8	348	694	388	10	398	573	13	586	395	4	-	399	1694	27	8	-	348	2077
9	Mandalay Region	382	185	10	511	1088	572	207	779	908	308	1216	787	188	2	977	2649	888	10	2	511	4060
10	Mon State	185	-	13	158	356	262	5	267	423	9	432	304	8	-	312	1174	22	13	-	158	1367
11	Rakhine State	247	1	11	160	419	167	2	169	293	7	300	196	5	-	201	903	15	11	-	160	1089
12	Yangon Region	331	387	18	720	1456	722	582	1304	983	812	1795	782	430	19	1231	2818	2211	18	19	720	5786
13	Shan State	475	39	28	350	892	426	30	456	678	65	743	543	48	-	591	2122	182	28	-	350	2682
14	Ayeyarwady Region	251	4	7	475	737	417	14	431	654	29	683	686	4	-	690	2008	51	7	-	475	2541
15	Naypyitaw	171	6	7	89	273	199	2	201	293	7	300	208	0	1	209	871	15	7	1	89	983
Total			639	134	4273	5046	4650	901	5551	7407	1362	8769	5744	830	25	6599	21363	3732	134	25	4273	29527

Table 1. List of Ground Base Cell Towers Until 31. 8. 2021 (Private + Sharing)

Source: Report by Ministry of Telecommunication of Myanmar

## **2.2 ICT Provision to Disadvantaged Communities**

In the digital age, access to Information and Communication Technology (ICT) is crucial for economic growth and social development. However, disadvantaged communities often face significant barriers to ICT access. The digital divide, which highlights the gap between those with and without access to technology, remains a pressing issue. Disadvantaged communities, including low-income households and rural areas, often lack the necessary infrastructure and resources. Addressing this divide is vital for promoting inclusivity and enabling participation in the digital economy. This literature review explores the provision of ICT in these communities, examining strategies, challenges, and impacts.

Olabode S. Akinsola et al., developed a sustainable Information and Communication Technology (ICT) model for Nigerian communities by evaluating ICT provision in South Africa's disadvantaged communities and drawing comparisons with the Nigerian context. The authors argue that ICT provision to disadvantaged urban communities in South Africa and Nigeria demonstrates both significant potential and notable challenges. Government policies, public-private partnerships, and community-based initiatives all play critical roles in bridging the digital divide. While infrastructure, affordability, and digital literacy remain obstacles, the positive impacts on economic empowerment, education, and social inclusion underscore the importance of continued efforts in this area. Future research and policy development should focus on sustainable solutions that address these challenges and maximize the benefits of ICT for all urban residents.

Josephine O. Mebawondu et al. presented a similar study focusing on the impact of ICT on alleviating poverty in Nigeria. Results have demonstrated that Information Technology (IT) has significantly improved the lives of individuals and nations worldwide. To effectively alleviate poverty, proactive measures must be implemented by both the government and the private sector, leveraging IT in areas such as the economy, quality of life, political stability, and infrastructure development. Enhancing IT-driven initiatives in education, health, agriculture, and other sectors can substantially reduce poverty in Nigeria.

Samkelo L. Booil et al. proposed that using telecenters for ICT provision in disadvantaged communities imposes a positive impact on the economic empowerment of the youth. Telecentres have a significant influence on the economic empowerment of youth in disadvantaged communities in South Africa by providing access to ICT, job opportunities, entrepreneurial support, and educational resources. While challenges such as infrastructure limitations and sustainability issues persist, strategic investments and program enhancements can maximize their impact. By continuing to develop and support telecentres, South Africa can foster greater economic inclusion and empowerment for its youth, contributing to overall socio-economic development.

Humberto Merritt also argued that public policies have played a significant role in reducing the digital divide and promoting IT access and digital literacy. The author presented the evolution of the digital divide in Mexico. While substantial progress has been made, challenges remain, particularly in reaching rural and marginalized communities. Continued efforts and strategic policy

interventions are necessary to ensure that all Mexicans can benefit from the opportunities presented by information technologies. Addressing these challenges will be critical for fostering inclusive socio-economic development and bridging the digital divide in Mexico.

Myanmar is a similar country with a significant digital divide, particularly pronounced in regions like Chin State. This study explores the underlying causes of this divide and examines possible solutions, drawing comparisons and contrasts with similar cases from other contexts.

### 2.3 Comparisons Between Chin State and Other Disadvantaged Regions

Similarities	Differences
<p><b>Digital Divide:</b> Like South Africa, Nigeria, and Mexico, Chin State, Myanmar faces a significant digital divide. In all these regions, disadvantaged communities such as rural areas, low-income households, and marginalized groups have limited access to ICT infrastructure and resources.</p> <p><b>Barriers to ICT Development:</b> All these regions struggle with inadequate ICT infrastructure, including limited internet connectivity, lack of telecommunications facilities, and unreliable power supply in rural areas. High costs associated with ICT devices and internet services make access prohibitive for many residents in these areas. Low levels of digital literacy hinder the effective use of available ICT resources.</p> <p><b>Role of Government Policies and Initiatives:</b> In all contexts, government policies, public-private partnerships, and community-based initiatives play a crucial role in ICT development. These measures aim to bridge the digital divide through infrastructure development, affordability initiatives, and digital literacy programs.</p> <p><b>Impact on Economic and Social Development:</b> Access to ICT has been shown to contribute positively to economic empowerment, education, social inclusion, and poverty alleviation. This is a common trend across the studied regions and is also relevant to Chin State, where ICT development could similarly enhance socio-economic conditions.</p>	<p><b>Geographical and Demographic Challenges:</b> Chin State's region's mountainous terrain and sparse population make infrastructure development more challenging compared to more accessible areas in South Africa or Nigeria.</p> <p><b>Policy and Governance:</b> The governance structure and policy implementation in Chin State may not be as robust or coordinated as in these countries, South Africa, Nigeria and Mexico particularly given political instability and limited government resources. The other countries have established public-private partnerships and community-based initiatives focused on ICT development. South Africa, for instance, has a network of telecentres that support youth empowerment.</p> <p><b>Technological Adoption and Use:</b> Mobile and internet penetration rates are lower, and there are fewer community-based ICT initiatives in Chin State. There is a higher rate of mobile phone and internet usage in South Africa and Nigeria compared to Chin State. Telecentres and community ICT hubs are more prevalent, providing access to a range of ICT services.</p> <p><b>Economic Context:</b> Chin State relies heavily on external aid and government support for ICT development. Economic constraints limit the scope of private sector involvement in ICT initiatives. While the other three have more diversified economy and greater private sector involvement.</p>

## Chapter 3

### Data Collection and Analysis

To understand the current needs of the local population in terms of digital literacy and awareness, data collection efforts were designed to cover both urban and rural areas as well as the northern and southern regions of Chin State. Data was collected by a focal person in each of the nine townships in Chin State, covering 400 to 500 households per township, resulting in a total of 4,400 participants.

To gain insight into ongoing efforts and challenges related to ICT infrastructure development in Chin State, interviews were also held with community leaders and government officials from each township. This aimed to address the persistent digital divide in both the northern and southern parts of the state.

Additionally, group discussions were conducted with ten telecommunications experts who were selected to provide in-depth analysis of the data and contribute to the formulation of a comprehensive ICT development plan for Chin State.

The collected qualitative data were analyzed using an inductive approach, while quantitative data such as the percentage of mobile phone users and internet usage were analyzed using descriptive, regression, and variance analysis techniques.



Figure 3. Collection of Data in Rural Areas of Chin State

## Findings and Recommendations

Based on the comprehensive analysis of the data collected, the following section provides a detailed discussion of the key findings and corresponding recommendations. These insights have been derived from a thorough examination of the information gathered, highlighting critical trends, challenges, and opportunities within the study context. The recommendations aim to address the identified issues and suggest practical strategies for improvement, ensuring that the proposed actions are aligned with the needs and priorities of the targeted communities.

### 3.1. Infrastructure

Chin State, nestled in the northwestern part of Myanmar, presents a unique challenge in terms of IT infrastructure. Covering an area of 36,019 km<sup>2</sup>, it remains one of the most underdeveloped regions in the country, especially in terms of telecommunications and digital connectivity.

**(i) Electricity.** Electricity availability across the country was 54% until 2020. It has significantly dropped deteriorating further since the military coup. Most of Chin State has been without government-provided electricity since 2021. A participant from Tedim reported, "We receive government electricity for about 6 hours a week. Most of the time, we rely on solar batteries, which are not affordable for all households".

**Recommendations:** To address the electricity crisis in Chin State, a multi-pronged approach is needed: expanding access to affordable solar kits and community solar projects for longer-term solutions. Invest in repairing and expanding grid infrastructure, explore small-scale hydropower and other renewable energy sources, and build local capacity through technical training and public awareness campaigns. Collaborate with international organizations for support and advocate for policies that promote sustainable energy solutions and equitable access. This strategy will provide immediate relief, support long-term development, and build resilience against future disruptions.

**(ii) Cell Tower Distribution.** Until 2019, Chin State had only 272 cell towers, a figure strikingly low for its vast area of 36,019 km<sup>2</sup>. This scarcity is largely attributed to the state's low population density. With fewer potential users, telecommunications companies find little incentive to invest in the construction and maintenance of cell towers. The economic return on such investments is minimal, leading to a significant gap in coverage and connectivity for the residents.

**Recommendations:** To address the issue of limited cell tower distribution in Chin State, government incentives, such as subsidies or tax breaks, could encourage telecommunications companies to invest in infrastructure despite the low population density. Additionally, the development of shared infrastructure models, where multiple companies co-invest in towers, could reduce costs and improve coverage. Implementing alternative technologies like satellite communication or small-scale community networks could also help bridge the connectivity gap, ensuring that residents have access to essential communication services.

**(iii) Internet Connectivity.** As a consequence, Internet connectivity in Chin State, Myanmar, remains severely limited and underdeveloped. The lack of a targeted government policy to enhance telecommunications infrastructure exacerbates the issue, leaving the residents with minimal access to reliable internet services. This digital divide hampers economic growth, education, and social connectivity in one of Myanmar's most remote regions.

**Recommendations:** To improve Internet connectivity, a targeted government policy is essential. The government could implement strategic investments in telecommunications infrastructure, such as expanding fiber optic networks and subsidizing broadband services in remote areas. Partnerships with private companies and international organizations could also accelerate development efforts. Additionally, promoting digital literacy and community-driven internet initiatives would empower residents to maximize the benefits of improved connectivity, fostering economic growth, enhancing education, and strengthening social ties in this underserved region.

**(iv) Impact of the Military Coup.** The situation deteriorated further after the military coup in Myanmar. In the wake of political instability, the military regime cut over 60% of mobile and Internet connections in Chin State. This drastic measure severely hampered communication within the state and with the outside world, exacerbating the isolation and underdevelopment of the region.

**Recommendations:** Addressing the severe communication disruptions in Chin State following the military coup requires urgent international intervention and advocacy for the restoration of mobile and internet services. Exploring alternative communication methods, such as satellite internet or low-cost community networks, could provide critical lifelines for residents, helping to mitigate the impact of political instability on the region's development and social cohesion.

**(v) Government Policies and Challenges.** Despite the evident need for improved IT infrastructure, there is still no government policy aimed at increasing the number of cell towers in Chin State. The lack of targeted initiatives to boost telecommunications infrastructure, despite the low population density, leaves the region at a significant disadvantage compared to more densely populated and economically vibrant areas of Myanmar.

**Recommendations:** To address the lack of government policy on IT infrastructure in Chin State, the government should develop targeted initiatives that prioritize the region's unique needs. Policies could include incentives for telecommunications companies to build cell towers, such as tax breaks, subsidies, or public-private partnerships. Additionally, implementing a regional development plan that integrates infrastructure expansion with other economic initiatives could attract investment and improve connectivity.

**(vi) Digital Device Ownership.** The ownership of digital devices in Chin State further highlights the digital divide. Approximately 56% of the population owns mobile phones, a relatively moderate figure given the overall challenges. However, the ownership of more advanced digital devices like personal computers or tablets is alarmingly low, with only about 5% of the population having access



to such technology. This limited access to digital devices restricts the residents' ability to engage with the digital world, impacting education, business, and overall quality of life.

**Recommendations:** To address the low ownership of digital devices in Chin State, initiatives should focus on increasing accessibility and affordability. Government and non-governmental organizations could launch programs that provide subsidies or financing options for purchasing mobile phones, computers, and tablets. Additionally, community centers equipped with shared digital devices and internet access could be established to offer residents opportunities to engage with the digital world. Promoting digital literacy through training programs can also empower the population to utilize technology effectively and widely.

### 3.2 Digital Literacy

Chin State, situated in the rugged terrain of northwestern Myanmar, faces significant challenges in advancing digital literacy among its population. Despite its potential, the region remains largely underserved in terms of digital education and infrastructure, necessitating urgent and targeted investments to bridge the digital divide.

**(i) Current State of Digital Literacy.** According to recent data, only 14% of the sample population in Chin State is considered digitally literate. This figure highlights the vast room for improvement and the pressing need for initiatives that foster digital skills among residents. The majority of computer users in the state have only basic proficiency, primarily utilizing computers for simple tasks and office suite applications. A small fraction of the population engages in more creative endeavors such as photo and video editing. However, the use of computers for advanced purposes, like web and application development, is virtually nonexistent.

**Recommendations:** To enhance digital literacy in Chin State, comprehensive education programs should be introduced at both community and school levels. These programs could focus on building foundational digital skills, gradually advancing to more complex tasks like coding, web development, and creative digital arts. Partnerships with NGOs, tech companies, and educational institutions could provide resources, training, and mentorship. Additionally, establishing local digital hubs with access to computers and internet services would give residents hands-on experience, fostering a tech-savvy population capable of leveraging digital tools for education, business, and creative expression.

**(ii) Barriers to Digital Literacy.** Several factors contribute to the low levels of digital literacy in Chin State. The region lacks digital libraries in both urban and rural areas, limiting access to digital resources and learning materials. Government bodies and civil society organizations (CSOs) struggle to organize digital literacy programs due to a shortage of human capacity and necessary hardware. Additionally, there is a pervasive lack of awareness about the benefits of digital systems in streamlining workflows and improving daily life. Many residents remain unaware of how digital tools can enhance efficiency and productivity in various aspects of their personal and professional lives.

**Recommendations:** Establishing digital libraries in both urban and rural areas can significantly improve access to digital resources and learning materials. Additionally, government bodies and CSOs need to collaborate to build human capacity and provide the necessary hardware to organize effective digital literacy programs. Raising awareness about the benefits of digital systems through targeted outreach and education can also empower residents to utilize digital tools, thereby enhancing their efficiency and productivity in personal and professional spheres.

**(iii) The Need for Investment and Awareness.** Addressing the digital literacy gap in Chin State requires a multifaceted approach. Investment in digital infrastructure, such as setting up digital libraries and providing access to computers and the internet, is crucial. Training programs aimed at improving digital skills across different levels, from basic usage to advanced programming, are essential. Moreover, raising awareness about the advantages of digital literacy is imperative. Residents need to understand how digital tools can transform their workflows, making tasks easier and more efficient.

**Recommendations:** it is essential to invest in digital infrastructure, including the establishment of digital libraries and the provision of computers and internet access. Comprehensive training programs should be implemented to enhance digital skills at all levels, from basic usage to advanced programming. Equally important is raising awareness about the transformative benefits of digital literacy, helping residents recognize how digital tools can simplify workflows, improve efficiency, and enhance their overall quality of life.

Regression analysis and variance analysis using ANOVA indicate that there is no significant difference between rural and urban areas of Chin State regarding device ownership and digital literacy skills. Although city residents have a slightly higher number of digital device owners and digitally literate individuals, the statistical results suggest that this difference is not substantial. This situation implies that efforts to bridge the digital divide between rural and urban areas in Chin State may have been successful, or that factors such as improved infrastructure, educational outreach, and availability of digital devices have reached a level where rural areas can keep pace with urban regions. However, the slight edge in urban areas could point to ongoing disparities in access, awareness, or affordability that may still need to be addressed.

### **3.3 ICT Policy**

Chin State, located in the mountainous regions of northwestern Myanmar, faces substantial challenges in developing its information and communication technology (ICT) infrastructure. Despite the critical role ICT plays in modern development, the state remains significantly underserved, with government policies struggling to address the unique needs of this remote region.

**(i) ICT Infrastructure and Connectivity.** As of 2019, Chin State had only 272 cell towers to cover its extensive 36,019 km<sup>2</sup> area. Given the mountainous terrain of Chin State, the optimal number of cell towers is theoretically at least 2,000. The situation further deteriorated following the military coup in Myanmar. The military regime cut over 60% of mobile connections in Chin State, significantly hampering communication and exacerbating the region's isolation. Despite this dire

situation, there has been no significant government policy or initiative to expand the number of cell towers or enhance the overall telecommunications infrastructure in the state.

**Recommendations:** The government should prioritize the construction of additional cell towers, aiming to reach the optimal number of at least 2,000 to effectively cover the region's challenging terrain. International organizations and private sector partnerships could play a crucial role in supporting these efforts, especially given the current political climate.

**(ii) Digital Literacy and Device Ownership.** Digital literacy in Chin State is another area where government policies fall short. According to recent data, only 14% of the sample population is digitally literate. Most computer users have only basic skills, primarily using office suite applications, with very few engaging in more advanced activities like photo and video editing. Ownership of digital devices also remains low, with only 56% of the population owning mobile phones and a mere 5% possessing personal computers or tablets. This limited access to digital devices further hampers efforts to improve digital literacy and integrate digital tools into daily life and work.

**Recommendations:** Government programs should focus on subsidizing or providing affordable mobile phones, personal computers, and tablets to the population. Additionally, digital literacy training must be expanded beyond basic office suite applications to include more advanced skills like photo and video editing. By equipping residents with both the tools and the skills needed, the government can foster greater digital integration into daily life and work, thereby improving overall digital literacy in the region.

**(iii) Lack of Supportive Government Policies.** Despite the evident need for enhanced ICT infrastructure and digital literacy programs, there has been a notable lack of supportive government policies in Chin State. There are no digital libraries in cities or villages, restricting access to digital learning resources. Government bodies and civil society organizations (CSOs) face significant challenges in organizing digital literacy initiatives due to a lack of human capacity and hardware devices.

**Recommendations:** Addressing the ICT challenges in Chin State requires a comprehensive and targeted approach from the government. Policies should incentivize telecommunications companies to invest in infrastructure, even in low-density areas. Initiatives to establish digital libraries and provide access to digital devices are crucial for improving digital literacy. Additionally, government-led campaigns to raise awareness about the benefits of digital tools can help integrate these technologies into the daily lives of residents.

Without significant policy changes and targeted investments, the digital divide will continue to widen, leaving Chin State further behind in the digital age. It is imperative for the government to recognize and address these challenges to foster development and connectivity in one of Myanmar's most underserved regions.

## Chapter 4

### ICT Development Plan

Chin State is a geographically isolated region with significant infrastructure challenges, a low population density, and high poverty rates. This study presents a 7-year plan to improve Information and Communication Technology (ICT) infrastructure in targeted regions. This plan aims to leverage ICT to address these challenges, improve connectivity, and foster socio-economic development. The plan will be rolled out incrementally from 2024 to 2030, focusing on key areas such as infrastructure development, capacity development, and economic development.

#### Year 1: 2024

##### **(i) Infrastructure Assessment and Planning** (current work)

At the first stage, we conduct a thorough and detailed assessment of the current Information and Communication Technology (ICT) infrastructure. The assessment should identify strengths, weaknesses, and potential areas for improvement, ensuring that the infrastructure is robust, scalable, and aligned with the organization's strategic goals. We assemble a team of ICT experts to survey the current state of digital infrastructure. The team:

- Assess the current infrastructure by evaluating the number, location, and condition of existing cell towers, internet access points, and digital devices.
- Utilize data collection tools and software to analyze coverage gaps and pinpoint areas lacking adequate connectivity.
- Prioritize regions with the highest population density and the greatest need for improved connectivity.
- Plan for the construction of 65 cell towers annually, with a focus on Paletwa Township, followed by Matupi, Tonzang, Kanpetlet, Mindat, and Thantlang in the first year.
  - In 2025, the proposal includes 19 towers for Paletwa, 18 for Matupi, 9 each for Tonzang and Kanpetlet, 6 for Mindat, and 4 for Thantlang.
- Target key locations such as schools, healthcare centers, and government offices for enhanced connectivity.
- Initiate discussions with major telecom providers to explore opportunities for expanding network coverage in Chin State.
- Negotiate agreements for infrastructure sharing, cost reduction, and service improvement.
- Collaborate with telecom providers to extend network coverage and enhance service quality.

## **(ii) Developing a Detailed Roadmap for ICT Development**

Develop a comprehensive and detailed roadmap for the advancement of Information and Communication Technology (ICT) in Chin State, specifically aimed at bridging the digital divide. This roadmap should outline a clear vision and strategic objectives, addressing the unique challenges and opportunities within the region.



**Figure 1. A roadmap of ICT Development and Bridging Digital Gap in Chin State**

The roadmap outlined in the document focuses on transforming Chin State into a central hub for technology and innovation in Myanmar. It identifies several key areas of impact under the APNIC project, which aims to bridge the digital divide in the region. The comprehensive strategy includes:

- **Research:** Conducting in-depth studies to understand the current technological landscape and identify gaps in digital access and infrastructure. This research will serve as the foundation for targeted interventions and development strategies.
- **Policy and Infrastructure Development:** Advocating for and implementing policies that promote the expansion of ICT infrastructure. This includes improving access to internet connectivity, building robust communication networks, and enhancing power supply, particularly in remote and underserved areas.
- **Capacity Building:** Empowering local communities by providing digital skills training and capacity-building programs. These initiatives aim to equip individuals and organizations with the knowledge needed to participate in the growing digital economy and ensure sustainable technological development.
- **Developing IT Industries:** Fostering the growth of local IT industries through investments in technology and innovation. This includes supporting startups, promoting digital entrepreneurship, and creating a favorable environment for IT companies to thrive.

By focusing on these key areas, the roadmap envisions Chin State becoming a center for technological innovation, driving socio-economic growth, and reducing the digital gap across Myanmar.

### **(iii) Performing Awareness and Advocacy Campaigns to Local People**

Implement extensive awareness and advocacy campaigns targeted at local communities, designed to inform and educate them about key issues, opportunities, and benefits related to various initiatives. These campaigns should be culturally sensitive, accessible, and tailored to the specific needs and concerns of the population. To maximize reach and impact, form strategic partnerships with government bodies, non-governmental organizations (NGOs), and civil society organizations (CSOs). The plan includes:

- **Media Engagement:** Engage local and national media to cover the ICT development plan. Use press releases, interviews, and opinion pieces to highlight the plan's benefits.
- **Social Media Campaigns:** Leverage social media platforms to raise awareness and generate public support for the plan. Share success stories, infographics, and updates on the progress of advocacy efforts.
- **Community Engagement:** Organize community meetings and forums to inform and involve local residents and leaders in the ICT development plan. Their support can be influential in convincing government bodies and organizations.
- **Organize Workshops and Public Meetings.** Create spaces for discussion where locals can ask questions and provide feedback. Make these events interactive to increase engagement. Invite experts and influencers such as community leaders, health professionals, or educators, to add credibility.
- **Use Schools and Community Centers.** Engage young people, as they often spread the message within their families. Hold regular sessions at these centers to reach a broader audience. By creating consistent opportunities for interaction and learning, these sessions help build momentum and ensure that important messages are continuously reinforced, ultimately fostering a culture of awareness and engagement across all age groups.

## Year 2: 2025

### **(i) Increasing Electricity Availability in Chin State**

Increasing electricity availability in Chin State is crucial for the region's economic development and overall quality of life. Currently, many areas in Chin State experience limited or inconsistent access to electricity, hindering progress in sectors such as education, healthcare, and small-scale industries. Addressing this issue requires significant investment in infrastructure. The plan includes:

**Advocate the government** to prioritize comprehensive energy policy reforms that emphasize expanding and modernizing electricity infrastructure in remote and underserved regions.

- **Conduct Thorough Research and Analysis:** Gather data on the current electricity infrastructure, especially in remote and underserved areas like Chin State. Identify gaps in access and reliability. Highlight how the lack of electricity hampers economic growth, healthcare, education, and overall quality of life in these regions. Research the feasibility of renewable energy sources (solar, wind, hydropower) that can be developed to meet electricity demands sustainably.
- **Develop a Clear, Evidence-Based Case: Economic and Social Benefits:** Present a compelling argument showing how increased budget allocation for electricity infrastructure will lead to economic growth, job creation, improved healthcare, and better education outcomes. Demonstrate how investments in renewable energy and modern infrastructure can reduce future costs by decreasing reliance on expensive, non-renewable energy sources. Stress the environmental benefits of investing in renewable energy, which aligns with global efforts to combat climate change.
- **Lobby and Engage with Policymakers.** Target ministers, parliament members, and government agencies responsible for energy and budget allocation. Understand their priorities and tailor your advocacy efforts accordingly. Arrange meetings with government officials to discuss the benefits of allocating more budget toward electricity infrastructure. Be prepared to answer questions and address concerns.
- **Present Proposals:** Develop formal policy proposals or recommendations that include cost estimates, timelines, and potential funding sources. Make your proposals practical and actionable.
- **Showcase Success Stories and Pilot Projects.** Present case studies of countries or regions that have successfully expanded their electricity infrastructure, especially through renewable energy projects. This can help convince the government that similar approaches can work locally. Suggest small-scale pilot projects that can demonstrate the impact of investing in renewable energy and electricity infrastructure. Successful pilots can make a strong case for further investment.

**Promote affordable power systems:** Promoting solar systems for Chin State is a highly viable and beneficial option for several reasons: Chin State, especially in higher altitude areas, receives significant sunlight, making it ideal for solar energy generation. Many areas in Chin State are difficult to connect to the national grid due to challenging terrain, making solar an excellent off-grid solution.

- Solar power: Chin State has strong potential for solar energy due to its elevation and available sunlight. Promote solar panels for households, schools, and government offices as a reliable, low-cost option. Develop community solar projects can distribute the cost and benefits of solar power among multiple households.
- Mini-hydro projects: In areas with rivers, small-scale hydroelectric plants can be set up to provide power to local communities.
- Wind energy: Conduct feasibility studies to explore wind energy potential, especially in higher altitude areas.
- Create Public-Private Partnerships (PPP): Engage with private companies: Collaborate with renewable energy companies to introduce affordable, off-grid solar systems, microgrids, or small hydropower plants.
- Government incentives: Advocate for government policies that provide tax breaks, subsidies, or grants for businesses that develop and supply affordable power systems in Chin State.
- Partner with international organizations to receive technical assistance and expertise in renewable energy technologies. This collaboration can help in designing and implementing effective energy solutions tailored to the specific needs of Chin State.
- Implement subsidized solar programs to make solar energy more affordable for households in Chin State. The government can work with international organizations and non-governmental organizations (NGOs) to provide financial support and subsidies for purchasing solar panels and batteries. Establish microfinance programs specifically for solar energy solutions can help households afford solar systems

### **(ii) Expanding Cell Towers for More Mobile Coverage**

Expanding cell towers to improve mobile coverage in Chin State requires a well-structured, phased approach that balances the demand for connectivity with geographic and logistical challenges. Here's a detailed plan based on the proposed tower expansion:

**Prioritize High-Demand Regions:** Focus on population density and critical needs: Identify regions with the highest population density, economic activity, and urgent need for connectivity, such as educational institutions, healthcare centers, and government offices. Strategic prioritization: The plan will prioritize Paletwa Township, followed by Matupi, Tonzang, Kanpetlet, Mindat, and Thantlang. These areas will be targeted first based on their current coverage gaps and the potential for improved communication.



**Yearly Tower Construction Plan:** Build 65 cell towers annually starting in 2025: Allocate resources to construct 65 towers each year, ensuring a consistent pace of expansion.

2025 construction breakdown:

- Paletwa Township: 19 towers will be built to provide foundational coverage, addressing its current connectivity challenges and serving as a regional hub.
- Matupi: 18 towers will be built to further enhance connectivity and support local businesses, schools, and health facilities.
- Tonzang and Kanpetlet: Nine towers each will be added, focusing on expanding mobile access to more remote communities and underserved areas.
- Mindat: Six towers will be constructed to improve coverage in this mountainous area, benefiting both urban and rural populations.
- Thantlang: Four towers will be added, completing the first year's phase of the expansion.

**Optimize Tower Placement:** Conduct thorough assessments using geographic information systems (GIS) to identify optimal locations for towers that maximize coverage while minimizing overlap. Consider terrain, elevation, and the distribution of population centers. Prioritize rural and isolated areas that currently lack reliable mobile coverage, ensuring equitable access across regions.

**Collaborate with Telecom Providers:** Work with major mobile network operators to leverage their expertise and infrastructure for faster and more efficient tower deployment. Negotiate agreements for infrastructure sharing among telecom providers to reduce costs and ensure wider network reach. Sharing towers can speed up the process while minimizing environmental and financial impact.

**Leverage Government and International Support:** Seek government subsidies: Partner with local and national governments to access funding or subsidies for infrastructure development, especially in hard-to-reach areas. Explore grants or technical assistance from global development bodies focused on improving digital infrastructure in underserved regions.

**Implement Local Workforce Training:** Train local technicians in tower construction, maintenance, and troubleshooting. This reduces long-term costs and creates jobs for local communities. Involve local communities in the planning and construction phases to foster ownership and ensure that tower locations align with local needs.

**Incorporate Renewable Energy Solutions:** Use solar power for towers in remote areas to reduce operational costs and ensure consistent power supply in regions with unreliable electricity. Explore wind or battery backup systems to ensure cell towers remain operational during power outages or natural disasters.

### **(iii) Expanding Digital Literacy Programs**

Expanding digital literacy programs is essential for ensuring that all demographics can effectively utilize digital tools, access information, and participate in today's technology-driven world. The plan includes:

**Establish Partnerships:** Engage community leaders, schools, and local businesses to identify the specific digital literacy needs of the population. Community involvement ensures that the programs are relevant and trusted. Work with organizations that have experience in community engagement and capacity building to develop and run digital literacy programs. These partners can bring resources, expertise, and local knowledge to the initiative. Seek support from local and national governments, as well as private tech companies, to fund and promote digital literacy programs. Corporate social responsibility (CSR) initiatives from tech firms can provide equipment, trainers, and funding.

**Develop Targeted Digital Literacy Training Programs:** Create specific training modules for women, youth, and the elderly, considering the unique challenges and opportunities for each group.

- For women: Focus on enhancing digital skills for economic empowerment, such as e-commerce, digital marketing, or remote work opportunities.
- For youth: Provide advanced training in coding, data analysis, and other tech skills that can lead to employment opportunities in the digital economy.
- For the elderly: Offer basic digital literacy skills such as using smartphones, accessing government services online, and staying connected with family through social media or messaging platforms.

Use local language and culturally appropriate materials. Ensure that training content is delivered in the local language and reflects the cultural context of the community to maximize understanding and engagement.

**Set Up Digital Learning Centers:** Establish digital learning centers in community spaces such as schools, libraries, or community halls, where people can access computers, the internet, and digital training. Ensure the centers have necessary tools such as computers, tablets, internet access, and digital resources to facilitate practical learning. For remote areas, consider mobile digital literacy programs where trainers travel to communities with portable equipment (laptops, tablets, etc.) to offer hands-on instruction.

**Train Local Trainers and Volunteers:** Train local educators, community members, and volunteers to deliver digital literacy programs, ensuring that the program can scale and sustain itself over time. Encourage participants to share their digital skills with others in their community, creating a ripple effect that expands digital literacy organically.

**Launch Community Awareness Campaigns:** Use community meetings, local radio, social media, and printed materials to raise awareness about how digital skills can improve access to education, healthcare, financial services, and employment opportunities. Share stories of individuals or

communities that have benefitted from digital literacy programs to inspire others to participate. Organize local digital literacy fairs or exhibitions where participants can see firsthand the practical benefits of technology, such as using e-government services, online banking, or digital health tools.

**Introduce ICT in School Curricula:** Introduce digital literacy in schools: Collaborate with local educational authorities to integrate digital literacy into the school curriculum, ensuring that younger generations grow up with the skills they need for the digital world. Provide training for teachers on how to effectively use technology in the classroom, enabling them to incorporate digital tools in their teaching practices.

#### **(iv) Improving Digital Device Ownership**

Improving digital device ownership is crucial for increasing access to information, education, and economic opportunities. Here's a detailed plan to enhance digital device ownership, particularly in underserved areas:

**Provide Subsidies or Vouchers for Low-Income Families:** Partner with government agencies, NGOs, and corporate donors to create subsidy programs or digital vouchers that allow low-income families to purchase smartphones, tablets, and laptops at reduced costs. Prioritize subsidies for students, women, small business owners, and rural communities who would benefit most from device ownership. Provide access to basic but functional digital devices that meet users' needs for communication, education, and small business operations.

**Utilize Public Spaces for Digital Infrastructure:** Equip community halls, schools, and libraries: Convert existing public spaces into digital access hubs by providing them with computers, tablets, internet access, and other necessary infrastructure. This ensures that even those who cannot afford personal devices still have access to technology. Offer digital literacy workshops in these areas to help people make the most of the shared devices and access online services.

**Offer Low-Interest Loans or Installment Plans:** Partner with microfinance institutions and banks: Work with financial institutions to offer low-interest loans or flexible installment plans for purchasing digital devices. This makes devices more affordable by allowing people to pay for them over time. Ensure that the loan terms are simple and accessible, with minimal paperwork and requirements, particularly for low-income or rural populations. For students and small entrepreneurs, explore interest-free or deferred-payment options that allow them to acquire devices now and start repaying only once they've begun earning.

**Set Up Device Refurbishment and Distribution Programs:** Organize programs that collect used digital devices (smartphones, laptops, tablets) from individuals, companies, and institutions. Encourage donations by offering tax incentives or social recognition. Set up local centers where these donated devices can be refurbished and brought up to functional standards. This also creates jobs for technicians and strengthens local repair skills. After refurbishing, distribute these devices

to low-income families, schools, and community centers at little to no cost. Prioritize students, women, and rural communities for device distribution.

**Incentivize Local Device Manufacturing and Assembly:** Encourage local production or assembly of digital devices by offering tax incentives or grants to manufacturers. Locally produced or assembled devices are often cheaper due to lower transportation and import costs. Provide technical and financial support to small-scale businesses that specialize in building affordable digital devices.

**Implement School Device Programs:** Partner with educational institutions to create programs where students receive personal digital devices (laptops or tablets) as part of their education. Subsidize the cost of these devices or make them available through school programs. Implement programs that allow students to rent digital devices for a period of time, with the option to own the device after completing payments over several months or years.

#### **(v) E-Government Initiatives**

Starting e-government initiatives is a crucial step towards making government services more accessible, efficient, and transparent. Initiative plan includes:

**Basic Government Information Portal:** Develop and deploy e-government platforms to streamline public services.

- **Objective:** Provide essential information about government services, offices, and contact details.
- **Steps:**
  - Develop user-friendly websites.
  - Ensure content is available in local languages.
  - Include information on how to access various government services.

**A Citizen Feedback System:** Develop a citizen feedback system to improve the accessibility, efficiency, and transparency of public services for citizens.

- **Objective:** Allow citizens to provide feedback on government services, ensuring the e-government platform meets their needs.
- **Steps:**
  - Add online feedback forms on each government service page to gather citizens' opinions on the service they received, their satisfaction, and suggestions for improvements.
  - Offer a hotline or email service where citizens can report issues or ask for assistance with e-government services.
  - Analyze the feedback regularly to identify areas for improvement and make necessary changes to the e-government platforms.

**Develop Training Programs:** Create ICT training modules tailored to different levels of government employees—from basic computer literacy to advanced skills like data management,

cybersecurity, and using specific e-government platforms. Ensure hands-on, practical training that covers essential tools such as email, spreadsheets, and database management. Include training on using digital platforms for public services, such as filing forms online, processing requests, and managing electronic records.

**Ensure Data Security and Privacy:** Protect sensitive government and citizen data from unauthorized access and cyber threats. Use encryption to protect all personal data submitted through e-government platforms. Develop strong password policies and access control measures to restrict unauthorized access to sensitive information.

## Year 3: 2026

### **(i) Expanding Cell Towers and Internet Connectivity**

To further expand cell towers and internet connectivity effectively, the plan includes the following steps based on outlined points:

**Prioritize High-Density and Critical Regions:** Use population data and connectivity gap analysis to identify regions with the highest population density and the greatest need for internet connectivity. Continue annual tower Installation plan: Begin constructing 65 cell towers annually starting in 2025. Focus first on regions where the demand for internet services is high (urban areas, critical infrastructure zones, etc.).

**Monitoring & Adjusting Plans:** Regularly assess the usage and connectivity improvements in these areas and adjust future installations based on impact.

**Launch Pilot Projects:** Choose townships for pilot projects that represent different demographic, geographic, and socio-economic profiles. This will provide a diverse set of data on the feasibility and impact of the proposed solutions. Implement various ICT solutions such as fiber optics, satellite connections, and 4G/5G networks in these pilots. Measure the performance in terms of speed, reliability, and user adoption.

- **Pilot Project on Mount Kennedy:** Establish internet coverage on Mount Kennedy, an underserved region in northern Chin State. This project will serve as a model for extending internet services to rural and hard-to-reach areas.

**Implementation Plan:** Refer to the detailed steps in Appendix 1, which should include feasibility studies, resource allocation, timelines, and risk management strategies for the project.

## **(ii) Improving Digital Device Ownership in Chin State**

To improve digital device ownership in Chin State, a multifaceted approach involving financial support, public infrastructure, and sustainable initiatives will be implemented:

**Subsidies and Vouchers for Low-Income Families:** Identify Eligible Households. Work with local governments, NGOs, and community organizations to identify low-income families that need digital devices. Provide direct subsidies or vouchers that can be used to purchase smartphones, tablets, or laptops from approved retailers. Partner with tech companies and retailers to offer discounts or special deals to maximize the purchasing power of the vouchers.

**Utilize Public Spaces with Digital Infrastructure:** Build community hubs: Equip existing public spaces such as community halls, libraries, and schools with internet access and digital devices. These can serve as shared digital centers for those who do not yet own personal devices. Offer digital literacy workshops in these spaces to teach people how to use the devices, access online services, and make the most of the internet.

**Low-Interest Loans and Installment Plans:** Partner with Financial Institutions. Collaborate with local microfinance institutions, banks, and credit unions to offer low-interest loans or flexible installment plans for purchasing digital devices. Provide financial literacy programs to teach people how to manage loans and make smart financial decisions around purchasing digital tools.

**Refurbished Digital Device Distribution:** Establish donation points where individuals and companies can donate used digital devices. Partner with technical institutions or private firms to refurbish these devices, ensuring they are functional and updated with basic software. Distribute these refurbished devices to low-income families, schools, and community centers.

## **(iii) Integrating ICT in School Curriculum**

**Progressive Curriculum Development:** Begin with basic digital literacy for younger students, teaching essential skills like typing, internet navigation, and the use of common software (e.g., word processing, spreadsheets).

Move to advanced skills for older students, introducing coding, data analysis, cybersecurity, and problem-solving using ICT tools. Include entrepreneurship modules to teach students how to use ICT to develop business ideas, manage projects, and market products/services online.

Ensure that teachers are trained to deliver ICT-focused content by providing them with specialized training, materials, and ongoing professional development in digital education.

**Ensure ICT Infrastructure in Schools:** Equip Schools with Necessary Technology. Provide schools with computers, tablets, internet access, and educational software to ensure students have the tools needed to engage in digital learning. Work with curriculum developers to ensure that ICT is seamlessly integrated across subjects, demonstrating how technology can enhance learning in fields like science, math, and the arts.

**Provide Grants and Incentives for Local ICT Entrepreneurs:** Organize competitions and hackathons in schools or communities that encourage students and young entrepreneurs to create ICT solutions addressing local needs. Offer small grants or seed funding to promising local ICT startups, particularly those focused on education technology, digital infrastructure, or content development for schools.

Build partnerships between schools and local ICT businesses, allowing students to intern, learn from entrepreneurs, and gain hands-on experience in the industry. Create mentorship networks where successful ICT professionals can guide students and aspiring entrepreneurs.

#### **(iv) Expanding E-Government Services**

##### **Data Centers**

**Objective:** to ensure secure, efficient, and reliable management of their critical data and digital services.

**Steps:**

- Define objectives and requirements
- Site selection (geographic consideration, power and cooling, network connectivity)
- Design the data center infrastructure (layout planning, redundancy, cooling solutions, energy efficiency)
- Networking and connectivity (high speed networking, network security)
- Server and storage systems (server selection, virtualization, storage solutions)
- Power and backup systems (power supply, backup generators and UPS, power usage efficiency)
- Cooling and environmental control (cooling systems, energy-efficient cooling)
- Implement security measures (cyber security, physical security)
- Monitoring and management (Data Center Infrastructure Management, capacity planning, disaster prevention plans)
- Compliance and certification
- Staffing and maintenance

##### **Mobile Government (m-Government) Services**

**Objective:** Utilize mobile technology to provide government services, given the widespread use of mobile phones.

**Steps:**

- Develop mobile apps or SMS-based services for key functions (e.g., public announcements, emergency alerts).
- Enable mobile payments for taxes and fines.
- Ensure services are accessible without high-end smartphones.

## **Community Feedback and Grievance Redressal System**

**Objective:** Establish a platform for citizens to provide feedback and report issues.

### **Steps:**

- o Develop an online and mobile-friendly complaint submission system.
- o Set up a backend system to track and address complaints.
- o Ensure transparency in the resolution process by updating citizens on the status of their complaints.

## **Year 4: 2027**

### **(i) Expanding Cell Towers and Internet Connectivity**

To further expand cell towers and internet connectivity effectively, the plan includes the following steps based on outlined points:

**Prioritize High-Density and Critical Regions:** Use population data and connectivity gap analysis to identify regions with the highest population density and the greatest need for internet connectivity. Continue annual tower Installation plan: Begin constructing 65 cell towers annually starting in 2025. Focus first on regions where the demand for internet services is high (urban areas, critical infrastructure zones, etc.).

**Monitoring & Adjusting Plans:** Regularly assess the usage and connectivity improvements in these areas and adjust future installations based on impact.

### **(ii) Enhancing ICT Infrastructure**

Enhancing ICT in Chin State will require long-term commitment from both the government and private sector, combined with strategies to bridge the digital divide in the rural and underserved areas. The ongoing plan includes:

**Expand Fiber Optic Networks:** Partner with telecom providers to extend fiber optic cables into remote areas of Chin State. This will ensure stable and high-speed internet connections, especially in urban centers.

**Build More Cell Towers:** Strengthen mobile networks by building more base stations to extend coverage to rural areas. Leveraging satellite-based solutions can help bridge connectivity gaps in hard-to-reach regions.

**Public-Private Partnerships (PPPs):** Encourage collaboration between the government, local companies, and international investors to invest in the ICT sector. These partnerships can help in building infrastructure and upgrading facilities.



**Create an ICT Policy Framework:** Create a specific policy for developing ICT in remote areas like Chin State. This includes streamlined regulations for telecom companies and investment-friendly policies.

**Attract Foreign Aid and Expertise:** Seek grants and aid from international organizations like the World Bank, the UN, or regional partners for ICT development projects. These funds can support infrastructure projects and technology training programs.

### **(iii) Integrating ICT in Education**

Integrating ICT (Information and Communication Technology) into education can greatly enhance teaching and learning processes. Here are key strategies to achieve effective integration.

**Provide Access to Devices:** Equip schools with computers, tablets, and interactive whiteboards to enable students and teachers to engage with digital content. High-speed internet is essential for accessing online resources, virtual classrooms, and cloud-based applications.

**Learning Management Systems (LMS):** Implement LMS platforms like Moodle or Google Classroom to facilitate communication, assignment submissions, and resource sharing. Utilize educational websites, e-books, videos, and interactive applications to make learning more engaging and personalized.

**Support Distance and Blended Learning:** Support video conferencing and recorded lectures to support remote learning, especially in areas with limited access to physical schools. Combine traditional classroom teaching with online components to create a more flexible and individualized learning experience.

### **(iv) Expanding E-Government Services**

#### **E-Health Services**

**Objective:** Improve access to healthcare information and services.

#### **Steps:**

- Develop a portal for booking medical appointments and accessing health records.
- Provide telemedicine services for remote consultations.
- Share health education resources and preventive care information.
- Train government employees on the use of ICT in administrative tasks.
- Implement telemedicine services to improve access to healthcare in remote areas.
- Train healthcare workers on using telemedicine tools and platforms.

#### **Online Tax Filing and Payment Systems**

**Objective:** Simplify tax filing and payment processes.

#### **Steps:**

- Develop an online tax filing system.

- o Provide options for electronic payments.
- o Offer support and educational resources on tax filing procedures.

### **Online Document Management and Requests**

**Objective:** Enable citizens to apply for and manage essential documents online (e.g., birth certificates, IDs, permits).

**Steps:**

- o Create a secure online portal for document applications.
- o Implement digital signature and verification systems.
- o Offer offline support centers to assist with online applications.

## **Year 5: 2028**

### **(i) ICT for Agriculture**

Using ICT (Information and Communication Technology) for agriculture can help farmers improve productivity, make better decisions, and access critical information. The plan includes:

**Introduce ICT Tools for Farmers:** Introduce mobile apps for weather forecasts, market prices and e-commerce, advisory services, etc.

- Apps like "aWhere" and "FarmRise" offer location-specific weather data to help farmers avoid crop loss due to unexpected weather changes.
- Apps such as "AgriMarket" and "Farmers App" give farmers access to real-time market prices, helping them make informed decisions about selling crops. ICT tools also connect farmers to digital marketplaces, allowing them to sell directly to buyers and reduce the influence of middlemen.
- ICT platforms such as "mKisan" and "Plantix" provide farmers with knowledge on best agricultural practices, pest control, and sustainable farming methods. This helps improve yield and reduces losses due to incorrect farming techniques.

**Provide Training on Using ICT in Agriculture:** Organize training sessions on how to use ICT tools effectively. This includes mobile apps, software for farm management, and sensors for precision agriculture. Training farmers to use digital tools ensures that they benefit fully from technology.

Introduce farmers to online platforms such as "e-Extension" or "Farmer Field Schools" where they can learn about new technologies, improved farming techniques, and innovations in agriculture. Call centers and text-based services can provide real-time assistance to farmers. Services like "Kisan Call Centers" enable farmers to get instant advice from agricultural experts, without needing to visit physical locations.

### **(ii) Improving Public Services**

**Extend e-government services:** Improve e-government platforms that allow citizens to access services anytime, reducing the need for physical visits and minimizing bureaucratic delays. This can include portals like the "India e-Governance" platform or "Estonia's X-Road."

**Mobile Accessibility:** Develop mobile apps and SMS-based services (like m-Governance in India) to enable citizens to receive important updates or perform transactions from their smartphones.

**Improved Healthcare Services:** Foster telemedicine. ICT enables remote healthcare services. Implement electronic health record (EHR) systems to manage patient information securely and efficiently. These systems allow for better coordination between healthcare providers, ensuring accurate diagnosis and timely treatment.

**Improved Education Services:** Develop government-supported platforms like "Khan Academy" and other learning management systems (LMS) offer inclusive learning for students in different regions. Set up digital libraries and provide educational content through ICT tools, allowing students and teachers to access resources beyond their local institutions.

**Bridging the Digital Divide:** Ensure that public services reach all citizens in Chin state improving ICT infrastructure. Implement programs like "Digital India" that focus on expanding internet access and digital literacy so that everyone can benefit from e-government services.

### **(iii) Strengthening ICT Governance**

Strengthening ICT governance in Chin State involves creating frameworks, policies, and infrastructure to ensure effective management of ICT resources and improve digital service delivery. Key strategies include:

**Develop Comprehensive ICT Policies:** Formulate an ICT Governance Framework. Establish a clear governance structure that outlines roles, responsibilities, and decision-making processes across government bodies. Ensure policies promote digital inclusion by addressing the digital divide in rural and underserved areas. This includes extending internet access and ICT resources to marginalized communities.

**Strengthen ICT Infrastructure:** Improve broadband access across Chin State by investing in fiber-optic networks, mobile infrastructure, and satellite technology, especially in remote areas. Public-private partnerships can play a key role in funding these initiatives. Explore cloud computing solutions to manage government data securely and efficiently.

**Enhance Capacity Building and Digital Literacy:** Provide ongoing ICT training for public servants to improve their ability to manage digital systems, deliver e-government services, and handle cybersecurity issues.

## Year 6: 2029

### **(i) Fostering a Digital Economy**

**Create Favorable Policies:** Establish policies that support tech startups, innovation hubs, and digital businesses. This can include tax incentives, grants, and financial support for entrepreneurs and digital innovators. Policies should encourage foreign investments, research, and development in technology-driven sectors.

**Promote Access to Finance:** Encourage the growth of venture capital, angel investment networks, and fintech solutions to provide digital entrepreneurs with funding opportunities. Governments can collaborate with financial institutions to offer low-interest loans or create public funds for startups.

**Digital Platforms and Ecosystems:** Develop platforms that enable businesses to operate online, such as e-commerce marketplaces, fintech solutions, and digital payment systems. These platforms can help small and medium-sized enterprises (SMEs) access broader markets and increase profitability.

**Business Incubators and Accelerators:** Establish incubators and accelerators to provide mentorship, resources, and training for new digital businesses. These programs help entrepreneurs scale their businesses by connecting them with investors, markets, and expertise.

**Digital Payment Systems:** Promote the adoption of secure and accessible digital payment platforms to support e-commerce and mobile banking. These systems are crucial for the functioning of a digital economy and financial inclusion.

**Digitize SMEs:** Provide support to traditional businesses (such as agriculture, retail, and manufacturing) to adopt digital technologies. This can include offering technical support, digital tools, and financial incentives for businesses to automate processes, go online, and access e-commerce platforms.

**E-Government Services for Businesses:** Streamline government services (like permits, tax filings, and business registration) by offering them online. This reduces bureaucracy and makes it easier for entrepreneurs to start and run digital businesses.

**Data Protection and Privacy Laws:** Create a regulatory environment that protects consumers and businesses operating in the digital space. Ensure robust data protection laws, intellectual property rights enforcement, and regulations that promote safe and fair digital trade.

**Digital Economy Frameworks:** Adopt international frameworks and best practices for digital trade to facilitate cross-border e-commerce. This can include harmonizing regulations with international standards, supporting digital identity systems, and reducing barriers to online trade.

### **(ii) Advanced Training and Research**

**Establish ICT Training Centers and Research Institutions:** Build specialized training centers focused on equipping students and professionals with cutting-edge ICT skills. These centers should

offer a variety of programs such as coding, cybersecurity, data analytics, artificial intelligence (AI), and software development.

**Accessibility in Rural Areas:** To foster inclusivity, such centers will be expanded to rural and remote areas. Offering online courses and e-learning platforms can increase access to ICT education.

**Research Institutions:** Establish ICT research institutions to explore emerging technologies like blockchain, AI, cloud computing, and Internet of Things (IoT). These institutions can serve as hubs for innovation and problem-solving, contributing to the country's digital transformation and economic growth.

**Collaborations with Industry:** Partner with leading tech companies and universities to undertake joint research projects and develop new ICT applications. Collaborations can speed up innovation and help translate research into commercial products.

**Promote Innovation through ICT Research and Development (R&D) Programs:** By promoting R&D, governments can cultivate a skilled workforce, accelerate innovation, and ensure long-term growth in the ICT sector. The plan includes:

- **Government-Backed R&D Initiatives:** Promote ICT R&D programs that focus on key areas such as digital infrastructure, cybersecurity, AI, and 5G technologies. These programs should provide grants or subsidies to support startups, academic researchers, and entrepreneurs working on innovative ICT solutions.
- **Incubators and Innovation Hubs:** Create innovation hubs or tech incubators that foster entrepreneurship and provide resources for startups to experiment and develop new digital solutions. Such hubs offer mentorship, networking opportunities, and seed funding to help new ventures thrive.
- **Collaboration with Universities:** Promote joint research between universities and the private sector, offering incentives to academic institutions to work on ICT-related projects. This can help drive scientific discovery and practical applications of technology in areas such as agriculture, healthcare, and education.
- **Intellectual Property Protection:** Strengthen intellectual property laws to encourage innovation, ensuring that inventors and companies can protect and commercialize their ICT research. This creates a favorable environment for investment and innovation in the tech sector.

## Year 7: 2030

### **(i) Achieving Full Connectivity**

**Ensure Comprehensive Mobile and Internet Coverage:** Work with telecommunications companies to extend mobile network coverage to all parts of Chin State, particularly rural and mountainous regions. This includes expanding 3G, 4G, and eventually 5G networks to provide high-speed mobile internet.

**Use Satellite and Wireless Technologies:** In remote areas where building traditional infrastructure is challenging, utilize satellite-based internet and wireless broadband solutions to provide connectivity. Satellite providers like Starlink or regional satellite services can be key players in connecting isolated communities.

**Universal Service Obligation (USO):** Impose a Universal Service Obligation on telecom operators, requiring them to provide a minimum level of service across the entire state, even in rural or remote areas. The creation of a USO fund can support this initiative by redistributing profits from high-coverage areas to subsidize expansion into low-coverage regions.

**Upgrade Infrastructure for High-Speed Internet and Emerging Technologies:** Invest in the expansion of fiber-optic networks to support broadband internet in both urban and rural areas. Fiber-optic cables offer the fastest and most reliable internet service, and should be the backbone of any high-speed internet network. Focus on laying fiber in key hubs and extending connections through public infrastructure projects.

**Regional Connectivity Hubs:** Establish central connectivity hubs in towns and villages where fiber-optic lines can be shared and extended to neighboring areas through last-mile solutions like fixed wireless access or mobile broadband.

**Deploy 5G Networks:** Prepare for future demand by gradually introducing 5G networks. 5G not only supports faster speeds but also enables the use of IoT (Internet of Things) technologies, which can revolutionize sectors like agriculture, healthcare, and education in rural areas. Early rollout can focus on major towns, eventually expanding to the entire state.

**Emerging Technologies for Rural Connectivity:** Encourage the use of emerging technologies like TV White Space (unused TV frequencies), low-Earth orbit (LEO) satellites, and wireless mesh networks. These technologies can provide high-speed internet to hard-to-reach areas without extensive physical infrastructure.

### **Additional Strategies:**

**Public-Private Partnerships:** Foster collaboration between the government, tech companies, and international organizations to ensure both funding and technical expertise are available for infrastructure projects.

**Community Networks:** In areas with minimal coverage, encourage community-led connectivity initiatives where local cooperatives or non-profits manage their own small-scale internet infrastructure, providing services directly to local populations.

### **(ii) Monitoring and Evaluation**

- Conduct thorough evaluations of all ICT initiatives to assess impact and identify areas for improvement.
- Use data-driven insights to refine and enhance the ICT development strategy.

## **Monitoring and Evaluation Plan for ICT Development in Chin State**

**Primary Goal:** To achieve full mobile and internet connectivity across Chin State, foster a digital economy, and improve public service delivery through ICT.

### **Objectives:**

Expand mobile and internet coverage.

Upgrade ICT infrastructure to support high-speed internet.

Promote digital literacy and skills development.

Support innovation and entrepreneurship in the digital economy.

### **(i) Key Performance Indicators (KPIs)**

#### **Connectivity and Infrastructure:**

Percentage of population covered by 3G, 4G, or 5G networks.

Number of fiber-optic cable connections established.

Number of public Wi-Fi hotspots or satellite broadband installations in rural areas.

#### **Digital Literacy and Training:**

Number of individuals completing digital literacy programs.

Number of ICT training centers established.

Number of students enrolling in ICT-related courses in schools and universities.

#### **Digital Economy:**

Number of tech startups and entrepreneurs supported through incubators.

Amount of funding provided to digital businesses.

Number of businesses using digital payment systems and e-commerce platforms.

**Public Services:**

Number of government services digitized and accessible online.

Reduction in average time to access or process public services via e-government platforms.

Number of citizens using e-government services.

**(ii) Monitoring Plan**

**Frequency:**

**Quarterly Reports:** Conduct regular monitoring and data collection every three months to assess progress against KPIs.

**Mid-Term Review:** A comprehensive evaluation will be conducted at the midpoint of the project, assessing both short-term outputs and long-term trends.

**End-of-Year Review:** At the end of each year, review the overall performance, including financial audits and infrastructure assessments.

**Data Collection Methods:**

**Surveys and Interviews:** Regularly survey citizens, businesses, and government employees to assess user satisfaction with services and internet access.

**Digital Analytics:** Use web and mobile analytics to track the number of users accessing online services, including government platforms, e-commerce sites, and mobile apps.

**Field Monitoring:** On-site visits to assess the functionality of infrastructure, including network towers, Wi-Fi hotspots, and ICT training centers.

**(iii) Evaluation Plan**

**Purpose:** Evaluate the effectiveness of the ICT development plan in meeting its objectives and the overall impact on Chin State's economy and public service delivery.

**Evaluation Criteria:**

**Relevance:** Assess whether the project is addressing the core needs for connectivity, digital literacy, and public services.

**Efficiency:** Measure the cost-effectiveness of the infrastructure projects and training programs.



**Effectiveness:** Evaluate how well the project is achieving its stated goals and KPIs.

**Sustainability:** Assess whether the ICT systems and policies implemented are sustainable in the long term.

**Impact:** Measure the social and economic impact of the project, including improvements in the digital economy, job creation, and access to essential public services.

#### **(iv) Responsibilities**

**Project Management Unit (PMU):** Oversee the entire M&E process, ensuring that the ICT plan is implemented effectively and all KPIs are met.

**Government Agencies:** Collaborate with telecom providers, educational institutions, and the private sector to collect data and facilitate monitoring.

**External Evaluators:** Hire independent evaluators to ensure an objective assessment of the project's success, particularly during the mid-term and final evaluations.

**Stakeholder Involvement:** Involve local communities, tech companies, and entrepreneurs in providing feedback and participating in assessments of digital literacy and service accessibility.

#### **(v) Reporting and Dissemination**

**Progress Reports:** Share quarterly and annual reports with key stakeholders, including government agencies, donors, and the public.

**Workshops and Consultations:** Hold stakeholder workshops at major milestones (mid-term and final evaluations) to discuss progress, challenges, and future improvements.

**Public Feedback Mechanisms:** Allow citizens to submit feedback on ICT services through online platforms, mobile apps, or in-person forums. Regularly review this feedback to make necessary adjustments to the plan.

## **Chapter 5**

### **Conclusion**

By 2030, Chin State envisions transforming into a region with a well-developed ICT infrastructure, significantly enhancing its public services, education, and healthcare systems, while fostering a vibrant digital economy. This comprehensive plan aims to close the digital divide, drive socio-economic progress, and elevate the overall quality of life for the people of Chin State. Through strategic investments in technology and innovation, the state will create new opportunities for growth, improve access to essential services, and empower its citizens to participate in a rapidly evolving global economy.

## References

1. Josephine Olamatanmi Mebawondu, Jacob Olorunshogo Mebawondu, Angela Atsanan, The Impact of Information Technology in Alleviating Poverty in Nigeria, *Continental Journal of Technology*, June, 2012.
2. Samkelo Lutho Booï, Wallace Chigona, Priscilla Maliwichi, Khaya Kunene, The Influence of Telecentres on the Economic Empowerment of the Youth in Disadvantaged Communities of South Africa, *Information and Communication Technologies for Development. Strengthening Southern-Driven Cooperation as a Catalyst for ICT4D*, (pp.152-167).
3. Marlien Herselman, Sj Jacobs, ICT Provision to Disadvantaged Urban Communities: A Study in South Africa and Nigeria, *International Journal of Education and Development Using ICT*, Vol 1, No 3, 2005.
4. Thinn Thinn Aye, ICT Development in Myanmar, *Journal of Myanmar Academy Arts & Science*, 2012 Vol. X. No. 10.
5. Pingo Zablon Bosire, ICT Capacity Building For Knowledge And Information Access In Disadvantaged Communities, *Thesis (Master of Library and Information Science)*, *University of Tsukuba*, No. 34318, 2015.8.31
6. Department of Population, Ministry of Labour, The 2014 Myanmar Population and Housing Census, Chin State, Falam District, Falam Township Report, October 2017.
7. Merritt Humberto, Information Technologies And The Evolution of The Digital Divide in Mexico: A Public Policy Approach, *Análisis Económico*, vol. XXVI, núm. 62, 2011, pp. 119-137.
8. Child Focused Local Social Plan, Chin State, A Policy Document Supporting Chin State's Comprehensive 5-Years Development Plan and Annual Planning (2016-2-21).
9. The 2014 Myanmar Population and Housing Census, Chin State, Census Report Volume – 3D.
10. Thang Sian Muang, Characterization for VSAT Networks, Master Thesis, School of Engineering and Technology, Asian Institute of Technology.
11. List of Physical Towers Implemented by Telecommunications Operators as of May 31, 2019.

## Annex 1

### Project Title: Introducing Satellite Internet in Tedim Rural Areas

#### 1) Outline of the pilot project

##### - Objectives

(a) We have completed preliminary investigations, determined user needs and confirmed the technical feasibility of the proposal.

(b) According to our investigations, we have decided on the areas we can serve efficiently and cost effectively within APT parameters. We also confirmed the on-going operational feasibility of the service with local government officials and with village heads in their respective village areas.

(c) Initial research for the most reliable cost-efficient and affordable hardware and satellite Internet access has been completed and will be updated to ensure the project keeps pace with technological innovations, improvements, and, as far as possible to anticipate technological potentials into the future.

(d) We plan to establish satellite Internet connections to 30 villages of Tedim-Township none of which currently have any Internet access. The village names are (1) Dolluang, (2) Tuizang, (3) Suang Dawh, (4) Suang Hoih, (5) Gaw Sing, (6) Thangnuai, (7) Tuimui, (8) Haupi, (9) Ngennung, (10) Fartlang (North), (11) Tui Sau, (12) Tui Vial, (13) Zim Pi, (14) Zimte, (15) Singlei, (16) Gam Ngai, (17) Tualmu, (18) Mawngken, (19) Khuadai, (20) Thang Zang, (21) Suang Sang, (22) Lalta, (23) Dam Pi, (25) Tui San Zang, (26) Koi Lam, (27) Vut Buak, (28) Hei Lei, (29) Phaiza, (30) Suangzang. Each Village has approximately 800 population for a total population of around 32,000 in the proposed service area.

(e) Upon installation, the system will be thoroughly tested and launched with strong government and media support.

##### - Current status

90% of villages in Tedim township are on the upland area (between 1,220 m and 2,706 m above sea level); some are on upland flats, on mountain tops and in upland valleys. The rural population is relatively young in Tedim 41% of the population being 0 to 14 years; 55% are between 15 to 66 and 4% are 65 or older as of 2016. There is no access to the Internet or to other digital technologies in schools, rural healthcare centers or households. Newsletters were distributed from Tedim township about once a week. However, most media work has now been transformed into digital media due to Covid-19 restrictions and, as a consequence, these publications are not available to our target villages. Electrical power is obtained from solar cells, batteries and power generators. Among the target villages in the proposed project, Gamngai, Mawngken and Sing lei villages do not have phone line access.

*(source: Township Rural Development Strategies and Programmes, Tedim Township, Chin State, Myanmar)*

### - Purpose of pilot project

- (1) To establish efficient, sustainable, cost-effective Internet infrastructure in Tedim rural areas.
- (2) To provide communities in target areas with essential access to vital information services via reliable cost-effective technologies and thereby mitigate the threatening circumstances caused by Covid-19 restrictions and the dangers associated with living in remote areas.
- (3) To establish initiatives that apply emerging technologies to online learning, healthcare services and the digital economy in the target rural areas.

### - Outline of the pilot project

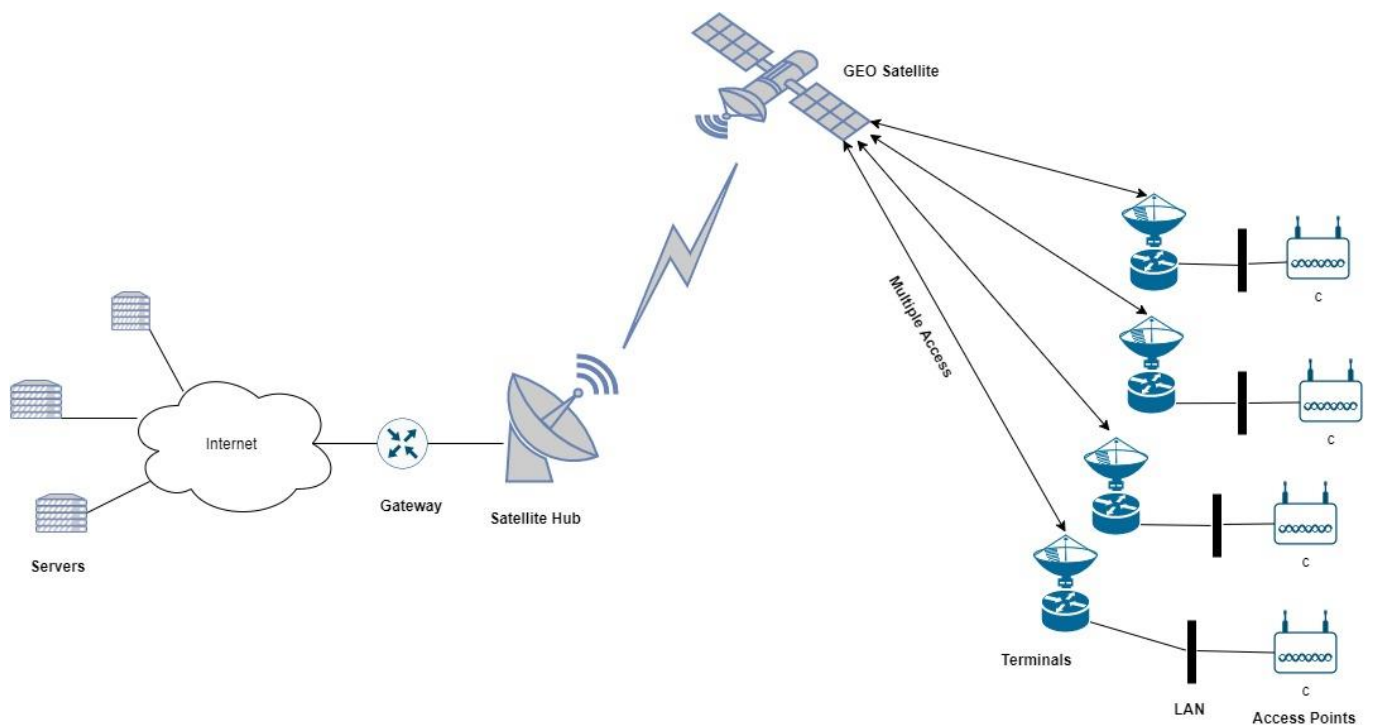


Figure 1 Network/ System Architecture

### Expected output

The main output of the proposed project will be satellite based rural Internet access in 30 villages of Tedim township. The project will include unlimited Internet bandwidth for the first year from project completion in each village.

### - Reporting procedure

A project log will be prepared during the 11 months of the project. Five months after the start of the project, interim project and accounting reports, together with a short PowerPoint presentation of the project, will be submitted to the APT Secretariat.

After the project is completed, the following reports will be submitted:

- a. The project completion report, showing a detailed output and analysis of the project results.
- b. A PowerPoint presentation of the project providing a brief overview of the project, its outcomes and suggestions for future work.
- c. A comprehensive accounting report, with the original certification or original receipts attached.

#### ▪ Contribution :

Successful implementation of the proposed project will have a huge social impact on the region which in turn is fulfilling the strategic plan of the APT. The project outcomes are related to the Strategic Plan of the APT in many ways, both directly and indirectly. To list the most relevant parts:

- The project output will be reliable and sustainable Internet connections in regions where there has never been any Internet access at all. This will provide broadband penetration with an emphasis on reaching unserved populations.
- The Internet connection will provide a basic and essential platform for many other ICT services so that the region will have opportunities to access the benefits of new and emerging technologies. This will have a very significant impact on the growth of the digital economy and feeder economies in the region.
- It will immediately expand the reach, use and usefulness of ICT for sustaining regional and national security and development.
- Learning and participation are not possible for people with disabilities in our rural areas who are not connected by ICT services. However, with Internet access, disabled and disadvantaged people will be able to join online-based learning programs on an equal footing with able bodied folks in these remote areas. The inclusion and continuing development of the ICT skills of the disabled population along with all citizens in the district and the country at large will not only be a worthy and remarkable achievement, it will also provide an excellent model for other projects.

- **Financial support from the Government:**

Given the fact that rural populations constitute the majority population of the Republic of the Union of Myanmar, integrating the voices of village populations, village development plans and investment programmes with their respective township development plan and budget is highly valued and deeply considered in national planning. The Department of Rural Development (DRD) has been implanting Village Development Plans in the respective regions since 2014. According to the rural development policy of the government, ICT plays a very important role in improving the socioeconomic life of rural populations and in reducing the urban-rural divide. In the framework for planning regional development to aid rural areas, Strategy 1, Tactic 1 is to **establish ICT framework in rural areas**. The government has implemented rural Internet access in other rural areas of Myanmar which lie in flat lands. If we implement a satellite Internet system to overcome insurmountable difficulties posed by fiber optic and microwave installations in the project’s target areas, they will become more fully integrated in the nation-wide unification plan, the nationwide ICT infrastructure and national and civic participation. Furthermore, implementing the e-government system is a required mission policy of Chin State, a policy which was imposed by the regional government). Thus, successful implementation of the proposed project will conform to regional needs, current missions, policies and future plans of all levels of government.

- **Sustainability of the projects**

Among the 7 states and 7 divisions of Myanmar, Chin State is the second least developed state because of its geographical nature and poor transportation. For that reason, this state is in the most desperate need of an e-government system that will compensate for this lack of vital information (ICT) services. The regional government also promotes the implementation and maintenance of e-government ICT systems as a high priority. This project will be a great help in meeting national e-government plans and aspirations that will facilitate the inclusiveness of regional people in accessing the benefits of digital technologies and taking the advantages, roles and responsibilities of being digital citizens. As they will become a part of the nation-wide plan and ICT infrastructure, the regional government will be accountable for the sustainability of the proposed project and this will open in initiatives for future implementations and applications of ICT services in the district.

## 2) Pilot project implementation plan (schedule) in detail. (date, period, place, mission, etc.)

Project: Introducing Satellite Internet in Tedim Rural Areas																	
Project Timeline		March				April				May				June			
Workpackages /Tasks	WPL	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16
WP1 - COORDINATION	MM																
T1.1 - Project Management																	
T1.2 - Contacts with ATP																	

<b>WP2 - REQUIREMENTS</b>	<b>MM</b>	■	■															
T2.1 - Req.s		■	■															
T2.2 - Proof-of Concept(s)		■	■															
<b>WP3 - GROUND SEGMENT</b>	<b>PO</b>	■	■	■	■	■	■	■	■	■	■	■						
T3.1 - Design			■	■														
T3.2 - Procurement of HW			■	■	■	■												
T3.3 - Field Work Deployment			■	■	■	■	■	■	■	■								
T3.5 - Testing									■	■								
T3.5 - Service Launch												■						
<b>WP4 - AIR SEGMENT</b>	<b>PO</b>	■	■	■														
T4.1 - Contract with Service Provider		■	■															
T4.2 - Testing				■														
<b>WP5 - DISSEMINATION</b>	<b>MM</b>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T7.1 - Logistics													■					
T7.2 - Invitations														■				
T7.3 - Press Releases														■	■			
T7.4 - Programme															■	■		
T7.5 - Video															■	■		
T7.6 - Press Conference																	■	