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CHALLENGES FACED IN INTEGRATING INFORMATION AND COMMUNICATION TECHNOLOGIES IN THE SOCIO-ECONOMIC DEVELOPMENT OF LOMIE SUB-DIVISION (EAST CAMEROON)

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DEDICATION

To my lovely parents Nkwende Ngande Michael and Ndassi Clothide Epse Nkwende.

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LIST OF ABREVIATIONS AND ACRONYMS

ADSL: Asymmetrical Digital Subscriber Line

AMFN: African Model Forests Network

ART: Telecommunication Regulatory Agency

ANTIC: National Agency for Information Communication Technology

ASTRADHE: Association for Translation Literacy and Human Development

BAODL: Support Office for Development Organizations

BUCREP: Central Bureau of Census and Population Studies

CAMO: Campost Money

CATIE: Tropical Agricultural Research and Education Centre

CDMA: Code Division Multiple Access

CESEFOR: Centre for Service and Promotion of the Forest Industry of Castile and Leon

CETIC: Industrial and Commercial and Technical Education Centre

CIG: Common Interest Group

CRTV: Cameroon Radio Television

CPU: Central Processing Unit

COMSAT: Commission Satellite

CTPL: Commission for Privatization and liquidation

CIFOR: Centre for International Forestry Research

CODEDEM: Development Committee of Dja and Mpomo

CRS: Common Reporting Standards

CSpro: Census and Survey Processing

DMO: Development Management Organization

DMS: Direct Messages

DVD: Digital Video Disc

ENSPT: National Advanced School of Post and Telecommunication

FAO: Food and Agricultural Organization

GDP: Gross Domestic Product

GDS: Global Distribution System

GIS: Geographic Information System

GPS: Global Positioning System

GPFLR: Global Partnership on Forest Landscape Restoration

ICTs: Information Communication Technologies

IFAD: International Fund for Agricultural Development

IMFN: International Model Forest Network

INTELCAM: International Telecommunications of Cameroun

IP: Internet Protocol

IT: Information Technologies

IUCN: International Union for Conservation of Nature

LAN: Local Area Network

PLFN: Landscapes for people, Food and Nature

LED: Laser's Emitted Diode

MCYP: Multifunctional Centre for Youth Promotion of Lomie

MDG8: Millennium Development Goal N°8

MINFOF: Ministry of forestry and Wildlife

MINPOSTEL: Ministry of Post and Telecommunication

NGO: Non-Governmental Organization

NIC: National Institute of Cartography

NRCan-CFS: Natural Resource Canada, Canadian Forest Service

NTFP: Non-Timber Forest Producers

OADM: Optical Add-Drop Multiplexer

OECD: Organization for Economic Cooperative Development

PRSP: Poverty Reduction Strategy Paper

RAM: Random Access Memory

R&D: Research and Development

RNI: Non-Residents Records Database

ROM: Read Only Memory

SAFE: Safe and Friendly Environment

SAT: South Africa Transit

SATIS: Socially Appropriate Technology Information Services

SCM: Supply Chain Management

SDH: Synchronous Digital Hierarchy

SMS: Short Message Service

SODECAO: Company for the Development of Cocoa Cultivation

TAM: Technology Acceptance Model

TV: Television

UNCED: united Nation Conference on Environment and Development

UNESCO: United Nation Educational Scientific and Cultural Organization

USSD: Unstructured Supplementary Service Data

VPN: Virtual Private Networks

WADEC: Women for Actions and Development in Central Africa

WASC: West African Submarine Cable

WDM: Wavelength Division Multiplexing

WI-FI: Wireless Fidelity

WSIS: World Summit on Information Society

WWW: World Wide Web

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ABSTRACT

The emergence of Information and Communication Technologies (ICTs) has led to significant transformations across various aspects of human activities. One area that has particularly been affected by these changes is the socio-economic progress of communities like Lomie Sub-division in the East region of Cameroon. Despite the availability of a range of ICTs infrastructure in Lomie such as radio communication, postal services, satellite dishes, television, mobile phones, computers, multimedia centers, and digital financial services, the actual impact of ICT on the socio-economic advancement of Lomie remains largely unexplored. Therefore, this study aims to investigate on the underlying reasons for the limited contribution of ICTs to the social and economic development of Lomie Sub-division.

This study used a hypothetico-deductive approach, combining quantitative and qualitative analyses to investigate on the barriers hindering the impact of ICT on Lomie's development. Data was gathered from secondary sources such as published and unpublished records on ICT and socio-economic development, and primary sources including field observations, interviews, group discussions, and questionnaires. The study focused on potential ICT users from four selected villages in Lomie, totaling 3843 residents. A sample of 192 questionnaires copies was determined using Nwana's formula (1982). The collected data, including questionnaire responses and other information, was assessed using tallying techniques, and chi-square statistical analyses. The results were illustrated through tables, figures, reference maps, histograms, pie charts.

The survey encompassed both males (55%) and females (45%) participants with a majority of respondents aged 21-30 years old (43%). Lomie combines traditional and modern ICTs such as radios used by 55% of respondents for listening to debates, news, and entertainment. The postal service of Lomie acts as a central point for sending and receiving mail, parcels, and money. TV sets is owned by 60% of the population, with 34% using it with a satellite dishes. Mobile phone usage is prevalent at 92.6%, with MTN, Orange, and Nextel 4G being the preferred operators.in the Sub-division. Only 32% of the population owns a computer, while 33% rely on Telecenters for computer access. Monetary transactions in Lomie are conducted via Express Union (79%), Mobile Money and Orange Money (98% each), Campost Money and WAFACASH. The ICT-related hurdles to economic progress in Lomie include deficient infrastructure, limited internet availability and mobile network coverage issues. Additional challenges include power interruptions, technology accessibility, digital skills gap, limited ICT education, regulatory issues, and limited awareness and adoption. Social challenges involve restricted access to educational resources, inadequate health information, and limited economic opportunities. To enhance ICT integration and facilitate social and economic development, community organizations, NGOs, and associations can contribute by enhancing ICT accessibility, supporting development initiatives, advocating for specific policies, collaborating with the government, conducting awareness campaigns, providing training programs, offering affordable internet services, empowering youth and marginalized groups, creating educational opportunities, and implementing cost-saving measures.

Key words**: ICT, socio-economic development, Lomie Sub-division**

RÉSUMÉ

L'émergence des technologies de l'information et de la communication (TIC) a entraîné des transformations significatives dans divers aspects des activités humaines. Un domaine qui a particulièrement été affecté par ces changements est le progrès socio-économique des communautés comme Lomie dans la région de l'Est du Cameroun. Malgré la disponibilité d'une gamme d'infrastructures TIC à Lomie telles que la communication radio, les services postaux, les antennes paraboliques, la télévision, les téléphones mobiles, les ordinateurs, les centres multimédias et les services financiers numériques, l'impact réel des TIC sur le progrès socio-économique de Lomie reste largement inexploré. Par conséquent, cette étude vise à enquêter sur les raisons sous-jacentes de la contribution limitée des TIC au développement social et économique de la subdivision de Lomie.

Cette étude a utilisé une approche hypothético-déductive, combinant des analyses quantitatives et qualitatives pour enquêter sur les obstacles entravant l'impact des TIC sur le développement de Lomie. Les données ont été recueillies à partir de sources secondaires telles que des documents publiés et non publiés sur les TIC et le développement socio-économique, et de sources primaires comprenant des observations sur le terrain, des entretiens, des discussions de groupe et des questionnaires. L'étude s'est concentrée sur les utilisateurs potentiels des TIC provenant de quatre villages sélectionnés à Lomie, totalisant 3843 habitants. Un échantillon de 192 exemplaires de questionnaires a été déterminé en utilisant la formule de Nwana (1982). Les données collectées, y compris les réponses aux questionnaires et d'autres informations, ont été évaluées à l'aide de techniques de dénombrement et d'analyses statistiques du chi-carré. Les résultats ont été illustrés à l'aide de tableaux, de graphiques, de cartes de référence, d'histogrammes et de diagrammes circulaires.

L'enquête a inclus à la fois des participants masculins (55%) et féminins (45%) avec une majorité de répondants âgés de 21 à 30 ans (43%). Lomie combine des TIC traditionnelles et modernes telles que des radios utilisées par 55% des répondants pour écouter des débats, des actualités et des divertissements. Le service postal de Lomie sert de point central pour l'envoi et la réception du courrier, des colis et de l'argent. 60% de la population possède un poste de télévision, dont 34% l'utilisent avec une antenne parabolique. L'utilisation du téléphone portable est répandue à 92,6%, avec MTN, Orange et Nextel 4G étant les opérateurs préférés dans la subdivision. Seulement 32% de la population possède un ordinateur, tandis que 33% dépendent des télécentres pour accéder au service d'un ordinateur. Les transactions monétaires à Lomie se font via Express Union (79%), Mobile Money et Orange Money (98% chacun), Campost Money et WAFACASH. Les obstacles liés aux TIC au progrès économique à Lomie comprennent une infrastructure TIC déficiente, une disponibilité limitée d'Internet (34%) et des problèmes de couverture du réseau mobile. D'autres défis incluent les interruptions d'électricité, un accès insuffisant à la technologie, un fossé en matière de compétences numériques, une éducation limitée aux TIC, des défis réglementaires, une sensibilisation et une adoption restreinte, ainsi que le soulagement de Lomie. Les défis sociaux liés aux TIC à Lomie incluent un accès limité aux ressources éducatives et à l'information sur la santé, ainsi que des opportunités économiques restreintes. Pour améliorer la situation, il est recommandé que les organisations locales adoptent une approche proactive en améliorant l'accessibilité aux TIC, en soutenant les initiatives de développement et en plaidant pour des politiques spécifiques. De plus, des campagnes de sensibilisation, des programmes de formation et des services Internet abordables peuvent contribuer à autonomiser la population locale et à créer des opportunités éducatives.

Mots clés : **TIC, Développement Socio-économiques, commune de Lomié**

0.1. GENERAL INTRODUCTION

0.1.1 Background to study

Information and Communication Technologies (ICT) has become a pivotal element in the socio-economic development of regions worldwide. This study aims to explore the challenges faced Lomie Sub-division in leveraging ICT for its socio-economic development. Globally, ICT has revolutionized various sectors including education, healthcare, and commerce. The advent of the internet and mobile technologies has facilitated unprecedented connectivity and access to information. However, challenges such as digital divide, cyber security threats, and infrastructure limitations persist. According to a 2020 study, there is a positive correlation between gross domestic product (GDP) and digital adoption, highlighting the economic benefits of ICT.

In Africa, ICT adoption has been uneven, with significant progress in some regions and stagnation in others. The continent faces challenges such as inadequate infrastructure, high costs of internet access and limited digital literacy. Despite the hurdles, ICT has the potential to drive economic and social development. A study on digital technology in thirty-nine African countries found that increased digital adoption positively impacts GDP. Sub-Saharan Africa in particular has seen a surge in mobile phone usage which has become a primary means of Internet access. However the region still grapples with like lack of digital skills, poor connectivity. A study assessing the digital infrastructural development in 44 sub-Saharan countries from 2000 to 2020 highlighted the need for improved infrastructure to foster inclusive growth.

Cameroon on its own has made strides in ICT development with increasing internet penetration and mobile phone usage though same challenges persist with rural places in particular. The government has initiated various projects to enhance ICT infrastructure and promote digital literacy but more efforts are still needed are still needed to bridge the digital divide and ensure equitable access. Lomie Sub-division in Cameroon faces unique challenges in ICT adoption. The region’s remote location and limited infrastructure hinder the widespread use of ICT. Internet access is often restricted to urban centers and high cost of services further limits usage. Additionally, there is a lack of digital literacy programs which exacerbates the digital divide. Addressing these challenges requires targeted interventions to improve infrastructure, reduce costs and enhance digital literacy among the population.

0.1.2. Context of the study

Lomie Sub-division, located in the East Region of Cameroon, is an area characterized by diverse economic activities, including agriculture, mining, and forestry. Despite its rich natural resources, the area faces challenges related to infrastructure development, access to basic services, and economic diversification. In recent years, Information and Communication Technologies (ICTs) has emerged as a potential catalyst for driving socio-economic development in Lomie Sub-division.

The rapid advancement of ICTs globally has created opportunities for leveraging digital technologies to enhance productivity, improve service delivery, and foster innovation in various sectors. However, the extent to which ICT is contributing to the socio-economic development of Lomie Sub-division remains underexplored. Understanding the role of ICTs infrastructure, access, and utilization in shaping local development outcomes is crucial for identifying opportunities to harness the benefits of technology for inclusive growth and poverty reduction.

Against this backdrop, this study seeks to investigate the impact of ICT on the socio-economic development of Lomie Sub-division. By examining the current state of ICTs infrastructure, assessing levels of digital literacy, and exploring the effectiveness of existing policies and initiatives, the research aims to provide insights into how ICTs can be harnessed to address key development challenges in the locality.

Through a comprehensive analysis of the opportunities and challenges associated with ICTs adoption in Lomie Sub-division, this study aims to generate evidence-based recommendations for policymakers, businesses, and development practitioners. By identifying strategies to promote digital inclusion, enhance regulatory frameworks, and support private sector investment in ICTs, the research seeks to contribute to the design of targeted interventions that can maximize the socio-economic benefits of technologies for the local community.

Overall, this study aims to shed light on the transformative potential of ICTs in driving sustainable development in Lomie Sub-division and provide a roadmap for leveraging digital technologies to create opportunities for inclusive growth and prosperity in the locality of Lomie.

0.2. Delimitation of the study's framework

0.2.1 Thematic delimitation

The study is based on the shortcomings of Information and Communication Technologies (ICTs) in promoting social and economic advancement in Lomie Sub-division. It will investigate on the obstacles and difficulties that ICTs initiatives faces in Lomie Sub-division and how they hampered the overall socio-economic progress. The research will analyse the deficiencies in accessibility, infrastructure, expertise and affordability that have hindered the effective utilization of ICT for development in Lomie Sub-division. Additionally, it will consider the potential repercussions of these inadequacies on crucial sectors like education, healthcare, agriculture and business in Lomie and will also examine the involvement of various stakeholders, such as government, private sector, and civil society in addressing these deficiencies and enhancing the impact of ICT on social and economic development.

0.2.2. Temporal Delimitation

The research covers on the specific time frame such as the past decades (2011-2021). The reason for choosing this is of significance because; around this year many African countries including Cameroon began implementing significant ICT policies and infrastructure projects as an example the Central African Backbone (CAB) Project which aimed at improving internet connectivity and ICT infrastructure across Central Africa including Cameroon. This period marks the start of various initiatives aimed at improving internet connectivity and digital literacy. Added to this period was marked by the rapid advancement in mobile technology and internet accessibility. The proliferation of smartphones and mobile internet services began to take off around this time thereby making it a relevant period to our study. By focusing on 2011 as a start point, this study can provide a comprehensive analysis of the evolution and impact of ICT in Lomie over a significant period, capturing both the initial challenges and subsequent developments.

0.2.3. Spatial Delimitation

Lomie Sub-division is located in Cameroon precisely in the East region at the Upper Nyong Division. According to the Council Development Plan of Lomie, the Sub-division is located 126km from Abong-Mbang headquarter of the Upper Nyong Division and lies approximately between longitude 13.59°E and 14.25°E and latitude 3.35°N and 4.06°N. It has a surface area of 13000 km² with a population of 19,000 inhabitants distributed in 64 villages. The Sub-division is limited to the north by the municipality of Mindourou and Ngoyla, to the east by Yokadouma, Mouloundou, to the west by Messamena, Messok and Abong-Mbang .
(Location map of Lomie)

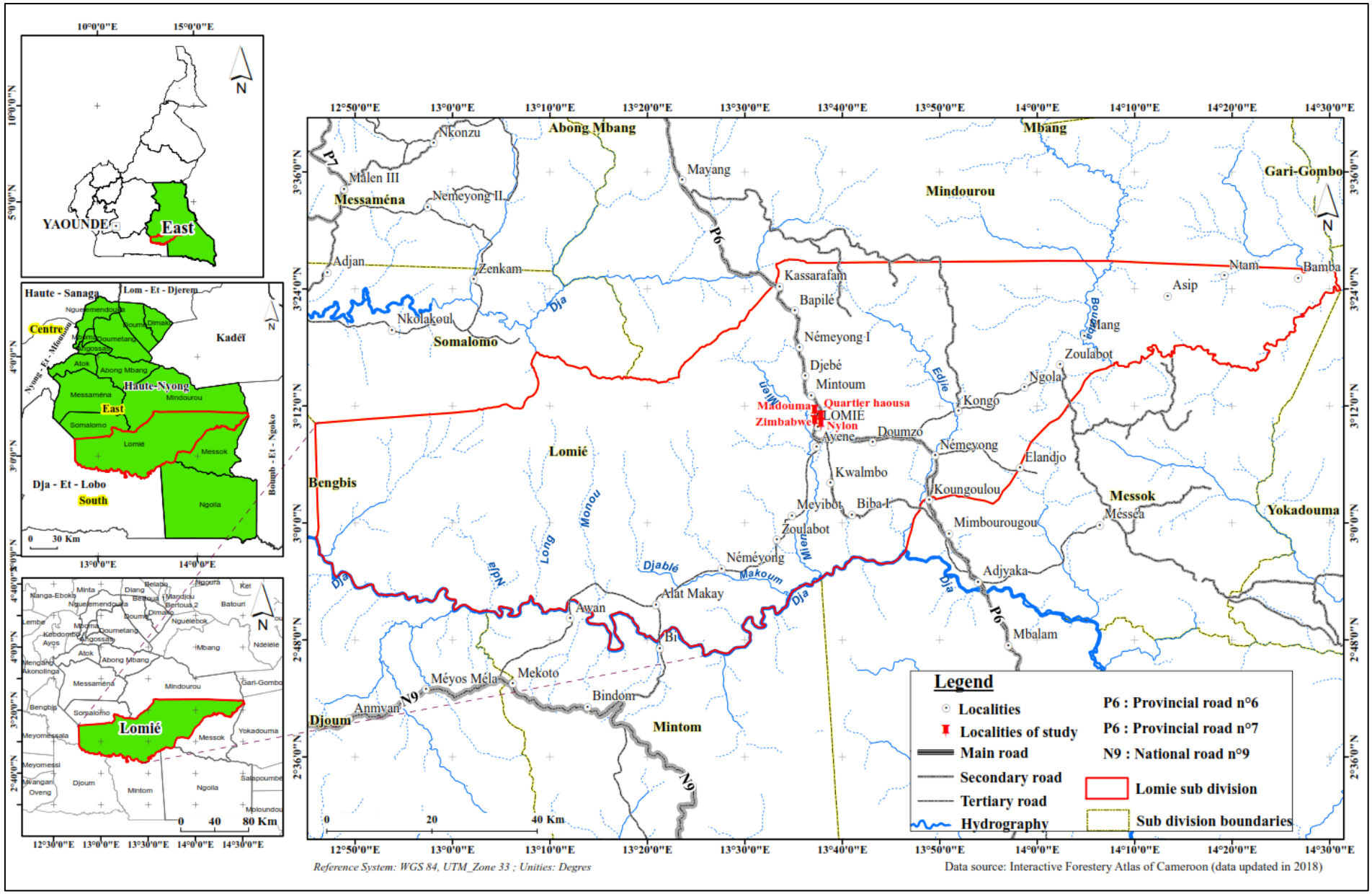


Figure 1: Location map of Lomie Sub-division in the Upper Nyong Division

0.2.3.1. Physical Milieu

0.2.3.1.1. Climate

The Sub-division of Lomie is subject to the equatorial climate of the classic Guinean type with two rainy seasons interspersed with two dry seasons. During the course of the year, the seasons follow one another in the following way;

- The small rainy season from mid-March to June;
- The small dry season from mid-June to mid-August;
- The big rainy season from mid-August to mid-November;
- The long dry season from mid-November to mid-March.

The average temperature in the Sub-division is around 24°C. The lowest monthly temperatures are recorded in July (22.5°C) and the highest in April (32.6°C). Average annual rainfall is usually between 1500 and 2000 mm (average monthly rainfall in Lomie over the last 25 years: 1750 mm). Maximum rainfall is recorded in April – May and September-October.

0.2.3.1.2. Relief and Soil

The relief of Lomie is covered with plains and mountains. The territory is mostly dominated by the presence of hills with more or less gentle slopes. During the socio-economic studies carried out within the framework of the management of the forest in Lomie it has been revealed that the soils identified are of ferralitic nature and strongly denatured of yellow-brown color. They are acidic soils characterized by a low nutrient content. There are also hydromorphic soils located in the shallows as well as sandy or sandy-clay soils. However, in some places we can observe deep, lateritic, stony, clayey soils rich in organic matter. This richness is favorable to a diversity of food and cash crops.

0.2.3.1.3. Hydrography

Lomie has a dense network of watercourses, the main ones being: Edijie and Bom, tributary of the Dja; Beck and Mpoul, tributary of the Boumba. The presence of these watercourses presents a potentiality that can be capitalized upon the framework of the pursuit and the development of tourist and fishing activities.

0.2.3.1.4. Vegetation, fauna and flora

Two plants formations characterize the vegetation of Lomie. They are the dense forest and the peri-forestry savanna. The fauna, very rich is characterized by the presence of ungulates (buffaloes, elephants, and gazelle), rodents such as civets, monitors, lizards, crocodiles, pythons can also be found.

The flora, on the other hand is rich in forest formations with a variety of species. The main woody species include: Iroko (Chlorophoraexelsa), fraké (Terminalia superb), Sapelli (EntandrophragmaCylindricum), Billinga (Naucleadiderrichii), Ebony (Dioptriecrassiflora), Ayous (TriplochytonSceroxylom) and others not mentioned. There are also non woody species such as the wild mango tree (Irvingiagabonesis), the Hazel tree (Kola acuminate), the Bitter Kola (Garcinia Kola).

0.2.3.2. Human Milieu

0.2.3.2.1. Population

The population of Lomie Sub-division is estimated at around 19,000. It is mainly composed of Bakas, Zime, Kako, Ndjeme, halogen, a few civil servants, traders and farmers.

0.2.3.2.2. Habitat

For the most part and in its majority, the habitat is linear and grouped, composed of rectangular houses made from local materials. They are clay houses with raffia mat roofs. Here and there we can see the see the presence of few houses with corrugated iron roofs. The houses are built on both sides along the roads leading to the villages of the locality. As for the Baka, their habitat is the form of igloos made of branches and leaves, often built on a maximum area of five square meters.

0.2.3.2.3. Economic activities

The population of Lomie is essentially agricultural. The population mostly practices Subsistence agriculture and cash crop cultivation (**increasingly encouraged for the past years with the presence of the SODECAO).** However, we also note strong logging activities by large companies in UEFA which exploiting on a large scale for export and collection of NTFPs such as palm wine, raffia, wild mangoes and djansang. The practice of other activities such as small businesses, hunting, fishing, livestock, exploitation of natural resources (sand and stoBne quarry, temporary jobs such as the collection and processing of agricultural products and handicrafts are also common.

0.4. Significance of the study

The study on ICTs and the socio-economic development of Lomie Sub-division is crucial for several reasons. Firstly, in today's digital age, Information and Communication Technologies (ICTs) plays a pivotal role in driving economic growth and social development. Understanding the current state of ICTs infrastructure in Lomie Sub-division is essential to identify gaps and opportunities for improvement.

Secondly, by examining the key challenges that hinder the effective utilization of ICTs for economic development in Lomie Sub-division, this study can provide valuable insights for policymakers, businesses, and other stakeholders to address these barriers and enhance the locality's economic prospects.

Furthermore, investigating the barriers that impede the ability of ICTs to drive social development in Lomie Sub-division is critical for promoting inclusive growth and bridging the digital divide. By identifying and addressing these barriers, the study can contribute to creating a more equitable and connected society in the Sub-division.

Moreover, evaluating the effectiveness of existing ICT frameworks and policies in promoting economic and social development in Lomie Sub-division is essential for ensuring that resources are allocated efficiently and that policies are tailored to the specific needs of the Sub-division.

Overall, this study has the potential to provide valuable insights, recommendations, and strategies for leveraging ICT to foster socio-economic development in Lomie Sub-division, ultimately contributing to the overall well-being and prosperity of the community.

0.5. Problem statement

The role of Information and Communication Technologies (ICTs) in the social and economic development of Lomie Sub-division has not been comprehensively assessed, and there is a lack of clear understanding of how ICTs can be leveraged to drive progress in this locality. Despite the potential benefits that ICTs can offer, such as improved access to education, healthcare, and economic opportunities, there remain a lack of empirical evidence and analysis on how ICT is currently utilized, and what barriers exist that hinder its full potential for driving social and economic development in Lomie . Furthermore, the impact of ICTs on local businesses, employment, education, and public service delivery has not been thoroughly studied, and there is a need to understand how the adoption and use of ICTs can be optimized to address the specific social and economic challenges faced by the community of

Lomie Sub-division. Thus, there is a need for a comprehensive study to assess the current state of ICTs infrastructure, usage, and its impact on social and economic development in Lomie Sub-division, and also to identify opportunities and challenges for leveraging ICT to drive sustainable progress in the locality.

Although ICTs has the potential to foster economic growth in Lomie Sub-division, its effectiveness has been hindered by various challenges in the area. These obstacles include insufficient ICT infrastructure like unreliable electricity access, a shortage of digital skills, restricted access to financial services and e-commerce platforms, inadequate investment in ICT projects, and regulatory and policy limitations. Consequently, the complete economic benefits of ICT remain untapped, preventing the locality from utilizing digital technologies for sustainable economic progress and inclusive development within Lomie Sub-division.

Moreover though the availability ICTs has widely spread into the Lomie it has not effectively contributed to its social development. This lack of contribution is evident in limited access to educational resources, health care information, economic opportunities as well as lack of digital literacy and skill among the population. Additionally to this, there is a lack of infrastructure and investment in ICT that hinders its potential to positively impact social development in the Sub-division.

Though the problem statement above has highlighted the challenges faced by ICTs in Lomie Sub-division regarding development there are unanswered questions that deserve inclusion in the study that will be raised in the subsequent section of this work.

0.6. Research questions

From problem posed, are the following researches questions which this study seeks to answer. These questions are examined as general and specific research questions.

0.6.1. General research question

1. What is the current state of ICT infrastructure in Lomie Sub-division?

0.6.2. Specific Research questions

2. What are the key challenges preventing the effective utilization of ICT for economic development in Lomie Sub-division?
3. What barriers exist that hinder the ability of ICT to drive social development in Lomie Sub-division?
4. How effective are the existing ICT framework and policies in promoting social and economic development in Lomie?

0.7. Research objectives

0.7.1. General objective

1. To assess the current state of ICT infrastructure in Lomie Sub-division.

0.7.2. Specific Objectives

2. To identify and analyze the challenges hindering the effective utilization of ICT in the economic development of Lomie
3. To explore the barriers that are obstructing the ability of ICT to drive social development in Lomie Sub-division
4. To evaluate existing ICT framework and policies and their effectiveness in promoting social and economic development in Lomie.

08. Research hypotheses

0.8.1. General hypothesis

1**.** The current state of ICT infrastructure in Lomie Sub-division is inadequate, causing limited access and utilization of ICT resources

0.8.2.

Specific Hypothesis

2. The traditional communication methods favored in some communities in Lomie may hinder the adoption of ICT due to cultural and language barriers.
3. Difficult access to network and internet is a major is a major setback to the integration and intervention of ICT in Lomie Sub-division
4. The implementation of ICT policy has led to an increase in access to ICT Services and digital literacy among the population of Lomie

0.9. Literature review

In recent years, the use of Information and Communication Technology (ICT) has become increasingly widespread worldwide, bringing about significant changes in various aspects of society, including economic growth, education, healthcare, and governance. ICT has the potential to narrow the digital gap and empower communities, especially in rural and underdeveloped areas. This review aims to investigate the connection between ICT and the socio-economic progress of Lomie Sub-division, focusing on the opportunities, challenges, and potential effects of ICT in this specific geographical context.

This section will be organized into subtopics, covering discussions related to ICTs in the realms of socio-economic development, access to ICT service and infrastructure, community empowerment, ICT challenges and limitation.

- **Review related to ICT and Socio-economic development**

Information and communication technologies (ICTs) are transforming societies and fueling the growth of the global economy. Yet despite the broad potential of ICTs, their benefits have not been spread evenly. Indeed, using ICTs effectively to foster social inclusion and economic growth is among the key challenges facing policy makers today

Razaq & Roehl, (2020) working on "Bridging the Digital Divide" focused on the digital divide and its implications for socio-economic development. Their research indicates that access to ICT infrastructure and digital literacy are crucial factors in bridging this divide. The study emphasizes the need for policies and initiatives that ensure equitable access to ICT, particularly in rural and marginalized areas. Closing the digital divide can promote inclusive socioeconomic development by empowering underserved communities. However, it does not specifically address the impact of these interventions on marginalized communities. This work is going to cover the gap at the level where it will investigate on challenges faced by marginalized communities and propose tailored ICT interventions to address their socio-economic needs.

Franz-Ferdinand, Rothe & Loisen (2022) in their work tried to bring out the relationship between ICT and sustainable development goals (SDGs). Their study demonstrated how ICT could be harness to address environmental, social, and economic challenges. Examples include using ICT tools for monitoring and managing resources, promoting e-commerce and digital financial services, and enabling digital inclusion. The findings suggest that leveraging ICT for sustainable development can contribute to overall socioeconomic progress. However they did not lay emphasis on the socio economic development of rural localities. Working on Lomie Sub-division, this work is going to bring a plus since it is a rural community.

Akhtaruzzaman, Shamsuddin, & Jaafar, (2019) in their work *"ICT and Economic Growth"* investigated the role of ICT in economic growth and job creation. Their study highlighted that ICT stimulates entrepreneurship and innovation, leading to increased economic productivity and employment opportunities. Furthermore, the research showed that countries with advanced ICT infrastructure and supportive policies experience higher levels of

economic growth. However, further research is needed to investigate how different levels of ICT adoption influence various sectors within an economy. This study since focusing on understanding the specific contributions of ICT will close this gap by providing information on how ICT will contribute in the development of sectors such as agriculture, healthcare, finance, and manufacturing.

Jasmine (2017) working on "*Social Impacts of ICT"* explored the social impacts of ICT on communities and individuals. She was of the view that ICT has the potential to enhance social connectivity, facilitate knowledge sharing, and foster cultural exchange. However, her study also discusses potential challenges such as privacy concerns, cyber threats, and dependency on technology. Understanding and mitigating these challenges are crucial for harnessing the positive social impacts of ICT in socioeconomic development

Zulkhairi & Dahalin (2016) working on "*ICT as a Driver of Socioeconomic Development"* argued that ICT plays a vital role in achieving socioeconomic growth and development. Their study explored the influence of ICT on various sectors such as education, healthcare, business, and governance. Key findings revealed that ICT applications lead to increased productivity, improved access to education and healthcare services, enhanced market competitiveness, and efficient governance mechanisms.

Chen, Girgis, & AlTamimi, (2018) made an empirical analysis on E-Government and public service deliver. Their study examined the relationship between e-government and public service delivery. Concerning this work, in order to close the gap, future research can investigate the role of ICT in improving transparency, accountability, and citizen participation in the governance processes. This work will be a plus to this since it will explore on how ICT can enhance the efficiency and effectiveness of public service delivery, ultimately leading to better socio-economic outcomes.

Biagi & Zuanelli, (2017) study on "*The impact of ICT on the skills of young people educational Research and Evaluation*" investigated on the impact of ICT on the skills development of young people. However, future research could explore the broader impact of ICT-enabled education on human capital development. By examining the connection between ICT usage, educational outcomes, and employability, researchers can gain insights into how ICT can enhance overall human capital development and contribute to socio-economic growth.

Saravathy, & Mani, (2019) study on "*Enabling entrepreneurship with contemporary ICT tools*" emphasizes the role of ICT in enabling entrepreneurship. In order to close this gap, future research could develop deeper into how ICT creates an enabling environment for

innovation. By exploring the ways in which ICT tools and platforms support entrepreneurial activities and stimulate innovation, researchers can provide valuable insights into how to foster sustainable economic development through ICT-enabled entrepreneurship

- **Review on Access to ICT service and infrastructure**

Research by Qiang et al, (2012) emphasized that access to ICT services and infrastructure can significantly impact economic growth, education, healthcare, and governance in rural communities. By providing connectivity, information access, and communication channels, ICT can empower residents, improve service delivery, and create new opportunities for economic participation. In the context of rural areas, including Lomie Sub-Division, enhancing access to ICT can help overcome geographic barriers, stimulate innovation, and promote inclusive development.

Despite the potential benefits of ICT access, several challenges hinder its expansion in rural areas. Research by Heeks, (2009) identified issues such as limited infrastructure, high costs of connectivity, low digital literacy levels, and regulatory constraints as key barriers to ICT adoption in rural communities. Additionally, studies have highlighted the need for tailored solutions that address the specific needs and contexts of rural populations, taking into account factors such as language diversity, cultural norms, and local governance structures.

Effective public policies and interventions play a crucial role in expanding access to ICT services and infrastructure in rural areas. Research by Avgerou, (2010) emphasized the importance of regulatory frameworks, investment incentives, public-private partnerships, and community engagement in promoting ICT access for underserved populations. By fostering collaboration between government agencies, private sector stakeholders, and civil society organizations, policymakers can create an enabling environment for sustainable ICT deployment in rural communities.

Community engagement and capacity building are essential components of efforts to expand ICT access in rural areas. Research by Gurumurthy et al, (2013) highlighted the importance of participatory approaches, skills training programs, and awareness campaigns to empower residents and promote digital inclusion. By involving local stakeholders in the design and implementation of ICT initiatives, policymakers can ensure that solutions are contextually relevant, responsive to community needs, and sustainable in the long term.

- **ICT in Community empowerment and Infrastructure**

Research by Unwin, (2009) highlighted the transformative power of ICT in empowering communities to engage in decision-making processes, advocate for their rights,

and access essential services. By providing platforms for communication, collaboration, and knowledge sharing, ICT can enable marginalized groups to amplify their voices, mobilize resources, and drive social change. In the context of community empowerment, ICT initiatives have been shown to enhance civic participation, promote transparency, and strengthen social cohesion.

Infrastructure development plays a critical role in expanding access to ICT services and enabling community empowerment. Research by Diga et al, (2015) emphasized the importance of reliable connectivity, electricity supply, and digital literacy training in ensuring the effective utilization of ICT tools for community development. In rural areas, where infrastructure gaps are prevalent, investments in broadband networks, mobile technologies, and community centers can bridge the digital divide and create opportunities for economic empowerment.

Community-based approaches to ICT deployment have emerged as effective strategies for promoting community empowerment and infrastructure development. Research by Heeks, (2010) highlighted the benefits of participatory design processes, capacity-building initiatives, and inclusive decision-making in ensuring the sustainability and relevance of ICT interventions. By involving local stakeholders in project planning, implementation, and evaluation, policymakers can tailor solutions to meet the unique needs and priorities of communities, fostering ownership and long-term impact.

Effective policy frameworks are essential for leveraging ICT to empower communities and enhance infrastructure development. Research by Avgerou et al, (2013) underscored the importance of regulatory frameworks, investment incentives, and multi-stakeholder partnerships in promoting inclusive ICT access and usage. Policymakers need to prioritize digital inclusion, affordability, and accessibility in their strategies to ensure that ICT benefits reach all segments of society, particularly underserved communities.

- **Review on Challenges and limitation of ICT**

One of the key challenges of using ICT in research is ensuring the quality and reliability of data collected through digital tools. Research by Krotov et al, (2017) highlighted the potential for data inaccuracies, biases, and errors due to technical issues, software glitches, and human error. Researchers need to be vigilant in validating data sources, ensuring data integrity, and implementing quality control measures to mitigate these challenges and maintain the credibility of their research findings.

Privacy concerns and data security risks are significant limitations of using ICT in research, particularly when handling sensitive or personal information. Research by Acquisti et al. (2015) emphasized the importance of safeguarding data privacy, protecting confidentiality, and complying with data protection regulations to prevent unauthorized access or misuse of research data. Researchers must implement robust encryption protocols, secure storage solutions, and informed consent processes to uphold ethical standards and protect participants' privacy rights.

Ethical considerations in ICT-based research are essential to ensure the fair treatment of participants, avoid conflicts of interest, and uphold research integrity. Research by Zimmer (2010) highlighted the potential for bias, discrimination, and ethical dilemmas in data collection, analysis, and reporting processes. Researchers need to be transparent about their methods, disclose potential conflicts of interest, and address ethical concerns related to consent, anonymity, and data ownership to maintain trustworthiness and credibility in their research endeavors.

The digital divide and access inequities pose significant challenges to leveraging ICT for research purposes, as not all individuals or communities have equal access to technology resources or digital literacy skills. Research by Warschauer, (2003) underscored the disparities in ICT access, usage, and proficiency across different socio-economic groups, geographic regions, and demographic categories. Researchers must be mindful of these inequalities and adopt inclusive strategies to ensure that research outcomes are representative, inclusive, and accessible to diverse populations.

Managing large volumes of data generated through ICT tools can be overwhelming for researchers, leading to challenges in data organization, storage, and retrieval. Research by Borgman, (2015) highlighted the complexities of data management, including issues related to data formats, metadata standards, version control, and long-term preservation. Researchers need to develop robust data management plans, establish data sharing protocols, and adopt best practices for data curation to ensure the accessibility, usability, and sustainability of research data over time.

ICT tools and platforms evolve rapidly, leading to concerns about technological obsolescence and compatibility issues in research workflows. Research by Tenopir et al, (2015) emphasized the need for researchers to stay abreast of technological advancements, update software and hardware systems regularly, and ensure interoperability between different ICT tools to maintain research productivity and efficiency. Researchers should also consider

the long-term implications of technology choices on data interoperability, reproducibility, and sustainability in their research projects.

Ensuring the reproducibility and transparency of research findings is a fundamental challenge in ICT-based research, as digital tools and methods can introduce complexities in replicating research processes and verifying results. Research by Stodden et al, (2016) highlighted the importance of open science practices, reproducible research workflows, and transparent reporting standards to enhance research reproducibility, facilitate data sharing, and promote scientific integrity. Researchers should document their methods, share code and data openly, and adhere to community standards for reproducibility to foster collaboration, validation, and trust in their research outcomes

Navigating regulatory requirements and ethical considerations in ICT-based research can be daunting for researchers, especially when conducting cross-border studies or handling sensitive data. Research by Floridi et al, (2018) emphasized the need for researchers to engage with institutional review boards, comply with data protection regulations, and uphold ethical principles such as beneficence, respect for autonomy, and justice in their research practices. Researchers must also consider the ethical implications of emerging technologies such as artificial intelligence, machine learning, and big data analytics on research ethics and governance frameworks.

0.10. Conceptual and theoretical frame work

Several concepts and theories were examined in order to show their significance in the domain of ICTs and socio-economic development in which our study dwells. In this work, three theories and 2 concepts were used. They include; digital divide theory, ICT for Development (ICT4D) and the theory of modernization for theories and for the concepts; ICT and Socio-economic development.

0.10.1. Conceptual Framework

In this framework we are going to define and concepts that will help to clarify our understanding of the study. Here we are going to have concepts such as ICT and socio-economic development which are directly linked to our work.

0.10.1.2. Concept of ICTs

The American Library Association (1983) defined Information Communication Technologies (ICTs) as the application of computers and other technologies to acquire, organize, store, retrieve, and disseminate information. It involves using computers for data

processing and storage, while telecommunication technology provides tools for accessing databases and linking them with other computer networks.

Rhine (2006) further split ICTs into three components: technology, information delivery, and communication processes. Therefore, ICT can be defined as the use and application of computers, telecommunications, and micro-electronics in acquiring, storing, retrieving, transferring, and disseminating information. It encompasses computer hardware, software, telecommunication technologies, projection devices, LANs, WANs, digital cameras, CDs, DVDs, cell phones, satellites, and fiber optics.

Digital Technologies are a combination of two or more technologies within a system. Examples of these new ICT and digital technologies include multimedia PCs, laptops with internet connectivity, digital cameras, LANs and WANs, the World Wide Web (WWW), online databases, e-books, CDs, DVDs, cell phones with internet connection, digital libraries, computer-mediated conferences, video conferencing, telemedicine, virtual reality, telecommunication satellites, and interactive TV and radio. (Figure2)

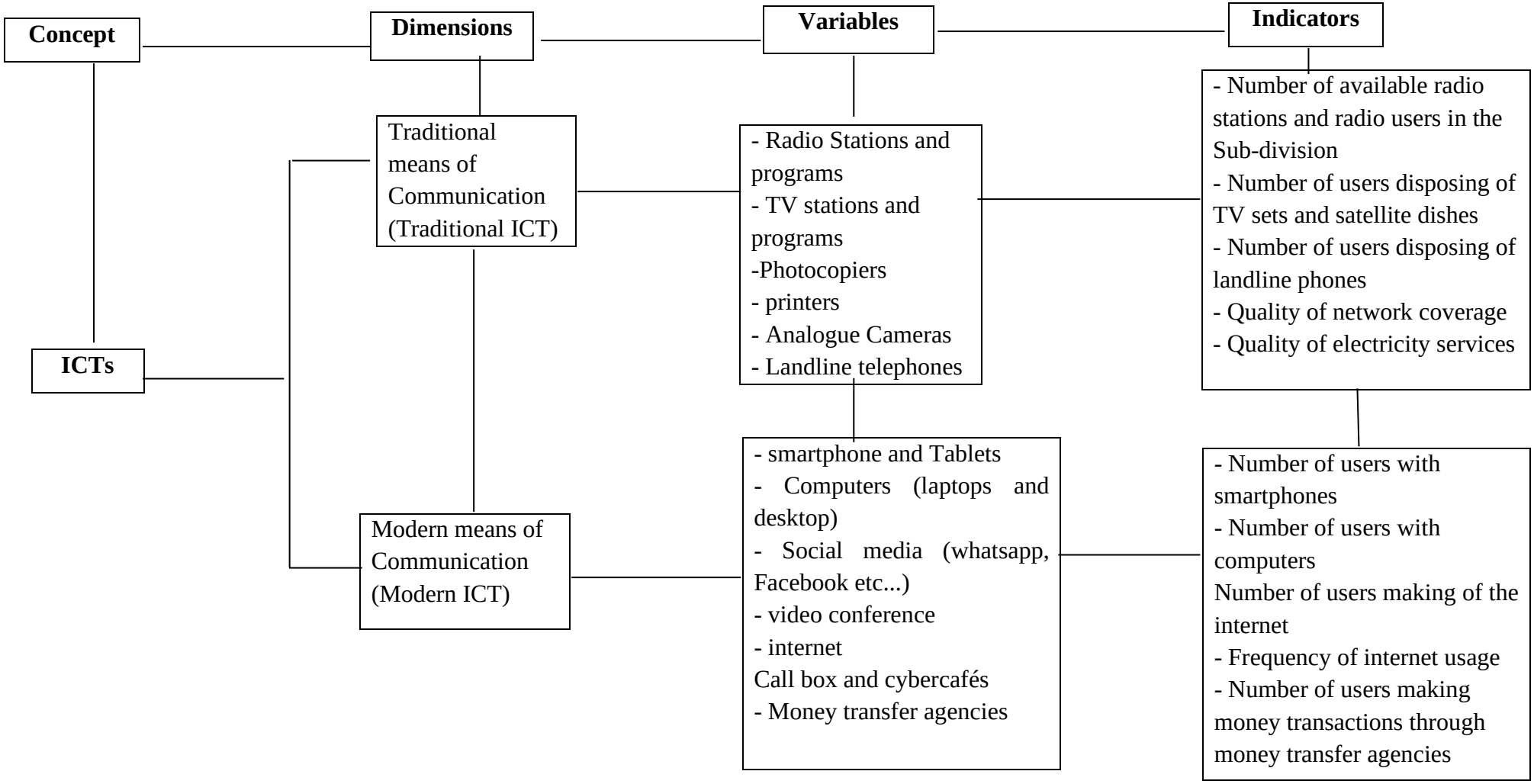


Figure 2: conceptualization of ICT in Lomie Sub-division with variables and indicators
Source: author's conception

0.10.1.3. Concept of Socio-economic Development

Socio-economic development can be defined as a complex and multifaceted process that aims to enhance the economic, social, and cultural well-being of individuals and communities, leading to sustainable and inclusive growth. This conceptual definition incorporates insights from various authors and sources to provide a comprehensive understanding of socioeconomic development.

Amartya Sen's capabilities approach is instrumental in conceptualizing socioeconomic development. According to Sen, development should be assessed based on the expansion of people's capabilities, freedoms, and opportunities. He argues that development should not be reduced to economic growth alone but should also focus on enhancing human well-being and enabling individuals to lead lives they value.

Mahbub ul Haq, a Pakistani economist, contributes significantly to the concept of human development, which is closely related to socioeconomic development. Haq emphasizes the importance of placing people at the center of development and prioritizing their well-being. He argues that socioeconomic development should go beyond economic indicators and address broader issues such as education, healthcare, and social justice.

The UNDP plays a crucial role in shaping the concept of socioeconomic development. It defines socioeconomic development as a process that seeks to improve the economic, social, and political conditions of human life. The UNDP emphasizes the need to address inequalities, promote sustainable development, and empower individuals and communities to participate in decision-making processes.

The World Bank views socioeconomic development as a comprehensive process that encompasses economic, social, and institutional transformations. It highlights the importance of poverty reduction, inclusive growth, and sustainable development in achieving socioeconomic progress. The World Bank also emphasizes the need for effective governance, sound institutions, and investment in human capital.

(Figure 3)

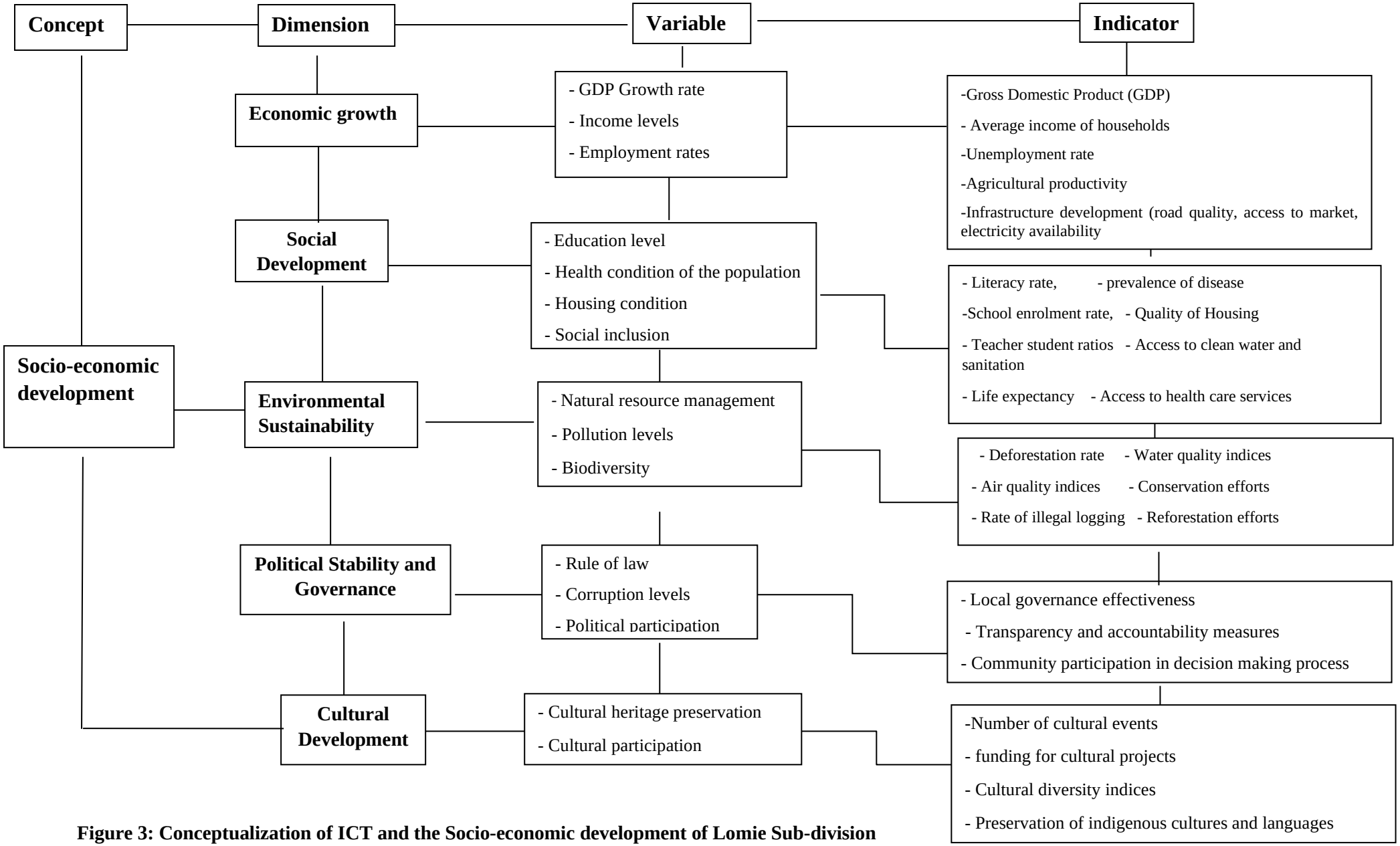


Figure 3: Conceptualization of ICT and the Socio-economic development of Lomie Sub-division
Source: Author's conception

0.10.1.3. Concept of Challenges in implementing ICT for development

ICT challenges encompass a range of obstacles that impact the implementation, adoption, and effective use of Information and Communication Technologies. These challenges can be categorized into several key areas:

1. **Infrastructure Challenges**

- Connectivity Issues: Limited or unreliable internet and mobile network coverage can hinder effective ICT use.
- Electricity Supply: Inconsistent or insufficient power supply affects the operation of ICT tools and services.

2**. Financial Challenges**

- High Initial Costs: Setting up ICT infrastructure, including hardware and software, can be prohibitively expensive.
- Maintenance Costs: Ongoing expenses for maintaining and upgrading ICT systems can strain financial resources.

3**. Digital Literacy Challenges**

- Lack of Skills: Many individuals may lack the necessary skills to effectively use ICT tools.
- Training Programs: A shortage of programs to train people in ICT skills exacerbates the digital divide.

4. **Cultural and Social Challenges**

- Resistance to Change: Some community members may prefer traditional methods over new technologies.
- Language Barriers: Limited language availability for ICT tools and content can hinder access for non-English speakers.

5. **Policy and Regulatory Challenges**

- Inadequate Policies: A lack of supportive government policies can hinder ICT adoption and integration.
- Regulatory Barriers: Overly restrictive regulations, particularly regarding data privacy and security, can pose significant challenges.

6. Economic Challenges

- Economic Disparities: Economic inequalities can limit access to ICT for poorer segments of the population.
- Market Limitations: Limited market size and purchasing power can affect the availability and affordability of ICT products and services.

7. **Technical Support and Maintenance Challenges**

- Lack of Local Expertise: A shortage of local technical experts can complicate the installation, maintenance, and troubleshooting of ICT systems.
- Support Services: Limited availability of support services can lead to prolonged downtimes and reduced effectiveness of ICT tools.

8**. Sustainability Challenges**

- Long-term Viability: Ensuring the sustainability of ICT projects is challenging, particularly in securing ongoing funding and adapting to technological advancements.
- Environmental Impact: Consideration of the environmental impact of ICT infrastructure, such as e-waste management, is crucial for sustainable development.

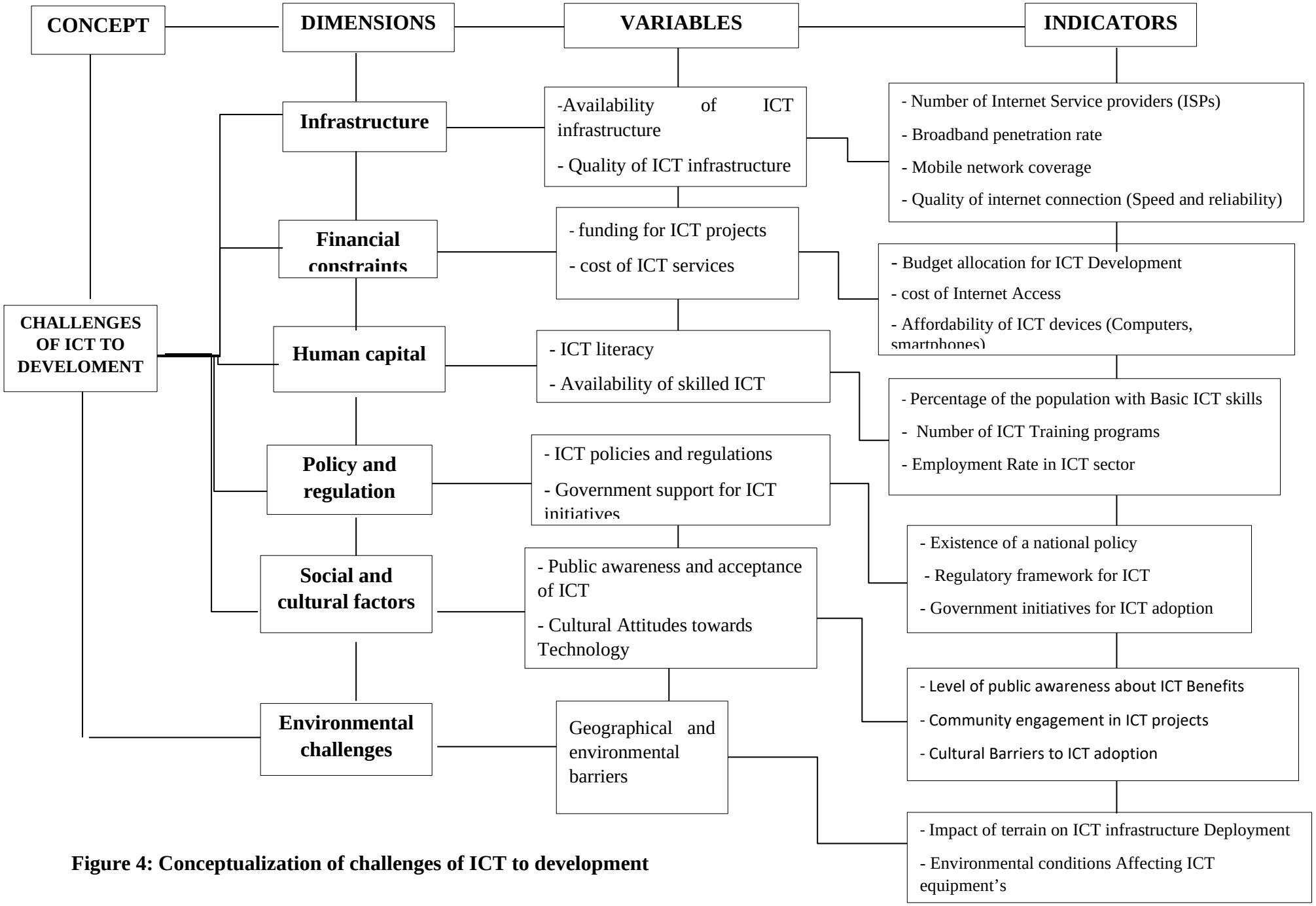


Figure 4: Conceptualization of challenges of ICT to development

0.11. Theoretical frame work

Here, the theories that permitted understanding of certain aspects of the study are presented. Amongst others, the theories of digital divide, ICT for Development (ICT4D) and the theory of modernization.

0.11.1 The Digital Divide theory (2011)

The digital divide theory is a conceptual framework that focuses on the unequal access to, use of, and benefits from information and communication technologies (ICT) among different individuals, communities, or regions. It acknowledges that disparities in ICT infrastructure, connectivity, and digital skills can exacerbate existing socio-economic inequalities. (Van Dijk 2013). The digital divide creates a division and inequality around access to information and resources. In the Information Age in which information and communication technologies (ICTs) have eclipsed manufacturing technologies as the basis for world economies and social connectivity, people without access to the Internet and other ICTs are at a socio-economic disadvantage, for they are unable or less able to find and apply for jobs, shop and sell online, participate democratically, or research and learn.

In the context of a research study on ICT and socio-economic development of Lomie Sub-division, the digital divide theory is significant for several reasons:

Identifying disparities: The theory helps identify the variations in access to ICT resources and services between different groups within the rural community. This can include disparities in internet availability, mobile network coverage, computer literacy, or digital skills. By understanding these disparities, policymakers and stakeholders can create targeted interventions to address them.

Understanding socio-economic implications: The theory allows researchers to analyze the impact of the digital divide on socio-economic development in Lomie sub-division. Limited access to ICT resources can hinder opportunities for economic growth, education, healthcare, e-commerce, and social inclusion. By studying the digital divide, researchers can assess the extent to which these limitations affect various aspects of development.

Informing policy interventions: By examining the digital divide, policymakers can identify areas that require investment and interventions for bridging the gap. Policies related to ICT infrastructure, affordability, digital literacy programs, e-governance, and connectivity can be developed based on the insights gained from the theory. This can pave the way for more inclusive and sustainable development in Lomie Sub-division.

Guiding ICT initiatives: The digital divide theory provides guidance for the implementation and evaluation of ICT initiatives in rural areas. Understanding the factors contributing to the divide helps in designing appropriate strategies for improving access, connectivity, and digital skills. It also assists in tailoring ICT interventions to suit the specific needs and contexts of Lomie sub-division. (Figure 5)

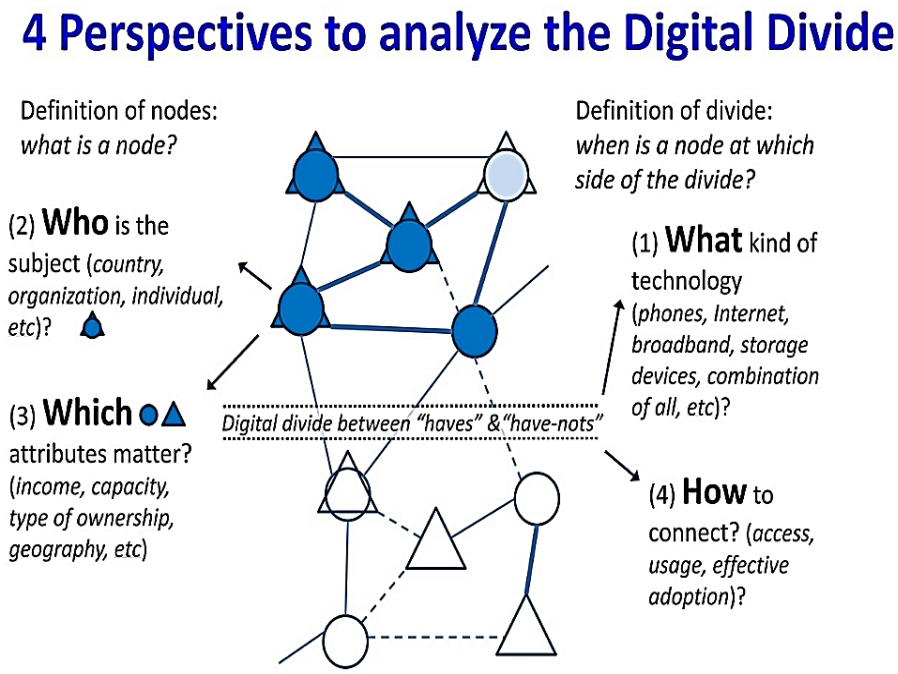


Figure 5: The 4 perspective to analyse the digital divide

Source: Hilbert, (2011).

The theory is crucial in research on ICT and socio-economic development in Lomie sub-division. It will help in understand the disparities in ICT access, use, and benefits within the community and provides insights that can inform policy interventions and guide the implementation of ICT initiatives for more equitable and inclusive development.

0.11.2 Information and Communication technology for Development (ICT4D) 2014

ICT4D, or Information and Communication Technologies for Development, is a theoretical framework that explores the relationship between ICT and socio-economic development in rural areas. It examines how the strategic use of ICT can contribute to the improvement of various sectors and enhance livelihoods in underprivileged regions (Heeks, 2014). Figure 5

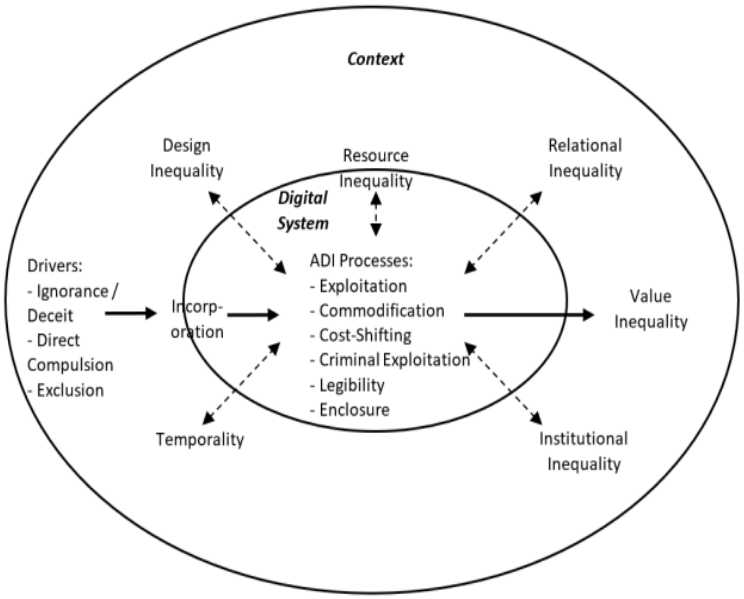


Figure 6: An illustration of ICT4D by Richard Heeks

Source: Heeks. (2014). "ICT4D: Information and communication Technology for Development."

In the context of this research study based on ICT and socio-economic development in Lomie Sub-division, ICT4D offers several significant aspects to consider:

- Bridging the Digital Divide: ICT4D aims to bridge the digital divide by reducing inequalities in access to, use of, and benefits from ICT. It recognizes that rural areas often face challenges in terms of infrastructure, connectivity, and resources. The theory emphasizes the importance of providing equal opportunities for all communities, including marginalized or remote regions, to access ICT tools and resources.

- Enhancing Livelihoods: ICT4D recognizes that the strategic utilization of ICT can positively impact various aspects of livelihoods in rural areas, such as agriculture, healthcare, education, and entrepreneurship. It explores how leveraging ICT tools and applications can improve income generation, enhance productivity, and facilitate knowledge sharing and skills development among local communities.

- Promoting Sustainable Development: ICT4D emphasizes the role of ICT in advancing sustainable development goals in rural areas. This includes using ICT to improve environmental management, promote social inclusion, and strengthen governance and decision-making processes. The theory acknowledges that ICT can empower communities to participate in socio-economic development initiatives and contribute to long-term sustainable outcomes.

- Contextual Adaptation: ICT4D recognizes the importance of considering the local context and needs of the target community. It emphasizes the co-design and co-creation of ICT solutions, involving local stakeholders in the planning and implementation processes. This approach ensures that ICT initiatives are relevant, culturally appropriate, and sustainable in the specific rural context of Lomie Sub-division.

In a research study like this can be of great help. ICT4D can serve as a guiding framework for understanding the potential impact of ICT on socio-economic development in a Lomie Sub-division. It encourages researchers to explore the specific challenges, opportunities, and outcomes of ICT initiatives, to assess their effectiveness and identify strategies for successful implementation.

To incorporate ICT4D in this study, relevant methodologies can include field surveys, interviews, focus group discussions, and case studies to gather data on ICT infrastructure and access, socio-economic indicators, community perceptions, and experiences. By employing the ICT4D lens, will be easier to analyze the socio-economic impacts of ICT in Lomie Sub-division and provide recommendations for policy and practice to achieve sustainable development goals.

11.3. The Theory of Modernization (1950)

The theory of modernization was developed by various sociologists and scholars in the mid-20th century, with key contributors including Talcott Parsons, Kingsley Davis, and Wilbert E. Moore. While there is no singular publication associated with the theory's inception, it emerged in the 1950s and 1960s as a response to the societal changes occurring during that time. The theory of modernization posits that society’s progress from traditional, agrarian-based structures to more advanced, industrialized forms. It suggests that as societies undergo economic development, they experience social and cultural transformations, including shifts in values, norms, institutions, and technological advancements. The theory argues that these changes lead to increased social differentiation, individualism, and economic growth.

When applying the theory of modernization to a study on ICT and socio-economic development, several implications can be observed:

Technological advancement and societal transformation: The theory suggests that the adoption and implementation of ICT in a society can act as a catalyst for modernization. By introducing new technologies and systems, ICT enables improved communication, access to information, and economic opportunities. This can lead to increased productivity, social mobility, and changes in the social fabric of the community being studied.

Digital divide and inequality: Modernization theory also highlights the potential for inequalities to arise during the process of modernization. In the context of ICT and socio-economic development, this can manifest as the digital divide, where certain individuals or groups have limited access to ICT resources, skills, or connectivity. Addressing these inequalities becomes crucial for ensuring that the benefits of ICT-driven modernization are inclusive and equitable.

Cultural and social changes: The theory of modernization posits that the adoption of new technologies can shape cultural values and social norms. In the case of ICT and socio-economic development, the introduction of digital technologies can lead to changes in communication patterns, social interactions, and community dynamics. Studying these cultural and social changes is important to understand the broader implications of ICT adoption in the context of modernization.

While the theory of modernization provides a framework for understanding the relationship between ICT and socio-economic development, it is essential to consider it alongside other complementary theories and empirical evidence to get a comprehensive understanding of the specific study area, such as Lomie Sub-division, and its unique socio-economic context.

0.12. Research methodology

The methodological approaches that were used in this work were categorized into those focusing quantitative and qualitative analyses in respect of either engagement in the production of ICT or in its use or both. Thus, a hypothetico-deductive approach with hypothesis as the point of departure which was subject to verification was used. This approach was carried out using various research methods and techniques. This was largely concerned with data collection which comprises collection from secondary & primary sources, field work, data processing (consisting of treating and interpretation of data) and finally data presentation.

0.12.1. Data collection

The data collected and exploited in this work were gotten both from secondary and primary sources.

0.12.1.1. Secondary source of data

Data was obtained from published and unpublished records on ICTs and socio-economic development. Consultation and attention was paid on the role ICTs play in the social and economic development as well the challenges it faces. Review maps, reports and research

results were major sources of consultation. These consultations were made on the following centers;

- The library of the Advanced School of Post and Telecommunication. It helped in providing literature related to postal activities and telecommunication services in Cameroon and in the east region. It is from this library that most of the text and laws concerning communications and information technologies were found.
- The central library of Faculty of Arts and social sciences. The library of the University of Yaoundé I provided information to work related to ICTs and socio-economic development in rural areas. These data helped in building up concepts and theories that will be used in our work. This also helped to build up questionnaires that were administered in the field to collect data.
- The internet also was of great help in this work. It helped in establishing the literature review related to ICTs, economic and social development in villages of East Cameroon and Lomie in particular. It also helped to establish the problem statement and sample size of this work.
- The population size was obtained from population census of 2005 in Cameroon provided by BUCREP office in Yaoundé. Maps related to the study area were consulted from the National Institute of Cartography.

0.12.1.2. Primary source of data

The primary data exploited in this work were gotten from fieldwork observation, interview and focused group discussion as well as questionnaires.

0.12.2. Field observations

Multiple visits were conducted to the study area in order to observe, gather data, and assess relevant phenomena, as well as to distribute questionnaire copies. The initial visit occurred from December 12th to 15th, 2020, which allowed us to become familiar with the phenomena and observe the issues outlined in the study area. During this time, representatives from various sectors including post and telecommunication (communication), small and medium enterprises (trade), agriculture, public health, secondary education, and primary education in Lomie were visited. Information and documents related to ICT and the socio-economic development of the area were consulted. This also enabled to evaluate the socio-economic development of the Sub-division. Four villages of the Sub-division (Haoussa, Madouma, Nylon, and Zimbabwe) were visited to identify potential ICT users for population

sampling. The nearly week-long fieldwork provided insight into the realities of Lomie Sub-division. A digital camera was used to capture images of enterprises, activities, and ICT tools encountered during our observations.

The second visit took place from August 16th to 20th, 2021. During this period, effective data collection was carried out through interviews, questionnaire administration, and observations in the four selected villages within the Sub-division: Haoussa, Madouma, Zimbabwe, and Nylon. The process was facilitated by the assistance of a local elite and a qualified researcher who helped identify locations points to distribute questionnaire copies as well as individuals relevant to this study for interviews.

0.12.3. Interviews

An interview is a verbal exchange between two individuals, typically involving the interviewer and the respondent. In this study, the interview process involved engaging in conversations with key individuals who could provide valuable qualitative data. These individuals included economic operators in Lomie, representatives of the Common Interest Group (CIG) of the Baka women, the head of the Baka community, members of the FOMOD association, a journalist from the CODEDEM (Nkul me Lab radio), representatives from health centers, wholesale traders in Lomie, the manager of the CAMPOST agency for the upper Nyong, and a journalist from the CODEDEM. Through these interviews, we gained valuable insights into the presence of information and communication technologies in our research area and assessed their impact on various sectors in Lomie.

0.12.4. The Population of the study area

The population of this study was made up of potential ICTs users randomly selected from 4 villages in Lomie that were directly exposed to ICT devises and were easily accessible. The 4 villages recorded a total population of 3843 inhabitants following the household census of BUCREP in 2005. The table below shows the distribution of the targeted villages. (Table 1)

Table 1: The population of the study area

Villages/Town In Lomie Sub-division	households	Male	Female
Haoussa	990	510	480
Madouma	366	188	178
Nylon	1219	629	590
Zimbabwe	1268	663	605
TOTAL	3843	1990	1853

Source: BUCREP, 2005

0.12.5. The study population and the sample size

The sample size for this work was drawn from 3843 households following the population and household census of 2005.The choice of these households were based on their accessibility to the open world and to ICT devices, also due to the presence of administrative structures such as the office of the divisional officer and the town hall for interviews. This facilitated the easy access to information during the administration of questionnaire copies. These households constituted 5% of the sample population of the area. The reason for the 5% sample is in accordance with Nwana, (1982) which stipulates that;

- If the population of the studied area is in hundreds, then 40% or more will be used for the sample.
- If it is in many hundreds, then 20% can be used for the sample.
- If it is few thousands, 10% can do it.
- If it is in several thousands, then 5% or less will do.

0.12.6. Sampling technique

The 5% sample size for this study was selected from the total number of households in each village using the formula:

$$\frac{X*5}{100}$$ Where:

X= number of households

5= sample size chosen

Computing a 5% sample size from 3843 households, 192 households were selected to whom questionnaire was administered (table 2).

Table 2: Selected sample size for the study

N°	Village	Number of households	5% sample size
1	**Haoussa**	990	50
2	**Madouma**	366	18
3	**Nylon**	1219	61
4	**Zimbabwe**	1268	63
Total		3843	192

Source: BUCREP, 2005

From table 2 above, the researcher was able to know the total number of copies of questionnaire to be taken to the field for administration thus helped to easily calculate the number of effective respondents. (Figure 6)

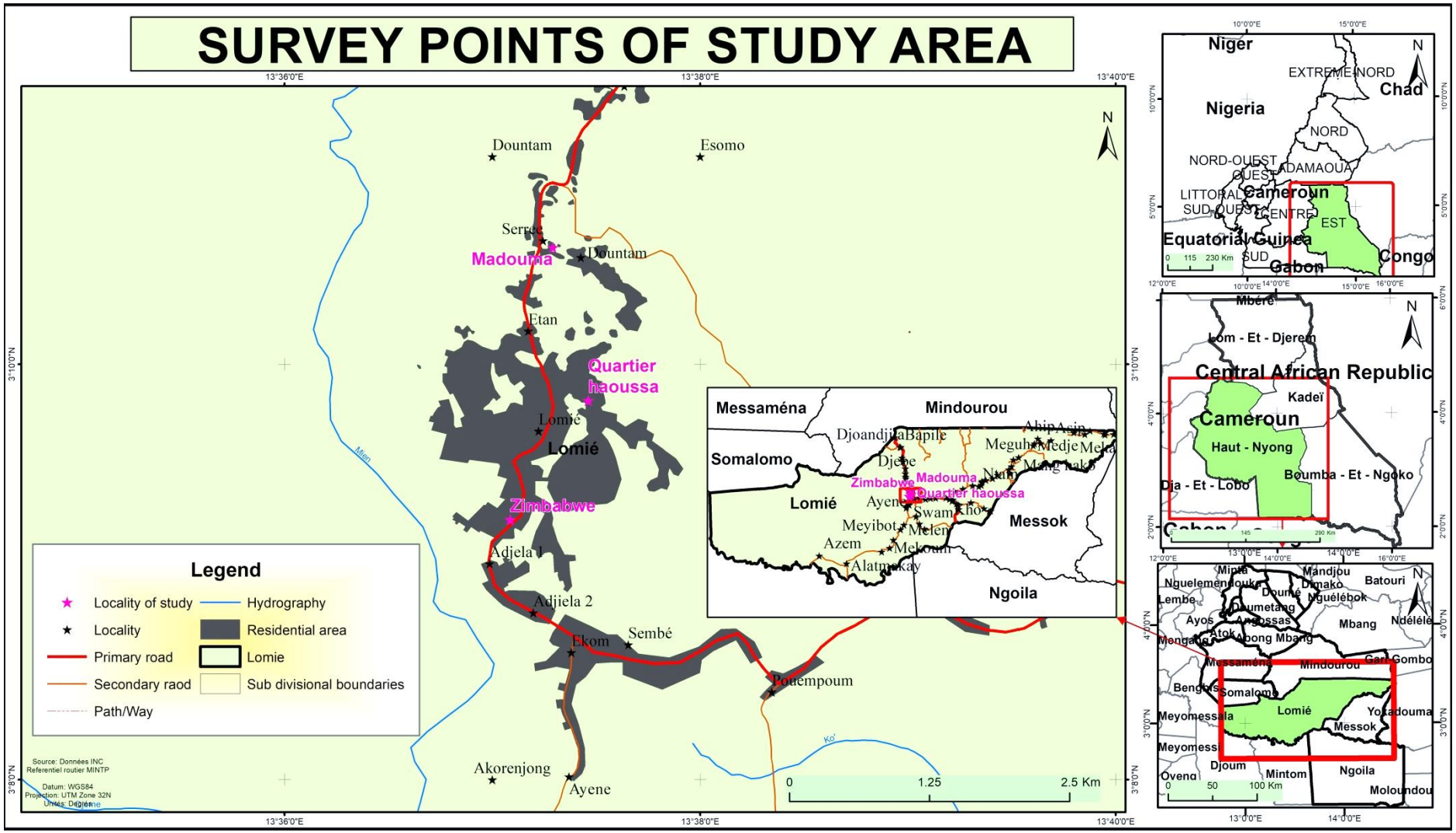


Figure 7: Survey points during fieldwork

Source: National institute of Cartography (NIC)

0.12.7. Administration of questionnaire

The primary data to be used in this work were collected through the administration of possession and usage of ICT devices.

Table 3: Number of effective respondents

N	Villages	Household / village	Sample size **n**。	Eff Resp.	% Eff Resp
1	**Haoussa**	990	50	22	44%
2	**Madouma**	366	18	9	50%
3	**Nylon**	1219	61	60	98.36 %
4	**Zimbabwe**	1268	63	58	92.06%
Totals		3843	192	149	77.60 %

HH: household, Eff.Resp: effective respondents
Source: BUCREP, 2005

According to the data provided in table 3, out of a total of 192 questionnaire copies intended for distribution in the field, 149 were successfully administered to the intended population. However, due to certain individuals' unwillingness or unavailability to participate, the administration of the questionnaire was not entirely successful. Nonetheless, the highest distribution of questionnaires was observed in Nylon and Zimbabwe. This can be attributed to their relatively large population size and better access to information and communication technologies (ICTs) tools. The fieldwork took place during the rainy season and due to the bad nature of the road going towards the areas of Madouma and Haoussa the survey was quite difficult resulting to the number of 22 and 9 respondents respectively. (Figure 7)

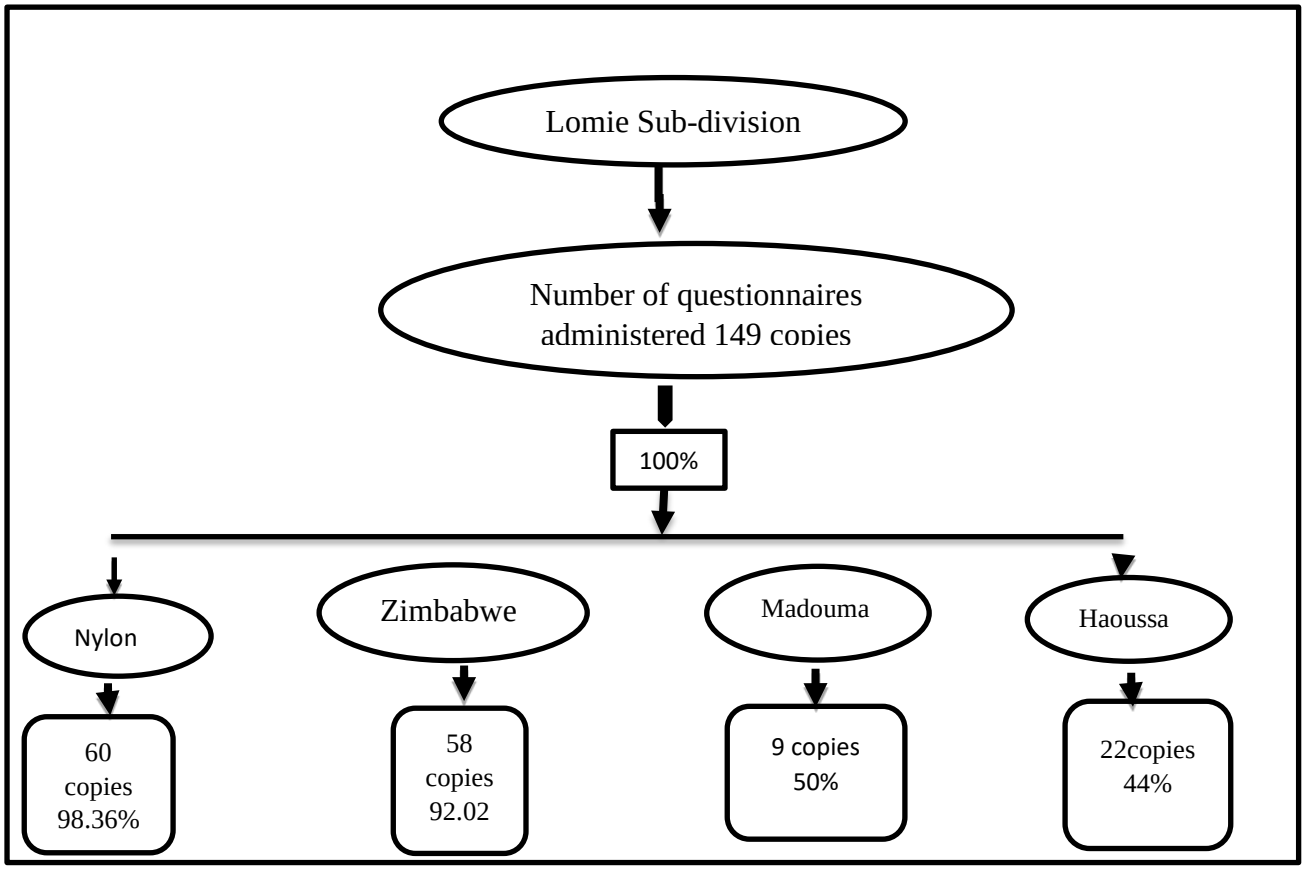


Figure 8: Spatial distribution of effective respondent in the various villages of Lomie Sub-division

Source; author's conception

0.12.8. Tools and instruments used in the research

Table 4: Tools used during the research

Tools and instrument	Uses
Microsoft word and excel	To treat qualitative data and to obtain graphs
Adobe Photoshop	To change photos and clear impurities
Are GIs(shape files) and Adobe illustrator	To realize maps
Digital camera	To capture phenomena in the field
Google map	To collect spatial information on space and to verify land use, and roads
GPS	To collect waypoints
The eye	It was used to observe phenomena in the field
Appendices	For the clarification of assertion made in the study
Questionnaire	To collect quantitative data

Source: author's conception

It should be noted that this work actually began with a plan adopted for the reader to have a vivid rundown of the content of the work from general.

0.12.9. Data treatment and Presentation

In order to treat the data and information collected for this study, there was the possibility to accept, criticize, modify and reject laws that guided this research. This study aided in the understanding and explanation of how and why things are the way they are in the Sub-division as far as ICTs and the Socio-economic development are concerned. The data treatment and processing were divided into statistical processing and cartographic treatment. The descriptive and inferential statistical methods were used.

0.12.9.1. Statistical Processing

Inferential statistics has permitted the inferences and predictions about the state of implication of ICT in the development of the studied area based on a sample of the data obtained from the population. It was used to generate cross tables and frequencies to show the degree of correlation variables. The data of this work was written with the aid of CSPro 6.0 software (Census and survey processing system).

The data from questionnaire copies and other forms of data collected were analyzed by tallying the responses of respondents per question in the questionnaire administered. This gave us the percentages of the different responses. The chi square statistical testing of hypothesis was the major method for this work. A chi-square test (also chi-squared or $\chi 2$ test) is any statistical hypothesis test in which the sampling distribution of the test statistic is a chi-square distribution when the null hypothesis is true, or any in which this is asymptotically true, meaning that the sampling distribution (if the null hypothesis is true) can be made to approximate a chi-square distribution as closely as desired by making the sample size large enough. The Calculation of the chi square statistic x2 by completing the following steps:

1. For each *observed* number in the table subtract the corresponding *expected* number (*O -E*).

2. Square the difference [(O —E) ²].

3. Divide the squares obtained for each cell in the table by the *expected* number for that cell [(O - E) ² / E].

4. Sum all the values for (O - E) ² / E. This is the chi square statistic.

For a contingency table that has *r* rows and *c* columns, the chi square test can be thought of as a test of independence. In a test of independence, the null and alternative hypotheses are:

We can also use the equation Chi Square = the sum of all the $(f\text{o} - f\text{e})^2 / f\text{e}$

Where *f*o denotes the frequency of the observed data and *f*e is the frequency of the expected values.

0.12.9.2. Cartographic treatment

A location map of our zone of research was brought out so as permit a coherent comprehension or understanding of our work. This map was brought out so as to present the different localities of our zone of research including the different villages. This map was brought out with the help of remote sensing software and geographic information software's (ArcGIS, Adobe illustrator).

0.12.9.3. Data presentation

The processed and treated data was presented in the form of tables, figures with aid of reference maps**,** histograms, pie charts, synoptic chart line graphs and others not mentioned. Maps were produced using Adobe illustrator and ArcGIS. The statistical computations, tables and graphs were processed using the Statistical Package for Social Sciences (SPSS) and Microsoft Excel software. Results were the used to interpret and discuss the data.

0.12.9.3.1. Conduct of the Survey and Results of the Fieldwork

The survey covered a fairly varied public made up of the stakeholder's listed (Table 5) from working-class neighborhoods in the town of Lomie. A questionnaire was developed for this purpose. The aim of the survey was to find out about the target audience, their level of knowledge on ICTs, their needs, opinions and proposals on ICTs for local development. The questionnaires were thus composed of the following parts:

"**Identity**", which aimed to find out about the target audience. This knowledge covered gender, age, profession, level of education, membership of an association, etc. This section made it possible to categorize and classify the population surveyed. It had its place in the questionnaire because the needs are not always the same depending on whether one has been to school or not.

"Access to ICTs", which aimed to find out the level of ICT equipment of the surveyed population and also to identify the places where Internet access is available, the

frequency and the difficulties encountered. This section provided information on the most commonly used Internet access points, the percentages of the population with a computer and also an Internet connection at home. It also provided information on the difficulties they have in using the tools.

"ICTs usage and needs", which aimed to find out how people use ICTs, what their needs are and also their opinions on the impact of ICTs on development. This component made it possible to identify the different uses that the surveyed populations make of ICTs and to identify their level of knowledge of the opportunities offered by ICTs.

These questionnaires were disseminated through direct interviews to obtain information from the beneficiaries.

- **Identities and access to ICT**

The table below shows the characteristics and identities of the surveyed populations (table 5)

Table 5: Actors during the survey

Actors	Role in this work
Entrepreneurs and traders	Entrepreneurs such as managers of hardware stores, snack bars, restaurants and shops helped in giving ideas of the possibilities of using ICT in their respective activities as an asset and also its rate of use.
DO of Lomie	To get an idea of Lomie's demography, education level and economic situation.
Workers at the Lomie town hall	To find out how they organize the processing of population data (in tasks such as birth certificates, marriages and other town hall projects). To also have an idea if they make use of modern or traditional ICT tools and how often they use them.
Journalists of the communal radio	As they are in the field of communication, they were of great help by providing the qualitative data concerning ICTs and the means of popularization put in place by them in the locality.
The director of the Lomie Prison	The manager of the Lomie prison is a great personality there. He orientated us on the different methods by which ICT could be a plus in his very difficult work. Especially with the arrival of COVID-19.

	He also helped us to fill in the research questionnaires.
Representative of NGOs	These representatives helped to get information on the social and economic state of the inhabitants of the Sub-division. They were also be a source of information on how ICT could help them in their work
The communal youth delegate of Lomie	Permitted to get in touch with young people in the Sub-division and get information about the Telecenters in Lomie as well as primary and secondary schools.
The former departmental delegate for agriculture	helped to get answers on how ICTs can bring a plus in the agricultural sector of Lomie
chief of the control of forestry and Hunting of Lomie	Provided information on the state of the forests in Lomie, hunting and poaching and how ICT help him in work. He also helped to answer the questionnaires.
The local inhabitants	Including all categories of people (both male and female) in the locality. They helped the interviewer by answering the questions that came to his mind, explaining the reality of field, gave some recommendations and also by answering questionnaires.

Source: Field work investigation 2021

0.12.10. Limitations encountered during the collection of data

The process of collecting; compiling and treating data was quite challenging. Some of the problems encountered in this study include; incomplete information from some respondents to whom the questionnaires were administered, little or no access to documentation, exorbitant costs of wire line technologies resulting from the high penetration of mobile communications compared to fixed telephone lines; high level of illiteracy resulting in lack of readily available support and maintenance for ICT; harsh environmental conditions and limited financial resources.

This process of data collection enabled the analyses of data thereby achieving the study objectives and verifying the formulated hypotheses. The relevant data that was used in testing each of the hypotheses and the results of the analysis are incorporated in the different chapters of this work. The research design has been conceived in a tabular form and presented

below. It is composed of the research questions, objective, hypothesis, methodology, concepts, theories and the chapter layout. (Figure 8)

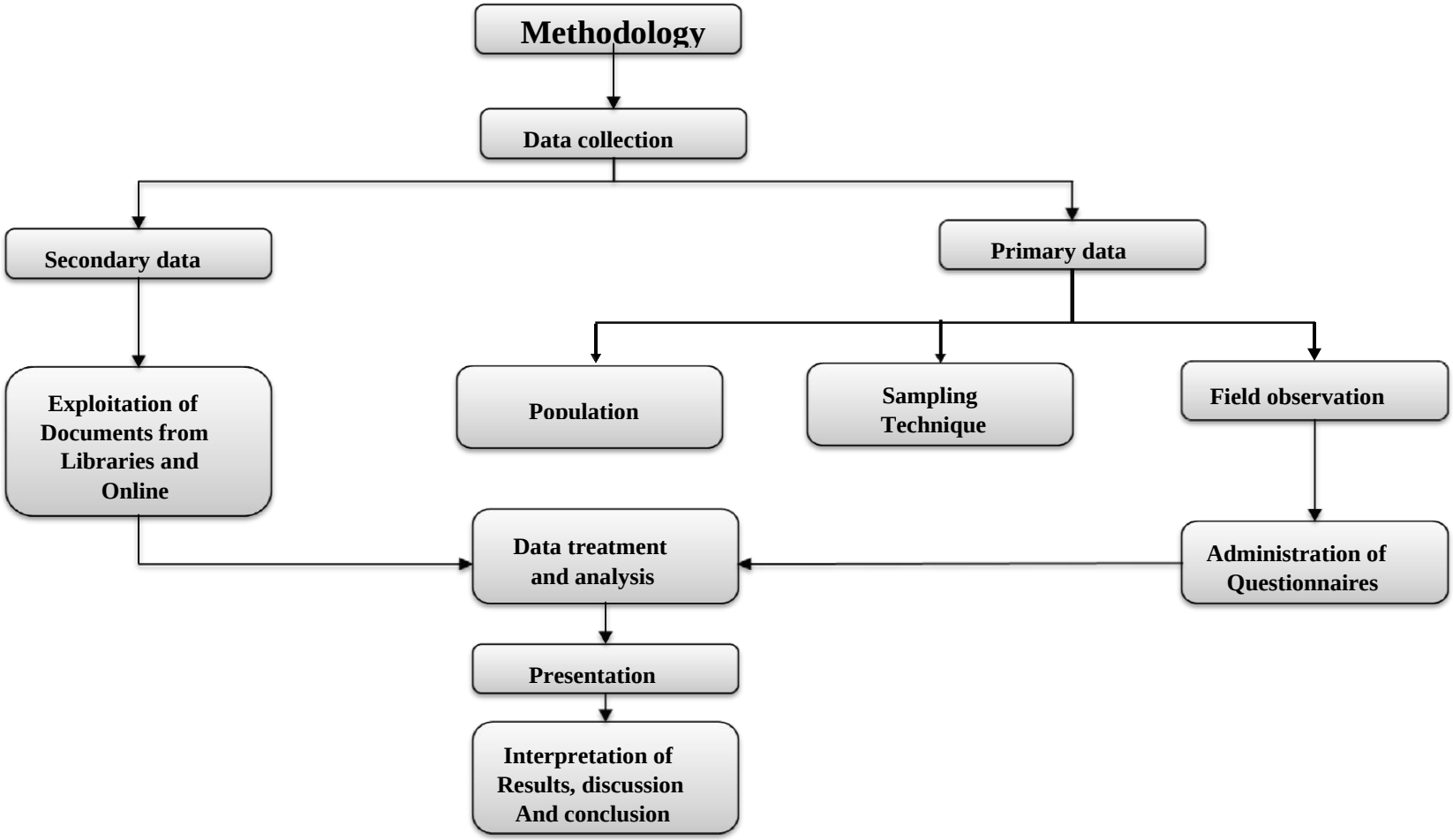


Figure 9: Summary of the methodology

Source: Author's conception

Table 6: Matrix table of study

Research questions	Research objectives	Research hypothesis	Theories /Concept	Methodology	Research outline
Principal research question What is the current state of ICT infrastructure in Lomie Sub-division?	**Principal research objective** - To assess the current state of ICT infrastructure in Lomie Sub-division	**Principal research hypothesis** The current state of ICT infrastructure in Lomie Sub-division is inadequate, causing limited access and utilization of ICT resources	**Theories** - Theory of Digital Divide - Theory of ICT for Development (ICT4D) - Theory of modernisation	**<u>Secondary data collection</u>** -Review of dissertations and thesis, articles, report and internet sources	**Chapter 1:** Mapping of the ICT sector in Lomie
Specific question - What are the key challenges preventing the effective utilization of ICT in promoting the economic development of Lomie Sub-division? - What barriers exist that hinder the ability of ICT to drive social development in Lomie Sub-division? -How effective are the existing ICT framework and policies in Promoting Social and economic development of Lomie Sub-division?	**Specific objectives** - To identify and analyse the challenges hindering the effective utilization of ICT in the economic development of Lomie - To explore barriers that are obstructing the ability of ICT to drive social development in Lomie Sub-division - To evaluate existing ICT framework and their effectiveness in promoting social and economic development in Lomie Sub-division	**Specific hypothesis** - The traditional communication methods favoured in some communities in Lomie may hinder the adoption of ICT due to cultural and language barriers. -Difficult access to network and internet is a major setback to the integration and intervention of ICT in the development of Lomie Sub-division. - The implementation of ICT policy has led to an increase in access to ICT services and digital literacy among the population of Lomie Sub-division.		**<u>Primary data collection</u>** -Direct field observation, interviews and questionnaires	**Chapter 2:** Unveiling Challenges: ICT inadequacies and Economic Development of Lomie Sub-division
			<u>Concepts</u> -The concept of socio-economic Development - ICT	**<u>Data processing, analysis and treatment</u>** -Using Microsoft word, excel, ARGIS, SPSS	**Chapter 3:** - Bridge the Gap: Addressing ICT Inadequacies for Social Development in Lomie Sub-division
				<u>Data presentation and interpretation</u> -Using tables, maps, charts and photographs	**Chapter 4:** -Dividing Digital transformation: Analysing Cameroon's ICT policy and Regulatory Framework in Lomie Sub-division

Source: Author's conception

0.12.11 Operationalization of the variables

A critical look at the research questions, objective and hypothesis shows that we have dependent and independent variables which needs to be operationalized to help build the questionnaire and equally the type of data to be collected.

a) Hypothesis 1: The current state of ICT infrastructure in Lomie Sub-division is inadequate, causing limited access and utilization of ICT resources

Independent variable: Adequacy of ICT infrastructure

Dependent variable: Access to ICT resources**.** (Table 7)

Table 7: Operationalization of hypothesis one

Independent variables	Indicators	Dependent variables	Indicators
Adequacy of ICT infrastructure	- Number of households with internet access -Number of households with access to Computers - Number of institutions with internet access	Access to ICT resources	- Number of households using internet for educational purposes - Number of households using internet for economic activities or purposes - Number of households using ICT for communication and social networking

c) Hypothesis 2: The traditional communication methods favored in some communities in Lomie may hinder the adoption of ICT due to cultural and language barriers.

Independent variables: Traditional communication methods favored in some communities in Lomie. (Table 8)

Dependent variables: Adoption of ICT

Table 8: Operationalization of hypothesis three

Independent variables	Indicators	Dependent variables	Indicators
Traditional communication methods favored in some communities in Lomie	1. Reliance on oral communication 2. Preference for face-to-face interactions 3. Use of local languages for communication	Adoption of ICT	1.Usage of digital devices (e.g., smartphones, computers) 2. Access to the internet 3. Utilization of ICT tools and platforms for communication and information sharing

d) Hypothesis 4: Difficult access to network and internet is a major is a major obstacle to the integration and vulgarization of ICT in Lomie Sub-division

Independent Variable: Difficult access to network and internet

Dependent variable: Major setbacks to the integration and intervention of ICTs (Table 9)

Table 9: Operationalization of variables for hypothesis four

Independent variableles	Indicators	Dependent variables	Indicators
Difficult access to network and internet	- Difficulty of communicating with the outside world (exterior) - absence of relay points -low opening to the outside world -under information of the population -limited capacity of research and innovation (internet by local populations) - old systems and legacy technology	Major setback to integration and intervention of ICTs in Lomie Sub-division	- absence of relay antenna -non mastering or expertise of ICT by local population -absence of rural radio, and limited communication personnel - unstable internet connection - High cost of some ICT tools such as android phones and computers

0.12.11 Plan of work

The general introduction of this work covers the background of the study, delimitation of the study, the problem statement, research questions, objectives, and hypothesis of the study. The literature review, concepts, as well as theories related to the topic are equally examined in the general introduction. This section of work ends with the research methodology of the study.

0.12.12 Dissertation chapter layout

The initial section of this work provides an overview of the study background, its scope, problem statement, research questions, objectives, and hypothesis. It also includes a review of relevant literature, concepts, and theories related to the topic. This section concludes with a description of the research methodology. The dissertation is structured into four chapters, each containing subsections for introduction, discussion of presented data, and conclusion. The conclusion summarizes main points and leads into the next chapter.

Chapter One examines the ICT infrastructure in Lomie Sub-division, assessing the tools available and their usage and exposure among the population.

Chapter Two investigates on the factors behind inadequacies of ICTs in the economic development of Lomie Sub-division.

Chapter Three evaluate on the factors behind the inadequacy of ICTs in driving the social development of Lomie.

Chapter Four examine the policy and regulatory framework governing ICTs in Cameroon and Lomie Sub-division.

The General Conclusion summarizes findings, verifies hypotheses, presents conclusions, suggestions, and includes references.

CHAPTER 1
ICT INFRASTRUCTURE IN THE SUB-DIVISION OF LOMIE

1.0. Introduction

Lomie Sub-division, located in the East Region of Cameroon, is a diverse and vibrant community with immense potential for socio-economic growth. As technology continues to play a pivotal role in shaping the development landscape, the establishment and enhancement of Information and Communication Technologies (ICTs) infrastructure in Lomie present significant opportunities for empowering its residents and driving progress.

This chapter delves into the critical importance of ICTs infrastructure in fostering socio-economic development within Lomie Sub-division. By examining the current state of ICT facilities, networks, and services in the Sub-division, as well as exploring potential areas for improvement and expansion, we aim to uncover how strategic investments in technology can unlock new possibilities and propel the community towards a more prosperous future. From enhancing connectivity and access to information in promoting digital literacy and entrepreneurship, ICTs infrastructure serves as a catalyst for positive change and inclusive growth in Lomie. The ICT landscape of the locality is observed from two angles, traditional and modern forms of ICTs within the Sub-division.

1.1. Available ICT tools in Lomie sub-division

In Lomie Sub-division the two types of ICT tools were observed (Traditional ICT tools and modern ICT tools). Traditional ICTs include ancient tools such as radio, postal services, satellite dishes and televisions. Modern ICTs involve modern and recent tools of communication such as telephone, internet, multimedia centres, and monetary transactions facilities.

1.1.1. Traditional ICTs in Lomie Sub-division

The conventional ICTs present in Lomie, which will be explored in this part of the chapter include: radio communications, postal services, satellite dishes and television broadcasting.

1.1.1.1. Radio Communication

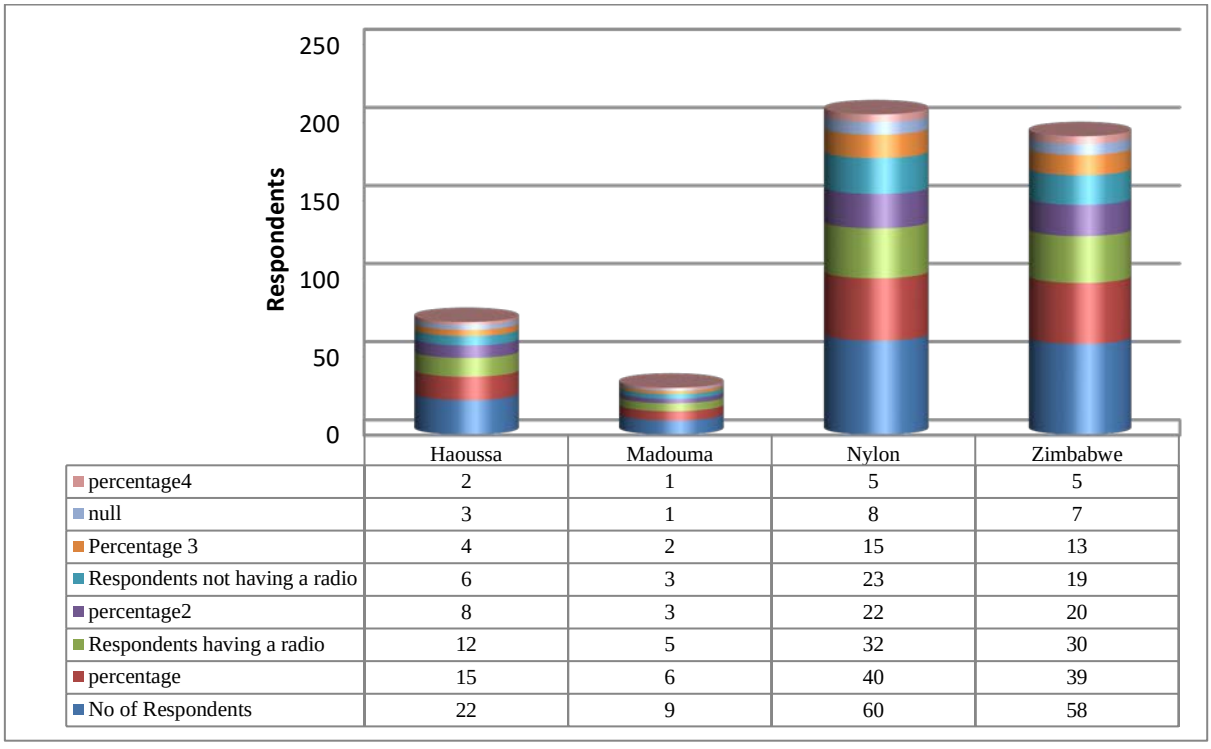
Radio communication has played a crucial role in connecting the people of Lomie Sub-division. The Local radios present there are: radio of CODEDEM (*Commité de*

Developpment Du Dja ET Mpomo) or Radio Nkul Melab) and the community radio controlled by the town Hall. (photo1.)

Photo 1: Rural radio Nkul Melab

Source: NGANDE, C. August 2021

The radio stations broadcast news, educational and agricultural programs, and entertainment content. The various programs are broadcasted in various languages such as French, English and sometimes in Local languages like Nzime hence permitting to reach a wide audience. Radio remains a reliable source of information for the community, especially in areas with limited access to other ICTs. (Figure 10)



	Haoussa	Madouma	Nylon	Zimbabwe
percentage4	2	1	5	5
null	3	1	8	7
Percentage 3	4	2	15	13
Respondents not having a radio	6	3	23	19
percentage2	8	3	22	20
Respondents having a radio	12	5	32	30
percentage	15	6	40	39
No of Respondents	22	9	60	58

Figure 10: Respondents making use of a radio

Source: field work 2021

Observation made based from figure 10 shows that from the respondents 79 (53%) were disposing a radio set with and Haoussa having the highest number of users against 51 (34%) for none users. Madouma records the lowest record with 5 respondents. Majority of these users at Madouma were mostly adults and aged people that follow their radio programs such as debates, news, and entertainment on daily basis. However, some respondents claim to use the radio directly from their mobile phones whenever are in need.

1.1.1.2. Postal Services

Despite the rise of modern communication technologies, postal services continue to operate in Lomie Sub-division. The postal services at Lomie have since then have evolved with time from traditional to modern forms of communication. The traditional means required the movement of people from one village to another and were quiet common during the post-colonial period The Lomie Post office serves as a hub for sending and receiving mail, parcels, and money orders. It provides an essential means of communication, particularly for those without access to digital technologies. (Photo 2)

Photo 2: Campost Agency of Lomie Sub-division (created in 2015)

Source: NGANDE, C. August 2021

Upon careful observation, it has been noted that the Lomie Post Office is unfortunately the only one in the entire Sub-division. The office utilizes modern ICT tools such as computers, mobile phones, and printers. The head branch of CAMPOST for the Sub-division has reported that the institution not only handles mail transportation but also actively participates in Express money transfer, salary payments, school fees, and other services. These additional services are provided in partnership with Express Union and Money Gram.

The Lomie post office operates by inputting customer data into the computer after cross-checking. Due to limited internet access and the size of the necessary applications, employees are required to make trips, sometimes lasting up to 2 days, to the capital (Abong-Mbang).

The majority of customers subscribed to the Lomie post office are regulars who visit every month. According to the staff, aside from these regular customers, the number of other customers received per month does not exceed 5.

In a discussion with the manager, it was mentioned that these customers could be individuals involved in tourism or travel, who have received a bank card from Campost and, when unable to carry out transactions in their accounts, are directed to the Lomie office where transactions are facilitated through the WAFACASH system.. (Photo 3).

Photo 3: Wafacash services advertisement on the wall of Campost agency of Lomie
Source: NGANDE, C. August 2021

The Wafacash system includes various other systems like Cash Express, Money Gram, and more. If a customer requests a service within this system and is unable to be accommodated, they will be referred to the departmental delegation in Abong-Mbang.

Employees at the Lomie branch of Campost have expressed dissatisfaction with their performance as they lack the necessary equipment to work efficiently. However, Campost has introduced a new product called CAMPOST Money (CAMO), which offers services such as money transfers, internet-based savings, deposits, withdrawals, online payments, microcredit,

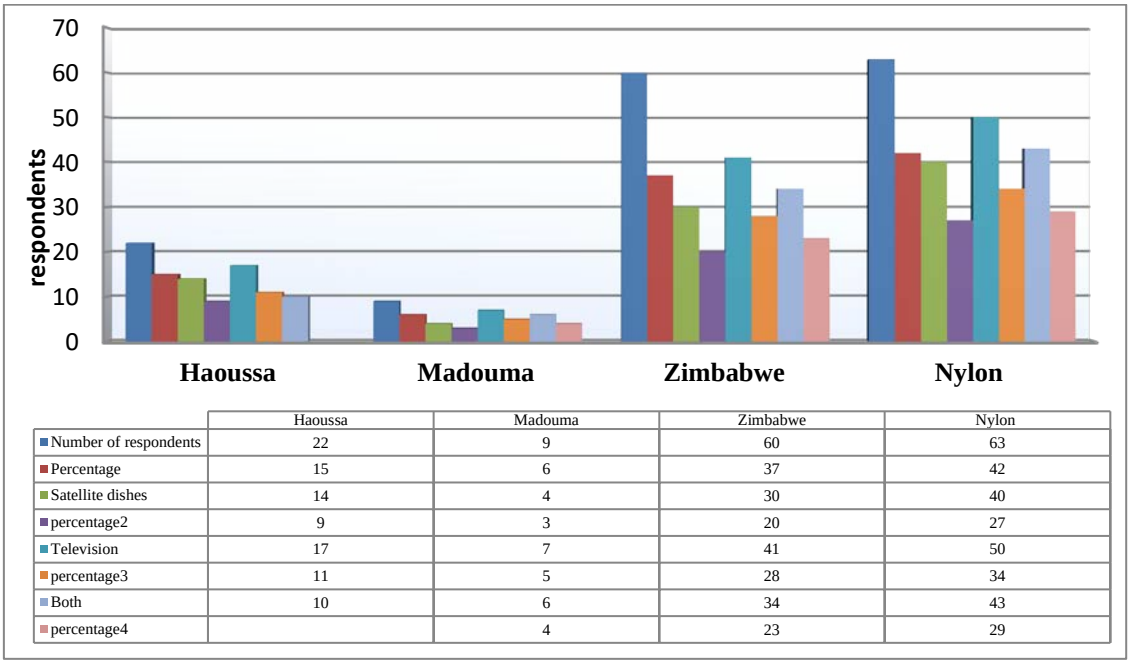
and the purchase of communication credits. Additionally, customers can use CAMO for bill payments for services like CamWater, Canal +, and Eneo.

Currently, due to operational challenges, the Campost Money services in Lomie are limited to online bill payments and school fees processing. Customers are assisted by filling out information on slips and receiving receipts. The branch manager then validates these transactions in the system after collecting a series of slips.

Since the introduction of the Campost Money product and the MINSEC school fee payment system, the Lomie post office was ranked 3rd regionally in 2018 and 4th in 2019. This success is attributed to the efficient slip system that allows them to serve multiple customers quickly despite connectivity issues. Schools like Technical High School, Bilingual High School, CES of Mintoum, CS Zoulabot, and recently the high school of Mesock; Ngoyla CETIC, are among those utilizing Campost Money services for fee payments at the post office.

1.1.1.3. Satellite dishes and television

Television and satellite dishes have become an integral part of the communication and entertainment landscape in Lomie Sub-division. The availability of satellite dishes and the subsequent access to television services have transformed the way residents consume information, stay connected, and enjoy entertainment. (Figure 11)



	Haoussa	Madouma	Zimbabwe	Nylon
Number of respondents	22	9	60	63
Percentage	15	6	37	42
Satellite dishes	14	4	30	40
percentage2	9	3	20	27
Television	17	7	41	50
percentage3	11	5	28	34
Both	10	6	34	43
percentage4		4	23	29

Figure 11: Respondents disposing of Satellite Dishes and TV sets
Source: field work 2021

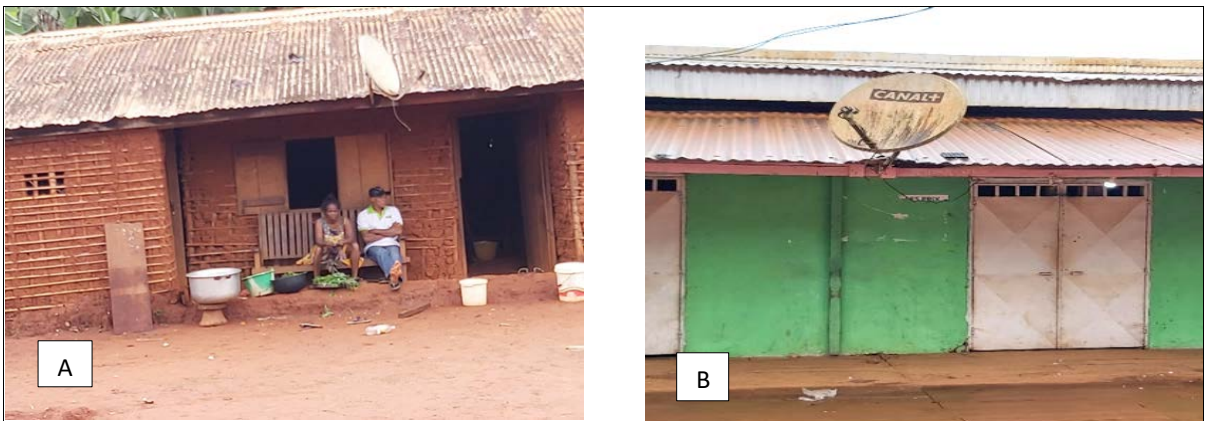
The information presented in figure 11 illustrates the quantity of participants possessing satellite dishes and televisions in their households. According to the data, out of a total sample size of 149, 88 respondents have satellite dishes, and 115 have televisions. By examining the data, it becomes evident that 95 individuals have both devices in their homes. The differences in ownership between satellite dishes and televisions are primarily attributed to limitations in affordability and accessibility..

1.1.1.1.3.1. Satellite dishes in Lomie

Satellite dishes have become increasingly prevalent in Lomie Sub-division, providing residents with access to a wide range of television channels and services. The availability of satellite dishes in the area has brought numerous benefits to the community, transforming the television viewing experience and expanding the options for entertainment, news, and educational programming.

One of the primary advantages of satellite dishes in Lomie is the ability to receive a diverse array of television channels, both national and international. Satellite dishes pick up signals from satellites in orbit, allowing residents to access a vast range of programming from around the world. This includes local channels, national broadcasts, and channels from various countries, providing viewers with a wide selection of content to choose from. (Plate 1)

Plate 1: Satellite dishes at Lomie Sub-division



Source: NGANDE, C. August 2021

Photo A and B depict some satellite dishes in Lomie. In photo A, a mud house is seen with a satellite dish mounted on the on its roof, while photo B shows a shop in Nylon with a satellite dish installed on its side. Both images illustrate the importance of satellite dishes in the Sub-division, as they enable even low income households to access to them with television despite the high cost involved. Satellite dishes are essential in the Sub-division as they are the primary means of receiving visual content in the area.

The use of satellite dishes has greatly enhanced television access in areas where traditional cable or terrestrial broadcasting infrastructure may be limited or unavailable. Lomie sub-division, being a rural area, may have had challenges in receiving reliable television signals in the past. However, with the installation of satellite dishes, residents can now enjoy a more consistent and wider range of television channels, regardless of their location within the sub-division.

The availability of satellite dishes has significantly expanded the variety of programming options for residents of Lomie sub-division. In addition to local and national channels, satellite services provide access to international channels, including those offering news, sports, movies, documentaries, and entertainment from around the world. This enables residents to gain a more global perspective and enjoy a diverse range of content, adding to the richness of their television viewing experience.

1.1.1.1.3.2. Television in Lomie Sub-division

Television services in Lomie Sub-division offer a diverse range of channels and programming options to cater to the varied interests and preferences of the community. The presence of television has had a significant impact on how residents consume information, access news, and enjoy entertainment.

The Sub-division has access to a mix of local and international television channels, providing a broad array of content. Local channels deliver news and programs specific to Lomie and its surroundings, playing a crucial role in keeping residents informed about local events, community news, and cultural activities. These channels serve as a platform for showcasing local talent, cultural traditions, and fostering community involvement.

In addition to local channels, Lomie Sub-division also has access to national and international channels. National channels broadcast content from various regions in Cameroon, including news, dramas, sports, and entertainment programs. Residents can keep abreast of national news, political updates, and cultural events through these channels.

Furthermore, international channels bring a global perspective to the television landscape in Lomie, offering a wide range of content such as global news, documentaries, movies, sports coverage, and entertainment programs. These channels not only expose residents to different cultures and viewpoints but also enhance their knowledge and understanding of global affairs.

Television plays a vital role in various aspects of community life in Lomie Sub-division, serving as a means of disseminating information, promoting local culture, and

fostering community unity. Television programs, especially those on local channels, often feature community events, traditional celebrations, and local services, acting as a platform for communication and highlighting the unique characteristics of the sub-division.

However, it is important to note that infrastructure challenges, particularly limited access to electricity can sometimes impact the television experience in Lomie sub-division. Efforts are underway to enhance electricity infrastructure to ensure a more reliable and uninterrupted television experience for residents.

1.1.2. Modern ICT in Lomie

The section of the chapter will be exploring the available modern ICTs found present at Lomie: mobile telecommunication, computer facilities, multimedia centers, and digital financial services.

1.1.2.1. Telephony and Mobile Telecommunications:

Telephony services, particularly landline phones, are available in Lomie Sub-division. While mobile phones have become more prevalent, landline phones still play a role in connecting households, businesses, and government offices, especially in remote areas with limited mobile network coverage. (Photo 4)

Photo 2: A mobile phone shop and its accessories at Lomie

Source: NGANDE, C. August 2021

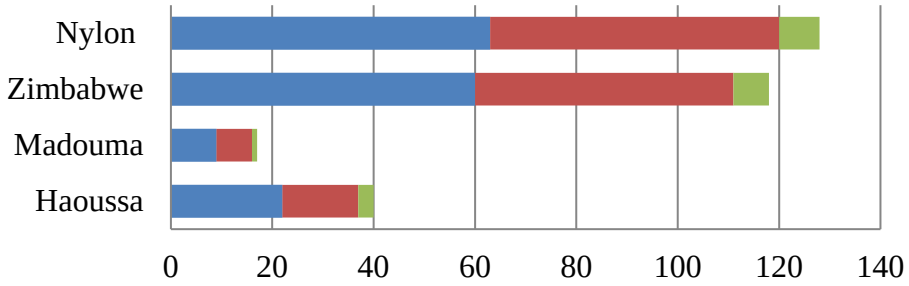
Image 4 depicts a Techno mobile phone store located at Nylon. The shop owner stated that the store offers a diverse range of mobile phones to the local community, with prices starting at 6500 CFA francs and increasing based on the phone's type and performance. This establishment, along with similar stores, plays a vital role in supplying the community not only with mobile phones but also with other useful gadgets.

The Sub-division of Lomie has witnessed a significant increase in mobile telecommunications. Major telecom operators such as MTN, Orange, and Nextel provide mobile phone coverage, enabling residents to make calls, send text messages, and access the internet. Mobile phones have become an indispensable tool for communication, information access, and business transactions within the sub-division. (Photo 5)

Photo 3: An inhabitant making a phone call

Source: NGANDE, C. August 2021

Photo 5 was captured in the vicinity of a sawmill located in Haoussa. The individual depicted in image A on a truck is an employee of the sawmill of Lomie transporting a delivery of wooden planks. In the image, we observe the worker making a phone call as he carries out the task. (Figure 12)



	Haoussa	Madouma	Zimbabwe	Nylon
Number of respondents	22	9	60	63
Respondents disposing of a mobile phone	15	7	51	57
Respondents not disposing of a mobile phone	3	1	7	8

Figure 12: Number of Respondents in Possession of Mobile Phones

Source: field work 2021

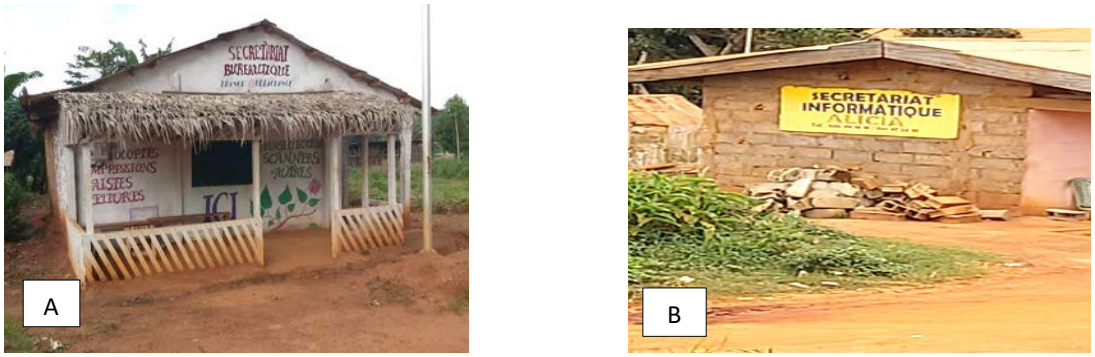
Based on the data presented in figure 11, it was observed that among the 149 individuals surveyed, 130 possessed a mobile phone while 19 did not. The analysis indicated that Zimbabwe had the highest number of mobile phone users, suggesting a widespread adoption of mobile technology in the area, possibly influenced by its population density. Following Zimbabwe, Nylon and Haoussa were next in terms of mobile phone ownership. In contrast, Madouma had the lowest number of mobile phone users among the participants, which could be attributed to its smaller population, limited network coverage compared to other villages, and economic constraints that hindered mobile phone ownership. The majority of mobile phone owners were youths and adults, including students, civil servants, and farmers residing near areas with accessible mobile networks. The remaining 7% of respondents, totaling 11 individuals, primarily consisted of elderly individuals who displayed minimal interest in owning mobile phones.

1.1.2.2. Computer facilities

Lomie is home to a range of computers that carter to the needs of the residents. The Sub-division has witnessed a significant growth in computer usage and technology over the years. The availability of computers in Lomie Sub-division has seen a notable increase in recent years. Local computers shops, electronics stores and online market place have made it easier for individuals and business to purchase computers.

Photo 7 shows some secretariat offices at Lomie. (Plate 2)

Plate 2: Secretariats found at Lomie



Source: NGANDE, C. August 2021, 17:43

The images labeled A and B on plate 2 illustrate the presence of secretariats in Lomie that cater to the needs of the local community. These facilities offer a range of services, including document photocopying, printing, typing, scanning, and more, and are equipped

with essential tools such as computers, scanners, and printers. However, feedback from respondents suggests that these two secretariats are the only establishments in the entire Sub-division providing such services.

Additionally, public spaces such as community centers, libraries, secretariats, and cybercafés offer computer access to the general public, helping to bridge the digital divide and provide opportunities for those who cannot afford personal computers. Educational institutions in Lomie Sub-division have incorporated computer education into their curriculum, albeit to a limited extent due to the lack of computer labs in some schools, as noted by a respondent. The survey identified various types of computers in use, including laptops and desktops.

However, the survey revealed a low level of ICT use in the field. Only 33% of respondents reported having a computer at home or being familiar with its use, with the majority of these users being civil servants and shopkeepers. Given that these groups are overrepresented in the sample, it is understandable that the reported usage rate is relatively high. (Figure 12)

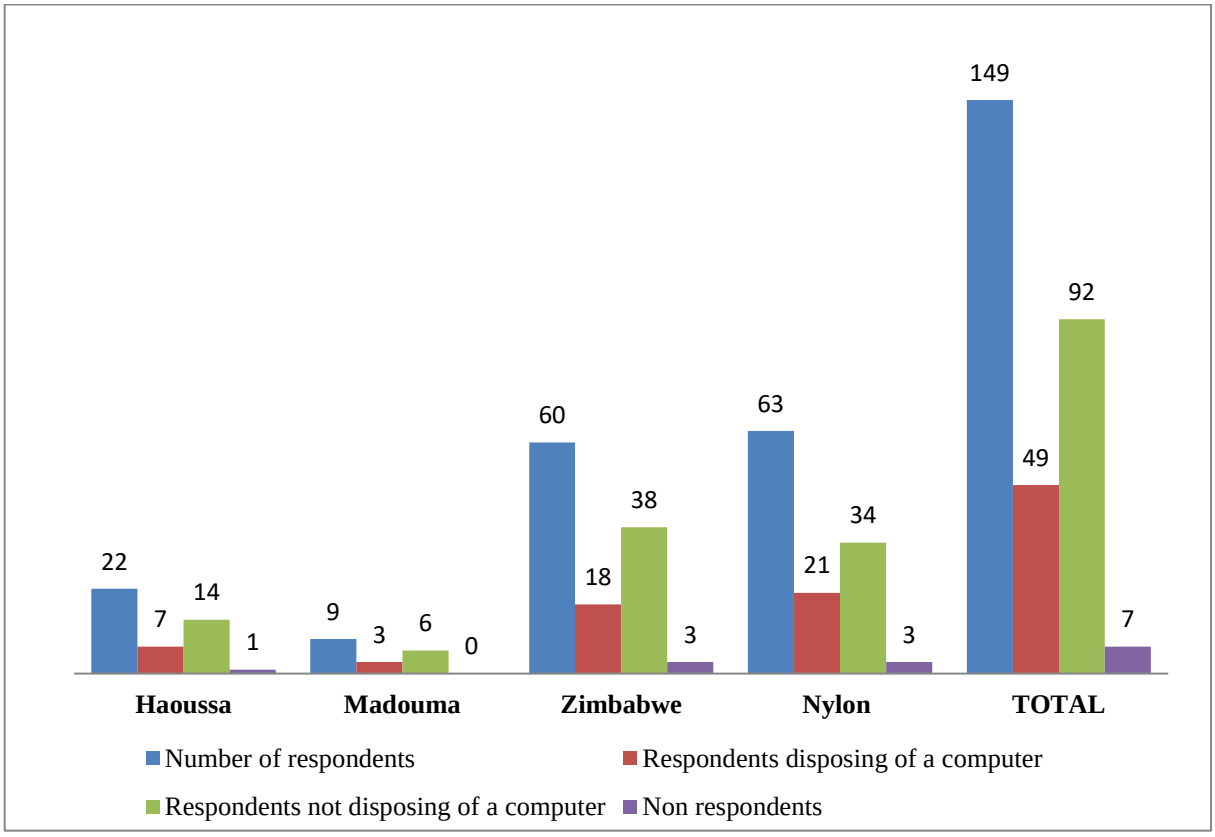


Figure 13: Respondents in possession of A Computer

Source: Field Work 2021

Figure 13 show that some respondents are disposing of computers, but the number is relatively small. This suggests that a significant portion of the respondents are not disposing of their computer which could indicate a lack of disposal facilities.

The rate of computer usage is rather low compared to the overall Cameroonian population, although a survey carried out in 2000 by MINPOSTEL gives a figure of 3.3 computers per 1,000 inhabitants, a figure that must be significantly increasing since then. The culture of owning a computer at home is developing more and more, and there is a growing interest among households for this equipment. This tool is becoming more and more accessible thanks to the abolition of VAT on computers. As a result, the costs are becoming very low and accessible for the average household.

1.1.2.3. Multimedia Centers

Multimedia Centers have emerged as popular gathering places for the community in Lomie Sub-division. These establishments provide public access to computers and internet services. They cater to individuals who do not own personal computers or have limited internet connectivity at home. Cybercafés offer services such as web browsing, email access, document printing, and online gaming.

A Telecenters is a public space through which users can access computers, the Internet and other information and communication technologies to allow them to collect information, store it, process and communicate it, while facilitating better knowledge and better practical expertise of digital systems (concept of "digital literacy" or "digital culture").

The objective of Telecenters is to provide a range of information and communication services that meet the needs of a community by sharing technical facilities and providing adequate assistance. This objective is ensured by making available to people using the Telecenters a set of resources that these people could not afford to own individually (due to a cost that is too high in relation to the income of these people) or to use. (Systems too complicated for their personal abilities). This objective mainly concerns community Telecenters in developing countries aiming to serve disadvantaged villages or neighbourhoods.

Telecenters are also very useful for people traveling or on the move that temporarily need office automation and communication tools and access to telecommunications networks and the Internet. This objective concerns cybercafés located in dense urban areas and places of passage.

Lomie Sub-division is blessed with two Telecenters at Adjela and Epele precisely at CODEDEM. The structures have only limited services and are referred to as digital access points especially that of CODEDEM which was just from being opened during our investigation. (Plate 3)

Plate 3: Telecenters for the youth of Lomie

Source: NGANDE, C. August 2021

On plate 3, individuals labeled as A and B in photo I are employees of the CODEDEM. The telecommunication devices are not fully finished due to its recent establishment as earlier mentionned. In photo II, new computer systems of Nkul Melab are depicted, while photo III and IV feature those of the **Multifunctional Centre for Youth Promotion of Lomie** (MCYP). This center was established by the Ministry of Youth and Civic Education to enhance ICT awareness and advanced literacy throughout the community. (Table 10)

Table 10: Available ICT tools present in the Multimedia centres of Lomie Sub-division according to respondents.

Available ICTs in the Multimedia centres of Lomie		
ICT tool present	**Number of respondents**	**Percentage**
Computer	62	41%
Photocopy machine	56	38%
Printer	51	34%
Wi-Fi and internet	45	30%
Scanner	7	5%
Television	31	21%
Radio	23	15%

Source: field work 2021

From table 10, the most probable tool to be found in the multimedia centers of Lomie according to respondents is a computer, followed by a photocopy machine and finally a printer as seen on plate 3. As for the other tools, they have a low value due to the uncertainty of the respondents concerning their availability and reluctance of others to answer. However, according to respondents, these multimedia centers are freshly opened and will take a certain time to be well equipped by the various responsible heads.

1.1.2.4. Digital Financial Services:

Investigations was made to see the various money transfer agencies present at Lomie Sub-division and from the respondents the main means of money transactions are MTN mobile money (MOMO), Orange money and Express Union.

Digital financial services, such as mobile money and electronic banking, have gained popularity in Lomie Sub-division. Platforms like MTN Mobile Money and Orange Money provide secure and convenient ways for residents to send and receive money, pay bills, and conduct financial transactions electronically. These services have reduced the reliance on cash and improved financial inclusion. (Plate 4)

Plate 4: Money transfer agencies at Lomie Sub-division

Source: NGANDE, C. August 2021

From plate 4, the photo lettered A is an MTN kiosk i.e., mobile money (MOMO) which offers MTN services to customers such sending and withdrawing money. The one lettered B is Orange Money. It offers the same services like mobile Money. It should be noted that the transaction can only be possible among same users or network. (Figure 14).

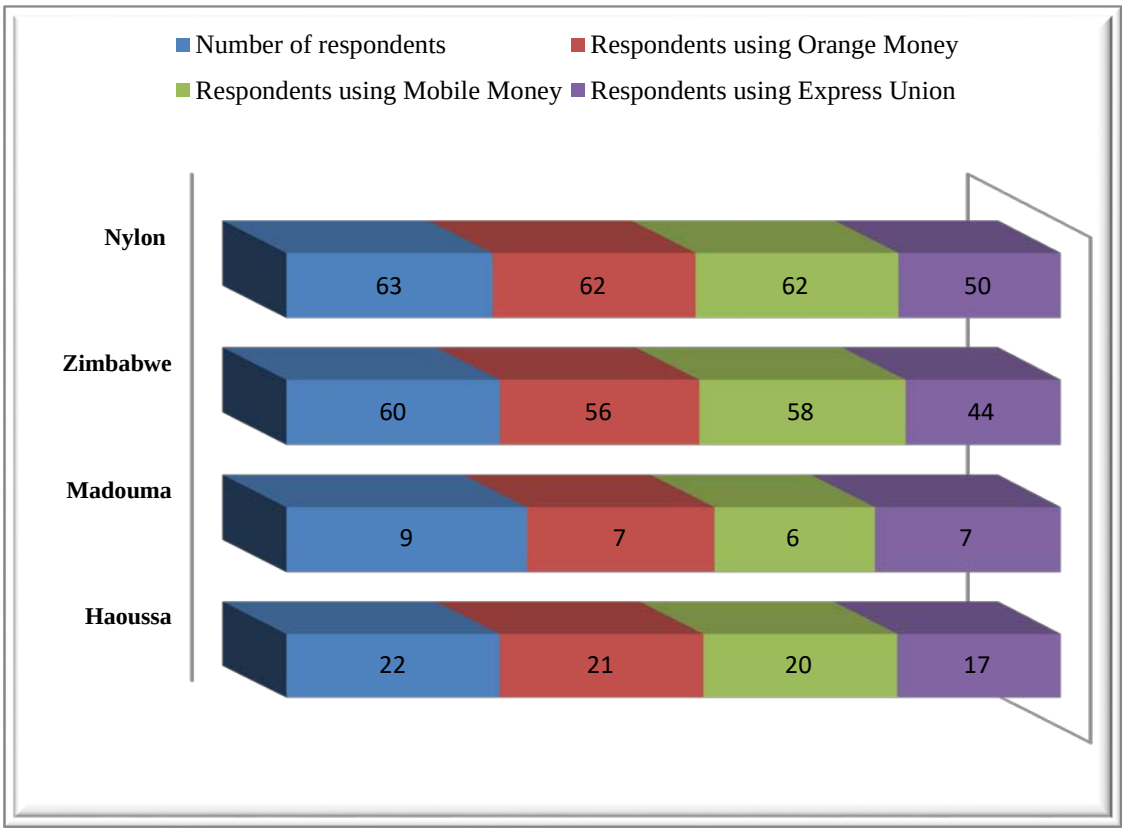


Figure 14: Money transfer agencies in Lomie

Source: field work, 2021

From figure 14, observations revealed that the most utilised means of monetary transaction at Lomie are Mobile money alongside with Orange Money with a rate of 98% with the highest users at Nylon and Zimbabwe. The other alternative means Express Union (79%) is also very utilised by respondents living around Nylon, Zimbabwe and Haoussa. Madouma on its own recorded the lowest number of users on both facilities (Orange Money and Mobile Money). After observation in the field remark has been made at the level where majority of the respondents omitted to mention Campost money and was after an interview with Campost manager of the agency of Lomie that it was discovered that the people were not fully aware of the existence of WAFACASH (page 44).

- **Verification of Hypothesis One**

The first hypothesis of this work was stated, as: - The current state of ICT infrastructure in Lomie Sub-division is inadequate, causing limited access and utilization of ICT resources

The Null hypothesis, **Ho** is therefore stated as: The current state of ICT infrastructure in Lomie Sub-division is adequate, allowing sufficient access and utilization of ICT resources while the **alternative hypothesis, Ha** is that: The current state of ICT infrastructure in Lomie Sub-division is inadequate, resulting in limited access and utilization of ICT resources

In order to verify this hypothesis data on households with access to the internet, mobile phones and computers as well as their usages were taken to constitute a contingency table where the chi-square value (X^2) statistics was conducted from the sample of respondent table using the formula ;

$$x^2 = \sum \frac{(\mathbf{O} - \mathbf{E})^2}{\mathbf{E}}$$

Where **0**= Observed value

E= Expected frequency

K= Number of Categories or Variables

N= Total Sample population

∑= Summation

Degree of freedom (df) = (Row-1) (Column-1)

Data used for the validation of Hypothesis one is presented below (table 13)

i) Data on ICT infrastructure accessibility :

In order to verify the hypothesis data on the accessibility of ICT infrastructure was collected in order to determine those who have high access from those with low access within the sub-division. (Table 11)

Table 11: Data on the level of utilization of ICT resources by Lomie residents

Question: Do you use ICT devices?		
Access to ICT infrastructure in Lomie Sub-division	**Having access**	**Not having access**
Households with internet access	51	98
Households with access to mobile phones	139	13
Households with computers	52	97
Total (N)	242	208

Source: field work 2021

The next step consisted of establishing data on the accessibility of ICT resources into those having high access to those having low access.

ii) Data on utilization of resources

Table 12: Data on Utilization of ICT resources in Lomie

Usages of ICT resources in Lomie Sub-division		
Utilization of ICT	**High access**	**Low Access**
ICT used for educational purposes	34	115
ICT used for economic activities	53	96
ICT used for communication and social networking	65	84
Total	155	295

Source: field Work 2021

A relationship between the two tables was formed in order to clearly show the degree of access and usage of ICT devices in Lomie (table 13)

Table 13: Accessibility/usage ICT devices

Level of Utilization of ICT devices in Lomie	High Access	Low Access	Total
High Utilization	90	59	149
Low utilization	59	90	149
Total	**149**	**149**	**298**

Field work: 2021

With the above information a contingency table was formed to verify the hypothesis (Table 14)

Table 14: Contingency table for hypothesis one

Observed Value (O)	Expected Value (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
90	118	-90	8100	45
59	118	-59	3481	29.5
90	180	-90	8100	45
59	118	-59	3481	29.5
				$\sum$**149 = X^2**

Source: field work 2021

Degree of freedom (df) = (Row-1) (Column)

(2-1)(2-1) = 1

Results:

The Chi-Square value of 149 is significantly higher than the critical value (approximately 3.841) for a Chi-square distribution with 1 degree of freedom at a given level of significance of 0.05. This suggests that there is a strong association between the current state of ICT infrastructure in Lomie Sub-division and limited access/utilization of ICT resources. (Appendix III)

The p-value associated with a Chi-Square value of 149 and 1 degree of freedom would be very small, indicating that the observed results are highly unlikely to have occurred by chance.

Based on these results, we can reject the null hypothesis **Ho** that the current state of ICT infrastructure in Lomie Sub-division is adequate, allowing sufficient access and utilization of ICT resources. Instead, we can conclude that there is evidence to support the alternative hypothesis **Ha** that the current state of ICT infrastructure in Lomie Sub-division is inadequate, resulting in limited access and utilization of ICT resources.

In summary, the statistical analysis suggests that the current state of ICT infrastructure in Lomie Sub-division is inadequate, leading to limited access and utilization of ICT resources, supporting the alternative hypothesis. Further analyses would be needed to understand the specific inadequacies of the ICT infrastructure since the chi square result does not provide information on magnitude or direction of the differences.

Conclusion

This chapter shed light on the current state of technology and connectivity in the Sub-division. The analysis highlighted the strengths and weaknesses of the ICTs infrastructure, which plays a vital role in shaping the socio-economic development of the Sub-division. On a positive note, Lomie has access to basic ICTs infrastructure, such as telecommunications networks and internet connectivity. These services facilitate communication and information sharing within the community, supporting business transactions, public administration, and service delivery. The presence of these essential elements provides a foundation for further ICTs development and integration. However, despite the infrastructure in Lomie Sub-division laying the groundwork for connectivity and information exchange, there are challenges that hinder its full potential contribution to the social and economic development of Lomie. These challenges will be discussed in subsequent chapters.

CHAPTER 2
ICTs INADEQUACIES AND ECONOMIC DEVELOPMENT IN LOMIE SUB-DIVISION

2.0. Introduction

In the digital age, Information and Communication Technologies (ICTs) has emerged as a powerful enabler of economic development, offering unprecedented opportunities for growth and innovation. However, in areas like Lomie Sub-division in Cameroon, the promise of ICT remains largely unrealized due to a myriad of challenges that hinder its effective utilization for economic advancement. This chapter embarks on a comprehensive exploration of the specific barriers that impede the region's ability to harness ICT for economic growth.

Delving into the state of ICTs infrastructure, technology access, and digital skills in Lomie Sub-division, this chapter uncover the underlying factors that limit the locality's capacity to leverage ICTs as a catalyst for development. Through a meticulous analysis of existing data, surveys, and stakeholder interviews, we were able to shed light on the intricate web of challenges that obstruct the seamless integration of ICTs into the economic fabric of Lomie Sub-division.

As we navigate through the complexities of ICTs inadequacies in the locality, this chapter permits the understanding of the intersection between technology barriers and economic development in Lomie Sub-division. By identifying key obstacles and gaps in ICTs infrastructure, access, and digital literacy, we strive to pave the way for targeted interventions and strategies that can bridge the digital divide and unlock the untapped economic potential of this vibrant community.

2.1. Challenges hindering the economic development of Lomie Sub-division through ICTs

This section will delve into problems linked to ICT infrastructure, internet and network coverage, power outages and other factors as seen below.

2.1.1. ICT Infrastructure

One of the primary challenges hindering economic development of Lomie Sub-division through ICT is the inadequate ICT infrastructure. This includes **limited access to reliable internet connectivity**, **power outages**, and **insufficient telecommunications**

networks. Without a robust infrastructure backbone, businesses and individuals in the locality faces difficulties in accessing and utilizing digital technologies effectively for economic activities.

2.1.1.1. Access to Reliable Internet Connectivity and Network Coverage

This section will be sub-divided into problems related to internet connectivity and network coverage.

2.1.1.1.1. Internet Connectivity

Many respondents share the point of view that internet access has improved in the Sub-division. This is principally thanks to the deployment of 4G in some areas like Epele (Nylon), Madouma, and Haoussa. Internet service providers (ISPs) present in the Sub-division like MTN, Orange, and Nextel offer various data plans, enabling residents to access the internet, send emails, browse websites, and engage in social media platforms. This connectivity has opened up opportunities for e-learning, e-commerce, and online collaboration.

As for Internet connection, the local population also acknowledged the fact that Lomie has experienced a gradual expansion of its telecommunication networks. The deployment of the fiber-optic cables has to certain extent improved internet connectivity though it is still very scarce among low-income households. However despite these available infrastructures, 34% of the surveyed populations do not still have internet access. (Figure 15)

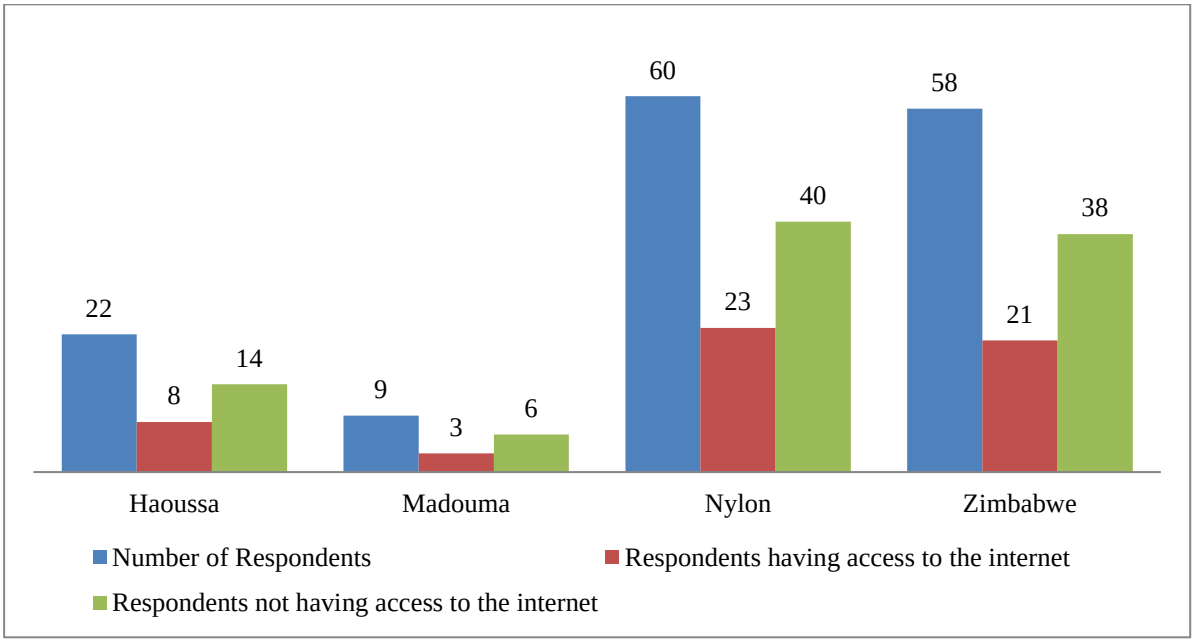


Figure 15: Distribution of respondents having an internet connexion

Source: field work investigation 2021

Figure 15 illustrates the respondents' internet accessibility in Lomie. Nylon has the highest number of respondents without internet access. Zimbabwe follows with Haoussa and Madouma having the lowest number of respondents without internet access. Broadband internet remains a luxury in Lomie, with only a small percentage of respondents having unlimited internet access at home. These individuals are typically part of the upper class and they primarily use Wi-Fi to connect to the internet. Despite recent price reductions, broadband internet is still not affordable for the average residents of Lomie. (Figure 16)

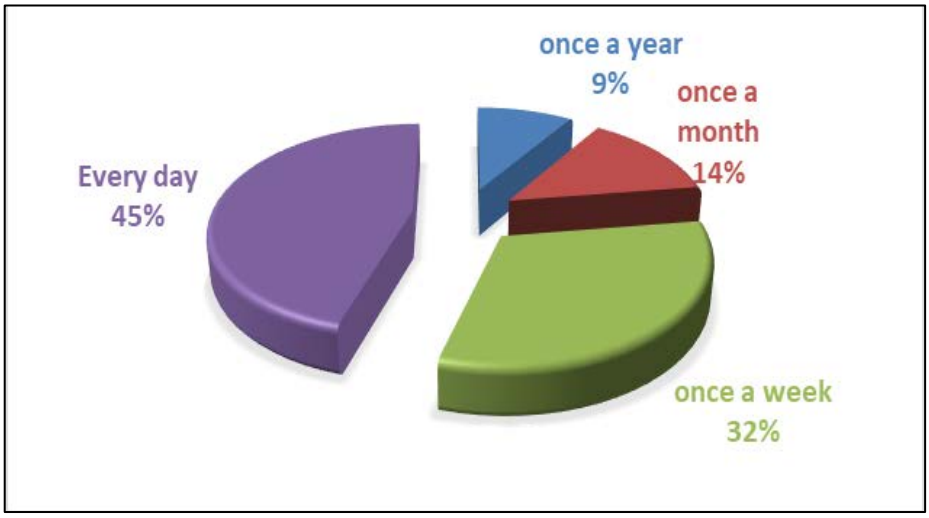


Figure 16: Frequency of access to the Internet

Source: field work investigation 2021

Figure 16 shows a real delay in the use of ICTs in Lomie. This state of affairs of the frequency of usage of the internet confirms the reality of the digital divide in Lomie. Not only access to some devices is difficult due the still high cost of equipment, but Internet access remains a luxury.

2.1.1.1.2. Mobile network coverage

Lomie Sub-division is serviced by the Orange and MTN networks, with the latter being known for its limited network coverage, which hinders communication within the Sub-division. The issue is particularly pronounced on the Orange Cameroon side, leading many residents of Lomie to opt for an MTN number as it offers clearer and less disrupted communication. Communication through the Orange network in Lomie is challenging, with very low network coverage and sound disturbances during calls making it difficult or nearly impossible to communicate effectively.

Regarding internet connectivity through mobile phone, accessing the internet in Lomie is a significant challenge. Orange is the sole Internet Service Provider (ISP) in the area, but its weak optical fibre infrastructure results in extremely slow speeds that are almost unusable. Sources indicate that internet access is sporadically available at very late hours, often for short durations before 6 a.m. For instance, sending an important document via WhatsApp may require waiting until around 2 or 3 in the morning for a brief window of connectivity. Those with internet access typically rely on Wi-Fi provided by others

In 2018, the American company "NEXTEL Mobile" entered Lomie and installed an optical fibre near Nkul Melab in CODEDEM. The presence of Nextel Mobile significantly enhanced the quality of life for the residents of Lomie. With Nextel, everyone could communicate across various networks (Orange, MTN, Camtel, etc.) and access high-speed internet. This allowed the population to fully utilize the internet, browse websites, engage on social media platforms like Facebook, WhatsApp, Twitter, and Instagram, and even watch videos on YouTube. Campost and EXPRESS Union agents and employees could efficiently handle customer data without delays, leading to overall satisfaction among the population. (Photo 6)

Photo 6: Nextel antenna of Lomie

Source: NGANDE, C. August 2021

Unfortunately, in 2020, without any clear explanation, Nextel Mobile abruptly left, taking their optical fibre with them. This action returned Lomie to its previous state of poor connectivity. This connectivity issue in the sub-division poses a significant barrier to the adoption of ICTs, as even those with ICT tools like Android phones were unable to fully utilize them for calls or internet access.. (Figure 17)

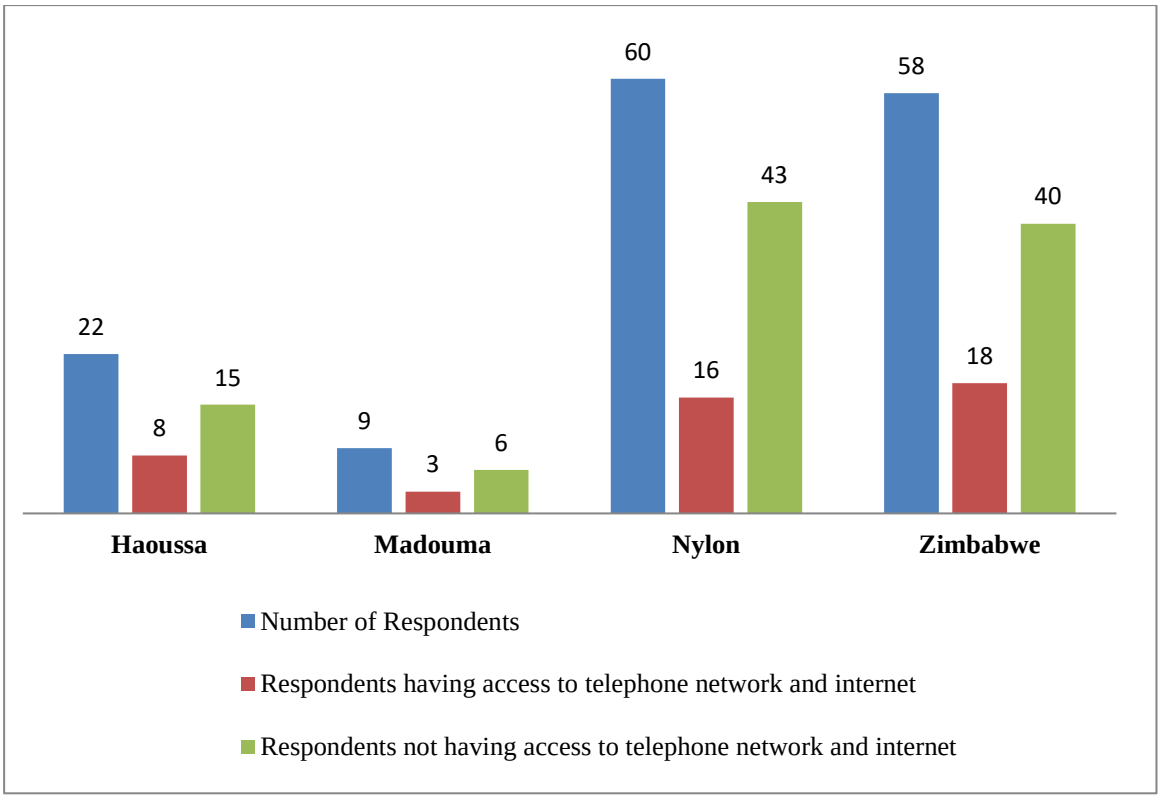


Figure 17: Distribution of respondents who have difficulty in accessing the telephone network

Source: field work investigation 2021

From figure 17, an overall total of 64% of respondents claims to have difficulties in accessing mobile network. Nylon faces the highest percentage of people facing these difficulties. (Figure 18)

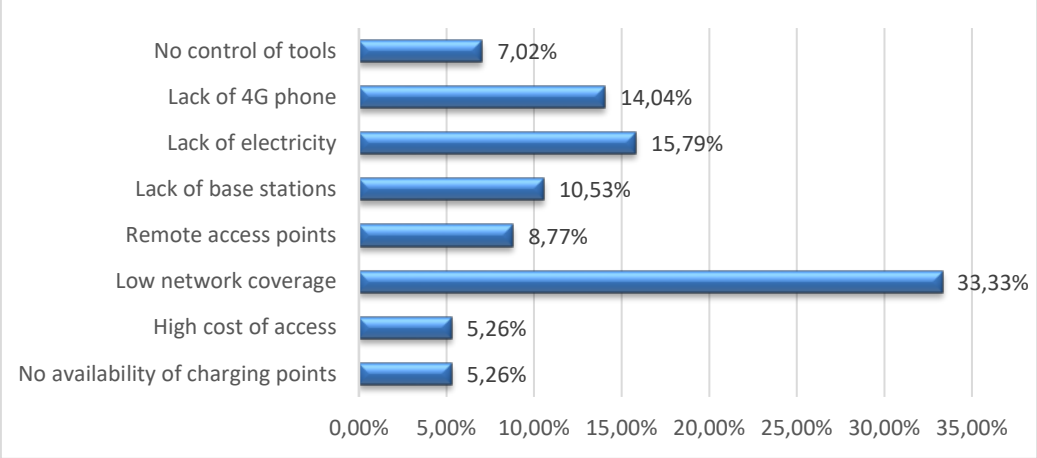


Figure 17: Reasons for difficulties in accessing the network and the Internet from respondents

Source: field work investigation 2021

This difficulty according to respondent from figure 18 is due to: poor coverage, lack of mastery of tools and lack of 4G phones. The dissatisfaction of the populations is mainly

centered on this difficulty of access to tools which are due to the following: high subscription costs; the scarcity of internet access points, the absence of ICTs in certain strategic points.

2.1.2. Power Outages

Power outages are a common and persistent issue in Lomie Sub-division, affecting residents and businesses alike. The unreliable power supply in Lomie has been a longstanding problem, causing inconvenience and disruptions to daily life. The power outages often occur without warning and can last for hours or even days, impacting various aspects of life in the Sub-division.

The lack of consistent electricity hampers economic activities, as businesses struggle to operate efficiently and residents face challenges in accessing essential services. The outages also affect communication networks, as mobile phone towers and internet services rely on a stable power supply to function effectively. Additionally, households are forced to rely on alternative sources of energy such as generators or solar power, which can be costly and not accessible to everyone.

The situation is further exacerbated by the lack of infrastructure maintenance and investment in the power sector. (Photo 7)

Photo 7: High voltage electricity pole

Source: NGANDE, C. August 2021

However, while staying in Lomie, we observed a remarkable absence of power outages lasting up to a week, coinciding with our visit. It was at this time that our guide

informed us about the recent actions taken by the local authorities in collaboration with the ENEO electricity agency in Lomie. A significant number of solar panels had been installed at the ENEO facility in Lomie. According to an ENEO representative we interviewed, the frequent power cuts were a result of insufficient energy supply to the locality, leading to the need for rationing. The purpose of installing these solar panels was to address this energy shortfall by utilizing solar power. The success of this initiative was evident in the reduced occurrence of power outages, validating the effectiveness of this approach though it's not the case with outermost villages.

2.1.3. Limited Technology Access

Another significant obstacle is the limited availability of technological devices like computers, smartphones, and tablets in Lomie Sub-division. A considerable number of residents lack access to these essential tools, which are crucial for participating in online transactions (such as Mobile Money and Orange Money), communication, and sharing information. The community primarily consists of individuals engaged in agricultural and hunting activities, with a relatively lower GDP compared to those in public service roles. Consequently, acquiring ICT tools like televisions, radios, mobile phones, and smartphones is financially challenging for many residents, as these items are typically priced high in the market (ranging from 6500 frs for a basic phone to 25000 frs CFA and above for smartphones, depending on the brand, version, and features). The elevated cost of technology devices compounds the issue, making it challenging for individuals and businesses to invest in ICT solutions.

2.1.4. Digital Skills Gap

The lack of digital skills among the population in Lomie Sub-division poses a significant barrier to leveraging ICT for economic development. Without adequate knowledge and expertise in utilizing digital tools, navigating online platforms, and engaging in e-commerce activities, residents are unable to fully harness the potential of information and communication technologies (ICT) for economic growth.

The skills gap not only impedes individuals from accessing and utilizing digital resources effectively but also restricts businesses and organizations in Lomie from implementing ICT solutions to streamline operations, reach new markets, and enhance productivity. This limitation stifles innovation and hampers the competitiveness of local

enterprises, preventing them from capitalizing on the benefits that digital technologies can offer.

Moreover, the lack of digital skills in Lomie Sub-division inhibits the development of a digitally literate workforce capable of adapting to technological advancements and driving economic progress. Without the necessary skills to leverage ICT for business growth and job creation, residents are at a disadvantage in the rapidly evolving digital economy, limiting their opportunities for employment and economic empowerment.

In essence, the digital skills gap in Lomie Sub-division acts as a barrier to the effective utilization of ICTs for economic development, impeding progress in various sectors and hindering the region's ability to innovate, compete, and thrive in the digital age. Addressing this skills gap through targeted training programs and capacity-building initiatives is essential to unlock the full potential of ICTs for driving economic growth and prosperity in Lomie.

2.1.5. Limited ICTs Training and Education

This lack of structured ICTs training and educational opportunities exacerbates the digital skills gap in Lomie Sub-division, creating a significant barrier to the development of a digitally literate population capable of leveraging technology for economic advancement. The absence of formalized training programs tailored to the specific needs of the local population hinders residents from acquiring essential digital skills, such as computer proficiency, internet literacy, and digital marketing expertise. As a result, individuals in Lomie faces challenges in adapting to new technologies, staying competitive in the job market, and accessing opportunities for economic growth.

Without access to quality training initiatives that provide hands-on learning experiences and practical skills development, residents are left without the foundational knowledge and expertise needed to effectively utilize ICT tools and technologies for personal and professional development. Inadequate educational opportunities in ICT not only limit residents' ability to harness the full potential of technology for economic empowerment but also perpetuate a cycle of limited economic opportunities and low digital literacy rates in the area. To address this issue, it is essential to establish structured ICT training programs that are accessible, relevant, and tailored to the needs of the local population, enabling individuals in Lomie to acquire the digital competencies necessary to thrive in the digital age and bridge the digital skills gap in the community.

2.1.6. Regulatory Challenges

The regulatory barriers in Lomie Sub-division, such as cumbersome licensing processes, out-dated policies, and the absence of supportive frameworks for ICTs development, pose significant challenges to economic growth in the Sub-division. These barriers hinder potential investors from establishing or expanding ICTs infrastructure and services in Lomie, as the lack of a clear and consistent regulatory environment creates uncertainties and deters businesses from planning and investing in innovative technologies. Without a conducive regulatory framework that promotes investment and fosters innovation in the ICT sector, Lomie may struggle to attract the necessary resources and expertise needed to fully leverage technology for economic development. Addressing these regulatory barriers is essential to creating a favourable environment for ICT development and unlocking opportunities for sustainable economic advancement in Lomie Sub-division.

2.1.7. Awareness and Adoption of ICT

A lack of awareness about the potential benefits of ICT and limited adoption of digital solutions among businesses and individuals in Lomie Sub-division also impede economic development. Without a clear understanding of how ICT can enhance productivity, efficiency, and market access, stakeholders may be reluctant to embrace digital technologies and leverage them for business growth.

One of the key challenges facing the ICT sector in Lomie is the limited awareness among businesses and individuals about the transformative power of technology. Many stakeholders may not fully grasp how ICT solutions can streamline operations, improve customer service, and open up new market opportunities. This lack of awareness can result in missed opportunities for growth and innovation, as businesses fail to capitalize on the benefits that digital tools and platforms can offer.

Moreover, the limited adoption of digital solutions in Lomie further exacerbates the economic challenges facing the locality. Without widespread use of ICT technologies such as e-commerce platforms, digital marketing tools, and online payment systems, businesses may struggle to reach new customers, expand their market reach, and compete effectively in an increasingly digital economy. Similarly, individuals may miss out on the convenience and efficiency that digital services can provide, such as online banking, e-learning platforms, and telemedicine services.

2.1.8. Relief and Transport Network of the Sub-division

The nature of the relief and transport network of Lomie can hinder the effective use of Information and Communication Technology (ICT) in promoting economic development in several ways:

The challenging relief, such as hilly terrain or dense forests, may make it difficult and costly to establish traditional ICTs infrastructure like fiber-optic cables and cell towers. This can result in limited access to high-speed internet and reliable mobile phone coverage hindering the adoption of ICTs solutions for businesses and residents (figures 14 & 15). Also, the rugged terrain and poor road infrastructure in Lomie can lead to connectivity issues, such as signal disruptions and slow internet speeds. This can affect the reliability and efficiency of ICTs services, making it challenging for businesses to conduct online transactions, communicate with customers, or access important information in a timely manner.

The lack of adequate road infrastructure in some areas of Lomie may exacerbate the digital divide, where certain communities or individuals have limited access to ICT tools and services. This can create disparities in economic opportunities, as those with better access to technology may have a competitive advantage over others in terms of market reach, skills development, and job opportunities.

Moreover, the poor road infrastructure in Lomie can pose logistical challenges for the deployment and maintenance of ICTs equipment and services. Transporting technology components, setting up communication networks, and troubleshooting technical issues may be more time-consuming and costly in areas with limited road access, hampering the efficient delivery of ICT solutions to support economic activities. In addition to this the challenging topography and road conditions in Lomie may also contribute to a lower adoption rate of ICTs solutions among businesses and residents. Concerns about connectivity, reliability, and accessibility of technology services may deter some stakeholders from investing in digital tools and platforms to enhance their economic activities, leading to missed opportunities for growth and innovation.

- **Verification of Hypothesis two**

Hypothesis: The traditional communication methods favoured in some communities in Lomie may hinder the adoption of ICT due to cultural and language barriers

- **Null hypothesis (HO):** Traditional communication methods in some communities in Lomie do not hinder the adoption of ICT due to cultural and language barriers

- **Alternative hypothesis (H1)**: traditional communication methods in some communities in Lomie hinder the adoption of ICT due to cultural and language barriers

To verify this hypothesis we needed data and information on the various ethnic groups present in Lomie sub-division as well as their degree of adoption or non-adoption of traditional ICTs within the Sub-division.

Table 15: Ethnic groups present in Lomie

Ethnic group	Population (from 3843)	Percentage	5% of population
Baka	1076	28%	53
Bantu	1691	44%	85
Bamileke	346	9%	17
North west and south westerners	192	5%	10
Others	538	14%	27
Total	3843	100%	192

Source: BUCREB

Next step consisted of constructing a table involving data on the adoption and non-adoption of traditional ICTs by the population from various ethnic groups in Lomie Sub-division. (Table 16)

Table 16: Population's Adoption of traditional ICT in Lomie

Ethnic group	Adoption of traditional ICTs in the locality	Non adoption of traditional ICTs in the locality	Total
Baka	19	23	42
Bantu	29	37	66
Bamileke	6	7	13
North west and south westerners	3	4	7
Others	9	12	21
Total	66	83	149

Source: field Work 2021

Based on the following information, a contingency table for the hypothesis was made in order to permit us find our chi square (x^2)

Table 17: Contingency table for Hypothesis 2

Observed value (O)	**Expected value (E)**	**(O-E)**	**$(O-E)^2$**	**$(O-E)^2/E$**
19	94.81	-75.81	5749.43	60.64
23	75.39	-52.39	2744.71	36.40
29	149	-120	14400	96.64
37	111.48	-74.48	5547.27	49.76
6	29.35	-23.35	545.22	18.57
7	23.34	-16.34	266.99	11.43
3	15.80	-12.8	163.84	10.36
4	12.57	-8.57	73.44	5.84
9	47.41	-38.41	1475.32	31.11
12	37.69	-25.69	659.97	17.51
				X^2= 338.26

Degree of freedom = (row-1)(column-1)

(5-1)(3-1) = **8**

Interpretation of results

Chi square: **338.26**

Critical value: **0.05**

Significance level: **15.507**

Since the chi square number (338.26) is greater than the critical value, the null hypothesis is rejected. Rejecting the Null hypothesis means there is significant evidence to suggest that traditional communication methods in some communities in Lomié hinder the adaption of ICT due to cultural and language barriers. Therefore data supports the claim that cultural and language barriers significantly impact the adoption of ICT in this community. This strong chi square value indicates a very significant association between cultural and language barriers and the adoption of ICT suggesting that these barriers do indeed play a role in hindering I CT adoption in Lomie.

Conclusion

In conclusion, the challenges related to ICTs inadequacies in Lomie Sub-division present significant barriers to economic development and growth in the Sub-division. Limited infrastructure, connectivity issues, and a lack of awareness and adoption of digital solutions hinder businesses and individuals from fully leveraging the potential benefits of technology. Addressing these challenges is crucial to unlocking new opportunities for economic advancement, job creation, and improved quality of life for the residents of Lomie.

Efforts to improve ICTs infrastructure, expand connectivity, raise awareness about the transformative power of technology, and promote the adoption of digital solutions are essential steps towards overcoming these obstacles. By investing in ICTs development, providing training and support for businesses and individuals, and creating incentives for digital innovation, Lomie Sub-division can position itself for sustainable economic growth and prosperity in the digital age

CHAPTER 3
BRIDGE THE GAP: ADDRESSING ICT INADEQUACIES FOR SOCIAL DEVELOPMENT IN LOMIE SUB-DIVISION

3.0. Introduction

Lomie Sub-division like many other similar areas in Cameroon faces significant challenges in harnessing the full potential of information and Communication Technologies (ICTs) for social development. The limited access to ICT infrastructure, connectivity and digital resources in Lomie Sub-division has created a digital divide that hinders progress and exacerbates existing disparities. This chapter serves as a foundational exploration of the specific inadequacies experienced in Lomie Sub-division and their far reaching implications for social development. By examining the unique barriers and limitations faced by the community, we aim to gain a comprehensive understanding of the challenges at hand. Through this analysis, we lay the groundwork for subsequent discussions on targeted strategies to bridge the gap, foster inclusive development, and empower the community of Lomie through enhanced ICT capabilities.

3.1. Challenges hindering the social development of Lomie sub-division thanks to ICTs

This part will explore the specific obstacles that hinder the involvement of ICTs in the social advancement of Lomie Sub-division.

3.1.1. Limited Access to Educational Resources

Limited access to educational resources poses significant challenges to the local population's ability to receive quality education. The lack of adequate schools, qualified teachers learning materials and technology hinders academic progress and potential.

3.1.1.1. Education sector in Lomie

The education sector at Lomie is grouped into subsectors namely; basic education and secondary education.

- **Basic education sector**

Lomie Sub-division according to the council development plan has a total of 25 public primary schools located in various villages such as Achip, Adjela, Alat, Makay, Bilingue,

Djenous, Djoamedjoh, Djoantila, Ekom, Kongo, Lomie I and II, Makak, Ngoyla, and others. In the central area of Lomie, it was noted that the quality of education is considered acceptable or moderate. A source in the field testified that majority of students attending these schools are Bantu children, with only a small number of Baka students present and other ethnic groups. (Plate 5)

Plate 5: Some Primary schools at Lomie

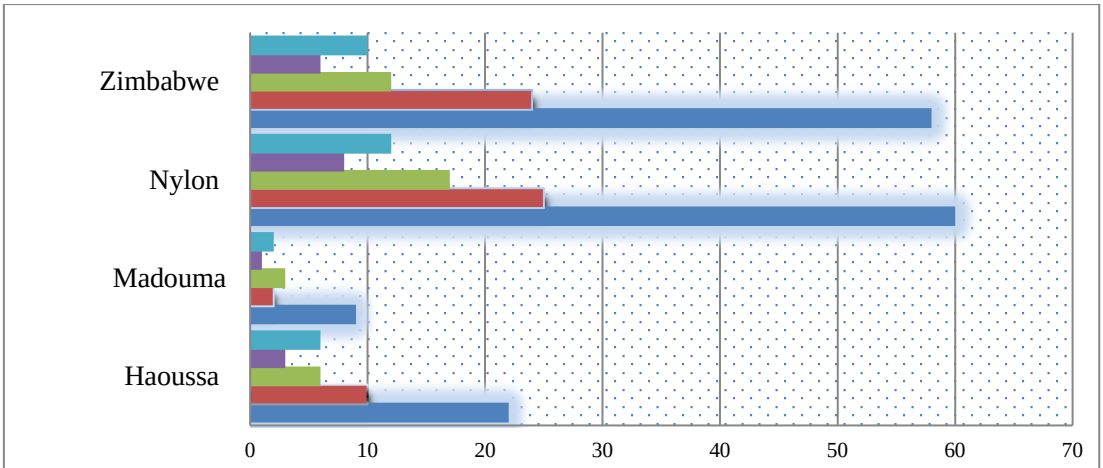
Source: NGANDE, C. August 2021

The images above depict some primary schools located in Lomie. The first photo shows Mère Regina School, built by the Catholic Mission of Lomie. The second image features the public school in Lomie situated in Epele, at the center of Lomie (Lomie Centre).

- **Secondary education sector**

The secondary education sector in Lomie is comprised of general education and Technical education. For the technical education, there is 1 Industrial and Commercial Technical Education Centre (CETIC) and 2 secondary education colleges (CES) located at Zoulabot and Lomie Centre (See council development plan of Lomie). As for general education, there is 1 General Education High School all found at Lomie.

In the field, the distribution of the studied population according to education showed that the sample included a proportion of people with a higher level of primary educations. (Figure 19)



	Haoussa	Madouma	Nylon	Zimbabwe
Non respondents	6	2	12	10
Higher education	3	1	8	6
Secondary	6	3	17	12
Primary	10	2	25	24
Respondents	22	9	60	58

Figure 19: Distribution of the respondents according to education level

Source: field work 2021

Figure 18 suggest that Zimbabwe has the most significant number of respondents with higher education level, which could indicate better access to educational resources, higher economic status or cultural values that prioritize education. In contrast, Haoussa shows a higher number of individuals with only primary education which might reflect limited access to secondary and higher education facilities or other socio-economic barriers.

3.1.1.2. ICT and Education sector in Lomie Sub-division

Regarding information and communication technologies (ICTs) and education sector, the Sub-division of Lomie encounters challenges in accessing educational resources like online libraries, educational websites, and e-learning platforms. This lack of access poses a significant obstacle to improving the standard of education in the area, despite the presence of ICT infrastructure. Without sufficient access to these resources, both students and educators may find it difficult to keep up-to-date with the latest information, research, and educational materials. This limited access not only hinders the ability to enhance learning experiences but also restricts opportunities for collaboration, innovation, and skill development. Consequently, the full potential benefits of ICTs in education may not be fully realized, leading to a growing disparity in educational quality between areas with unrestricted access to digital resources and those facing constraints. It is essential to address these access issues to

ensure fair and effective utilization of ICT in education and ultimately enhance the overall quality of learning outcomes in the locality.

3.1.2. Lack of Healthcare Information

3.1.2.1. Health sector in Lomie

In terms of healthcare, observation in the field revealed that Lomie Sub-division consists of six integrated health centers and a district hospital situated in Adjela, Zoulabot, Mouagne Le Bousquet, Mintom, and Lomie. The healthcare infrastructure in the Lomie Sub-division faces various challenges, including limited resources, inadequate staffing, and poor maintenance of facilities. The District Hospital in Lomie is the main healthcare facility serving the population, but it struggles with issues such as a shortage of medical equipment, lack of essential medicines, and insufficient medical personnel. The health centers in the Sub-division also face similar challenges, making it difficult for residents to access quality healthcare services.

Additionally, the physical infrastructure of the healthcare facilities in Lomie is in need of improvement. Many buildings are old and in disrepair, lacking proper sanitation facilities, clean water supply, and adequate space for patient care. This can impact the quality of care provided to patients and create a challenging working environment for healthcare staff.

(Plate 6)

Plate 6: Health centers of Lomie

Source: NGANDE, C. August

The pictures on plate 5 showcase key healthcare facilities in Lomie. The initial picture marked as I is the health center affiliated with the catholic mission of Lomie. Individuals denoted as A, B and C in the image are patients visiting for medical appointments. The subsequent images, I and II portray the district hospital of Lomie.

3.1.2.2. Health Sector and ICT

The integration of ICTs in healthcare facilities in Lomie is impeded by various obstacles, including insufficient infrastructure like reliable internet and power supply. Limited resources in terms of funding and skilled personnel also hinder the effective use of ICT tools in these facilities. Additionally, there is a lack of awareness among stakeholders about the advantages of ICTs in healthcare, leading to resistance to change and reluctance to adopt new technologies.

Moreover, regulatory challenges and bureaucratic hurdles further complicate the implementation of ICT in Lomie's health facilities. Complex regulations, outdated policies, and a lack of clear guidelines for utilizing ICT in healthcare create barriers to innovation and hinder progress in this field. These factors collectively restrict the potential benefits of ICT in advancing healthcare services in Lomie. Addressing infrastructure limitations, resource constraints, awareness gaps, resistance to change, and regulatory barriers is crucial to fully harnessing the advantages of ICT in enhancing healthcare delivery in the Sub-division.

3.1.3. Limited Economic Opportunities

Lomie Sub-division faces formidable obstacles due to its limited economic opportunities which impede the Sub-division’s potential for growth and development. Predominantly reliant on agriculture, the area struggles with high rates of unemployment, insufficient infrastructure and restricted access to market.

3.1.3.1. Economic Activities in Lomie Sub-division

The economic activities of Lomie Sub-division encompass a range of sectors including agriculture, forestry, and commerce and emerging industries. Agriculture in particularly the cultivation of crops like cocoa and coffee serves as a vital economic driver albeit facing challenges such limited access to modern technics and market fluctuation. The forestry sector with timber extraction and non-timber forest product collection provide employment opportunities but content with issues of sustainability and illegal practices. Trade and commerce thrive in bustling markets by struggle with infrastructure and financial service

limitations. Some identified were small-scale traders operating grocery stores, take-out establishments, restaurants, snack bars, butcheries, and motels. Emerging industries like agro processing show promise for diversifying the economy emphasizing the importance of entrepreneurship and skill development. Overall, Lomie Sub-division economic landscape is dynamic with opportunities through sustainable practices and targeted interventions to overcome existing challenges and foster a resilient and inclusive economy for the community. (Plate 7)

Plate 7: some economic activities of Lomie

Source: NGANDE, C. August 2021

The images on plate 6 above illustrate some economic activities taking place in Lomie. Photo **A** depicts a Paris sports lounge that also functions as a cybercafé, where individuals gather to watch live sports matches, place bets, and conduct online research. In photo **B**, there is a techno mobile shop specializing in the sale of electronic devices, particularly mobile phones. Photo **C** features a Guinness bar. These images provide insight into the current economic landscape of Lomie.

3.1.3.2. ICTs and Economic Opportunities

Limited economic opportunities in Lomie Sub-division can hinder social development through ICTs in various ways. Firstly, it can restrict access to education and skills training, limiting individuals' ability to utilize ICT tools for personal and professional growth. Secondly, limited economic resources can impede access to healthcare services, although ICT solutions like telemedicine could help bridge this gap. Additionally, high unemployment rates

resulting from limited economic opportunities may be addressed through promoting ICT skills and entrepreneurship. Finally, economic stability is crucial for community development initiatives facilitated by ICT, but without sufficient resources, communities may struggle to fully leverage technology for development. Addressing economic challenges and promoting ICT literacy and entrepreneurship are keys to unlocking the potential benefits of technology for social development in the locality.

3.1.4. Infrastructure and Investment Constraints

Infrastructure and investment constraints in Lomie Sub-division pose significant challenges to the development and deployment of Information and Communication Technologies (ICTs) initiatives in the Sub-division. One of the key limitations is the lack of adequate infrastructure for ICT, including reliable internet connectivity and access to necessary devices. This can hinder the ability of businesses, individuals, and organizations in Lomie to leverage technology for various purposes, such as education, healthcare, and economic development.

The unreliable internet connectivity in Lomie can impede access to online resources, communication platforms, and digital tools that are essential for modern-day activities. This limitation not only affects individuals' ability to stay connected but also hampers businesses' capacity to engage in e-commerce, online marketing, and other digital ventures. Furthermore, the lack of access to necessary devices, such as computers and smartphones, can further exacerbate the digital divide in Lomie, limiting opportunities for economic growth and social development.

Moreover, limited investment in ICTs initiatives and projects in Lomie can hinder the advancement of technology for social good. Without sufficient funding and support for ICTs infrastructure development, innovation, and capacity-building programs, the locality may struggle to keep pace with technological advancements and global trends. This lack of investment can impede the implementation of digital solutions for pressing social issues, such as healthcare delivery, education access, and environmental sustainability.

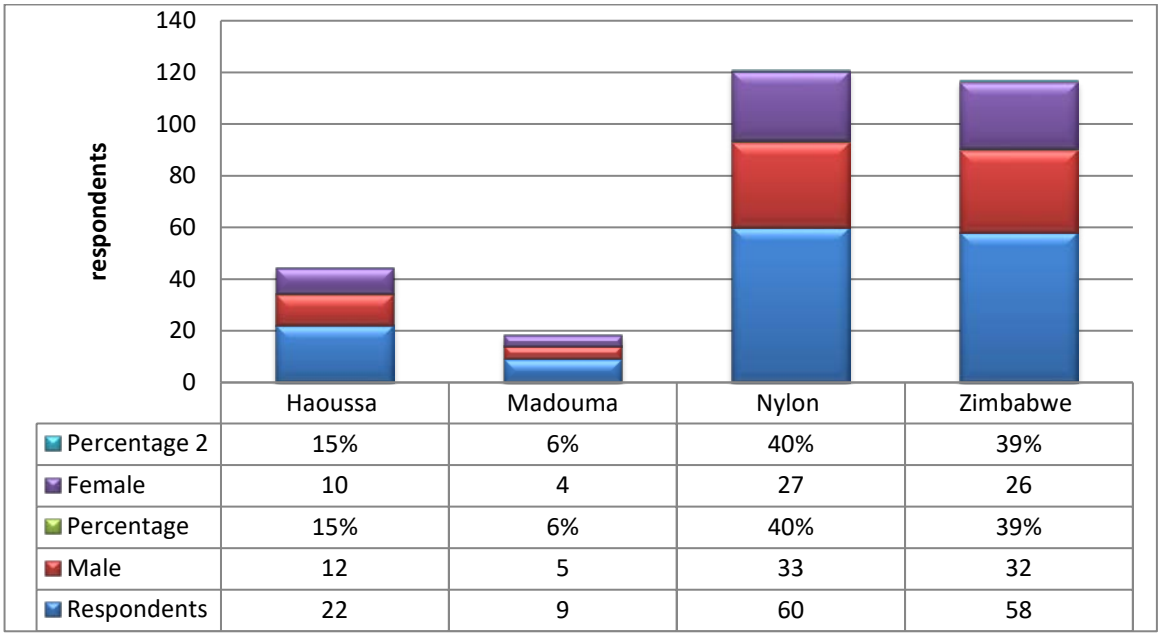
3.1.5. Language and Cultural Barriers

In Lomie Sub-division, the cultural obstacles to social development through ICT are deeply intertwined with the community's traditions, beliefs, and social norms. One of the key challenges is linguistic diversity, as the Sub-division is home to multiple ethnic groups (Nzime, Bamileke, Gbaya, Bulu, Maka, Makia, Toupouri, Southwestners and Badjoue) all

speaking different languages. This diversity can create barriers to effective communication and information dissemination through ICT platforms, as content may not be available in all local languages. This can lead to exclusion and limited access to digital resources for community members who do not speak the dominant languages used in digital communication.

Traditional beliefs and practices also play a significant role in shaping attitudes towards technology adoption in Lomie. Some community members may be hesitant to embrace ICTs due to concerns about its impact on cultural traditions or fears of disrupting social norms. For example, there may be resistance to using digital tools for certain activities that are traditionally carried out in person or through established community channels.

Gender dynamics further complicate the use of ICTs for social development in Lomie. Women in the community may face additional barriers to accessing and utilizing technology, such as limited opportunities for education and training in digital skills. Societal norms and expectations around gender roles may also discourage women from engaging with ICT or pursuing opportunities in the tech sector. (Figure 20)



	Haoussa	Madouma	Nylon	Zimbabwe
Percentage 2	15%	6%	40%	39%
Female	10	4	27	26
Percentage	15%	6%	40%	39%
Male	12	5	33	32
Respondents	22	9	60	58

Figure 20: Distribution by Gender of the respondents

Source: field work, 2021

From figure 20, the proportion of men surveyed was 63% compared to 37% of women with Madouma and Nylon having the highest male and female participants with Madouma having the least. The age group of these participants also varied all over the Sub-division. (Figure 21)

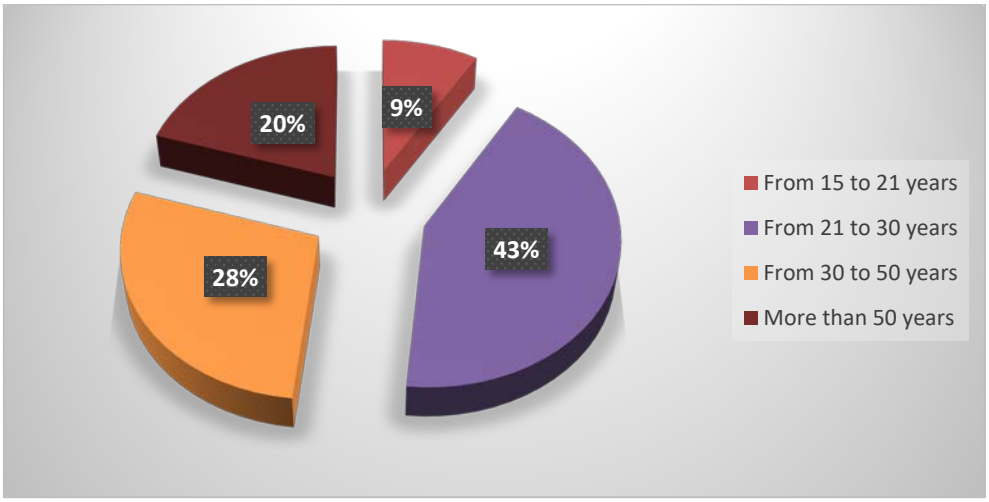


Figure 21: Distribution of the respondents by age group

Source: fieldwork 2021

Figure 21 shows that the survey population was predominantly young, with a higher proportion of 21- to 30-year-olds.The table shows the diversity of functions from which no relevant classification can be made at this level but what emerges is that the vast majority of the population is without a permanent job. This can be reclassified as 60% unemployed and farmers, 32% employed (Representatives of NGOs/CSOs and entrepreneurs and traders), 2% journalists and 6% (Civil servants, municipal employees and pensioners).

The diversity of age groups is essential in order to be able to estimate the needs of all population groups and take them into account in the proposals, as the needs of the elderly are unlikely to be the same as those of the young. This point Addressing gender disparity is crucial for ensuring that women have equal access to the benefits of ICTs and can contribute to social development efforts in the locality.

Nevertheless, notwithstanding these obstacles that have limited the ability of ICT to contribute effectively to the social and economic advancement of Lomie, ICT has to some degree played a role in the social and economic progress of the Sub-division.

3.2. Contributions of ICTs in the socio-economic development of Lomie Sub-division

ICTs have significantly contributed to the socio-economic development of Lomie in the following ways:

3.2.1. ICTs and education in Lomie

ICT has brought significant improvements to education in Lomie, revolutionizing the teaching and learning process. It has positively impacted Lomie through the following way:
To begin it has facilitated access to information and Resources. ICT has provided students and teachers in Lomie sub-division with access to a wealth of information and educational resources. The implementation of computer labs, internet connectivity and digital learning platforms has enabled students in Lomie to explore a broader range of subjects and engage with interactive learning materials. This access to information has helped to bridge the educational gap between urban and rural areas providing equal learning opportunities for all students there.

Also, it has also impacted on the digital learning Tools and applications. ICT has introduced a wide range of digital learning tools and application that enhance the educational experience for students in Lomie. These tools include educational software such as MS-Word, MS-excel, online courses, e-books, and multimedia content that cater to various learning styles. Such digital resources facilitate self-paced learning, encourage student engagement and promote critical thinking and problem-solving skills.

Moreover, has promoted Distance learning and online education. Though to a certain extent, ICT has made distance learning and online education more feasible and accessible in Lomie. Through the use of video conferencing, online platforms and learning management systems students can attend visual classes, participate in discussions and submit assignments remotely. This method was of great help during the period of Covid-19 where distance learning was highly encouraged worldwide. This is particularly beneficial for students in remote areas in Lomie who may face geographical barrier to accessing quality education. Distance learning and online education have expanded educational opportunities and allowed students in Lomie to pursue higher education without leaving the community.

Added to this ICT has fascinated Teacher Professional Development. ICT has also facilitated continuous professional development for teachers in Lomie. Online training programs and webinars enable teacher to enhance their teaching skills, learn about innovative teaching methods, and stay up-to-date with current educational practices. This empowers teachers to deliver quality education and adapt to the changing educational landscape.

Finally, it has led to an improvement in collaboration and Global connection in the sub-division as compared to the past years. ICT has transformed the traditional classrooms into a global learning environment for the student sin Lomie. Through video conferencing, online forums and social media landform, students can collaborate and connect with peers from different parts of the country as well as the world. This exposure to diverse perspective and cultures enriches their learning experience, fosters cross-cultural understanding and prepare them to a globalised world.

3.2.2. ICT and Health sector in Lomie

ICT has brought significant advancements and improvements to the healthcare sector in Lomie sub-division. Here are some ways in which ICT has positively impacted health in the region:

ICT has greatly impacted the health sector in Lomie through Telemedicine. The implementation of telemedicine services has revolutionized healthcare accessibility in Lomie sub-division. Through telemedicine, remote patients can consult with healthcare professionals without the need for physical travel. This is especially crucial for individuals living in remote areas where healthcare facilities are scarce. Telemedicine enables patients to receive timely medical attention and advice, reducing the burden of travel costs and saving valuable time.

ICT has permitted the introduction of Electronic Health Records (EHRs) in healthcare facilities has streamlined the management and storage of patient medical records. EHRs are digital records that contain a patient's medical history, diagnoses, medications, and test results, among other important information. This digitization has led to more efficient and accurate record-keeping, as well as improved collaboration among healthcare providers. EHRs also facilitate the sharing of patient data between different healthcare facilities, enabling seamless continuity of care for patients.

Telemonitoring and Remote Patient Monitoring: ICT has enabled the implementation of telemonitoring and remote patient monitoring systems in Lomie sub-division. These systems utilize technology such as wearable devices and sensors to collect and transmit patient health data in real-time. This allows healthcare professionals to remotely monitor patients' vital signs, medication adherence, and overall health status. Telemonitoring and remote patient monitoring help detect any abnormalities or changes in patient health early on, enabling prompt intervention and reducing the need for unnecessary hospital visits.

Health Information Systems: ICT has facilitated the development and implementation of health information systems in Lomie sub-division. These systems provide a comprehensive

platform for healthcare providers to manage and analyse health data on a population level. By aggregating and analysing data from various sources, health information systems help identify health trends, track disease outbreaks, and guide public health interventions. This enables more informed and evidence-based decision-making for policymakers and healthcare professionals, leading to more effective health promotion and disease prevention strategies.

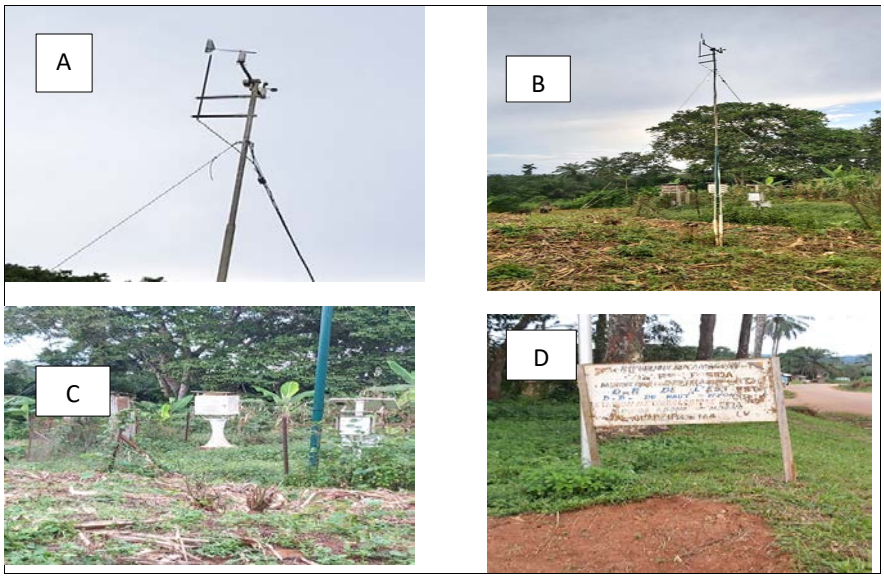
Health education and awareness: ICT has played a crucial role in health education and awareness campaigns in Lomie Sub-division. Through the use of mobile applications, websites, and social media platforms, healthcare organizations can disseminate important health information to the public. This includes raising awareness about prevalent diseases, promoting healthy lifestyle choices, and providing informative resources on various health topics. ICT has made it easier for individuals in Lomie sub-division to access reliable health information, empowering them to make informed decisions about their health and well-being.

3.2.3. ICT and agriculture sector in Lomie

ICT has brought about significant improvements in the agricultural sector of Lomie sub-division, empowering farmers and enhancing their productivity and profitability. Here are some ways in which ICT has positively impacted agriculture in the sub-division:

Access to Information. ICT has provided farmers in Lomie Sub-division with instant access to vital agricultural information. Through the use of mobile applications, websites, and SMS services, farmers can access weather forecasts, market prices, pest and disease management techniques, and best agronomic practices. This information equips farmers with the knowledge they need to make informed decisions about crop selection, planting time, and harvesting, ultimately leading to improved yields and reduced crop losses. This has been made easier with the presence of a meteorological station in Lomie (plate 8)

Plate 8: Meteorological station of Lomie Town



Source: NGANDE, C. August 2021

Plate 7 shows the meteorological station of Lomie. On the first and second photo is the weather instrument to measure humidity (anemometer), the third photo is a Stevenson screen and the last photo is the main entrance to the station.

ICT has also improved Market Access: ICT has opened up new market opportunities for farmers in Lomie sub-division. Online platforms and mobile applications provide direct access to buyers and help bridge the gap between farmers and markets. Through these platforms, farmers can advertise their produce, negotiate prices, and track market trends, enabling them to make informed decisions about when, where, and how to sell their products. This eliminates the need for intermediaries, ensuring fair prices and better profitability for farmers.

Financial Services: ICT has facilitated access to financial services for farmers in Lomie sub-division. Digital payment systems and mobile banking services allow farmers to receive payments for their produce directly into their accounts, eliminating the risks associated with carrying cash. Additionally, ICT has facilitated the development of mobile-based insurance services, providing farmers with affordable crop insurance options. These financial services help protect farmers from unforeseen risks and enable them to invest in their farms and improve agricultural practices.

Training and Capacity Building: ICT has improved agricultural training and capacity-building opportunities for farmers in Lomie Sub-division. Online training courses, video tutorials, and interactive platforms provide farmers with access to agricultural experts and

resources. Through these platforms, farmers can enhance their knowledge and skills in various aspects of farming, including crop management, pest control, and sustainability practices. This empowers farmers with the necessary tools to adapt to changing agricultural landscapes and to implement innovative farming techniques.

3.2.4. ICT and the Business and economy Sectors in Lomie

The integration of Information and Communication Technology (ICT) has brought about significant improvements in the business and commerce sector of Lomie Sub-division. Here are some ways in which ICT has positively impacted business and commerce in the region:

Expanded Market Reach: ICT has enabled businesses in Lomie Sub-division to expand their market reach beyond local boundaries. With the advent of internet connectivity and e-commerce platforms, entrepreneurs can now showcase their products and services to a global audience. This has opened up new market opportunities and allowed businesses to tap into a larger customer base, resulting in increased sales and revenue.

Efficient Business Operations: ICT tools and software applications have streamlined business operations in Lomie sub-division. From inventory management systems to point-of-sale software, businesses can now automate various aspects of their operations. This not only enhances efficiency but also reduces human errors and improves overall productivity. Additionally, advanced ICT solutions such as customer relationship management (CRM) software enable businesses to effectively manage customer interactions and provide personalized services, leading to customer satisfaction and loyalty.

Digital Payment Systems: ICT has paved the way for the adoption of digital payment systems in Lomie Sub-division. By facilitating secure and efficient financial transactions, businesses can offer customers multiple payment options, including mobile payments (mobile money and orange money) and online banking (WAFACASH or Campost Money). This has reduced the reliance on cash, enhances convenience for customers, and contributes to the formalization of the economy. Moreover, digital payment systems enable businesses to track transactions, monitor cash flows, and analyze sales data, providing valuable insights to support informed decision-making.

Access to Market Information: ICT has made it easier for businesses in Lomie Sub-division to access market information and stay updated on industry trends. Through the use of internet resources, entrepreneurs can gather data on consumer preferences, competitor analysis, and market demand. This information allows businesses to make informed decisions

regarding product development, pricing strategies, and marketing campaigns. Access to market information helps businesses stay competitive and adapt to changing market dynamics.

Entrepreneurship and Innovation: ICT has fostered entrepreneurship and innovation in Lomie sub-division. The availability of online platforms and digital tools has lowered entry barriers for aspiring entrepreneurs, enabling them to start their own businesses with minimal capital investment. Additionally, ICT has provided a platform for local businesses to showcase their unique products and services, promoting cultural heritage and supporting the growth of the local economy. Through online marketplaces and social media platforms, entrepreneurs can connect with customers, collaborate with other businesses, and access valuable resources for business development.

3.2.5. ICT and connectivity in Lomie

ICT has significantly improved connection and connectivity in Lomie Sub-division, bridging the digital divide and enabling individuals and communities to stay connected in various ways. Here are some ways in which ICT has improved connection and connectivity in Lomie sub-division:

Internet Infrastructure: The establishment of reliable and high-speed internet infrastructure in Lomie Sub-division in the past years had brought about a significant improvement in connectivity. Internet service providers had expanded their coverage in the region, ensuring that more individuals and businesses had access to a fast and stable internet connection. This has opened up opportunities for online communication, access to information, and participation in the digital economy.

Communication: ICT has revolutionized communication in Lomie Sub-division, enabling instant and seamless communication among individuals and organizations. Mobile phones and internet-based communication platforms such as email, messaging apps, and social media have made it easier for people to stay connected with their friends, family, and colleagues. Communication barriers due to geographic distance have been greatly reduced, fostering closer connections and improving collaboration across different sectors of the community.

Access to Information: ICT has expanded access to information in Lomie sub-division, empowering individuals with valuable knowledge and resources. The internet provides a vast repository of information on a wide range of topics, accessible at the click of a button. People can access news, educational materials, research articles, and various online resources to stay

informed and gain knowledge. This improved access to information has enhanced education, business opportunities, and decision-making in the region.

Business and Economic Connectivity: ICT has played a vital role in improving business and economic connectivity in Lomie Sub-division. Online platforms, e-commerce websites, and digital payment systems have connected local businesses to a global market, enabling them to reach customers beyond their immediate vicinity. This has expanded market opportunities, boosted sales, and facilitated economic growth in the region. Moreover, ICT has facilitated efficient supply chain management, allowing businesses to connect with suppliers and distributors more easily, leading to improved productivity and competitiveness.

- **Verification of Hypothesis three**

The third hypothesis of this was stated as: Difficult access to electricity and internet is a major is a major obstacle to the integration and vulgarization of ICT in Lomie sub-division

Null Hypothesis (Ho): Difficult access to internet/network and electricity are the major setback to the integration and intervention of ICT in Lomie sub-division

Alternative Hypothesis (Ha): Difficult access to electricity and internet/network are not the major setback to the integration and intervention of ICTs in Lomie Sub-division. (Table 17)

Table 18: Sample of respondent Chi square manual for hypothesis four

Problem faced by ICT in the integration process of Lomie			
Villages	**Difficult access to electricity and internet/network**	**Other reasons**	**Total**
Haoussa	12	11	23
Madouma	5	4	9
Nylon	31	29	60
Zimbabwe	30	27	57
Total	78	71	149

Source: Field work 2021

Table 19: Contingency table for hypothesis Four

Observed value(O)	Expected value (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
12	43.93589	-31.93589	1019.90107	23.21339
11	48.26760	-37.2676	1388.8740	28.7744
5	17.19230	-12.1923	148.65217	8.64643
4	18.88732	-14.88732	221.63229	11.4344
31	114.615385	-83.615385	6991. 5326	60.999
29	125.91549	-96.91549	9392.6122	74.59457
30	108.88461	-78.88461	6222.78169	57.15024
27	119.61971	-92.61971	8578.41068	71.71402
				$\sum$336.8265 = X^2

Source: field work 2021

Degree of freedom (df) = (Row-1) (Column)

= (4-1) (3-1)

= **6**

At 0.05% level of significance; the degree of freedom (df) = (5-1) (2-1) = 6

Results:

The Chi-Square value of 336.8 is significantly higher than the critical value for a Chi-Square distribution with 6 degrees of freedom at a given level of significance. This suggests that there is a strong association between difficult access to electricity and internet/network and the integration and intervention of ICT in Lomie Sub-division.(Appendix III)

The p-value associated with a Chi-Square value of 336.8 and 6 degrees of freedom would be very small, indicating that the observed results are highly unlikely to have occurred by chance.

Based on these results, we can reject the null hypothesis that difficult access to electricity and internet/network are the major setbacks to the integration and intervention of ICT in Lomie Sub-division. Instead, we can conclude that there is evidence to support the alternative hypothesis that difficult access to electricity and internet/network are not the major setbacks to the integration and intervention of ICTs in Lomie Sub-division.

In summary, the statistical analysis suggests that difficult access to electricity and internet/network may not be the major obstacles to the integration and vulgarization of ICT in Lomie Sub-division, contrary to the initial hypothesis.

Conclusion

In summary, the barriers to social development in Lomie Sub-division are primarily attributed to limited access to Information and Communication Technologies (ICTs). The lack of infrastructure, high costs, low literacy rates, and limited digital skills among the population have all contributed to widening the digital divide within the Sub-division. These challenges not only impede economic growth but also limit access to essential services, education, and information, thus perpetuating social inequalities. To address these barriers effectively, concerted efforts are needed from policymakers, stakeholders, and the community to prioritize investments in ICT infrastructure, digital literacy programs, and affordable access to technology. By bridging the digital divide and empowering the population with digital skills, Lomie sub-division can unlock the full potential of ICT as a catalyst for social development and inclusive growth.

CHAPITER 4
DRIVING DIGITAL TRANSFORMATION: ANALYZING CAMEROON'S ICT POLICY AND REGULATORY FRAMEWORK IN LOMIE SUB-DIVISION

4.0. Introduction

Information and Communication Technologies (ICTs) has become an integral part of modern society, driving economic growth, innovation, and social development. In Cameroon, the government has recognized the importance of ICTs in the country's development and has implemented various policies and regulatory frameworks to promote its use and adoption.

One of the key areas where ICTs policies and regulations are being implemented is in Lomie Sub-division, a locality in the East Region of Cameroon. Lomie Sub-division is known for its rich biodiversity and natural resources, making it an important area for economic development. The government has identified ICTs as a key enabler for development in the locality, and as such, has put in place specific policies and regulations to support the growth of the sector.

This chapter will provide an overview of the ICTs policy and regulatory framework in Cameroon, with a focus on how these policies are being implemented in Lomie Sub-Division. It will examine the key objectives of the government's ICTs policies, the regulatory bodies responsible for overseeing the sector, and the initiatives being undertaken to promote the use of ICT in the region. Additionally, this chapter will highlight the challenges and opportunities that exist in implementing these policies and regulations, as well as the potential impact on the socio-economic development of Lomie Sub-division.

Overall, this chapter aims to provide a comprehensive understanding of the ICT policy and regulatory landscape in Cameroon, with a specific focus on Lomie Sub-division, and to explore how these policies are shaping the future of the Sub-division in terms of technology adoption and economic growth.

4.1. Policy and regulatory framework in Cameroon

This section of the chapter will involve the historical review of national policies concerning ICTs policy regulations in Cameroon as well as Lomie Sub-division.

4.2. Historical review of national policies

According to the Sectorial Strategy document in the field of telecommunications ; information and communication, the history of telecommunications policies and objectives in Cameroon can be divided into three main periods since independence: from 1960 to 1988, from 1988 to 1998 and from 1998 to the present day. The main characteristic of the policies and objectives pursued from one period to the next is a break in the strategic vision of the field and in the strategic management policy of the field. We will briefly revisit the historical development of telecommunications in Cameroon.

4.1.1.1. Period from 1960 to 1988

Cameroon's access to independence had been consecrated by the establishment of a governmental organization supported by five-year plans as tools for planning public administration investments. In short, it was the period of state monopoly and cross-subsidization. It is in this context that:

- The Administration in charge of Telecommunications of the Ministry of Posts and Telecommunications had ensured both regulatory and operational functions;

- The architecture of the national telecommunications network was put in place.

During this period, the Telecommunications Directorate of the Ministry of Posts and Telecommunications had carried out until 1970 the main tasks of regulation and operation of telegraphy, telex, Morse code and telephony.

To meet the need for human resources development, the State created the **Ecole Nationale Supérieure des Postes Et Télécommunications** (ENSPT) in 1969. In order to satisfy the increase in international traffic and to benefit from the new technological capacities superior to those installed in Cameroon until then, the State created in 1972 the Société Anonyme (limited company) and consecrated the separation of the exploitation of domestic and international telecommunications. Standard A parabolic antenna were thus deployed in Zamengoe (1972) and Bépanda (1986).

In spite of the significant investments made, the State had for several years obtained mixed results, materialized by an unsatisfactory social and political demand, the continuous increase in tariffs, the waste of material resources and the persistent deterioration of equipment.

4.1.1.2. Period from 1988 to 1998

At the dawn of this period, Cameroon marked a break in the strategic management of the telecommunications sector. Engaged in a vast economic adjustment program including the disengagement of the State from public enterprises, the Government, through **Law No. 87/021 of 17 December 1987** establishing the Post and Telecommunications annexed budget, gave financial autonomy to MINPOSTEL (Ministry of Posts and Telecommunications).

The institutional reforms and achievements made after the promulgation in July 1998 of the law governing telecommunications in Cameroon nevertheless allow for a sketchy evaluation of the results achieved. In the absence of clearly identified objectives in 1998, this can only be done through comparison with the performance of certain African countries that embarked on this process at the same time as Cameroon.

Before Law 98/014 of 14 July 1998 governing telecommunications in Cameroon, the Ministry of Posts and Telecommunications was responsible for the establishment and operation of telecommunications networks open to the public. It regulates and controls the establishment of private networks. Being the only actor in the sector, there was a coincidence between the postal sub-sector and the Ministry, until 1998 when the law governing telecommunications in Cameroon was passed. This law liberalized the telecommunications market by setting the general rules of the game and creating several categories of players.

It also gave specific missions to public and private institutions operating in the sector. These missions can be grouped into the following three main components

- Supervision and regulation of telecommunications
- Telecommunications regulation;
- The establishment and/or operation of telecommunications infrastructures and networks open to the public.

In addition to MINPOSTEL, there are currently several other actors involved in the ICT regulation sector in Cameroon, namely the ART and the newly created ANTIC.

- **The MINPOSTEL**

MINPOSTEL is responsible for the regulation and general supervision of the sector. It draws up and implements the sectorial telecommunications policy. It supervises telecommunications companies and manages the frequency spectrum.

> General supervision

> Planning and technical studies

> Studies and monitoring of ICT development

> International cooperation

> Training in telecommunications

> Legal affairs

MINPOSTEL is responsible for the design, development and monitoring of the implementation of the telecommunications sectorial policy. In 2005, MINPOSTEL implemented the sectorial policy for posts and telecommunications, a strategy developed for the period 2005 to 2015.

The objectives targeted by the Government in the area of telecommunications and ICTs are, in particular

> To increase fixed tele-density from 0.7% in 2005 to 30% in 2015

> To increase mobile tele-density from 15% in 2005 to 50% in 2015

> To provide 20,000 villages with modern telecommunications facilities by 2015

> To provide the public with 2 Mb/s access in all towns with a digital exchange by the end of 2007

> build an inter-university Internet access network based on the national fiber optic backbone and draw up a development plan for private institutions, secondary schools and primary schools by the end of 2008 at the latest

> build a telemedicine network and other related e-services based on the aforementioned backbone, by the end of 2008;

> double the sector's contribution to GDP by 2010 (2005 estimate: 2.5% of GDP)

> multiply by 50 the number of direct and indirect jobs in the field of telecommunications and ICT by 2015.

The implementation of this global strategy for telecommunications and ICTs is underpinned by three main axes, namely

First axis: Adapt and update the legal, regulatory and institutional framework;

Second axis: Improving the supply of services in terms of quantity, quality and affordability;

Third axis: Increase the use of ICTs and density the industrial fabric of ICT companies

- **The Telecommunications Regulatory Agency (ART)**

The 1998 Act also created a regulatory framework, bringing together all the tasks of enforcing laws and regulations, monitoring market entry and exit, ensuring compliance with the rules established and accepted by all, protecting consumers and monitoring the activities of operators and operators of telecommunications networks open to the public as well as those of telecommunications service providers to the public.

Regulatory activities are mainly carried out by the Telecommunications Regulatory Agency. They relate to:

> The application of legislative and regulatory texts and the management of the use of resources (frequencies, numbers);

> Observation and evaluation of markets;

> Control and monitoring of network operators and service providers;

> Legal affairs and settlement of disputes between operators;

> Foresight, network interconnection and standardization;

> International cooperation.

- **The National Agency for Information and Communication Technologies (ANTIC)**

ANTIC was created by presidential decree in 2002. Since then, it has experienced a great delay in the implementation of the decree of creation, thus penalizing the sector insofar as actions remain scattered and the policy and strategy in terms of ICTs have still not been developed. Although MINPOSTEL has been invested with the responsibility of promoting and popularizing ICTs, it does not have sufficient means, especially in terms of human resources, to carry out actions in the field of ICTs, particularly in the computer and internet sub-sector.

Attached to the highest institution of the State, the Presidency of the Republic, ANTIC will play a decisive role in the development of the ICT offer. Its mission is to promote and monitor government action in the field of ICTs. The mission assigned to it includes a gender perspective. Indeed, it will be responsible for, among other things

- promoting the involvement of all citizens, without discrimination, in the information society

- putting ICTs at the service of citizens and businesses, as well as government officials and public bodies, by promoting easy access to essential public information

By setting up the Post and Telecommunications annexed budget, it responded concretely to the national concern of promoting the development of telecommunications by improving the efficiency of management in the face of ever-increasing financing needs. During this period, MINPOSTEL took the technological step of acquiring the digital exchanges in the South-West. The main transmission arteries were also digitized.

In 1993, the first GMS mobile telephone network in Africa was put into operation in the form of the CAMTEL MOBILE project. In June 1995, the Head of State decided to

initiate the restructuring of the sector with the national operator, the Telecommunications Directorate, maintained in the organization chart of the Administration in charge of telecommunications.

From 14 July 1998, the date of the promulgation of Law No. 98/014 governing telecommunications in Cameroon, the State disengaged itself by separating the activities of operation, supervision, regulation and control. This situation makes it possible to:

> Separate the telecommunications sector from the postal sector;

> Encourage and promote the participation of the private sector in the development of telecommunications in a competitive environment;

> Promote the harmonious development of telecommunications networks and services in order to ensure the contribution of this field to the development of the national economy and to satisfy the multiple needs of the population;

> Optimize the contribution of the telecommunications sector to the economic and social development of Cameroon.

Implementing texts on the creation, organization and operation of new players in the national telecommunications landscape have been issued. These are: The Telecommunications Regulatory Agency (ART), CAMTEL and CAMTEL Mobile.

4.1.1.3. Period from 1998 to present

With liberalization, the whole strategic vision of the field evolved. In 1999, a mobile telephony license was awarded to SCM, which became ORANGE in 2002. During the same year, MINPOSTEL returned to the general State budget.

The process of disengagement of the State is further materialized by the privatization of one of its branches. Indeed, CAMTEL Mobile was sold to MTN International which created MTN Cameroon on 15 February 2000.

The technological changes that took place in the 1980s and 1990s with the digitization of telephone networks and the explosion of satellite telecommunications in particular and wireless systems in general, opened up new prospects and generated new services and needs. Businesses and professionals wishing to have modern and even tailor-made services are no longer satisfied with the services offered by a non-performing administration that is slow to adapt and innovate.

It is in this context that the reform of the telecommunications sector, decided on 1 June 1995 by the Head of State, in a global logic of restructuring the national production system,

with a view to stimulating economic growth and getting the Cameroonian economy out of the rut through information and communication technologies, achieved its first results:

- The five-year plans defined the actions to be undertaken by the government to improve the living conditions of the population. The acute economic crisis led to the abandonment of the five-year plan, which had the disadvantage of not allowing for adjustments according to the evolution of the socio-economic situation, budgetary and political constraints;

- The transition from the traditional state budget to a budget by function and the imperative need for proper implementation of the poverty reduction strategy require sectorial development strategies that clearly show the objectives, programs and priority projects as well as the mechanisms for monitoring their implementation;

- The telecommunications reform policy must be in line with the poverty reduction strategy.

In view of the above, the PRSP prescribes three key objectives for the telecommunications sector, namely

- To provide consumers throughout the country with a sufficient quantity of quality goods and services;

- To create jobs for young graduates;

- To improve the effectiveness and efficiency of public establishments and companies in the sub-sector.

The telecommunications sector strategy is in line with the PRSP and the Millennium Declaration, but also with the current dynamics of trade globalization. As a result, the diagnostic report that follows the MDG declaration is a document that presents the field (including institutions) as it is today, with its problems, assets, handicaps and constraints.

In total, in December 2000, several institutional developments can be observed, the most significant of which are

- The total disengagement of the State from the operation of mobile telephone networks open to the public: two mobile telephone licenses were issued to two private operators, ORANGE and MTN

- The installation of numerous Internet service providers, most of which operate without authorization;

- The start of the activities of the Telecommunications Regulatory Agency (ART) in September 1999;

- The provision of fixed telephone service by CAMTEL for a transitional period until the liberalization of this market segment.

However, all these changes occurred without an explicit and appropriate policy/strategy underpinning the development of the sub-sector. For example, the administration in charge of telecommunications has not had and does not have a real technical influence on the privatization of public enterprises in the field; it participates in the technical meetings of the Technical Commission for Privatization and Liquidation (CTPL) like any other invited institution.

The purpose of the sector policy is to define a clear vision for the long-term development of the sector. It defines not only the major orientations and general objectives for the development of telecommunications infrastructures and networks open to the public, but also those for the development of a viable industry for the manufacture of telecommunications equipment and materials, as well as for the production of a sufficient and qualified workforce necessary for the information and knowledge-based society and economy.

The sectorial development strategy is an instrument for clarifying the priority choices for the development of the sector in terms of public investment in a context where the available public resources must be rationally used.

The reform of the telecommunications sector initiated by the Government in June 1995 through the restructuring of its departments and the subsequent achievements suggest that the sector is full of enormous potential that has been under-exploited until now, especially in a sector that is constantly changing. Nearly five years after the implementation of the in-depth and detailed reform of the current situation with a view, on the one hand, to identifying, by 2015, the objectives and strategic axes of its development and, on the other hand, to defining, within the framework of a coherent, ambitious and realistic sub-sectoral development strategy, priority programs and projects to be carried out in the short, medium and long term.

4.3. ICT Policy Framework in Lomie Sub-division

The government of Cameroon has recognized the importance of ICTs in driving economic growth and development, and as such, has put in place a comprehensive policy framework to guide the development of the sector. The National ICT Policy, adopted in 2006, sets out the government's vision for the development of the ICT sector in Cameroon, with a focus on promoting universal access to ICT services, fostering innovation and entrepreneurship, and ensuring the protection of consumer rights. In addition to the national

policy, Lomie Sub-division also has its own local ICT policy framework, which is designed to address the specific needs and challenges of the Sub-division. This local policy framework outlines the priorities for ICTs development in Lomie Sub-division, such as improving access to ICTs services in rural areas, supporting local ICTs entrepreneurs, and promoting the use of ICT for social development.

4.3.1 Regulatory Framework for ICT in Lomie Sub-division

The regulatory framework for ICTs in Lomie Sub-division is governed by the Ministry of Posts and Telecommunications, which is responsible for overseeing the implementation of ICTs policies and regulations in the locality. The ministry works closely with regulatory bodies such as the National Agency for Information and Communication Technologies (ANTIC) to ensure compliance with national regulations and standards.

Key regulations that govern the ICTs sector in Lomie Sub-division include licensing requirements for ICTs service providers, rules governing competition and consumer protection, and regulations relating to data protection and privacy. These regulations are designed to create a level playing field for all ICT stakeholders, protect consumer rights, and promote innovation and investment in the sector. (Table 19)

Are the laws on ICTs applied in Lomie?					
Villages	**Respondents**	**Yes**	**Percentage**	**No**	**Percentage**
Haoussa	22	3	2%	19	13%
Madouma	9	2	1%	8	5%
Nylon	60	5	3%	54	37%
Zimbabwe	58	6	4%	52	35%
Total	149	16	10%	133	90%

Table 19: Respondents awareness on ICT laws

Source: fieldwork 2021

From table 19, only 10% of the respondents (15) from the four villages were aware of ICTs laws in Cameroon and within the Sub-division against 90% (133). This suggests that there is significant lack of awareness about ICTs laws among the local population surveyed however evidence will be given after the verification of the hypothesis.

4.3.2. Challenges and Opportunities

While Lomie Sub-division has made significant progress in developing its ICT policies and regulatory framework, there are still challenges that need to be addressed. These include limited access to ICT services in rural areas, high costs of internet connectivity, and a lack of skilled ICT professionals. However, there are also opportunities for growth in the sector, such as increasing demand for digital services, a growing youth population with a strong interest in technology, and government initiatives to promote digital literacy and entrepreneurship.

- **Verification Of Hypothesis four**

Hypothesis: The implementation of ICT policy has led to the increase in access to ICT services and digital literacy among the population of Lomie

Null Hypothesis: The implementation of ICT policy has no effect on the awareness of ICT laws among the population of Lomie

Alternative Hypothesis (H1): The implementation of ICT policy has led to an increase in awareness of ICT laws among the population of Lomie sub-division.

Table 20: Respondents aware of ICT laws

Villages	Respondents	Yes	No	Total
Haoussa	22	3	19	22
Madouma	9	2	8	10
Nylon	60	5	54	59
Zimbabwe	58	6	52	58
Total	149	16	133	149

Source: field work 2021

Table 21: Contingency table for Hypothesis four

Observed Value (O)	Expected value (E)	(E-O)	$(E-O)^2$	$(E-O)^2/E$
3	204.87	-201.87	41968.71	204.85
19	24.64	-5.64	31.80	1.29
2	93.12	-91.12	8302.85	89.16
8	11.20	-3.2	10.24	0.91
5	549.43	-544.43	296404.02	539.47
54	66.09	-12.09	146.16	2.21
6	540.125	-534.12	285284.17	528.18
52	64.97	-12.97	168.22	2.58
				X^2 = 1368.65

Degree of freedom: (4-1) (3-1) = **3**

Significance level: 0.05

Critical value: 7.815

Interpretation of Results

For the 3 degree of freedom the critical value of x^2 at the 0.05 significance level is approximately 7.815. Given the critical value, we reject the null hypothesis (Ho). This indicates that there is strong statistical evidence to suggest that an ICT policy has indeed had an effect on the awareness of ICT laws among the population of Lomie.

However, the data on table 21 .shows that most of the population is not aware of ICT laws. This suggest that while the policies has an effect on the level of awareness, might still be insufficient. This highlights a gap between policy implementation and effective communication to the target population.

Conclusion

In conclusion, the ICT policy and regulatory framework in Lomie Sub-division plays a crucial role in shaping the development of the ICTs sector in the locality. By addressing key challenges and leveraging opportunities for growth, Lomie Sub-division can continue to drive innovation, economic development, and social inclusion through the use of ICTs. It is essential for stakeholders in the locality to work together to ensure that the ICT policies and regulatory framework is effectively implemented and updated to keep pace with technological advancements and changing market dynamics.

GENERAL CONCLUSION

The discussions surrounding ICT and the socio-economic development of Lomie Sub-division in the East region of Cameroon focused on the hypothesis that the current state of ICT infrastructure in Lomie is insufficient, leading to limited access and utilization of ICT resources. A review of relevant literature was conducted, data collection techniques were established, and the collected data was presented in various chapters of this study. Throughout the presentation, the status of ICTs and the socio-economic conditions of the Sub-division were discussed. The various needs of the Sub-division, as well as the challenges faced by ICT in contributing to the social and economic development of Lomie, were also highlighted.

This section of our work primarily aims to validate the hypotheses put forward at the beginning of this study. Once these hypotheses are confirmed, we will delve into the perspectives and policy implications of the research, guiding us towards the future direction.

5.0. Suggestions for using ICTs in the promotion of local development

Introduction

Since their inception, Information and Communication Technologies (ICTs) have revolutionized development processes and strategies. The experiences of developed nations vividly illustrate the profound impact of ICT on economic, social, and cultural progress. ICTs permeate all facets of production that contribute to development and serve as crucial drivers of progress. It is imperative for underdeveloped areas, significantly trailing behind urban centers in terms of advancement, to effectively embrace this technology to propel their sustainable development.

Persistent poverty within the country's interior hampers progress and well-being for the population. Many individuals find themselves devoid of hope for the future, devoid of dreams. While ICTs alone do not solve these issues, they serve as vital tools in helping individuals connect with the world, rekindle hope, and mobilize against poverty. How do these innovative technologies manage to infiltrate and establish themselves across all aspects of life, often leading to positive transformations? This section of our study will provide suggestions to actualize this potential in the Lomie Sub-division. Overall contribution by civil society and in particular by associations and NGOs

5.1. Civil Society's Overall Contribution to Development through ICT

Various stakeholders are involved in outreach efforts for ICT, with civil society playing a key role in mobilizing these participants. Civil society has the capability to start projects that benefit the public and encourage broad participation. It is well-placed to focus on improving living conditions and addressing poverty, making it an ideal advocate for promoting ICTs and their role in development.

Civil society can aid in advancing ICTs by enabling access to these technologies, guiding the population in their use, linking ICTs with development objectives, and influencing policies at national and international levels to align with the needs and financial capacities of the population. Through collaboration with the government, civil society can promote grassroots initiatives in various localities or villages in Lomie, empowering communities to lead and manage projects themselves.

Civil society's efforts in leveraging ICTs for development may involve engaging elected officials and local stakeholders, providing comprehensive training to citizens and businesses, establishing local ICT hubs like internet cafes or multimedia rooms, fostering a culture of ICT usage, offering user-friendly internet services, recruiting specialized personnel, ensuring high-speed technology access, integrating new tools and equipment, and building strong local partnerships.

These initiatives require the collective involvement of multiple actors such as the government, local authorities, and private companies. Civil society acts as the initiator of ideas and projects tailored to community needs, as well as a mobilizer of technical, financial, and legal support from other stakeholders. It can also drive economic growth by collaborating with the government and local authorities on significant projects like e-commerce ventures and technology centers that require the resources and expertise of larger entities.

5.2. Contribution to the Development of ICT through Associations and NGOs Globally

5.2.1. Services that NGOs and associations can offer following their objectives and interests taking into account the social aspect.

NGOs and associations care about people, not about making a profit. They inform about the opportunities offered by ICT, training and low-cost Internet access, creation of Internet access points closes to the population. They organize training campaign for young people, encourage and satisfy the poor in their achievements; encourage education, promote access to ICTs for all by lowering costs, organize information and training seminars to better

educate the population, go door to door and offer free services, create numerous web sites, hire more young people, enable people without financial means to have access to information.

Also, they seek to be more like the private sector. They organize basic training for young people, awareness campaigns to show the importance of ICT, help to set up structures that would offer these services. NGOs and associations should strive to educate the population on the advantages of ICTs, raise awareness and above all train people in the use of ICTs.

- **How should they go about reaching more people?**

They could reach more people by reducing costs, offer free training for young people, have specialized animators to raise awareness, serve the poor, listen to their problems and find solutions to their needs and worries. They should collaborate with ICG (Internal Control Guideline) that are close to the farmers; carry out awareness campaigns, arouse interest in ICTs, Create and multiply Internet access points in the countryside, organise competitions, get closer to all classes of the population.

(Table 21)

Table 21: SWOT of ICT-related association service

Strengths	Weaknesses	Opportunities	Threads
- The relevance of the service provided in terms of ICT, which is rare and exceptional in Cameroon -The strong capacity to mobilize local development actors. -The strong capacity to mobilize resources, especially human resources, with the emphasis on volunteerism. - A high national and international visibility thanks to their achievements	-Staff often unqualified for the tasks assigned. - Poor treatment of staff - Low and irregular remuneration, which discourages some from becoming more involved in project implementation -Insufficient financial resources for projects. -Weak and deteriorating material resources -Poor organization and management of projects	- The real need of populations (individuals, associations, SMEs, etc.) to have access to the Internet and to be assisted in appropriating the tools. -Taking into account the role of civil society in the national ICT strategies put in place. -The existence of new sources of funding for the digital development of developing countries.	- Poor network coverage of peripheries - Delays in the implementation of national policies - Distrust of the population towards NGOs and associations

Source: author's conception

5.3. ICTs as a tool for significant change within communities with regard to local and territorial development

ICTs as tools for significant change within communities make it possible to reach the widest possible audience, including those considered disadvantaged; to develop individual and collective creativity and to encourage citizen involvement in community life. They contribute to the networking of actors in a territory and, in this sense, have a leverage effect on the development of communities.

Indeed, ICTs are becoming increasingly accessible to all types of publics, who thus have the opportunity to participate in the construction and evolution of this technology, each according to their level of mastery of the tools and thus feeling like a full member of the global community and closer to others. ICTs, thanks to their attractive tools and evolving uses, encourage creativity and facilitate communication between people, the sharing of information, experience and knowledge. This ease of networking people and flowing information is the central node of the process that allows ICTs to be so innovative and impactful.

5.3.1. The axes of development through ICT in the municipalities

Development through ICTs will only happen if a certain methodology or strategy is used to take advantage of the possibilities offered by ICTs, from the point of view of usage. It will not be enough to provide the population with the tools, but it will be necessary to monitor and accompany the use of these tools with a view to development. It is this essential point that is still missing in the country. It is quite obvious that access to tools remains a major obstacle, but even when these tools are accessible, the uses made of them are limited and those that are the cornerstones of assured development are not yet part of African customs. The methodology to be followed must allow :

- Access for all: the aim is to enable a wide public to access and use ICTs,
- Think to open adapted equipment in terms of location, schedules and fees.
- Mediation with regard to a specific public: this involves using ICTs to serve a project aimed at a specific population, with the aim of social development and individual and collective promotion.
- Local networking of places and projects: this involves linking experiences within the framework of a local system that allows them to be networked and capitalized on.
- Networking of resources: this involves making resources available to all actors and all audiences with a view to sharing.

The beneficial use of ICTs must allow for greater involvement of the population in the process by giving them the opportunity to master both the tools and the uses that can be made of them, uses that promote development. The main lines of development through ICTs are as follows:

- Providing access for the use of ICT (cybercafés, access in public places, purchase of equipment, etc.);
- Providing access to new knowledge (culture, employment, education, housing, local democracy, etc.);
- Promoting the community (local, departmental, provincial, national or international);
- Supporting economic development (networking, promotion, etc.);
- Supporting the creation of jobs (teleworking, webmaster, animator, etc.).

5.3.2. Creating tools for exchange (debate, reflection, training, etc.) and the attractiveness of the territories as a result

The use of ICTs in a community brings a new dimension of development. ICTs have a very significant impact and continue to foster the development of all those who use them. Some of the benefits include :

- **Strengthening individual and collective commitment**

The innovative nature of new technologies is a factor that encourages the participation of professionals in the development of projects. Taking advantage of them is a sign of modernity, and while some fear the effects of transparency that they bring, others emphasize their propensity to facilitate exchange, break isolation, make the actions undertaken visible, and thus enhance their value. The development of websites at the level of a structure, a district or a town is presented as a showcase that contributes to the enhancement of each person and, consequently, to stimulating the commitment of the actors: projects and partnerships can be presented online, logos can be displayed.

- **Construction**

The networking that is supported by the development of ICTs makes it possible to intensify the links between the various partners. The mobilization of actors from different cultures and statuses in a single project requires collective work that unites all participants around common values, through the collective definition of priority issues and problems to be solved. Indeed, the coherence of the projects in space and time implies that the energies

converge towards the same direction. The experimental and innovative dimension of ICT projects justifies their permanent evolution. The objectives and implementation methods are reexamined in the light of observations. How can collective uses be developed? How to involve organizations in the content of the site? How can we move from logic of consumption to a more creative use of the tool? These questions, like others, call for continuous reflection on the meaning of the action undertaken by the professionals who support and lead them.

- **Improving services to the public**

In the field of services to the public, ICTs are presented as a tool for improving access to information and facilitating administrative procedures through the use of tele-procedures, for example. The advent of a collective project for the appropriation of ICTs makes it possible to plan improvements in the performance of existing tools and equipment, public access to specialized equipment and programs for the purchase of equipment for personal use. This contribution to the project undoubtedly implies changes in the ways of working of the participating actors. This may lead to resistance.

- **The evolution of skills**

As far as learning about ICT is concerned, we can see that professionals evolve as their skills improve. We can see the same with users, who want to know more and demand more.

- **Revitalisation of facilities**

The appropriation of ICT allows the integration of new technologies into practices, whether it is through the installation of new equipment among the employees of a municipality or the creation of community or school access. The improvement of equipment makes it possible to improve services to the public. The actors are then more efficient and more productive in their research or in the speed of response to requests.

- **Information and knowledge sharing**

ICTs easily open up databases, thematic sites and CD-ROMs, all of which are new supports and new resources for knowledge. Old documents are now online and accessible to all. Municipal websites, for their part, can offer very relevant information on services to citizens: activities, courses, regulations, etc.

- **Visibility for the community**

The implementation of innovative projects such as ICTs makes neighbors talk. In addition to accessing the world's population through a website, such initiatives attract the attention of other cities, elected officials, governments, etc.

- **Attraction businesses**

The establishment of an ICT ownership structure attracts businesses, especially the self-employed, for whom high speed is an essential working tool.

- **Job creation**

The implementation of ICT projects inevitably leads to the creation of new jobs. Multiplying projects for the development of a territory means contributing in the immediate future to the creation of jobs that will significantly reduce unemployment. These new jobs include coordinators, trainers, webmasters, editors and journalists.

- **The partnership**

In its networking dimension, ICTs make it easy to create links between distant actors. Also, in the conduct of ICT projects, the involvement of several factors such as the State, international organizations and civil society is essential for the effective achievement of the objectives. (Table 20)

Table 22: Factors for the effective achievements for the implication of ICT

Successful factors	Obstacles	Actors
- Creation of partnerships, alliances between inhabitants, associations, private companies, institutions and the state; - Participation and sense of community; - Credibility in the community; - Leadership; - Small wins approach; - Good networking in the community.	- Resistance to network culture - Financing - Content supply - Creating a culture of use - Partnership	- The State - Local authorities - Companies - Civil society - The population

Author: NGANDE Tewamba

Local authorities are increasingly mobilizing to strengthen the economic attractiveness of their territory, to increase their influence and visibility or to develop services for local actors.

5.3.3. Summary of recommendations and suggestions

Through the contributions of civil societies, NGOs, and associations in Lomie Sub-division, ICT could be easily integrated into the area. Civil society plays a key role in

promoting ICTs by improving access and fostering local integration, thus supporting development. This goal can be effectively achieved by helping the community understand and utilize these tools, connecting ICTs to development initiatives, and advocating for policies that consider local needs and financial constraints. Collaborating with the government to implement grassroots initiatives can enhance local dynamism, while other organizations like NGOs and associations can help by raising awareness about ICT opportunities such as training, affordable internet access, establishing internet access points, launching youth training programs, supporting the economically disadvantaged, promoting education, and making ICTs more accessible through cost reduction.

In conclusion, the study on the role of ICT in the socio-economic development of Lomie sub-division has revealed significant challenges that hinder the effective utilization of ICT for promoting social and economic growth in the Sub-division. The inadequate state of ICT infrastructure, coupled with issues such as electricity and internet/network problems, poses a barrier to leveraging ICT for development in Lomie sub-division.

Moreover, beyond infrastructural challenges, various other factors, including limited access to ICT resources, lack of digital literacy, and insufficient investment in ICT initiatives, impede the contribution of ICT to social and economic development in Lomie sub-division. The existing ICT policy and regulatory framework also exhibit gaps and inconsistencies that need to be addressed to create an enabling environment for ICT development in the Lomie.

To address these challenges and unlock the potential of ICT for socio-economic progress in Lomie Sub-division, future research should focus on exploring innovative strategies such as promoting public-private partnerships in ICT investment, enhancing digital literacy programs, and aligning ICTs policies with the needs of local communities. Additionally, evaluating the impact of specific ICT interventions on socio-economic indicators in Lomie Sub-division can provide valuable insights for policymakers and stakeholders.

Overall, addressing the gaps in ICT infrastructure, policies, and skills is crucial to harnessing the transformative power of ICT for sustainable socio-economic development in Lomie sub-division. By overcoming these barriers and implementing targeted interventions, the region can unlock new opportunities for growth and prosperity through the effective use of information and communication technologies.

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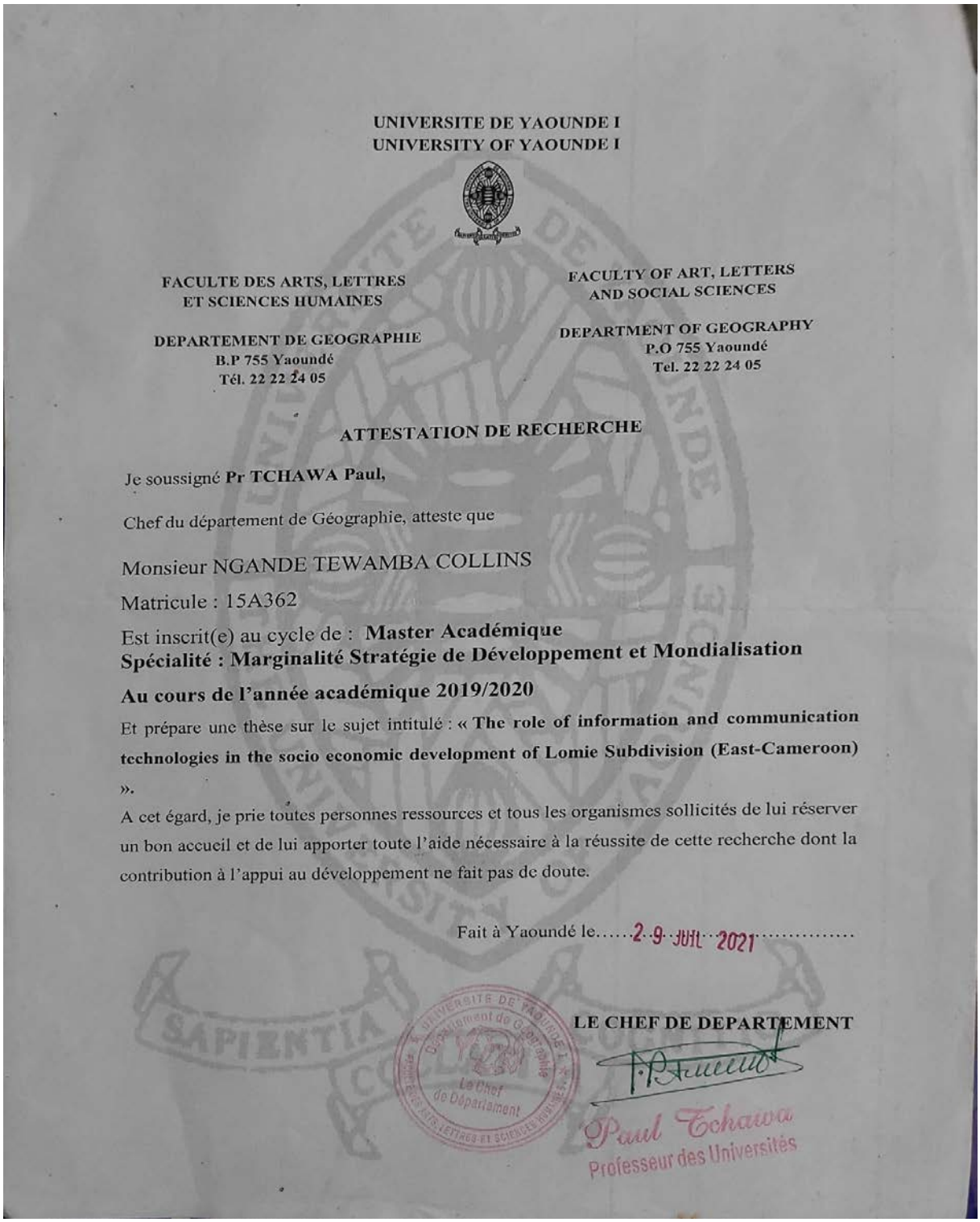
APPENDICES

Appendix I: Research Attestation



UNIVERSITE DE YAOUNDE I
UNIVERSITY OF YAOUNDE I

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DEPARTEMENT DE GEOGRAPHIE
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FACULTY OF ART, LETTERS AND SOCIAL SCIENCES

DEPARTMENT OF GEOGRAPHY
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ATTESTATION DE RECHERCHE

Je soussigné **Pr TCHAWA Paul,**

Chef du département de Géographie, atteste que

Monsieur NGANDE TEWAMBA COLLINS

Matricule : 15A362

Est inscrit(e) au cycle de : **Master Académique**
Spécialité : Marginalité Stratégie de Développement et Mondialisation

Au cours de l'année académique 2019/2020

Et prépare une thèse sur le sujet intitulé : « **The role of information and communication technologies in the socio economic development of Lomie Subdivision (East-Cameroon)** ».

A cet égard, je prie toutes personnes ressources et tous les organismes sollicités de lui réserver un bon accueil et de lui apporter toute l'aide nécessaire à la réussite de cette recherche dont la contribution à l'appui au développement ne fait pas de doute.

Fait à Yaoundé le.....29 JUIL 2021.....

LE CHEF DE DEPARTEMENT

Paul Tchawa
Professeur des Universités

Appendix II: Sample of the questionnaire English Version:

UNIVERSITE DE YAOUNDE I

UNITE DE FORMATION ET DE RECHERCHE DOCTORALE EN SCIENCE HUMAINE ET SOCIALE
Faculté des arts, Lettres et Sciences Humaines
Department de Geographies

THE UNIVERSITY OF YAOUNDE I

DOCTORAL RESEARCH UNIT FOR SOCIAL SCIENCES

Faculty of Arts, Letters and Social Sciences

Department of Geography

QUESTIONNAIRE OF RESEARCH

My name is Ngande Tewamba Collins. I am the creator of this questionnaire. Am part of the department of Geography in the university of Yaoundé I where am focusing on **'THE ROLE OF INFOMATION AND COMMUNICATION TECHNOLOGIES IN THE SOCIO-ECONOMIC DEVELOPMENT OF LOMIE SUBDIVISION in East region of Cameroon '**. To this end, it is question here of clearing up the state of ICT in this locality, see how it can contribute to development in both economic and social sectors, finally to clarify the problems that can be encountered by ICTs in this development process.
All information collected through this questionnaire will be used exclusively for academic purposes and will in no way be the subject of blackmail or any denunciation. Mark an X or a tick (√) on the correct answer and fill the blank spaces where necessary.

I. SECTION 1 : GENERAL INFORMATION

101	Date of investigation :		Département : Arrondissement : Quartier :
102	Name of investigator :		GPS coordinats : X : Y Z
103	N° household		Distance from sea :
104			Age: ☐ 15-30years, ☐ 30-45, ☐ 45-60, ☐ X>60
105	Ethny of the interviewee :	Sex	Nationality :
106	level of education :	1=non; 2=primary ; 3=first cycle secondary ; 4=second cycle secondary ; 5=university	
107	Last class sucessfully completed:	..Preschool/Nursery … CL1...CL2….CL3…CL4…CL5….CL6….F1…F2…F3….F4….F5…..LS…..US…..Level 1 university…..level 2 university...level 3 university….2nd cycle university or plus	
108	Occupation		
109	Religion	1-Christian 2- Muslim 3- Pegan other….	
110	Number of persons in charge	☐ 1- 0 ☐ 2- 01 ; ☐ 3- 02 ; ☐ 4- Autres	

Section 2: **How can ICTs contribute to the socio-economic development of Lomie subdivision?**

Q.201. Have you ever heard of the term ICT (Information and Communication technology) before? ☐ Yes ☐ No

Q.202. I yes to question Q.201, what idea comes into your mind? _____

Q.203. Do you use ICT devices?

☐ Yes ☐ No

Q.204. IF 'yes' for Q301, what's your degree of usage?

☐ Frequently ☐ Time to time ☐ rarely

Q.205. what are some of the available ICT devices present in this town?

☐ Android and cell phones ☐ Computer ☐ Televisio... ☐ Radi... ☐ Inter...t Digital Cameras ☐ Printers ☐ all the of the above

Q.206. Among the above mentioned device, which one do you constantly make use of? (you can name more than one if possible)

……
……

Q.207. where do you make use of them?

☐ Work place/office ☐ house/home ☐ School ☐ others not mentioned

Q.208. How and in what domain are they useful to you?

……
……

Q.209.What is/are the available networks present in this town

☐ Nextel ☐ MTN ☐ Orange ☐ Camtel ☐ All of the above

Q.210. How is the mobile network connectivity?

☐ Slow ☐ very slow ☐ moderate ☐ fast

Q.211. Do you use the internet? ☐ Yes ☐ No

Q.212. If Yes, how often do you make use of it?

☐ Frequently ☐ ☐ time to time ☐ not at all

Q.213. How and which domain or aspect is it important to you……
……?

Q.214. Are there money transfer and withdrawal agencies for the sending and receiving of money in this town? Yes ☐ No ☐ don't know ☐

Q.215. If yes, what are the one we can identify? ☐ Orange money, ☐ Mobile money, ☐ Yup, ☐ Express Union ☐ MoneyGram

Q.216.Do you sometimes make monetary transactions via your mobile phone? ☐ yes ☐ No

Q.217. If yes for what purpose?

_____

Q.218. Is it possible to find out some structures or establishment such as CALL BOXES for the transfer of airtime? ☐ Yes ☐ No

Q.219. Is or are there relay antenna(s) for audio visual broadcasting in this town?

☐ Yes ☐ No

Q.220. Is or are there community radio stations in this town? ☐ Yes ☐ No

Q.221. If yes can you name, the station as well as the type of program they retransmit on the radio? _____

SECTION 3: INFORMATION ON THE STATE OF AVAILABILITY OF ICT IN LOMIE

Q.301. DO you have a multimedia center in Lomie town? ☐ Yes ☐ No

Q.302.If yes where can we find it?_____

Q.303.What are the various devices/tools we can find there?

_____

Q.304. According to you how can it be important to the population

_____

Q.305. Do you think ICTs has the potential to promote local development of Lomie?
Yes☐ No☐

Q.306. How do you think it is possible?

_____

Q.307. According to you, in which sector of activity do you think ICTs can greatly impact on?

☐ Health ☐ market ☐ household ☐ education ☐ agriculture ☐ all of the above

Q.308. Do you think information and communication technology has the potential to improve the living standard of Lomie inhabitant? Yes ☐ No☐

Q.309. Has ICTs for the past years according to you changed the way of living of people in Lomie?

☐ Yes ☐ No ☐ A little ☐ Not at all

Q.310. If yes for question Q.319 can you mention in what way? ……

Q.311. Do you think the internet which is one ICT tool can greatly contribute to the improvement of economic productivity of this locality? ☐ Yes ☐ No

Q.312. Please give your reason …….

Q.313. In your own opinion or judgment at what percentage can you evaluate the disposition of household with mobile phones and computers in this town

☐ 80% ☐ 70 % ☐ 60 % ☐ 50 % ☐ less than 30%

Section 4: How can ICT improve agricultural productivity and social empowerment?

Q.400. Are you engaged in agricultural activity? ☐Yes ☐ No

Q.401. If Yes for how long have you been practicing agriculture …….

Q**.402**. What type of agriculture do you practice? ☐ Subsistence ☐ market gardening ☐ Plantation ☐ animal rearing

Q.403. Do you think ICTs has somehow enabled/facilitated an improvement in your productivity for the past years of activity? ☐ Yes ☐ No

Q.404. what suggestion can you propose to make more it effective?

_____

Q.405.How are or can ICT devices helpful to you in agriculture?

_____

Q.406. Are there health centers and schools around Lomie? ☐ Yes ☐ No

Q.407. Can you name or cite some situated in your area of residence?

-Schools _____

- Health centers/ clinics _____

408. Are ICTs lessons been introduced and taught in the various schools in Lomie?

_____

Section 5: What obstacles can affect the intervention of ICTs in development process?

Q.500. which one according to you is a major problem to the full integration of ICTs in this town

☐ Electricity ☐ Unawareness from the population ☐ inadequate transport facilities ☐ lack of capital ☐ all of the above mentioned

Q.501. Do you constantly face the problem of light cut in your area of residence?

☐ Yes☐ No

Q.502. If yes, how long does it take before returning?

☐ More than24 hours ☐48 hours☐ 72 hours ☐a week ☐ a month ☐ unpredictable

Q.503. Does it affect your daily activities? Yes ☐ No ☐

Q.504. If yes, how

……

Q.505. What suggestion can you make to solve the problem of integration of ICTs in Lomie?

……

Q.506. Are you aware of any law established by the governement on ICT and its importances to users ☐ yes ☐ No ☐ No idea

Q.507. Can you name any of these law and state how important it is to you?

INFORMATION FROM THE SDO/MAYOR'S OFFICE

1) How many quarters are there in lomie?.....
2) What is the population of lomie?.....
3) How many schools and health centres do we count in Lomié?
4) Are they equipped with ICTs devices?
5) What has the state done to vulgarise ICT in these sectors? ……..
6) What are the on-going development projects in lomie?.....

……...

7) What is the political status of lomie?.....

…….

8) Have you done any survey on Information and communication Technologies?
9) How many users were recorded?.....
10) What have you done to assist the full insertion of ICTs in Lomie? …….....
11) What were your limitations?.....
12) According to you, how can ICTs contribute in developmental projects? …….....

INFORMATION FORM NGOs

1. Have you done any survey on information and communication Technologies in Lomie?.....
2. What were your objective during the survey?.....
3. How many ICTs users were recorded?.....
4. You got assistance from who? …….
5. What were your limitations?.....

Appendix III: Sample of research questionnaire French version

UNIVERSITE DE YAOUNDE I

UNITE DE FORMATION ET DE RECHERCHE DOCTORALE EN SCIENCE HUMAINE ET SOCIALE
Faculté Des Arts, Lettres Et Sciences Humaines
Department de geographies

THE UNIVERSITY OF YAOUNDE I

DOCTORAL RESEARCH UNIT FOR SOCIAL SCIENCES
Faculty of Arts, Letters and Social Sciences

Department of Geography

Je m'appelle Ngande Tewamba Collins. Je suis le rédacteur de ce questionnaire. Je suis étudiant au Département de Géographie de l'université de Yaoundé I où je mène une recherche sure « **LES TECHNOLOGIES DE L'INFORAMTION ET DE LA COMMUNICATION ET LE DEVELOPPEMENT SOCIO-ECONOMIQUE DE LOMIE »**. A cette fin, il est question ici d'élucider l'état des TIC dans cette zone, de voir comment elles peuvent contribuer au développement tant sur le plan économique que social et enfin de clarifier les problèmes que peuvent rencontrer les TIC dans ce processus de développement.

Toutes les informations collectées à travers ce questionnaire seront utilisées à des fins exclusivement académiques, et ne pourrons en aucun cas faire l'objet d'un chantage ou d'une dénonciation quelconque. Marquez un **(X)** ou **(√)** sur la bonne réponse et remplissez les espaces vides si nécessaire.

SECTION 1: INFORMATIONS GENERALES

101	Date de l'enquête :		Département : Arrondissement : Quartier :
102	N° Ménage		
103	Age:		Distance par rapport à la mer :
104	Sexe		☐ 15-30ans, ☐ 30-45, 45-60, X>60
105	Ethnie de l'enquêté :		Nationalité :
106	Niveau d'éducation	1=Aucun ; 2=primaire ; 3=premier cycle secondaire ; 4=second cycle secondaire ; 5=université	
107	Dernière classe suivie avec succès :	Préscolaire/Maternelle … Sil...CP…CE1…CE2…CM1….CM2….6…5e….4e….3e….2nd…..1ère…..Tl…..1èrannée univ…..2e année univ...3e année univ….2nd cycle univ. ou plus	
108	Occupations		
109	Religion	1-Chrétien 2- Musulman 3- Païen Autres….	
110	Nombre de personnes en charge	☐ 1- 0 ☐ 2- 01 ; ☐ 3- 02 ; ☐ 4- Autres	

Section 2 : Informations sur l'état de disponibilité des TIC à Lomié

Q.201. Avez-vous déjà entendu parler du terme TIC (Technologies de l'information et de la communication) au paravent ? ☐ Oui ☐ Non

Q.202. Si oui à la question Q201, quelle idée vous a traversé l'esprit

_____

_____

_____

Q.203. Faites-vous usage des appareils de TIC ? ☐Oui ☐ Non

Q.204. Si oui à la question Q.203 quel est votre dégrée d'usage ?

Fréquent ☐ Temps en temps ☐ Rarement ☐

Q.205. Quels sont les appareils de TIC disponible ici à Lomie? ☐ Ordinateur ☐Télévision Radio ☐ internet ☐ camera digital ☐Imprimantes ☐ Tout les outils mentionnés.

Q.206.Parmi tous ces appareils mentionnés ci-dessus lesquels utilisez-vous constamment

_____

_____

Q.207. Où en fait vous usage ? ☐Lieu de service/travail ☐maison ☐ Autre

Q.208. Comment vous sont t'ils utiles_____

_____

Q.209. Quels sont les différents réseaux disponibles ici à Lomié ? ☐ Nextel ☐MTN ☐ Orange ☐Camtel ☐ Tous

Q.210. Comment est le réseau téléphonique coté connectivité à internet ? ☐Médiocre ☐ très lent ☐passable ☐très rapide

Q.211. Faite-vous usage de l'internet ? ☐Oui ☐Non ☐jamais

Q.212.Quel est votre dégrées d'utilisation ? ☐Fréquent ☐occasionnellement

Q.213. Comment et dans quel domaine vous sont t'ils utiles ?

_____

_____

Q.214. Ya-t 'il des agences de transfert et de retrait d'argent dans cette ville ? ☐Oui ☐ Non ☐Aucune idée

Q.215.Si oui, lesquelles pouvons-nous identifier ? ☐Orange money ☐Mobile money ☐ Yup ☐ Express union ☐Money gram

Q.216. Faites-vous de fois des transactions monétaires via votre téléphone mobile ? ☐Oui ☐ Non

Q.217. Si oui dans quel but svp ?

_____

_____

Q.218. Est-il possible de trouver des établissements ou structures pour des transferts de crédit tels que des call-boxes ? ☐Oui ☐Non ☐ aucune idée

Q.219. Est-ce qu'il y a des antennes de relais à Lomié pour des diffusions audio-visuelles ? ☐Oui ☐ Non

Q.220. Y a-t-il une station radio communautaire dans cette ville ?☐Oui ☐ Non ☐aucune idée

Q.221. Si oui, pouvez-vous la(s) nommer ainsi que le type de programme qu'elle(s) retransmette(nt)

_____

Section 3 : Information sur comment les TIC peuvent contribuer au développement socio-économique de Lomié ?

Q.301. Est-ce qu'il y a un centre multimédia dans cette ville ? ☐ Oui ☐ Non

Q.302. Si oui est où est-il situé exactement _____

Q.303.Quel sont les outils que l'on peut trouver là-bas ?

_____

_____

Q.304. Selon vous comment ce centre multimédia peut-il aider la population ?

_____

_____

Q.305. Pensez-vous que les TIC ont le potentiel de promouvoir le développement de Lomié ? Oui ☐ Non☐ aucune idée ☐

Q.306. Si oui pouvez-vous nous dire comment ?

_____

_____

_____

Q.307.Selon vous dans quel secteur pensez-vous que les TIC peuvent –il impacter

Santé ☐ Marché/ commerce ☐ Ménage☐ Education ☐ Agriculture ☐ Tout les secteurs mentionnés

Q.308.Pensez-vous que les TIC ont le potentiel d'améliorer le niveau de vie des habitant de Lomié ? Oui ☐ Non ☐ un peu ☐ pas du tout ☐

Q.309. Les TIC selon vous dans les années antérieures ont-ils changé le style de vie des habitants de Lomié ? ☐ Oui ☐ Non ☐ un peu

Q.310. Si oui pour la question Q.309 pouvez-vous mentionner/ expliquer de quel sens ?

_____

Q.311. Pensez-vous que l'internet qui est un outil des TIC peut grandement contribuer à l'amélioration de la productivité économique dans cette localité ? ☐ Oui ☐ Non

Q.312. Si oui pouvez-vous donner vos raisons ?

_____

Q313. A votre opinion ou jugement, quel peut être le pourcentage des ménages disposants des téléphones mobiles et ordinateur dans cette ville ? ☐ plus de 80% ☐ 80% ☐ 70% ☐ 60% 50% ☐ moins de 30% ☐

Section 4 : Information sur comment les TIC peuvent améliorer la productivité agricole ainsi que l'autonomisation social

Q.400. Etes-vous engagé dans une activité agricole ? ☐ Oui ☐ Non

Q.401. Si oui pendant combien de temps ? _____

Q.402. Quel type d'agriculture pratiqué vous ? ☐ Subsistance ☐ plantation ☐ élevage☐ jardinge

Q.403. Pensez-vous que les TIC ont quelques peut permis/faciliter pendant ces années d'activité l'amélioration de votre productivité ☐ oui ☐ non ☐ aucune idée
Q.404. Si non quelle suggestion pouvez-vous proposé afin de le rendre plus effective ?
_____
Q.405. Comment est-ce que les appareils ou outils de TIC vous sont –il utile dans l'agriculture ?
_____
_____
Q.406. Est-ce qu'il y a de centres hospitalier et écoles dans les environs de Lomié ? oui ☐ non☐
Q.407. Pouvez-vous mentionné où citer quelques-uns situé aux environs ou votre lieu de résidence ?
-Ecoles :
_____
Centre hospitalier/ cliniques :
_____
Q.408. Ces établissements profitent –ils des derniers appareils de TIC dans leurs taches respectives ? _____
Q.409. Est-ce que les cours sur les TIC sont –ils enseigné dans les différentes écoles ?
_____

Section 5 : Informations sur les obstacles qui peuvent affecter l'intégration des Technologies de l'information et de la Communications dans le processus de développement de la ville de Lomié
Q.500.Lequel selon vous est un problème majeur de l'intégration des TIC dans cette ville ?
☐ Electricité ☐ Manque de sensibilisation de la population ☐ Manque de capital ☐ Tout ce qui précède mentionné
Q.501. Faites-vous constamment face au problème de coupure de lumière dans votre domaine de résidence ?
☐ Oui ☐ Non
Q.502. Si oui combien de temps cela prend habituellement avant de revenir ? ☐ 24 heures ☐ 48 heures
☐ Plus de 72 heures ☐ un mois ☐ imprévisible
Q.503. Cela affecte –il votre activité quotidienne ? _____
Q.504.Si oui comment ?
_____
Q.505.Quel suggestion pouvez-vous donner pour résoudre le problème qui selon vous est la cause majeure qui fait obstacle à la pleine intégration des TIC dans la ville de Lomié ?
_____
_____
Q.506. Etes-vous au courant des lois établi par le gouvernement sur les TIC ainsi que leurs importances pour les utilisateurs? ☐ Oui ☐ Non ☐ Jamais entendu
Q.507. Pouvais vous mentionné une de ces lois ainsi que son importances pour vous ?
_____

Appendix IV: Critical value of chi square (x^2) distribution with degree of freedom

d.f.	.995	.99	.975	.95	.9	.1	.05	.025	.01
1	0.00	0.00	0.00	0.00	0.02	2.71	3.84	5.02	6.63
2	0.01	0.02	0.05	0.10	0.21	4.61	5.99	7.38	9.21
3	0.07	0.11	0.22	0.35	0.58	6.25	7.81	9.35	11.34
4	0.21	0.30	0.48	0.71	1.06	7.78	9.49	11.14	13.28
5	0.41	0.55	0.83	1.15	1.61	9.24	11.07	12.83	15.09
6	0.68	0.87	1.24	1.64	2.20	10.64	12.59	14.45	16.81
7	0.99	1.24	1.69	2.17	2.83	12.02	14.07	16.01	18.48
8	1.34	1.65	2.18	2.73	3.49	13.36	15.51	17.53	20.09
9	1.73	2.09	2.70	3.33	4.17	14.68	16.92	19.02	21.67
10	2.16	2.56	3.25	3.94	4.87	15.99	18.31	20.48	23.21
11	2.60	3.05	3.82	4.57	5.58	17.28	19.68	21.92	24.72
12	3.07	3.57	4.40	5.23	6.30	18.55	21.03	23.34	26.22
13	3.57	4.11	5.01	5.89	7.04	19.81	22.36	24.74	27.69
14	4.07	4.66	5.63	6.57	7.79	21.06	23.68	26.12	29.14
15	4.60	5.23	6.26	7.26	8.55	22.31	25.00	27.49	30.58
16	5.14	5.81	6.91	7.96	9.31	23.54	26.30	28.85	32.00
17	5.70	6.41	7.56	8.67	10.09	24.77	27.59	30.19	33.41
18	6.26	7.01	8.23	9.39	10.86	25.99	28.87	31.53	34.81
19	6.84	7.63	8.91	10.12	11.65	27.20	30.14	32.85	36.19
20	7.43	8.26	9.59	10.85	12.44	28.41	31.41	34.17	37.57
22	8.64	9.54	10.98	12.34	14.04	30.81	33.92	36.78	40.29
24	9.89	10.86	12.40	13.85	15.66	33.20	36.42	39.36	42.98
26	11.16	12.20	13.84	15.38	17.29	35.56	38.89	41.92	45.64
28	12.46	13.56	15.31	16.93	18.94	37.92	41.34	44.46	48.28
30	13.79	14.95	16.79	18.49	20.60	40.26	43.77	46.98	50.89
32	15.13	16.36	18.29	20.07	22.27	42.58	46.19	49.48	53.49
34	16.50	17.79	19.81	21.66	23.95	44.90	48.60	51.97	56.06
38	19.29	20.69	22.88	24.88	27.34	49.51	53.38	56.90	61.16
42	22.14	23.65	26.00	28.14	30.77	54.09	58.12	61.78	66.21
46	25.04	26.66	29.16	31.44	34.22	58.64	62.83	66.62	71.20
50	27.99	29.71	32.36	34.76	37.69	63.17	67.50	71.42	76.15
55	31.73	33.57	36.40	38.96	42.06	68.80	73.31	77.38	82.29
60	35.53	37.48	40.48	43.19	46.46	74.40	79.08	83.30	88.38
65	39.38	41.44	44.60	47.45	50.88	79.97	84.82	89.18	94.42
70	43.28	45.44	48.76	51.74	55.33	85.53	90.53	95.02	100.43
75	47.21	49.48	52.94	56.05	59.79	91.06	96.22	100.84	106.39
80	51.17	53.54	57.15	60.39	64.28	96.58	101.88	106.63	112.33
85	55.17	57.63	61.39	64.75	68.78	102.08	107.52	112.39	118.24
90	59.20	61.75	65.65	69.13	73.29	107.57	113.15	118.14	124.12
95	63.25	65.90	69.92	73.52	77.82	113.04	118.75	123.86	129.97
100	67.33	70.06	74.22	77.93	82.36	118.50	124.34	129.56	135.81

Appendix V: WAFACASH brochure

Appendix VI: FADEC information sheet

Nos Réalisations

Formation à la sylviculture

Animation culturelle dans les maisons d'arrêt.

Remise de dons aux orphelins.

Encadrement des jeunes filles et prise en charge alimentaire des déplacés.

L'ne équipe de bénévoles très engagée.

NOTRE EQUIPE

L'Association dispose d'une équipe de :

- Juristes
- Médecins
- Psychologue
- Agents de santé
- Assistantes sociales
- Educateurs
- Experts en action humanitaire

NOS PARTENAIRES

- Ambassade de France
- USAID
- Conseil Danois pour les Refugiés DRC
- PNUD/PRED
- ECOBANK
- Institut Pasteur

Faites parvenir vos dons à

FADEC

Femme Action et Développement en Afrique Centrale

WADEC

Women for Actions and Development in Central Africa

RESEAU FADEC

Femme Action et Développement au Cameroun
Tél.(237) 243 73 87 08 / 650 33 59 48 - E mail: ongfadec@yahoo.fr
web :http://www.fadec-ong.org

Femme Action et Développement en Centrafrique
"Complexe Sportif 20 000 Places" Ar.De France.
Bp : 2035 Bangui - Tél :75 20 16 01 - E Mail : fadecbangui@yahoo.fr

FADEC Gabon

FADEC Guinée Equatoriale

FADEC Congo

FADEC Tchad

NON AUX NOTES SEXUELLEMENT TRANSMISSIBLES

FADEC

WADEC

Portons l'espoir

Pour la petite histoire

L'association Femme Action et Développement est officiellement sortie de fonds baptismaux en 2009 en République centrafricaine. Elle est née de l'initiative des femmes résidant dans ce pays mais issues de plusieurs horizons : Tchadienne, Française, Gabonaise, Camerounaise, autres.

Au départ, elles avaient l'habitude de porter des vivres, des vêtements et de médicaments aux détenues de la Maison d'arrêt pour femmes de Bimbo, et aux pensionnaires de plusieurs orphelinats de la ville de Bangui et de ses environs Inouie au regard des sollicitations venant de plusieurs couches sociales défavorisées, elles se sont constituées en Association apolitique, à but non lucratif, non discriminatoire.

A ce jour, FADEC a étendu son réseau dans plusieurs pays : Cameroun, Gabon, Tchad, Congo France, Congo Démocratique.

FADEC mène plusieurs activités à travers la sensibilisation, l'alphabétisation fonctionnelle, la formation professionnelle ; l'information, les plaidoyers, les réseaux.

L'année 2013 a vu les hommes intégrer le mouvement.

For the record

The Women and Development Action Association is officially out of the baptismal font in 2009 in the Central African Republic. It rised from the initiative of women resident in that country but issued from various countries such as Chad, France, Gabon, Cameroon, Gabon.

Initially, they used to provide food, clothing and medicines to inmates in the Remand Prison for Women Bimbo, and residents of several orphanages in the city of Bangui and its surroundings.

There, in response to the call for help from many socially disenvantaged groups, they have gotten on a non profit, non-political, non-discriminatory association.

To date, WADEC expended its network in several countries: Cameroun, Gabon, Chad, Congo, France, and Democratic Congo.

Wadec conducts several activities through sensitization, functional literacy, vocational training, information, advocacy, networking.

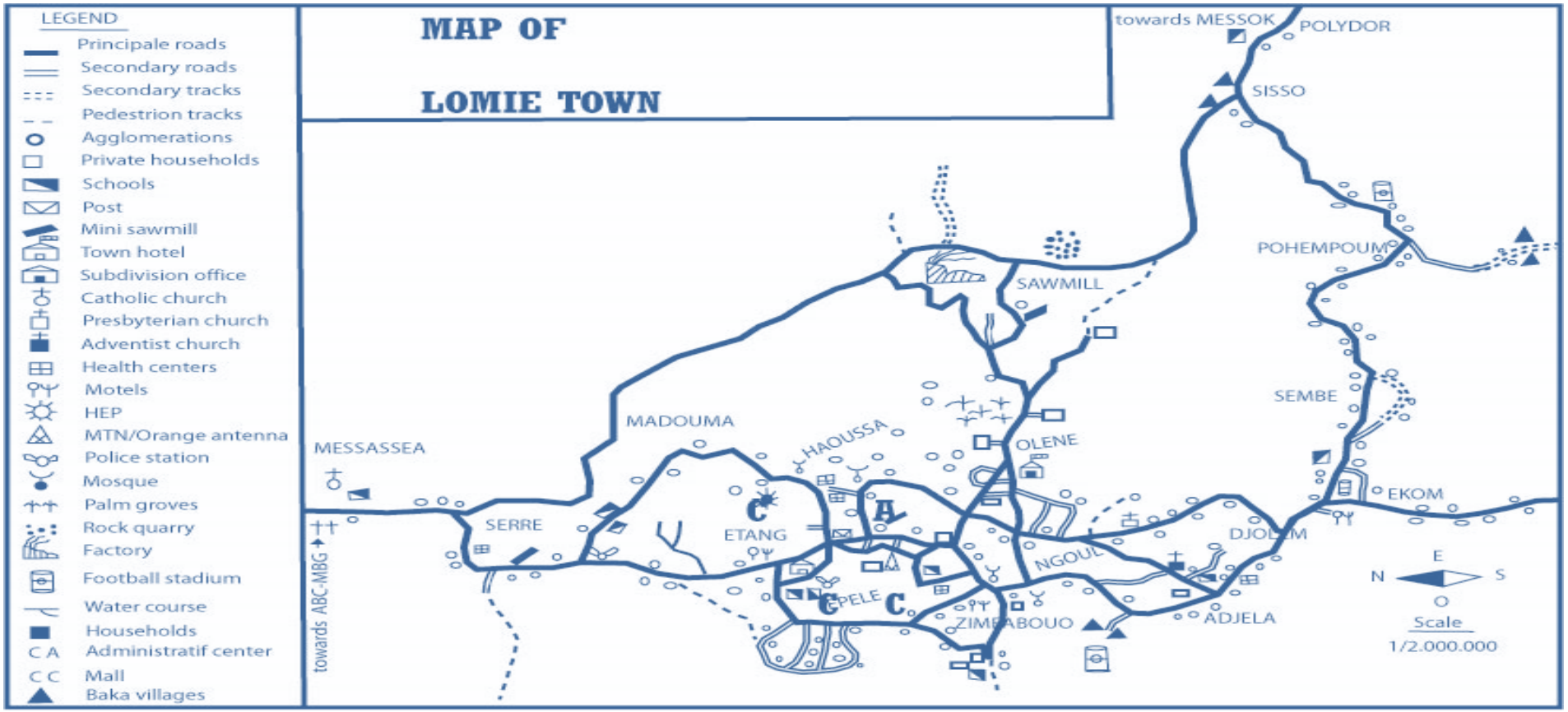
The year 2013 saw the men join the movement.

Les principes de programmation de la FADEC sont fondés sur les Objectifs du Millénaire pour le Développement(OMD)

Programming principles of WADEC are based on the Millennium Development Goals (MDGs)

Appendix VII: ASTRADHE information sheet

Appendix VIII: Utility map of Lomie



Appendix IX: ICT laws in Cameroon

Law No 2010/013 of December 21, 2010 on electronic Communications.

Law No. 2010/021 of the 21 December 2010 Governing E-Commerce.

Law No. 2011/012 of the 06 May 2011 on Consumer Protection.

Decree No 2012/180 of the 10th of April 2012 on the organization and functioning of the National Agency for ICT's.

Decree No 2012/203 of the 20th of April 2012 on the organization and functioning of the Telecommunication Regulatory Agency.

Decree No 2012/1638/pm of 14th June 2012 on the establishment and/or exploitation of networks at the provision of electronic communication services subject to an approval regime.

Decree No 2012/1639/pm of the 14th of June 2012 on the conditions of Declarations as well as of exploitation of networks and infrastructures subject to the declaration regime.