Facilitating the Interaction Between Citizens and Local Governments Through Information and Communication Technology (FACIL-ICT)

A Pilot Project in Nsawam-Adoagyiri and Suhum, Ghana

Research Report

Paul Kwaku Larbi Anderson
Lars Wissenbach
Sandra Juliet Ahiataku
Godson Dawuni
Johannes Schädler

Paul Kwaku Larbi Anderson, Lars Wissenbach, Sandra Juliet Ahiataku, Godson Dawuni, Johannes Schädler

Facilitating the Interaction Between Citizens and Local Governments Through Information and Communication Technology (FACIL-ICT)

Zentrum für Planung und Entwicklung Sozialer Dienste (Hrsg.)

Centre for Planning and Development of Social Services (Ed.)

ZPE-Schriftenreihe 58

Paul Kwaku Larbi Anderson, Lars Wissenbach, Sandra Juliet Ahiataku, Godson Dawuni, Johannes Schädler

Facilitating the Interaction Between Citizens and Local Governments Through Information and Communication Technology (FACIL-ICT)

A Pilot Project in Nsawam Adoagyiri and Suhum, Ghana

Research Report

IMPRESSUM

Acknowledgements

Acronyms

CIC	Community Information Center
CSO	Civil Society Organization
DA	District Assembly
DACF	District Assembly Common Fund
DCF	Disability Common Fund
DSWCD	Department of Social Welfare and Community Development
EGDI	E-Government Development Index
GSMA	Global System for Mobile Communications Association
HOH	Heads of Household
ICT	Information and Communication Technology
LEAP	Livelihood Empowerment Against Poverty
MMDA	Metropolitan Municipal District Assembly
NCA	National Communication Authority
NDPC	National Development Planning Commission
NHIS	National Health Insurance Scheme
PLWD	Persons Living with Disabilities
SDG	Sustainable Development Goals

Table of Contents

List of Tables

List of Figures

CHAPTER ONE

1. STUDY OUTLINE

1.1. Background to the Study

Digital information and communication technologies have become an integral part of everyday life for many people around the globe. Their development and natural use are progressing even faster with a wide range of possible applications to address various aspects of life. For instance, meeting daily needs, school, workplace, leisure, health care, access to public services, and other areas of daily activities are increasingly supported by digital applications. In the recent past, this development has been significantly accelerated by the global outbreak of the COVID-19 pandemic with the prospects of unfeasible social inclusion without digital participation. However, up till now, not all people have been able to utilize to an equal extent the opportunities offered by digitalization due to several decisive influences on opportunities for digital participation such as age, gender, income, education, disability, origin, and place of residence as discussed in the context of digital divides and digital inequalities.

At the same time, international policy frameworks such as the United Nations 2030 Agenda for Sustainable Development (United Nations, 2015) and the UN-HABITAT III New Urban Agenda (NUA) (United Nations, 2016) call for renewed attention to national development through local governance. The policies emphasize among other things the role of local governments in ensuring social inclusion and public well-being. The NUA promotes citizen-centred digital governance tools to make information and communication technologies accessible to the public, including women and girls, children and the youth, older persons, and others in vulnerable situations such as Persons Living with Disabilities (PLWD).

Additionally, the African Union's Digital Transformation Strategy 2020-2030 envisages an integrated and inclusive digital society and economy that improves Africa's citizens' quality of life. It underscores digitalized transformation that is affordable, accessible, create equal access to opportunities, and mitigates risks of exclusion with the focus on social, and financial inclusion of the citizenry especially, marginalized, and vulnerable groups. The objective is to "harness digital technologies and innovation to transform Africa's societies and economies to promote Africa's integration, generate inclusive economic growth, stimulate job creation, erase the digital divide and eradicate poverty to secure the benefits of the digital revolution for socio-economic development". The policy aims for "every African, every African business, and every African government" to be digitally enabled by 2030 (African Union, 2020).

In Ghana, corresponding objectives can be found in current development strategies such as the Ghana Digital Road Map (2019), the Ghana Beyond Aid Strategy (Ghana Web, n.d.), the Long-term National Development Plan of Ghana (2018-2057), and the Ghana Coordinated Program of Economic and Social Development Policies (2017-2024). The framework of these policies is built on the premise of developing the country through the deployment and exploitation of ICT within the economy and society. Among other aspects the policies aim to expand digital services to facilitate communication, participation, service delivery, and information sharing, and primarily, to assist in bridging development gaps between rural and urban communities (LGS, 2019).

Even though several African Governments have demonstrated the willingness to apply information and communication technologies (ICTs) in public administration, according to a 2019 United Nations e-governance global ranking and development index this is still at the initial stages (United Nations, 2020). The Index identified ineffective continuity arising from accessibility, outdated websites, and low human capacity as a critical challenge of e-government development facing some African Governments. This has resulted in inadequate provision of local government services and under-utilization of ICT facilities (ibid). At the same time, the knowledge of the relevance and potential of ICTs for local governance processes in West African societies appears to be limited. The indication is that there is little scientific knowledge about the dynamics of inclusion and exclusion in connection with the digitization of local governance processes. (United Nations, 2006a; De Bastion & Mukku, 2019).

Notwithstanding, Information Communication Technologies (ICTs) in Africa are developing rapidly in diverse fields of endeavours. Consequently, digitalization is gradually becoming central to the daily activities of the people. The onus now lies on every nation to build its capacity to accelerate and transform socio-economic development through the exploitation of ICT opportunities. For instance, digital innovations in Ghana are improving communication routines and increasingly bringing public services such as market information, education, finance, and health facilities to the general public. Exclusively, the diffusion of digital innovations, especially mobile phones, is proceeding at high speed. Particularly dynamic developments can currently be seen in Ghana, where many people are perceived to have access to the internet and ICT devices. However, research on ICT usage and the impact of digitalization on public service delivery so far seems to concentrate on urban areas. Against this background, the question arises as to the extent to which people in more rural areas use ICT in their daily activities.

1.2. Objectives

The main objective of this project is to gather scientific evidence on the ICT usage of local governments and people living in rural communities as a basis to explore opportunities to promote the use of ICTs to enhance civic participation in decision-making and public service delivery at the local level. Thus, to identify appropriate ICT-based approaches to serve as a two-way communication link between local government service providers and the people in the local communities. The project intends to build on current structures and practices to develop a two-way communication system between local government structures and the people in rural communities within selected municipalities in Ghana's Eastern Region to promote communication relating to health and social welfare service delivery.

Specific objectives of the project include the following:

i. To gain insight into the existing interactions between citizens and local government structures on social welfare and health-related issues using Information and Communication Technology (ICT);

ii. To assess the current discourse on Information and Communication Technologies (ICTs) in Ghana's local governance and civic participation;

iii. To explore the potentials of ICT to disseminate information and facilitate communication relating to social welfare and health-related services more broadly between rural dispersed communities and local government structures;

iv. To create awareness and jointly develop and pilot approaches in the use of ICT devices for inclusive communication and participation in the decision-making processes on issues relating to health and social welfare services;

1.3. Guiding Questions

The implementation of the project was guided by the following research questions.

i. How do citizens and local government functionaries in Ghana use Information Communication Technologies (ICTs) to interact on social welfare and health-related services?

ii. What are the impacts of digitalization on participation in decision-making and implementation of local government activities?

iii. To what extent is Information Communication Technology (ICT) used in social welfare and health-related services in the municipalities?

iv. What are the challenges and prospects of digital participation in the decision-making and implementation of public service delivery at the local level?

1.4. Statement of the Problem

Digital transformation is shaping and improving communication routines and everyday processes of people in most African societies in areas such as electronic banking, mobile money services, and social networking apps. Indeed, the diffusion of digital innovations and ICT device usage, especially mobile phone penetration rate, is proceeding at a high rate across the continent. This development has resulted in a social paradigm shift, where more and more people have access to ICT devices which is radically changing their everyday information and communication practices. However, research on ICT usage and the impact of digitalization on public service delivery so far in Ghana seems to concentrate more on urban areas. Additionally, a review of the Medium-Term Development Plans (MTDP) of the Metropolitan Municipal District Assemblies (MMDAs) in Ghana (MLGRD, 2018a, 2018b) presents a marginal application and development of ICT in the municipalities. Therefore, the question arises as to the extent to which the explanatory approaches based on this, apply to the economic and social conditions at the local level. Against this background, this pilot project aims to assess the underlying gaps by looking at current information and communication patterns of the people and local bodies, the potential of ICTs, and the dynamics of inclusion and exclusion through digitalization processes in rural communities in Ghana. It emphasizes the local level (rural communities), various population groups including vulnerable and marginalized, relevant local governance stakeholders in the fields of health and social welfare, and Local Government functionaries (social service providers), which have not yet been a direct focus of digital transformation processes in Ghana.

1.5. Structure and Timeline

Phases	Timeframe	Program	Task
Phase I	June 2021 -September 2021	Desk-based scoping and baseline study	Provide a comprehensive understanding of the subject, identify potential research gaps, and inform the detail, scope, and methodology of the project.
Phase II	October 2021 - June 2022	Stakeholder consultation, data collection, and validation workshops	Empirical studies - Collect and analyze data in Nsawam-Adoagyiri and Suhum municipalities through interviews, questionnaires, and focus group discussions.
Phase III	July 2022 - June 2023	Community workshops in Nsawam-Adoagyiri and Suhum municipalities	Conduct community workshops in Nsawam-Adoagyiri and Suhum municipalities to foster concrete possibilities for the use of ICTs in the field of social welfare and health services in the communities.

2. METHODOLOGY

This pilot project adopted a case study design with a mixed methodological approach in a community-based participatory framework. The purposive sampling procedure was used to select respondents from the municipal assembly and rural dispersed communities located within the municipalities. The selection of communities was based on attributes with reference to the objectives of this study. Respondents were purposefully selected from the municipal assembly functionaries, community-based Civil Society Organizations (CSOs), heads of household, and traditional authorities in the municipalities of Nsawam-Adoagyiri and Suhum in the Eastern Region of Ghana.

2.1. Data Collection Procedure

A total of 1109 respondents from 27 communities within the Nsawam-Adoagyiri and Suhum municipalities in the Eastern Region of Ghana took part in the study. The respondents comprised 47 local Government functionaries made up of the Municipal Coordinating Director (MCD), social welfare and community development coordinator, assembly/unit committee members, disability desk officer as well as officials in charge of planning, ICT, health, and Livelihood Empowerment against Poverty (LEAP). Other categories of respondents surveyed were 220 heads of households including traditional authorities, persons living with disabilities (PLWD) and LEAP beneficiaries, 6 representatives of community-based Civil Society Organizations (CSOs), and 836 randomly selected participants from 27 communities.

Two sets of questionnaires (see appendix) were administered separately to the local government officials and the community members. The questionnaire was administered through Kobo Collect, an open-source android/iOS App for collecting survey data. Primarily, data input in kobo collect can be used offline and later synchronized to the main server. It also allows for manual input to serve as a backup. This was particularly helpful in administering questionnaires to rural dispersed communities without a stable internet connection. A team of 9 made up of 5 field assistants, 2 consultants and 2 research officers administered the questionnaire using the Kobo Toolbox.

2.2. The Study Sites

Nsawam-Adoagyiri and Suhum municipalities in the Eastern Region of Ghana were purposefully selected from the 260 Metropolitan Municipal and District Assemblies (MMDAs) for this pilot project. The choice of the study sites was due to their demographic and socio-economic features, coupled with a well-established local government structure. The selected municipalities currently face greater

challenges in providing social and health services to more remote village structures. There is also the challenge of effectively involving rural communities in decision-making and implementation processes to adequately address their social and health-related needs (GNDPC, 2018; LGS, 2019; NDPC, 2016). In addition, ZPE has successfully cooperated with both districts in a related research project and developed a cooperative relationship between the University of Siegen and the local administration of the two localities.

Nsawam-Adoagyiri Municipality

The Nsawam-Adoagyiri Municipal Assembly was established due to the split of the former Akwapim South municipal assembly into two by a Legislative Instrument (L.I 2047) in 2012. The municipal capital was maintained in Nsawam, which serves as a transit town from Accra to Kumasi and the Northern part of Ghana. The proximity of Nsawam-Adoagyiri to the national capital places it at a vantage point for promoting socio-economic activities. Location and distribution of essential social services and infrastructure depict an uneven growth and development of communities in the municipality. Though Nsawam-Adoagyiri can be described as a peri-urban community, several rural settlements and hamlets are located within the municipality. As of 2021, the population of the municipality is 155,597 made up of 76,417 males and 79,180 females (Ghana Statistical Service, 2021a; Nsawam-Adoagyiri Municipal Assembly, n.d.)

Suhum Municipality

The Suhum Municipal Assembly is one of the 33 districts of the Eastern Region of Ghana. The municipality is located in the south-central part of the Eastern Region on the N6 national road, which connects the capital Accra with the Kumasi metropolis. It borders the New Juaben south municipal district to the northeast, the East Akim municipal district to the north, the Ayensuano district to the west and south, and the Akwapim North municipal district to the east. The capital of the Eastern Region, Koforidua, is about 30 km away to the east. The Municipal Assembly covers a land area of about four hundred square kilometers and has a population of 126,403 as of 2021 made up of 61,226 males and 65, 177 females. The municipality is made up of several rural dispersed settlements with patterns of hamlets (Ghana Statistical Service, 2021a).

CHAPTER THREE

3. DATA PRESENTATION AND ANALYSIS

Socio-Demographic Features of Respondents

A total of 1109 participants from 27 communities within the Nsawam-Adoagyiri and Suhum municipalities in the Eastern Region of Ghana took part in the study. Among the participants are 47 local Government functionaries including the Municipal Coordinating Director (MCD), social welfare and community development coordinator, assembly/unit committee members, disability desk officer as well as officials in charge of planning, ICT, health, and the Livelihood Empowerment Against Poverty (LEAP) scheme. Other categories of respondents surveyed were 220 heads of households including traditional authorities, persons living with disability (PLWD), and the LEAP scheme beneficiaries, 6 representatives of community-based Civil Society Organizations (CSOs), and 836 randomly selected participants from 27 communities.

Relatively, 503 participants representing 45.4%, and 606 representing 54.6% were selected from the Nsawam-Adoagyiri and Suhum municipalities respectively. The respondents' biodata was requested to be able to indicate their socio-demographic characteristics. In relation to the study, background information requested from respondents included gender, age, and educational background. The gender distribution of respondents reveals that there were slightly more females than males. This group accounted for 564 (50.9%) as against 545 (49.1%) of the male participants. Further, most of the respondents 320 (28.9%) were aged between 26-35years followed by 248 (22.4%) aged between 18-25years. The rest were 236 (21.3%) aged between 36-45years, 155(14.0%) aged above 55years, and 150 (13.5%) aged between 46-55years respectively. This approximately mirrors the general pyramidal age distribution of the Ghanaian adult population (Ghana Statistical Service, 2021a).

Regarding the educational background of respondents, there were a preponderance of 529 (52.3%) respondents who have completed junior/ senior high school whilst 204 (18.4%) had no formal education. Other participants included 165 representing 14.9% of graduates and 160 representing 14.4% who had completed middle school (GCE). The various distributions are represented in frequencies and percentages shown in table 1.

Table 1: Demographic features of respondents

VARIABLE	Frequency (n)	Percentage (%)
Category of Respondents		
Local Government Official	47	4.3
Head of Household/Traditional Authorities	220	19.8
CSOs (Community based organizations)	6	0.5
Community Member	836	75.4
Total	**1109**	**100**
Municipal Location of Respondents		
Nsawam/Adoagyiri Municipal Assembly	503	45.4
Suhum Municipal Assembly	606	54.6
Total	**1109**	**100**
Gender Distribution of Respondents		
Female	564	50.9
Male	545	49.1
Total	**1109**	**100**
Age Distribution of Respondents		
26-35	320	28.9
18-25	248	22.4
36-45	236	21.3
Above 55	155	14.0
46-55	150	13.5
Total	**1109**	**100.0**
Educational Background		
Non-Formal Education	204	18.4
Middle School (GCE)	160	14.4
Junior High School	321	28.9
Senior High School	259	23.4
Graduate/Technical	151	13.6
Postgraduate	14	1.3
Total	**1109**	**100**

Classification of Respondents
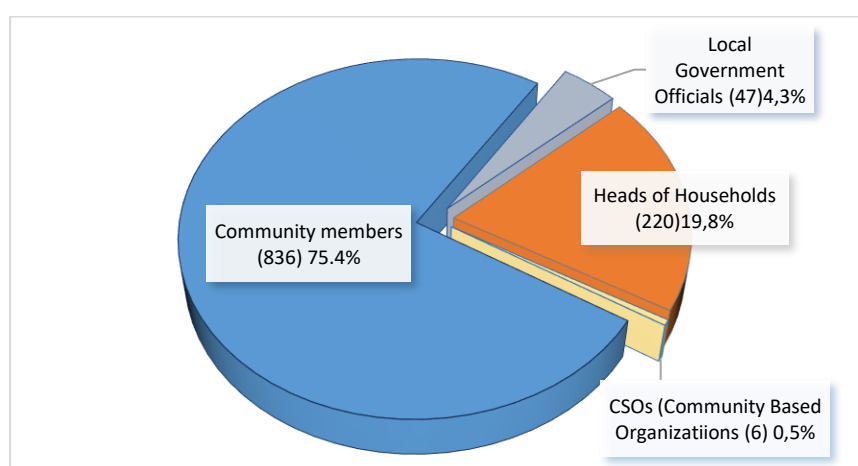
Figure 1: Classification of respondents

In relation to the demographic features of respondents, disability status was assessed along with the

Washington Group Short Set on Functioning (WG-SS). The short set of six questions on functioning for

use on national censuses and surveys was developed, tested, and adopted by the Washington Group on Disability Statistics. The questions reflect advances in the conceptualization of disability and use the World Health Organization's International Classification of Functioning, Disability, and Health (ICF) as a conceptual framework. The WG-SS question response categories capture a range of severity in the difficulty experienced. For this study, in line with the WG recommendations, disability has been defined as a severity cut-off including a person with a disability everyone with at least one domain that is coded as 'a lot of difficulties' or 'cannot do it at all'. It is intended to include most people who are at greater risk of restrictions in social participation in respect of six core domains of functioning but is not intended to be comprehensive.

Based on the Washington Group Short Set on Functioning (WG-SS), 82 participants (7.4 %) fall under the category of respondents with disabilities. Of those, the majority reported mobility impairments (41/50%) or visual impairments (21/25.6%). Severe difficulties in remembering or concentrating or difficulties with self-care were reported by only 12.2% (10) and 9.8% (8) respectively. Only one person reported severe hearing or communication difficulty.

Table 2: Disability Questions / Washington Group Short Set on Functioning (WG-SS)

Description	Respondents	No difficulty	Percentage (%)	Some difficulty	Percentage (%)	A lot of difficulties	Percentage (%)	Cannot do at all	Percentage (%)	Persons with Disabilities (PWD)	Percentage (%)
Difficulty Seeing	1109	909	82.0	179	16.1	20	1.8	1	0.1	21	25.6
Difficulty Hearing	1109	1063	95.9	45	4.0	1	0.1	0	0.0	1	1.2
Difficulty Walking /Climbing	1109	918	82.8	150	13.5	39	3.5	2	0.2	41	50.0
Difficulty Remembering /Concentrating	1109	1052	94.9	47	4.2	10	0.9	0	0.0	10	12.2
Difficulty with Self-care	1109	1066	96.1	35	3.2	6	0.5	2	0.2	8	9.8
Difficulty Communicating	1109	1091	98.4	17	1.5	1	0.1	0	0.0	1	1.2
Total of persons with disabilities (at least one domain coded 'a lot of difficulty' or 'cannot do it at all')										82	100
Percentage of persons with disabilities of the total of respondents										7.4	

3.1. Civic Engagement in Social Welfare and Health-Related Services in the Municipalities

Community Members' Knowledge of the Functioning of the Municipal Assembly

More than half of the respondents rated their knowledge about the functioning of the Municipal Assembly as not good or rather not good (56.5 %) while 25.9% rated their knowledge as rather good. Only a few respondents (17.6%) rated their knowledge as good. The communities represented in table

3 are arranged according to distance from the Municipal Assembly as close, intermediate, and remote. The data presented suggests no direct correlation between knowledge expressed and distance. On the contrary, there are clear differences in the self-assessment of knowledge between the communities within the individual distance categories. Table 3 shows the self-assessment of the perceived knowledge of community members about the functioning of the municipal assembly.

Table 3: Knowledge of the functioning of the Municipal Assembly per community

	Community	Not Good (%)	Rather Not Good (%)	Rather Good (%)	Good (%)
Close	Adoagyiri	10.3	27.6	20.7	41.4
	Ahenbronum	20	35.0	40.0	5.0
	Ahojo	37.1	17.2	31.4	14.3
	Amoakrom	38.5	25.6	30.8	5.1
	Ministries	5.6	11.1	5.6	77.7
	Paradise	15.0	50.0	20.0	15.0
	Sakyikrom	40.8	33.3	14.8	11.1
	Suhum Zongo	32.0	20.0	44.0	4.0
	Sunshine	23.8	38.1	38.1	0.0.
Intermediate	Akrabo	24.3	21.6	40.6	13.5
	Akwene Dobro	46.0	18.0	18.0	18.0
	Avaga/Wangara	53.6	21.4	17.9	7.1
	Kofigya	33.4	13.3	13.3	40.0
	Kwabena Kumi	4.9	51.2	31.7	12.2
	Ntoaso	27.1	28.8	35.6	8.5
	Okanta	42.5	23.4	21.3	12.8
	Oparekrom	31.4	25.7	31.4	11.5
	Traio	28.2	38.5	23.1	10.2
Remote	Ahwerease	11.1	27.8	36.1	25.0
	Akoti	55.6	19.4	8.3	16.7
	Amanfrom	42.9	23.8	11.9	21.4
	Amanhyia	20.0	32.5	25.0	22.5
	Asarekrom	16.1	19.6	35.7	28.6
	Darman	45	40.0	10.0	5.0
	Fotobi	35.2	27.0	27.0	10.8
	Kukua	37.9	18.9	32.4	10.8
	Okonam	22.9	19.3	25.3	32.5
	Total	30.7%	25.8%	25.9%	17.6%

Additionally, more than half of the heads of households surveyed rate their knowledge as rather good or good (54.1 %). Comparatively, more than half of all other community members surveyed rate their knowledge as rather not good or not good (52,4 %). Even though the share of CSO representatives among the surveyed is very low (6/0,6%), it is noticeable that all of them consider their knowledge of the functioning of the Municipal Assembly to be good. This may be the result of close cooperation between the organizations and the local administration. Figure 2 below shows how the various categories of community members surveyed assessed their knowledge of the functioning of the municipal assembly.
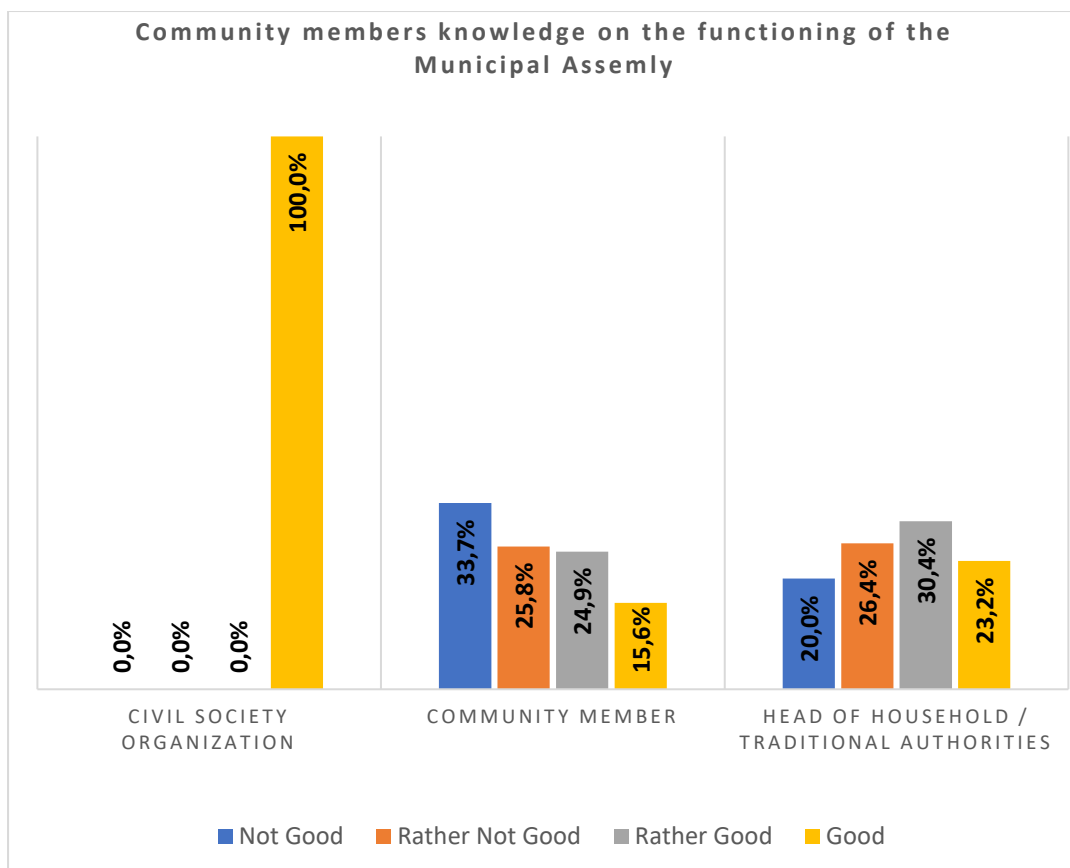
Figure 2: Community members' knowledge of the functioning of the Municipal Assembly

The assessment per educational background shows relatively best knowledge of the functioning of the Municipal Assembly among respondents with higher education. For instance, whereas three-quarters of respondents with non-formal education assessed their knowledge as not good or rather not good, about a third of respondents in each of the other educational categories in the junior and senior high, as well as graduates, assessed theirs as good or rather good. Table 4 shows the self-assessment per educational level of respondents' knowledge of the functioning of the Municipal Assembly.

Table 4: Knowledge of the functioning of the Municipal Assembly per educational level of respondents

Educational Level	Frequency (n)	Not Good	Percent (%)	Rather Not Good	Percent (%)	Rather Good	Percent (%)	Good	Percent (%)
Non-formal education	204	92	45.1	54	26.5	37	18.1	21	10.3
Junior High School	321	122	38.0	84	26.2	73	22.7	42	13.1
Senior High School	252	61	24.2	73	29.0	73	29.0	45	17.8
Middle School (GCE)	160	38	23.7	43	26.9	47	29.4	32	20.0

Graduate/Technical	119	13	10.9	19	16.0	43	36.1	44	37.0
Postgraduate	6	0	0.0	1	16.7	2	33.3	3	50.0
Frequency (N)	1062	326	30.7	274	25.8	275	25.9	187	17.6

Further disaggregation per age distribution of community members surveyed does not show a clear picture of respondents' knowledge about the functioning of the municipal assembly. On average knowledge seems to be lower in the age group 18-25 years and more balanced in the middle age group 26-35 and 36-45years. Here most respondents assess their knowledge as rather not good or not good. In the higher age groups of 46-55 and above 55years the knowledge is rather balanced, but still with a slight tendency to decline. Overall, it can be assumed that knowledge of community members about the mandate of the Municipal Assembly increases with age but remained rather low for most people interviewed. Table 5 shows the assessment per age distribution of respondents' knowledge of the functioning of the municipal assembly.

Table 5: Knowledge of the functioning of the Municipal Assembly per age distribution of respondents

Age Distribution	Frequency (n)	Not Good	Percentage (%)	Rather Not Good	Percentage (%)	Rather Good	Percentage (%)	Good	Percentage (%)
18-25 years	248	90	36.3	70	28.2	49	19.8	39	15.7
26-35 years	303	89	29.4	73	24.1	87	28.7	54	17.8
36-45 years	214	67	31.3	56	26.2	59	27.6	32	14.9
46-55 years	146	31	21.2	46	31.5	41	28.1	28	19.2
Above 55 years	151	49	32.5	29	19.2	39	25.8	34	22.5
Frequency (N)	1062	326	30.7	274	25.8	275	25.9	187	17.6

Relatively, most of the local government officials surveyed (70.2%) assessed the knowledge of the community members about the functioning of the Municipal Assembly as good. Figure 3 shows the local government officials´ assessment of community members' knowledge about the functioning of the Municipal Assembly.
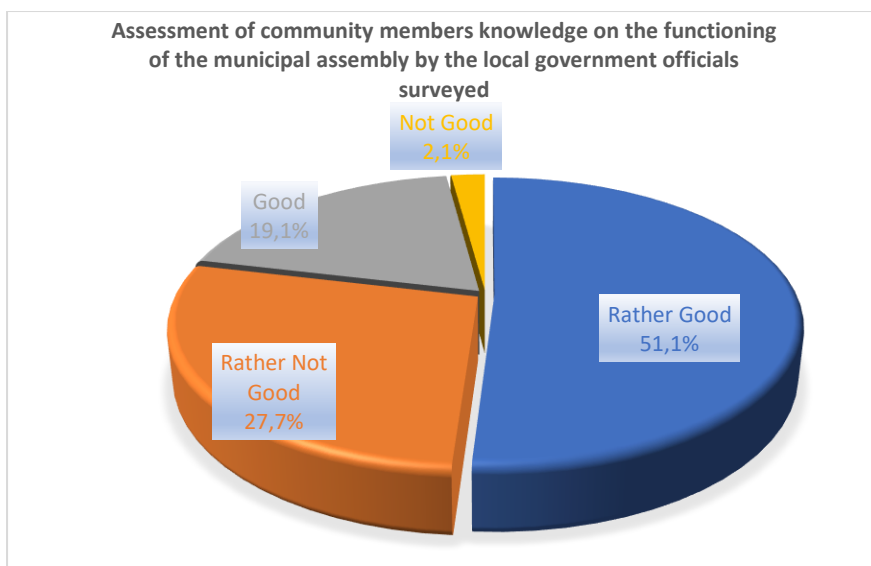
Figure 3: Assessment of community members' knowledge of the functioning of the Municipal Assembly

Public Awareness Creation by the Municipal Assembly

From the survey, 39.5% of respondents indicated no knowledge of public awareness created by the Municipal Assembly in the surveyed communities. Of the public awareness creation reported (n=642), (50.2%) were on health-related issues such as Malaria prevention, Sanitation, Yellow fever vaccination, Cholera prevention, Drug abuse, and HIV/AIDS. This was followed by social welfare-related issues (18.7%). Other areas of public awareness created by the Municipal Assembly reported were related to agriculture (12.4%) and community development-related issues (10.9%). Table 6 shows reported types of public awareness created by the Municipal Assembly.

Table 6: Reported themes of public awareness created by the Municipal Assembly

Reported themes of public awareness creation	Frequency (n)	Percent (%)
Health-related issues	322	50.2
Social welfare-related issues	120	18.7
Agricultural related issues	80	12.4
Community development	70	10.9
Other Campaigns	50	7.8
Frequency (n)	642	100
None	420	
Frequency (N)	1062	

Respondents were asked to indicate specific themes of public awareness created by the Municipal Assembly which relate to social welfare and health-related services. The frequencies are arranged in descending order as Disability Common Fund (25.3%), child protection (21.7%), LEAP scheme 18.1%), community development program (9.7%), social issues (8.4%), teenage pregnancy (8.4%), drug abuse

(4.8%), and sanitation (3.6%). Likewise, the specified areas related to health are arranged in descending order as COVID-19 related (63.8%), family planning (23.4%), malaria prevention (23.4%), sanitation (19.1%), NHIS (12.8%), HIV/AIDS (6.4%), general health issues (6.4%), and Polio vaccination (6.4%). Table 7 shows reported themes of public awareness created by the Municipal Assembly related to social welfare and health-related services.

Table 7: Reported themes of public awareness related to social welfare and health-related services

	Frequency (n)	Percent (%)
SOCIAL WELFARE-RELATED ISSUES		
Disability Common Fund	21	25.3
Child protection	18	21.7
LEAP Scheme	15	18.1
Community development program	8	9.7
Social issues	7	8.4
Teenage pregnancy	7	8.4
Drug abuse	4	4.8
Sanitation	3	3.6
Total Frequency (N)	83	100
HEALTH-RELATED ISSUES		
COVID-19	30	39.5
Family planning	11	14.5
Malaria prevention	11	14.5
Sanitation	9	11.8
NHIS	6	7.9
HIV/AIDS	3	3.9
Other health issues	3	3.9
Polio vaccination	3	3.9
Respondents (N)	76	100

The community members surveyed were asked to indicate how regularly the Municipal Assembly conducts public awareness on health and social welfare-related services. Whilst many of the people surveyed (39.5%) indicated that they have no idea of any form of public awareness creation or advocacy campaigns by the Municipal Assembly, quite a good number responded in the affirmative. From the community perspective, 225 respondents representing 21.2% reported that they do not know of any awareness campaigns on health or social service-related issues in the community whilst 420 representing 39.5% asserted that it does not happen at all. However, 417 respondents, representing 39.3% indicated that some form of awareness and advocacy programs are conducted by

the Municipal Assembly in the community periodically. Table 8 shows the frequencies of public awareness created by the Municipal Assembly.

Table 8: Frequency of public awareness created by the Municipal Assembly

Name of Community	Frequency (n)	I Do Not Know	Percent (%)	Not at all	Percent (%)	Monthly	Percent (%)	Quarterly	Percent (%)	Bi-Annually	Percent (%)	Annually	Percent (%)
Adoagyiri	29	10	34.5	15	51.7	0	0.0	2	6.9	0	0.0	2	6.9
Ahenbronum	20	6	30.0	10	50.0	1	5.0	0	0.0	1	5.0	2	10.0
Ahojo	35	1	2.9	21	60.0	0	0.0	8	22.8	1	2.9	4	11.4
Amoakrom	39	3	7.7	29	74.4	0	0.0	0	0.0	0	0.0	7	17.9
Ministries	18	8	44.5	6	33.3	0	0.0	0	0.0	0	0.0	4	22.2
Paradise	20	4	20.0	8	40.0	2	10.0	1	5.0	1	5.0	4	20.0
Sakyikrom	27	2	7.4	21	77.8	3	11.1	1	3.7	0	0.0	0	0.0
Suhum Zongo	25	9	36.0	14	56.0	2	8.0	0	0.0	0	0.0	0	0.0
Sunshine	21	7	33.3	11	52.4	0	0.0	0	0.0	0	0.0	3	14.3
Akrabo	37	5	13.5	11	29.8	5	13.5	10	27.0	3	8.1	3	8.1
Akwene Dobro	61	14	23.0	24	39.3	0	0.0	6	9.8	8	13.1	9	14.8
Avaga/Wangara	28	4	14.3	9	32.1	1	3.6	11	39.3	1	3.6	2	7.1
Kofigya	15	3	20.0	8	53.3	1	6.7	2	13.3	0	0.0	1	6.7
Kwabena Kumi	41	5	12.2	9	22.0	1	2.4	15	36.6	5	12.2	6	14.6
Ntoaso	59	6	10.2	43	72.9	0	0.0	3	5.0	1	1.7	6	10.2
Okanta	47	7	14.9	17	36.2	2	4.3	5	10.6	0	0.0	16	34.0
Oparekrom	35	6	17.1	11	31.4	3	8.6	2	5.7	5	14.3	8	22.9
Traio	39	0	0.0	24	61.6	0	0.0	2	5.1	2	5.1	11	28.2
Ahwerease	36	8	22.2	16	44.5	1	2.8	7	19.4	0	0.0	4	11.1
Akoti	36	15	41.7	5	13.9	3	8.3	3	8.3	2	5.6	8	22.2
Amanfrom	84	24	28.6	41	48.8	1	1.2	1	1.2	6	7.1	11	13.1
Amanhyia	40	0	0.0	14	35.0	4	10.0	12	30.0	2	5.0	8	20.0
Asarekrom	56	21	37.5	8	14.3	2	3.6	12	21.4	8	14.3	5	8.9
Darman	20	3	15.0	15	75.0	0	0.0	1	5.0	1	5.0	0	0.0
Fotobi	37	5	13.5	8	21.6	8	21.6	3	8.1	7	19.0	6	16.2
Kukua	74	23	31.1	10	13.5	9	12.2	14	18.9	3	4.0	15	20.3
Okonam	83	26	31.3	12	14.5	5	6.0	18	21.7	7	8.4	15	18.1
Frequency (N)	1062	225	21.2	420	39.5	54	5.1	139	13.1	64	6.0	160	15.1

Out of 47 local government officials surveyed, 33 (70.2%) indicated that sensitization workshops on social welfare-related services are organized by the assembly every quarter whilst 9(19.2%) reported monthly. A few of the local government officials 5 (10.6%) indicated annually. Figure 4 shows the frequency at which the Municipal Assembly embarks on public awareness creation on social welfare-related services in the municipality.
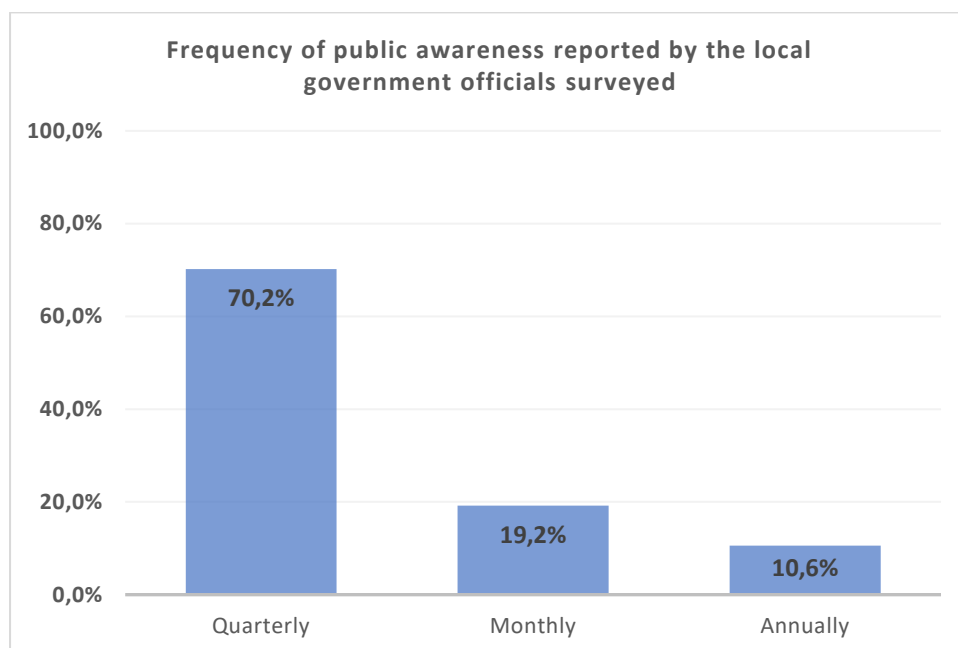
Figure 4: Frequency of public awareness creation reported by the local government officials surveyed

Table 9: Frequency of public awareness reported by the local government officials and community members

	Local Government officials		Community Members	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Not at all	0	0	420	39.5
I do not know	0	0	225	21.2
Monthly	33	19.2	54	5.1
Quarterly	33	70.2	139	13.1
Bi-annually	0	0	64	6.0
Annually	5	10.6	160	15.1
Frequency (N)	47	100	1062	100

Means through which the Municipal Assembly Conducts Public Awareness

Respondents were asked to indicate the means through which the Municipal Assembly conducts public awareness in the communities. The specified means related to social welfare are arranged in descending order as door to door (26.9%), campaign van (22.1%), radio (15.4%), mobile phone (12.5%), information centre (11.5%), durbar (8.9%), television (1.9%) and website (1.0%). The other means related to health are arranged in descending order as door to door (68.1%), campaign van (53.2%), radio (36.2%), mobile phone (25.5%), information centre (40.4%), durbar (29.8%), television (2.1%) and website (4.3%).

Table 10 shows specified means of public awareness in the municipality reported by the local government officials surveyed. The table indicates that door-to-door and campaign van was highly reported compared to digital means such as mobile phones, television, and the website. Nevertheless, government officials attach greater importance to the use of mobile phones than citizens have done so far.

Table 10: Specified means of public awareness on social welfare and health-related services

Means of Public Awareness	Frequency (n)	Percent (%)
Social Welfare-Related Services		
Door to Door	28	26.9
Campaign vans	23	22.1
Radio	16	15.4
Mobile Phone	13	12.5
Information Center	12	11.5
Durbar	9	8.7
Television	2	1.9
Website	1	1.0
Frequency (N)	104	100
Health-Related Services		
Door to Door	32	26.2
Campaign vans	25	20.5
Information Center	19	15.6
Radio	17	13.9
durbar	14	11.5
Mobile Phone	12	9.8
Website	2	1.7
Television	1	0.8
Frequency (N)	122	100

Most communities reported that the information centre or the public information van (43.7%) followed by community gathering (19.6%) is the primary means through which the Municipal Assembly conducts public education in the municipality. Few respondents reported digital means of communication such as radio and TV (9.8%), phone calls / SMS (3.7 %), social media (2.9 %), or websites (0.2 %). Looking at the different communities surveyed, four main clusters can be identified when it comes to the preferred means of public education: (1) Only Information Centre; (2) Only community

gatherings; (3) Information Centre and community gathering; (4) Information Centre, radio, and television. Table 11 shows specified means of public awareness in the communities.

Table 11: Specified means of public awareness in the communities

COMMUNITY	Frequency (n)	Information Center / van	Community Gathering	I Do Not Know	Radio and Television	One-on-One Interaction	Phone / social media	Other media
Adoagyiri	29	13.8	48.3	20.7	3.4	10.4	3.4	0.0
Ahenbronum	20	15.0	0.0	0.0	60.0	10.0	15.0	0.0
Ahojo	35	65.7	0.0	17.1	8.5	2.9	2.9	2.9
Amoakrom	39	51.2	0.0	2.6	38.4	2.6	2.6	2.6
Ministries	18	0.0	83.3	5.6	0.0	11.1	0.0	0.0
Paradise	20	45.0	5.0	0.0	45.0	5.0	0.0	0.0
Sakyikrom	27	59.3	25.9	11.1	0.0	0.0	0.0	3.7
Suhum Zongo	25	92.0	0.0	0.0	0.0	4.0	0.0	4.0
Sunshine	21	61.9	28.6	0.0	0.0	9.5	0.0	0.0
Akrabo	37	32.4	2.7	37.9	8.1	10.8	8.1	0.0
Akwene Dobro	61	65.6	11.5	14.6	0.0	3.3	1.7	3.3
Avaga/Wangara	28	78.6	0.0	14.3	7.1	0.0	0.0	0.0
Kofigya	15	60.0	6.7	6.7	13.2	6.7	6.7	0.0
Kwabena Kumi	41	31.7	34.2	22.0	2.4	7.3	2.4	0.0
Ntoaso	59	44.1	13.5	1.7	23.7	0.0	8.5	8.5
Okanta	47	48.9	0.0	23.4	8.5	0.0	14.9	4.3
Oparekrom	35	40.0	8.5	2.9	31.4	2.9	14.3	0.0
Traio	39	30.7	20.5	18.0	18.0	12.8	0.0	0.0
Ahwerease	36	8.3	41.6	2.8	27.8	2.8	13.9	2.8
Akoti	36	50.0	5.6	13.9	8.3	13.9	8.3	0.0
Amanfrom	84	67.9	22.6	0.0	0.0	5.9	3.6	0.0
Amanhyia	40	10.0	32.5	2.5	0.0	15.0	30.0	10.0
Asarekrom	56	41.1	26.7	0.0	0.0	12.5	16.1	3.6
Darman	20	50.0	45.0	5.0	0.0	0.0	0.0	0.0
Fotobi	37	32.4	16.2	19.0	5.4	8.1	16.2	2.7
Kukua	74	46.0	21.6	16.2	2.7	5.4	2.7	5.4
Okonam	83	25.3	33.7	16.9	3.6	15.7	3.6	1.2
Frequency (N)	1062	43.7	19.6	10.8	9.8	6.9	6.8	2.4

3.2. Access to Social Welfare and Health-Related Services in the Municipalities

Knowledge of Selected Social Welfare Schemes in the Municipalities

Out of a total of 1062 community members surveyed 981 (92.4%) reported knowledge of the NHIS scheme as against 81 (7.6%) who claimed no idea. Comparatively, 432 (40,7%) reported knowledge of the Disability Common Fund as against 630 (59.3%) who claimed no idea. Similarly, 488 (46.0%) reported knowledge of the Livelihood Empowerment Against Poverty (LEAP) scheme whilst 574

(54.0%) reported no awareness. While the NHIS[1] is aimed at the entire population, LEAP and the Disability Common Fund are targeted at specified individuals which address a comparatively small proportion of the population.[2] Against this backdrop, it can be observed that all three government schemes are well known to the citizens. This is in line with the assessments of the government officials, the majority of whom rated the awareness of the schemes as rather high. Table 12 shows how respondents expressed their knowledge of social welfare-related services in the municipality.

Table 12: Knowledge of selected social welfare and health schemes

Selected social welfare and health Schemes in the community	NHIS		Disability Common Fund		LEAP	
	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
Yes	981	92.4	432	40.7	488	46.0
No	81	7.6	630	59.3	574	54.0
Frequency (N)	1062	100	1062	100	1062	100

Out of a total of 1062 community members surveyed, 48.0% reported being active beneficiaries of the NHIS scheme. This is above the national average of active NHIS memberships, which was around 40% in 2019. A negligible number of beneficiaries for the Disability Common Fund[3] represented 0.4% whilst none of the community members surveyed benefited from the LEAP scheme. Table 13 shows the beneficiaries of selected social welfare schemes among respondents in the surveyed communities.

---

[1] The National Health Insurance Scheme (NHIS) was established under Act 650 in 2003 by the Government of Ghana to provide financial access to quality health care for the people.

[2] The LEAP cash transfer is open to orphaned and vulnerable children (OVC), persons with severe disabilities without any productive capacity, and elderly persons who are 65 years and above. The Disability Common Fund is available to persons with disabilities, especially those who want to start or maintain a business.

[3] The District Assembly Common Fund (DACF) Act 1993, (Act 455) mandates MMDAs to set aside three percent (of the District Assembly Common Fund (DACF) to address concerns of persons living with disabilities per the Disability Act 2006, (Act 715).

Table 13: Beneficiaries of selected social welfare and health schemes

Beneficiaries of social welfare Scheme	NHIS		Disability Common Fund		LEAP Scheme	
	Frequency (n)	Percentage (%)	Frequency(n)	Percentage (%)	Frequency(n)	Percentage (%)
No	552	52.0	78	95.1	1062	100
Yes	510	48.0	4	4.9	0	0.0
Frequency (N)	1062	100	82	100.0	1062	100

Table 14 shows data resulting from a comparison between samples of beneficiaries of social welfare schemes based on gender in Nsawam and Suhum municipalities which is almost balanced for all schemes with a slight tendency towards more female beneficiaries of NHIS and the Disability Common Fund.

Table 14: Beneficiaries of selected social welfare and health schemes based on gender

Nsawam Municipality								
Beneficiaries		Frequency (n)	Percent (%)	Female	Percent (%)	Male	Percent (%)
NHIS	Yes	411	84.9	219	85.9	192	83.8
	No	73	15.1	36	14.1	37	16.2
	Frequency (N)	484	100	255	100	229	100
LEAP	No	484	100	255	100	229	100
	Frequency (N)	484	100	255	100	229	100
	Yes	1	3.6	0	0.0	1	9.1
	No	27	96.4	17	100	10	90.9
Common Fund	Frequency (N)	28	100.0	17	100	11	100
Suhum Municipality								
NHIS	Yes	99	17.1	51	17.2	48	17.0
	No	479	82.9	245	82.8	234	83.0
	Frequency (N)	578	100	296	100	282	100
LEAP	No	578	100	296	100	282	100
	Frequency (N)	578	100	296	100	282	100
	Yes	3	5.6	3	8.8	0	0.0
Common Fund	No	51	94.4	31	91.2	20	100
	Frequency (N)	54	100	34	100	20	100

Means of Accessing Information Relating to Health and Social Welfare Services

The frequencies indicate that most people in the surveyed communities (70.1%) access health information by direct visit to the hospital or health centre, while others combine/complement the direct visit to the hospital with other digital sources of information such as radio and television (13.2%), information centres (6.6%), and phone calls (2.0%).

Table 15 shows the means of accessing information relating to health and social welfare in the municipalities disaggregated by age. From the perspective of age distribution, table 15 shows that oler respondents, in particular, access health information through direct walk-ins, such as adults above 55 years (70.1%) followed by 46-55 years (68.7%).

Table 15: Means of accessing social welfare and health-related information per age distribution

	Frequency (n)	Percentages	18-25 years	Percent (%)	26-35 years	Percent (%)	36-45 years	Percent (%)	46-55 years	Percent (%)	Above 55 years	Percent (%)
Direct walk-in	981	66.2	222	63.4	280	66.4	205	65.3	136	68.7	138	70.1
Radio and Television	192	13.0	39	11.1	47	11.1	50	15.9	30	15.2	26	13.2
Information Center	125	8.4	35	10.0	41	9.7	30	9.6	6	3.0	13	6.6
Social Media	77	5.2	28	8.0	26	6.2	11	3.5	9	4.5	3	1.5
Phone Calls	38	2.6	10	2.9	10	2.4	6	1.9	8	4.0	4	2.0
Assemblyman	22	1.5	5	1.4	7	1.7	4	1.3	4	2.0	2	1.0
None	19	1.3	6	1.7	4	0.9	1	0.3	2	1.0	6	3.0
Visit by Nurses	17	1.1	4	1.1	3	0.7	3	1.0	3	1.5	4	2.0
Pharmacy	10	0.7	1	0.3	4	0.9	4	1.3	0	0.0	1	0.5
Frequency (n)	1481	100	350	100	422	100	314	100	198	100	197	100

Figure 5 shows the means of accessing the information on social welfare and health-related services by persons living with a disability. The indication is that most of the persons living with disability reported direct visits to the hospital complemented with other means such as radio and television, information centre, and phone calls.
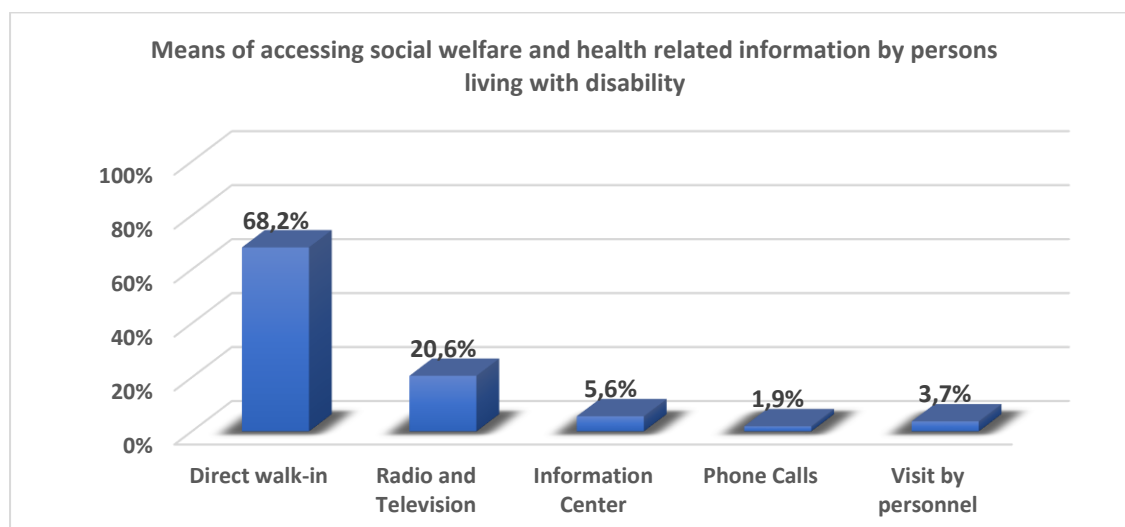
Figure 5: Means of accessing social welfare and health-related information by persons living with disability

Figure 6 shows frequencies of means through which community members contact the Municipal Assembly as reported by the local government officials surveyed. Direct walk-ins (42.6%) followed by phone calls (33.6%) were the most reported. WhatsApp (16.8%) was the only digital means reported. Interestingly, local government officials in their perception attribute higher importance to phone calls and especially WhatsApp compared to the citizens surveyed when it comes to the means of contact.
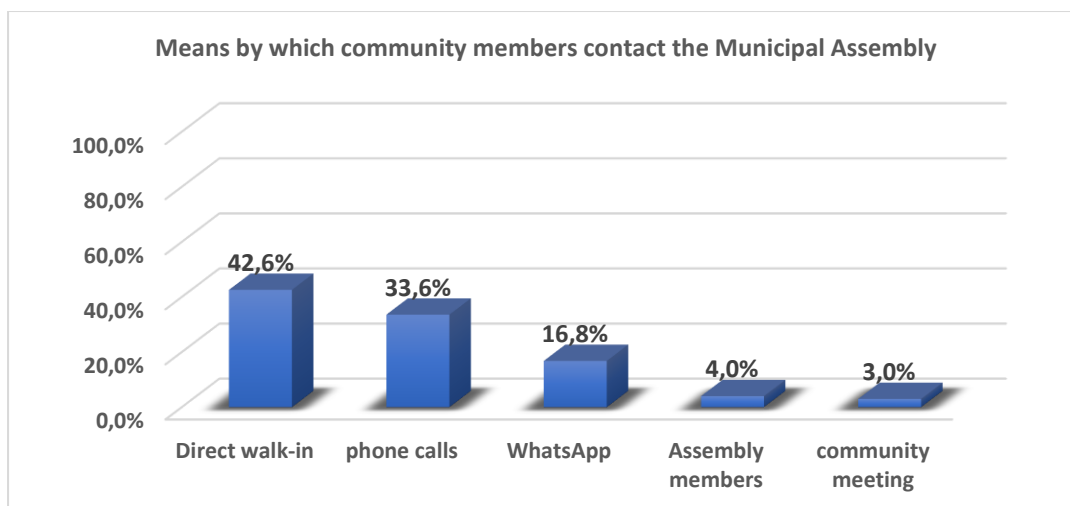
Figure 6: Means by which community members contact the Municipal Assembly

Challenges in Accessing Social Welfare-Related Services in the Municipality

Table 16 shows that 827 (77.9 %) of the people surveyed reported no challenges, while 235 (22.1) people indicated that they have challenges in accessing social welfare-related services. For all communities, most of the people reported no problems in accessing social welfare services with a variation between 51.1% and 100%. Beyond this, the data suggests no direct correlation between reported challenges and distance. On the contrary, there are clear differences in the assessment of challenges between the communities within the individual distance categories.

Table 16: Challenges in accessing social welfare-related services in the communities surveyed

Distance	Community	Frequency (n)	No	Percent (%)	Yes	Percent (%)
Close	Adoagyiri	29	19	65.5	10	34.5
	Ahenbronum	20	19	95.0	1	5.0
	Ahojo	35	26	74.3	9	25.7
	Amoakrom	39	39	100.0	0	0.0
	Ministries	18	10	55.6	8	44.4
	Paradise	20	20	100.0	0	0.0
	Sakyikrom	27	24	88.9	3	11.1
	Suhum Zongo	25	24	96.0	1	4.0
	Sunshine	21	21	100.0	0	0.0
Intermediate	Akrabo	37	22	59.5	15	40.5
	Akwene Dobro	61	46	75.4	15	24.6
	Avaga/Wangara	28	23	82.1	5	17.9
	Kofigya	15	13	86.7	2	13.3
	Kwabena Kumi	41	34	82.9	7	17.1
	Ntoaso	59	58	98.3	1	1.7

	Okanta	47	24	51.1	23	48.9
	Oparekrom	35	28	80.0	7	20.0
	Traio	39	30	76.9	9	23.1
Remote	Ahwerease	36	30	83.3	6	16.7
	Akoti	36	22	61.1	14	38.9
	Amanfrom	84	51	60.7	33	39.3
	Amanhyia	40	26	65.0	14	35.0
	Asarekrom	56	43	76.8	13	23.2
	Darman	20	20	100.0	0	0.0
	Fotobi	37	29	78.4	8	21.6
	Kukua	74	61	82.4	13	17.6
	Okonam	83	65	78.3	18	21.7
	Frequency (N)	1062	827	77.9%	235	22.1%

Figure 7 shows that while most people reported no challenges across all age groups, the proportion of those reporting problems in accessing social welfare services is about 10% higher in the upper age cohorts (46-55 years, above 55 years) than in the lower age groups below 45 years. It can be assumed that these responses relate to an increase in social welfare services-related needs in relation to age.
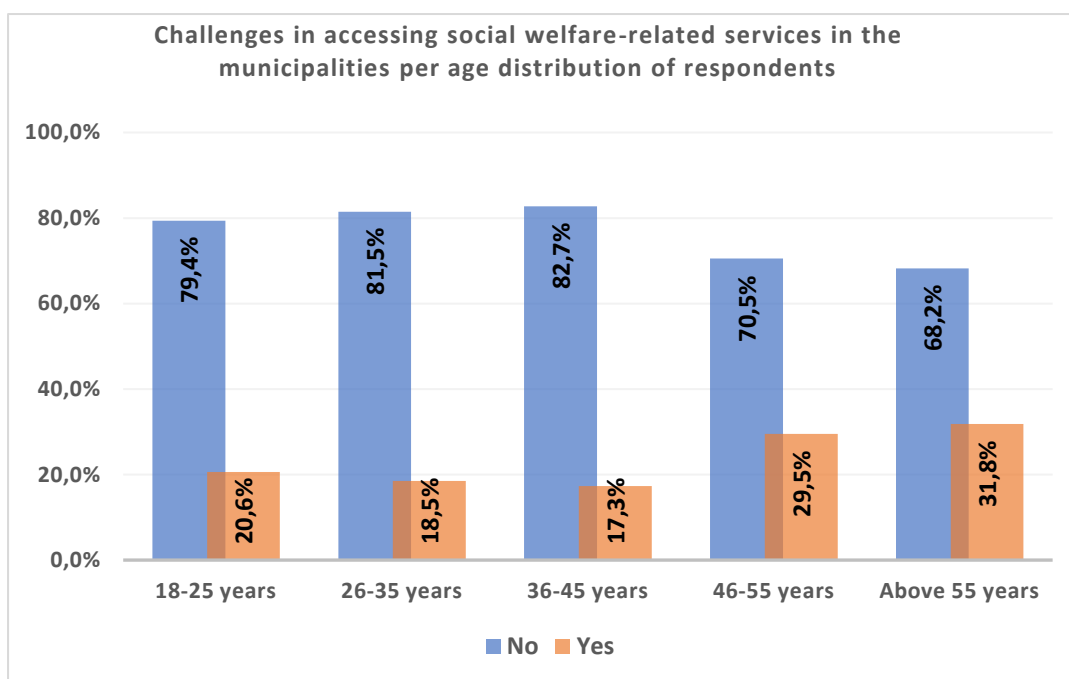
Figure 7: Challenges accessing social welfare-related services per age distribution of respondents

Figure 8 shows that, of those respondents who provided information on access to social services (N=1062), 7.4 percent (n=82) were people with disabilities as categorized above. Most people with disabilities (57/ 69.5%) reported no challenges in accessing social welfare services while about one-third (25 / 30.5 %) reported such challenges. Looking at the responses of people with disabilities compared to the overall distribution shown in table 16 the proportion of people who reported challenges in accessing social welfare services is 8.4% higher (30.5 % for persons with disabilities

compared to 22.1 % for the overall distribution). This could be attributed to the fact that people with disabilities make disproportionate use of local government-managed social welfare services, such as the Disability Common Fund or LEAP, compared to the entire population. If looking at individual forms of impairment, the figures are of limited significance, as the number of responses for individual types of impairment is too low. Nevertheless, it can be observed that about 38.1% of people with visual and mobility impairments report challenges in accessing social services, which is significantly higher than the overall distribution. This might be linked to accessibility challenges in the application to and use of social services.
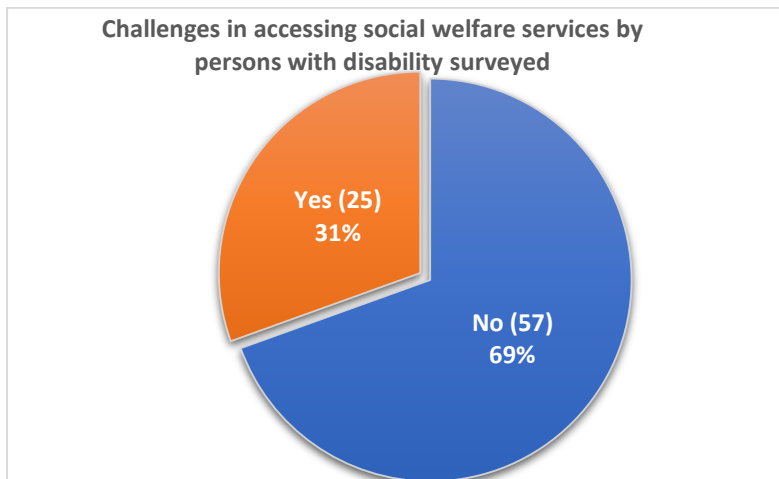
Figure 8: Challenges in accessing social welfare services by persons with disability surveyed

Figure 9 shows that more than half of Local Government officials surveyed (53.2%) confirmed challenges in delivering social welfare-related services such as NHIS, Disability Common Fund, and LEAP in the municipalities. On the contrary, others (46.8%) indicated no challenge in delivering health and social welfare-related services in the Municipalities.
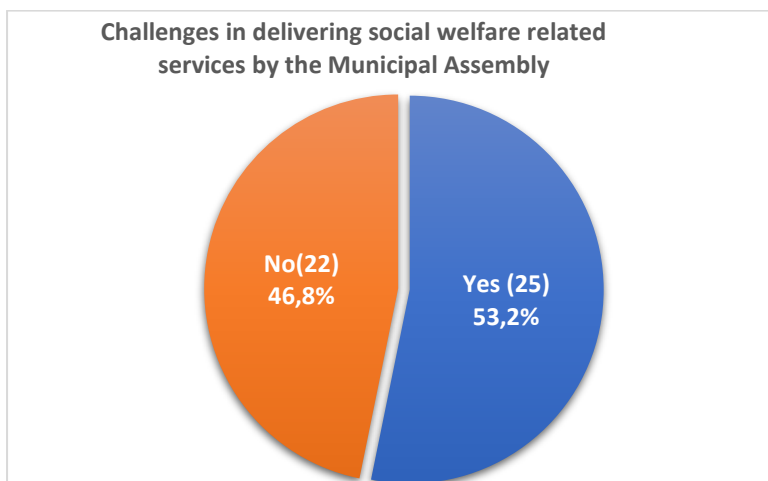
Figure 9 Challenges in delivering social welfare-related services by the Municipal Assembly

Specified Challenges in Accessing Social Welfare-Related Services

Specified challenges in accessing social welfare and health services reported by respondents from the surveyed communities (Table 17) show a lack of information/knowledge on the services provided by the social welfare department (42.1%). Other challenges reported more frequently were lack of contact person or phone number of the welfare department (11.5%), the perceived unavailability of specific schemes in a community (9.8 %), lack of knowledge of the location of the social welfare department (9.4 %), the complexity of eligibility conditions, political consideration, and favoritism (7.6 %), or long distances to the welfare office (4.5%). Further but less mentioned challenges were e.g., related to lack of funding (3.8%), lack of feedback after registering for a scheme (3.0%), and delayed payment of funds (2.6%).

Table 17: Specified challenges in accessing social welfare services in the municipalities

Specific challenges Accessing Social Welfare Services	Frequency (n)	Percent (%)
No information/education about the service	99	42.1
No contact person / Phone number	27	11.5
The scheme is not available in the community	23	9.8
The location of Social Welfare is unknown	22	9.4
Complex Selection Process, Political Consideration, etc.	18	7.6
Long Distance to the Social Welfare office	10	4.3
Lack of funds to support more people	9	3.8
No feedback / Unresponsive after registering for a service	7	3.0
Delayed payment of common funds	6	2.6
Only a few people benefit from the service	5	2.1
Do not meet the age requirement (below 65 years)	4	1.7
They arrive unannounced	4	1.7
Lack of expertise in specific areas like marriages etc.	1	0.4
Frequency (n)	235	100.0
None	827	
Frequency (N)	1062	

Challenges in Accessing Health-Related Services in the Municipalities

Respondents were asked to state whether they have challenges in assessing health-related services in the municipality or not. Generally, 608 community members surveyed out of 1062 representing 57.3% claimed they had no difficulty accessing health-related services in the municipality whilst 454 representing 42.7% stated otherwise. Correspondingly, more than half (59.6%) of the Local

Government officials surveyed reported some form of challenge whilst (40.4%) maintained satisfaction with the delivery of health-related services in the municipality.
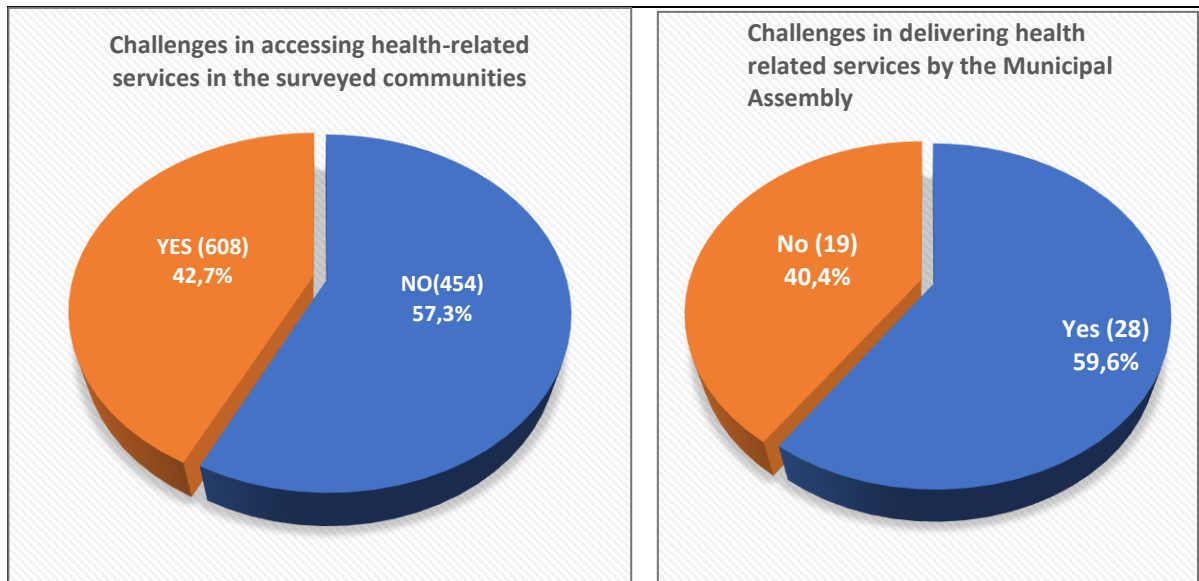
Figure 10: Challenges in delivering and accessing health-related services in the surveyed communities

Reactions per age distribution of respondents indicated that younger people between the ages of 18-25 (40.7%) followed by the age cohort 26-35 (41.9%) as well as older people aged between 46-55 (41.1%) and 55 upwards (41.1%) reported slightly less difficulty accessing health-related services as compared to the middle age cohort 36-45 years. Figure 11 gives an overview of the challenges in accessing health-related services in the surveyed communities per age distribution of respondents. The data does not allow for any age-related conclusions with regard to problems when accessing health services.
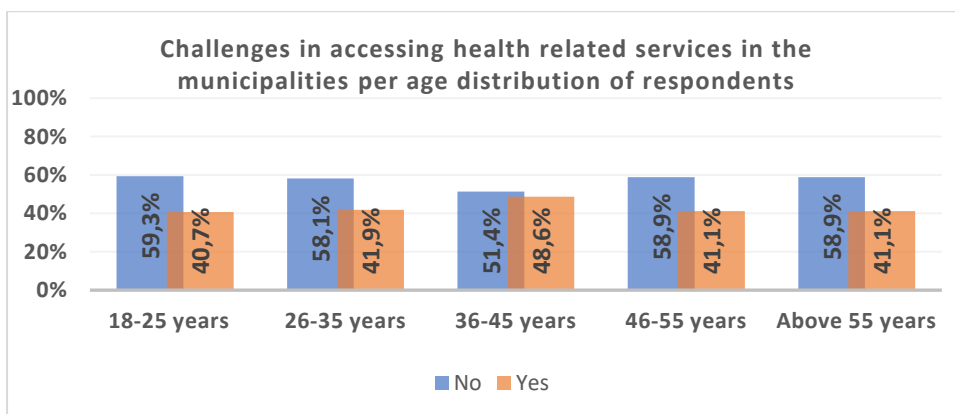
Figure 11: Challenges accessing health-related services per age distribution of respondents

The situation looks different for persons with disabilities. Here, a clear majority of 63% reported problems in accessing health care while only 37% reported no challenges. Figure 12 shows that more than half of persons living with disability surveyed reported challenges in accessing health-related services in the municipality.
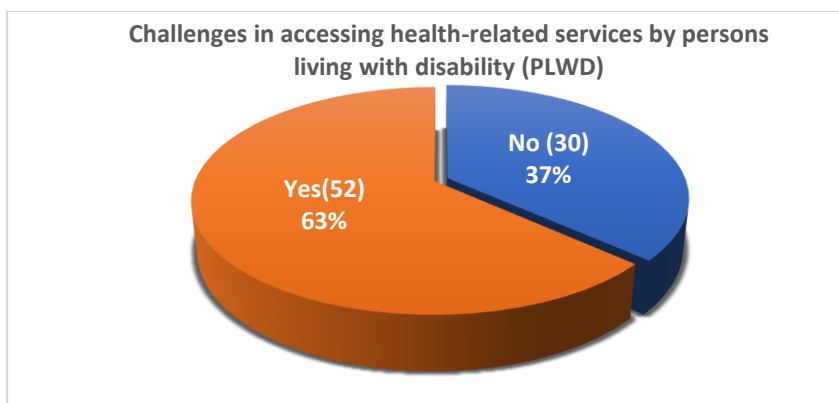
Figure 12: Challenges in accessing health-related services by persons living with disability (PLWD)

Specified Challenges in Assessing Health-Related Services in the Municipalities

Most community members (33.7%) reported the unavailability of health facilities and issues related to the NHIS (10.0%) as the main challenge in accessing health-related services in the municipality. Other challenges reported are related to communication, finance, and transportation issues. On the side of the Local Government officials surveyed, inadequate funding and bad roads coupled with deficits in logistics were the main challenges reported. Table 18 shows data resulting from the comparison of specified challenges in accessing health-related services in the municipalities by the community members and Local Government officials surveyed.

Table 18: Specified challenges in accessing health-related services in the municipalities

A.	Frequency (n)	Percentage (%)
A. Specified challenges faced by community members in accessing health services		
No clinic	155	33.7
Clinic is too small / ill-equipped/ bad condition	45	10.0
NHIS expired /Not accepted / Does not cover all Cost	34	7.5
Unprofessionalism of health workers	34	7.5
Long waiting hours	29	6.4
Lack of prescription drugs	27	6.0
I do not know who to contact	26	5.8
High Cost of Healthcare	24	5.3
Lack of health personnel	23	5.1
Financial challenges	22	5.0
Bad road / Long distance to a health centre	18	4.0
Ineffective health delivery	11	2.4
Cost of transportation	6	1.3
Frequency (n)	454	100
None	608	
Frequency (N)	1062	
B. Specified challenges faced by local government officials in delivering health services		
Inadequate funding	8	24.2
Inadequate logistics	5	15.2
Delays in the release of funds	4	12.1

Bad road networks / Travel cost	3		9.1
Difficulty in verifying the information provided by the applicants	3		9.1
Inadequate health facilities in the community	3		9.1
Many of the NHIS beneficiaries do not renew often	3		9.1
People are not aware of the service	3		9.1
Influence of politics, customs, and traditions in the community	1		3.0
Frequency (N)	33		100

3.3. Digital Competence and ICT usage

The study sought to find out about the general knowledge of community members on ICT tools, and usage in their daily routines. The objective was to assess the basic knowledge of the people on ICT tools and their applications. Respondents variously displayed their digital competence, rated as not good, rather not good, rather good, and good in that order. An assessment of the overall digital competence of respondents in the surveyed communities suggests that most people have a rather good 429/1062 (40.4%) or good 261 (24.6) basic knowledge of common ICT devices and their applications. However, there are significant differences between the 27 communities that reported good or rather good knowledge in ICT competence. Whereas in 10 communities, 80 to 100% of respondents reported high digital competence, in six communities more than 50% of respondents reported low digital competence.

Table 19: Digital competence in the surveyed Communities

Community	Frequency (N)	Not Good	Percent (%)	Good	Percent (%)
Adoagyiri	29	3	10.3	26	89.7
Ahenbronum	20	3	15.0	17	85.0
Ahojo	35	15	42.9	20	57.1
Amoakrom	39	3	7.7	36	92.3
Ministries	18	0	0.0	18	100.0
Paradise	20	1	5.0	19	95.0
Sakyikrom	27	10	37.0	17	63.0
Suhum Zongo	25	1	4.0	24	96.0
Sunshine	21	8	38.1	13	61.9
Akrabo	37	19	51.3	18	48.7
Akwene Dobro	61	24	39.3	37	60.7
Avaga/Wangara	28	14	50.0	14	50.0
Kofigya	15	1	6.7	14	93.3
Kwabena Kumi	41	17	41.5	24	58.5
Ntoaso	59	9	15.3	50	84.7
Okanta	47	23	48.9	24	51.1
Oparekrom	35	7	20.0	28	80.0
Traio	39	23	59.0	16	41.0
Ahwerease	36	5	13.9	31	86.1
Akoti	36	22	61.1	14	38.9

Amanfrom	84	36	42.9	48	57.1
Amanhyia	40	14	35.0	26	65.0
Asarekrom	56	12	21.4	44	78.6
Darman	20	14	70.0	6	30.0
Fotobi	37	13	35.1	24	64.9
Kukua	74	40	54.1	34	45.9
Okonam	83	35	42.2	48	57.8
Frequency (N)	1062	372	35.0	690	65.0

Table 20 suggests a correlation between formal education and digital competence by showing that respondents with relatively higher educational attainment report better digital competence than those with basic or non-formal education.

Table 20: Digital competence of respondents in the surveyed Communities per educational level

Educational Level	Frequency(n)	Not Good	Percent (%)	Rather Not Good	Percent (%)	Rather Good	Percent (%)	Good	Percent (%)
Junior High School	321	33	10.3	75	23.4	139	43.3	74	23.0
Senior High School	252	10	4.0	36	14.3	116	46.0	90	35.7
Non-Formal	204	70	34.3	67	32.8	54	26.5	13	6.4
Middle School (GCE)	160	23	14.4	50	31.2	71	44.4	16	10.0
Graduate/Technical	119	4	3.4	3	2.5	46	38.6	66	55.5
Postgraduate	6	0	0.0	1	16.7	3	50.0	2	33.3
Frequency (N)	1062	140	13.2	232	21.8	429	40.4	261	24.6

Assessment per gender distribution of respondents shows better digital competence among males than females in the surveyed communities. There was a total of 511 females and 551 males, of which 144 males (28.2%) and 228 (41,4%) females reported not good digital competence. Comparatively, 71.8% of males and 58.6% of females in the same category reported good digital competence. Figure 13 shows reported digital competence per gender distribution of respondents in the surveyed communities.
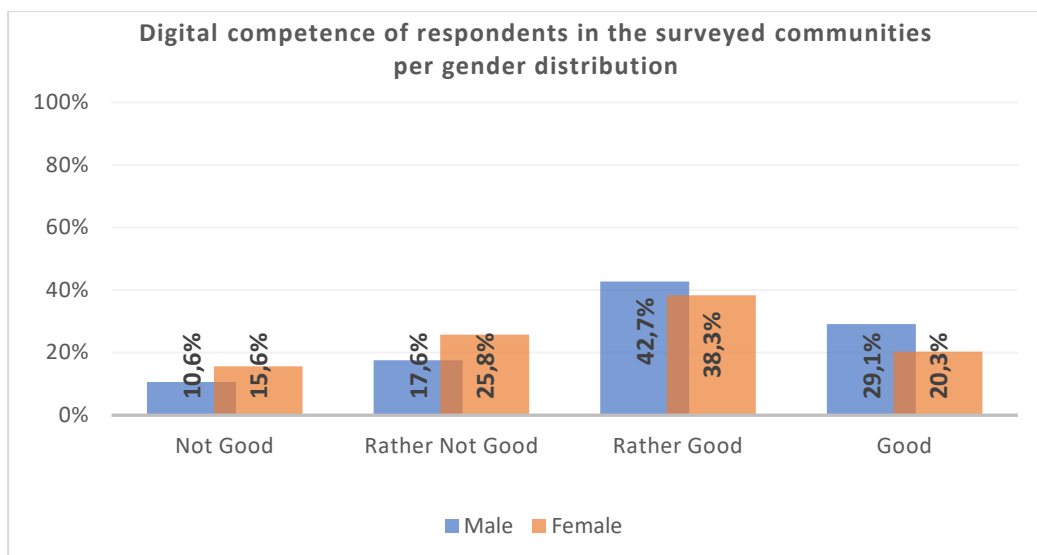
Figure 13: Digital competence of respondents in the surveyed communities per gender distribution

Disaggregation per age distribution shows that younger adults aged between 26-35 years and 18-25years reported better digital competencies as compared to adults of middle age 36-45 and older people above 55 years respectively. The majority of all respondents in the different age cohorts surveyed reported rather good or good digital competence except those above 55years who reported a significantly lower knowledge. Table 21 shows the reported digital competence of respondents in the surveyed communities per age distribution of respondents.

Table 21: Digital competence of respondents in the surveyed communities per age distribution

Age in years	Frequency (n)	Not Good	Percent (%)	Rather Not Good	Percent (%)	Rather Good	Percent (%)	Good	Percent (%)
18-25 years	248	15	6.1	41	16.5	101	40.7	91	36.7
26-35 years	303	23	7.6	54	17.8	132	43.6	94	31.0
36-45 years	214	40	18.7	42	19.6	88	41.1	44	20.6
46-55 years	146	17	11.6	42	28.8	67	45.9	20	13.7
Above 55 years	151	45	29.8	53	35.1	41	27.2	12	7.9
Frequency(N)	1062	140	13.2	232	21.8	429	40.4	261	24.6

Figure 14 shows that the majority of local government officials surveyed, 41 out of 47 (82.2%), rated their knowledge of ICT as rather good or good. Only a handful of the local government officials (6/13%) rated their knowledge of ICT as rather not good.
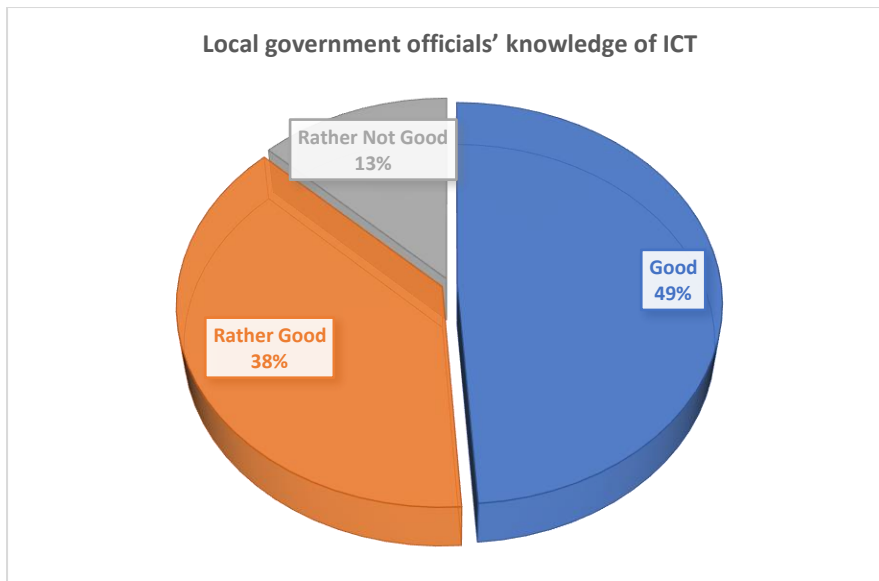
Figure 14: Local government officials' knowledge about ICT

ICT Devices Commonly used in the Municipality

On the type of ICT devices used, figure 15 shows that smartphones (87.2%) and feature (basic) phones (83.0%) were the most reported among community members. These were followed by laptops (34.0%), desktop computers (34.0%), and tablets (25.5%). Most respondents reported using more than one of these devices.
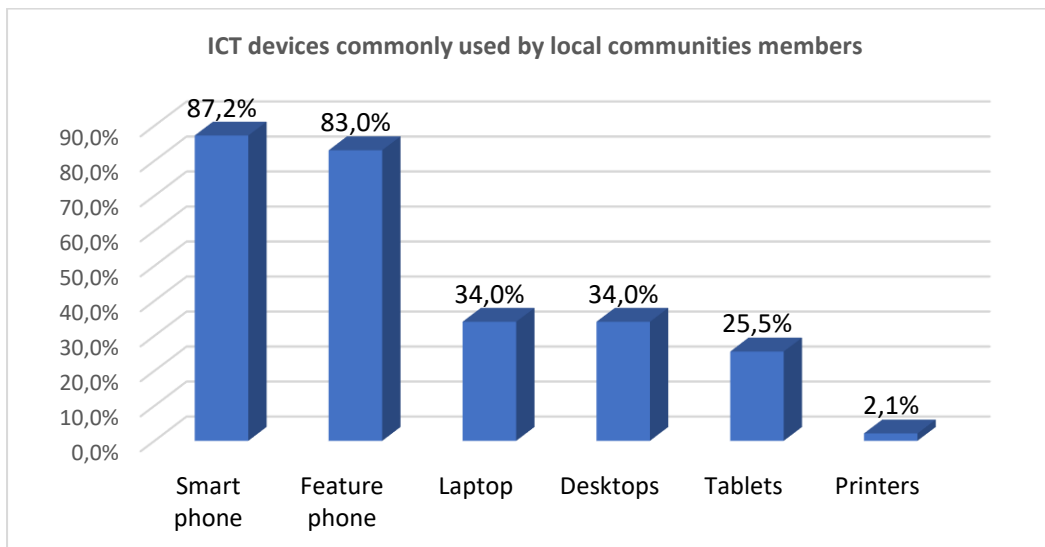
Figure 15: ICT devices commonly used in the municipality

More than half of the Local Government officials surveyed (64%) reported mobile phones as the most used ICT device. Laptops, desktop computers, and tablets were marginally reported to be used.
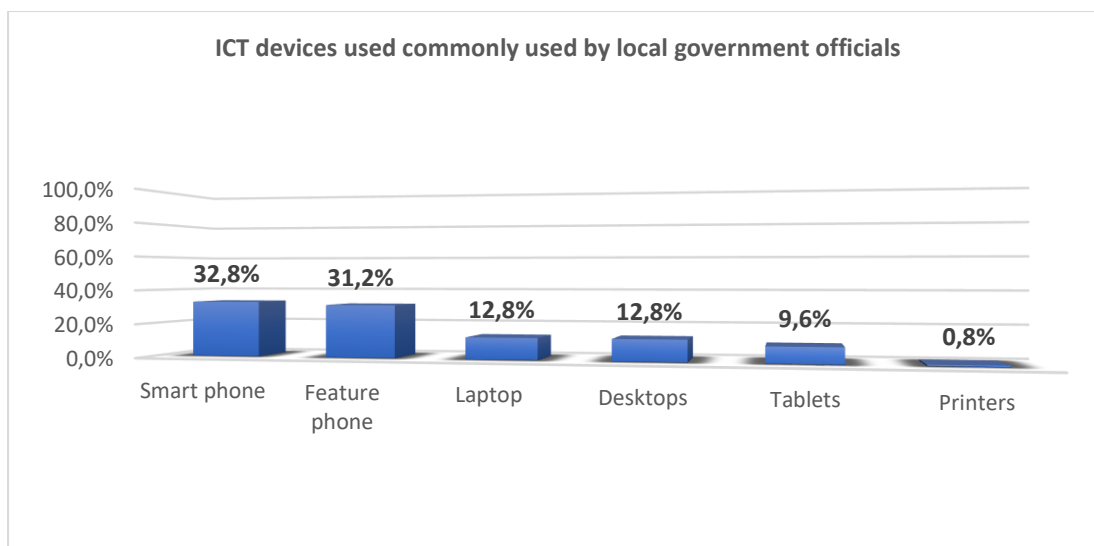
Figure 16: ICT devices commonly used by local government officials.

Specified Reasons for the use of the stated ICT devices

ICT enables electronic communication through text, audio, and video chat using devices such as mobile phones and computers. In the survey, communication with friends, family, and co-workers was the most reported reason for using ICT devices among the community members. Table 22 shows specified reasons for the use of stated ICT devices disaggregated by surveyed communities.

Table 22: Specified ICT device usage by the community

Distance	COMMUNITY	Frequency (n)	Communication with co-workers	Percent (%)	Communication with community members	Percent (%)	News/source of information	Percent (%)	Entertainment	Percent (%)	Other use	Percent (%)
Close	Adoagyiri	108	29	26.9	29	26.9	24	22.2	26	24.0	0	0.0
	Ahenbronum	65	19	29.2	19	29.2	11	17.0	16	24.6	0	0.0
	Ahojo	114	28	24.6	25	21.9	34	29.8	27	23.7	0	0.0
	Amoakrom	108	20	18.5	38	35.2	21	19.4	29	26.9	0	0.0
	Ministries	69	18	26.1	18	26.1	18	26.1	15	21.7	0	0.0
	Paradise	62	20	32.3	20	32.3	6	9.6	16	25.8	0	0.0
	Sakyikrom	69	20	29.0	15	21.7	18	26.1	14	20.3	2	2.9
	Suhum Zongo	82	14	17.1	24	29.3	22	26.8	22	26.8	0	0.0
	Sunshine	75	18	24.0	15	20.0	19	25.3	19	25.3	4	5.4
Intermediate	Akrabo	125	33	26.4	36	28.8	29	23.2	26	20.8	1	0.8
	Akwene Dobro	165	30	18.2	48	29.1	45	27.3	41	24.8	1	0.6
	Avaga/Wangara	92	22	23.9	23	25.0	24	26.1	23	25.0	0	0.0
	Kofigya	46	9	19.5	11	23.9	13	28.3	13	28.3	0	0.0
	Kwabena Kumi	139	24	17.3	39	28.0	40	28.8	36	25.9	0	0.0
	Ntoaso	197	39	19.8	51	25.9	52	26.4	55	27.9	0	0.0
	Okanta	107	15	14.1	38	35.5	27	25.2	27	25.2	0	0.0
	Oparekrom	101	28	27.7	26	25.7	25	24.8	20	19.8	2	2.0
	Traio	98	19	19.4	36	36.7	19	19.4	20	20.4	4	4.1

Region	Community	N		%		%		%		%		%
	Ahwerease	110	31	28.2	32	29.1	19	17.3	27	24.5	1	0.9
	Akoti	100	29	29.0	29	29.0	22	22.0	19	19.0	1	1.0
	Amanfrom	282	49	17.4	80	28.4	76	26.9	77	27.3	0	0.0
	Amanhyia	126	32	25.4	32	25.4	30	23.8	29	23.0	3	2.4
	Asarekrom	183	42	22.9	51	27.9	47	25.7	42	22.9	1	0.6
Remote	Darman	44	19	43.2	13	29.5	8	18.2	4	9.1	0	0.0
	Fotobi	100	18	18.0	29	29.0	26	26.0	25	25.0	2	2.0
	Kukua	188	40	21.3	43	22.9	53	28.2	46	24.4	6	3.2
	Okonam	233	46	19.7	65	27.9	60	25.7	57	24.5	5	2.2
	Frequency(N)	3188	711	22.3	885	27.8	788	24.7	771	24.2	33	1.0

The use of ICT devices for communication with local community members was most reported among the age cohort above 55years (33.0%), followed by those in the age bracket 46-55 (29.8%). Use for entertainment purposes was highest in the 18-25 age cohort and decreased with age. Use for news and information purposes as well as communication with co-workers was almost equal across all age cohorts.

Table 23: Specified ICT device usage by age distribution

	Frequency (n)	Percent (%)	18-25 years	Percent (%)	26-35 years	Percent (%)	36-45 years	Percent (%)	46-55 years	Percent (%)	Above 55 years	Percent (%)
Communication with friends and family	885	27.8	201	26.8	258	26.0	181	27.6	133	29.8	112	33.0
News/source of information	788	24.7	181	24.2	249	24.9	165	25.1	111	24.9	82	24.2
Entertainment	771	24.2	200	26.7	248	24.8	156	23.8	98	22.0	69	20.4
Communication with co-workers	711	22.3	162	21.6	229	22.9	149	22.7	98	22.0	73	21.5
Other use	33	1.0	5	0.7	14	1.4	5	0.8	6	1.3	3	0.9
Frequency (N)	3188	100	749	100	998	100	656	100	446	100	339	100

Disaggregation by education (table 24) shows that the use of ICT devices for communication with co-workers was most common among postgraduates (30.1%) followed by graduates (26.1%) who are more likely to be in jobs that include ICT-based communication. The use of ICT devices for communication with local community members was highest among community members in middle school and those without formal education. Those are likely to be people in higher age cohorts which is supported by table 23 showing more intensive use of ICT devices for communication with local community members above 46 years. Use as a source of news and information was reported slightly

higher among community members with senior high (25.5%) and graduate (25.8%) education while the use for entertainment purposes did not suggest any education-related dimension.

Table 24: Specified ICT device usage by educational level

	Frequency (n)	Percent (%)	Non-Formal Education	Percent (%)	Junior High School	Percent (%)	Middle School (GCE)	Percent (%)	Senior High School	Percent (%)	Graduate/Technical	Percent (%)	Postgraduate	Percent (%)
Communication with co-workers	711	22.3	111	21.4	213	21.6	89	20.5	184	22.6	108	26.1	6	30.0
Communication with friends and family	885	27.8	159	30.6	276	28.0	142	32.8	210	25.8	93	22.5	5	25.0
News/source of information	788	24.7	126	24.3	236	23.9	107	24.7	208	25.5	107	25.8	4	20.0
Entertainment	771	24.2	119	22.9	255	25.8	93	21.5	205	25.1	94	22.7	5	25.0
Other uses	33	1.0	4	0.8	7	0.7	2	0.5	8	1.0	12	2.9	0	0.0
Frequency (N)	3188	100	519	100	987	100	433	100	815	100	414	100	20	100

Furthermore, disaggregation by gender indicated that more females (28.5%) than males (27.0%) reported using ICT devices for communication with community members. Again, slightly more females (25.0%) than males (24.4%) reported using ICT devices as news/source of information and for entertainment (25.0% vs. 23.4%). Communication with co-workers, however, was high with male respondents (23.9% vs. 20.7%). The latter could be due to a situation where males are more likely to be in jobs that include ICT-based communication.
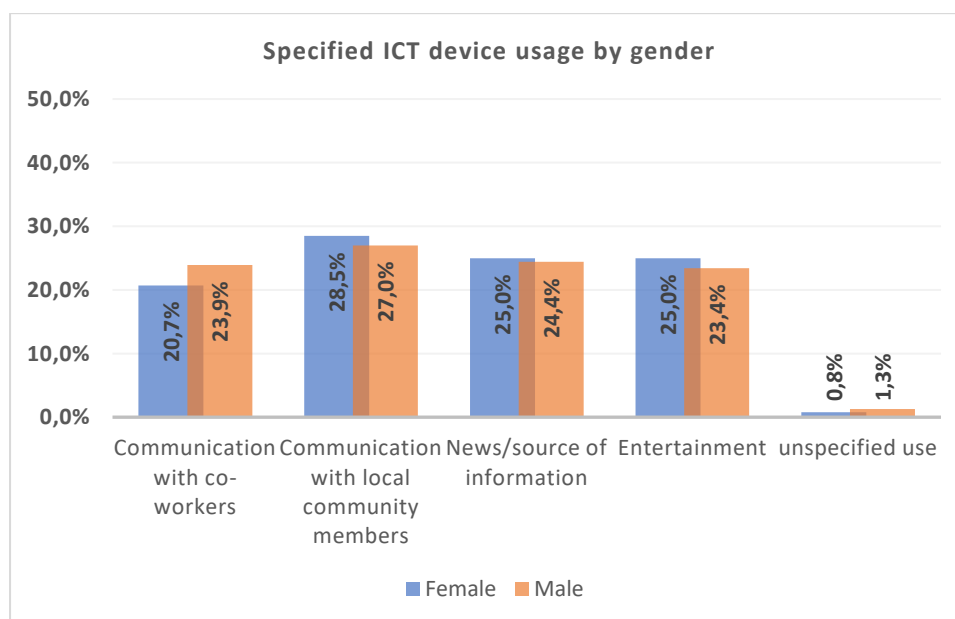
Figure 17: Specified ICT device usage by gender

Frequency of ICT usage

Respondents were asked about the frequency of ICT usage in their daily activities. Generally, when looking at the use of ICTs by the community, some differences can be observed. In 13 out of 27 communities between 75 and 100 percent of respondents reported using ICTs daily. In 25 out of 27 communities, more than half of the respondents use ICTs daily. Only three communities' respondents report lower frequencies of ICT use, namely Traio, Okanta, and Suhum Zongo, where 33.3, 44.7 and 48.8 percent of respondents use ICTs daily respectively, which does not seem to be caused by poor network connectivity (see Table 28). No clear correlation could be found between ICT use and distance.

Table 25: Frequency of ICT usage in the communities surveyed

Distance	Community	Frequency (n)	None	Percent (%)	Daily	percent (%)	Weekly	Percent (%)	Monthly/ Annually	Percent (%)
Close	Adoagyiri	29	0	0.0	29	100.0	0	0.0	0	0.0
	Ahenbronum	20	0	0.0	20	100.0	0	0.0	0	0.0
	Ahojo	35	6	17.1	28	80.0	0	0.0	1	2.9
	Amoakrom	39	18	46.1	20	51.3	1	2.6	0	0.0
	Ministries	18	0	0.0	18	100.0	0	0.0	0	0.0
	Paradise	20	1	5.0	17	85.0	2	10.0	0	0.0
	Sakyikrom	27	7	25.9	20	74.1	0	0.0	0	0.0
	Suhum Zongo	25	13	52.0	12	48.0	0	0.0	0	0.0
	Sunshine	21	3	14.3	13	61.9	5	23.8	0	0.0
Medium	Akrabo	37	1	2.7	34	91.9	1	2.7	1	2.7
	Akwene Dobro	61	30	49.2	28	45.9	3	4.9	0	0.0
	Avaga/Wangara	28	5	17.9	22	78.5	1	3.6	0	0.0
	Kofigya	15	6	40.0	8	53.3	0	0.0	1	6.7
	Kwabena Kumi	41	4	9.8	34	82.9	2	4.9	1	2.4
	Ntoaso	59	15	25.4	39	66.1	5	8.5	0	0.0
	Okanta	47	26	55.3	21	44.7	0	0.0	0	0.0
	Oparekrom	35	1	2.9	30	85.7	2	5.7	2	5.7
	Traio	39	19	48.7	13	33.3	4	10.3	3	7.7
Remote	Ahwerease	36	2	5.5	33	91.7	1	2.8	0	0.0
	Akoti	36	6	16.6	29	80.6	1	2.8	0	0.0
	Amanfrom	84	34	40.5	47	55.9	3	3.6	0	0.0
	Amanhyia	40	12	30.0	23	57.5	2	5.0	3	7.5
	Asarekrom	56	15	26.8	40	71.4	0	0.0	1	1.8
	Darman	20	0	0.0	20	100.0	0	0.0	0	0.0
	Fotobi	37	2	5.4	30	81.1	1	2.7	4	10.8
	Kukua	74	28	37.8	38	51.3	5	6.8	3	4.1
	Okonam	83	23	27.7	55	66.3	1	1.2	4	4.8
	Frequency (N)	1062	277	26.1	721	67.9	40	3.8	24	2.2

Additionally, when looking at the responses per gender, the results show that the daily use of ICTs by males is significantly higher (74.2 %) than by females (62.1 %). Complementarily, the number of women who reported never using ICTs is also higher (30.3 %) than that of men (21.5 %).

Table 26: Frequency of ICT usage per gender of respondents

	Frequency (n)	None	Percent (%)	Daily	Percent (%)	Weekly	Percent (%)	Monthly	Percent (%)	Quarterly	Percent (%)	Annually	Percent (%)
Female	551	167	30.3	342	62.1	25	4.5	6	1.0	3	0.6	8	1.5
Male	511	110	21.5	379	74.2	15	2.9	3	0.6	1	0.2	3	0.6
Frequency(N)	1062	277	26.1	721	67.9	40	3.8	9	0.8	4	0.4	11	1.0

When looking at the age distribution of ICT usage (table 27), the data collected shows that across all age groups the majority of respondents use ICT devices daily. For the younger age cohorts (18-25 / 26-35) three-quarters of respondents (75.8 % / 73.6 %) use ICTs daily while around 20 % reported not using ICT at all. In the middle age groups (36-45 / 46-55) still more than 60 per cent (63.1 % / 63 %) use ICTs daily, whereas almost 30 percent (28.5 % / 29.5 %) do not use ICTs at all in these age cohorts. In the age group over 55 years, 55 percent of respondents use ICTs daily, while 40.4 percent of cent do not use ICTs at all.

Table 27: Frequency of ICT usage per age distribution

	Frequency (n)	None	Percentage (%)	Daily	Percentage (%)	Weekly	Percentage (%)	Monthly	Percentage (%)	Quarterly	Percentage (%)	Annually	Percentage (%)
18-25 years	248	50	20.2	188	75.8	7	2.8	1	0.4	0	0.0	2	0.8
26-35 years	303	62	20.4	223	73.6	14	4.6	2	0.7	0	0.0	2	0.7
36-45 years	214	61	28.5	135	63.1	11	5.1	1	0.5	3	1.4	3	1.4
46-55 years	146	43	29.5	92	63.0	5	3.4	5	3.4	0	0.0	1	0.7
Above 55 years	151	61	40.4	83	55.0	3	2.0	0	0.0	1	0.6	3	2.0
Frequency(N)	1062	277	26.1	721	67.9	40	3.8	9	0.8	4	0.4	11	1.0

Challenges in Accessing ICT Devices

Most respondents in the surveyed communities (87.5%) reported using ICT devices such as mobile phones, computers, and laptops mainly for communication. The study, therefore, sought to find out if respondents have challenges in accessing ICT devices. Most respondents 691 (65.1%) reported no significant challenge whilst 371 (34.9%) reported various challenges. The responses are represented in figure 18 below.
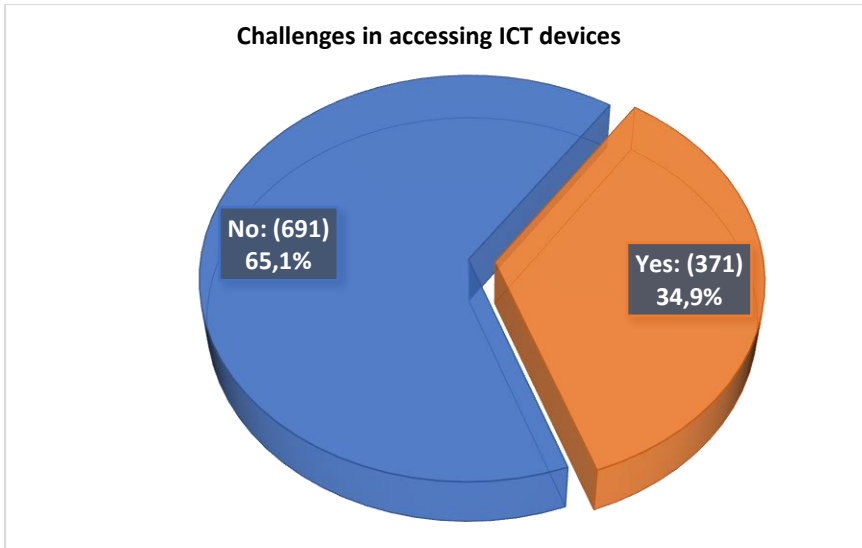
Figure 18: Challenges in accessing ICT devices

Comparatively, more than half of the local government officials surveyed (79%) indicated that they have no challenge accessing ICT devices while 21% reported some challenges. Figure 19 shows responses by local Government officials surveyed.
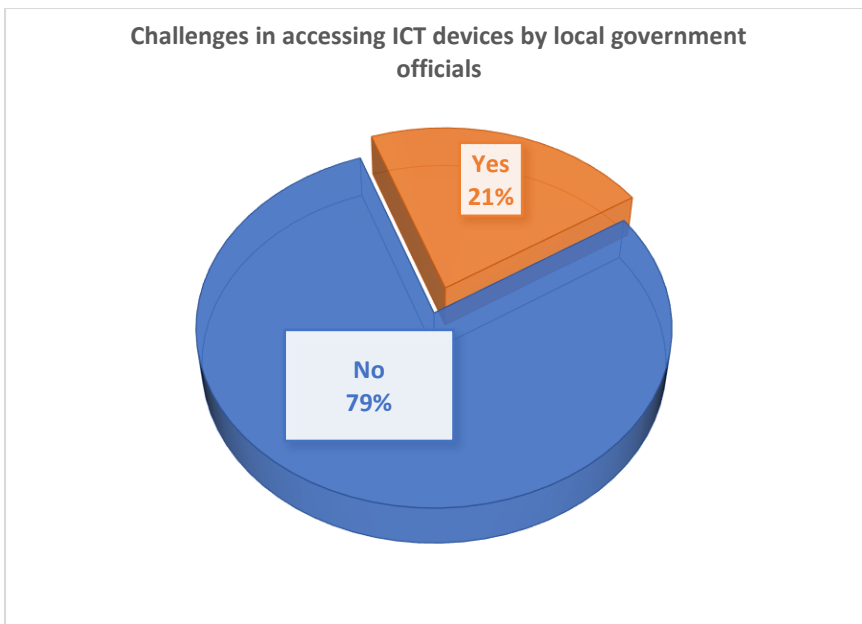
Figure 19: Challenges in accessing ICT devices by local government officials

Accordingly, respondents who reported challenges in using ICT devices were asked to specify. Most respondents across all age groups identified poor network connectivity as the main challenge (36.5%) followed by inadequate digital competence (33.7). Other challenges identified included the high cost of internet data (24.7%) and erratic power supply or defective devices (5.1%). When looking at the disaggregation of challenges by the community (table 28), it becomes evident that most challenges appear to be community specific. The community disaggregation of poor network quality suggests which of the surveyed communities seem to have general connectivity issues which do not correlate

with the remoteness of the community. Problems related to poor internet connectivity were reported in close and intermediate communities such as Ahenbronum (45%), Oparekrom (42.8%), Paradise (40%), and Traio (33.3%).

Table 28: Specific challenges in accessing ICT devices by the community

Community	Frequency (n)	None	Percent (%)	poor network connectivity	Percent (%)	lack of necessary training to use ICT	Percent (%)	high cost of ICT tools and data	Percent (%)	damaged phone / Electric power	Percent (%)
Adoagyiri	29	25	86.2	0	0.0	3	10.3	1	3.5	0	0.0
Ahenbronum	20	4	20.0	9	45.0	0	0.0	6	30.0	1	5.0
Ahojo	35	19	54.3	3	8.6	11	31.4	2	5.7	0	0.0
Amoakrom	39	20	51.3	9	23.1	0	0.0	7	17.9	3	7.7
Ministries	18	16	88.9	0	0.0	2	11.1	0	0.0	0	0.0
Paradise	20	4	20.0	8	40.0	0	0.0	8	40.0	0	0.0
Sakyikrom	27	26	96.3	0	0.0	1	3.7	0	0.0	0	0.0
Suhum Zongo	25	23	92.0	0	0.0	2	8.0	0	0.0	0	0.0
Sunshine	21	21	100	0	0.0	0	0.0	0	0.0	0	0.0
Akrabo	37	14	37.9	8	21.6	12	32.4	3	8.1	0	0.0
Akwene Dobro	61	57	93.5	3	4.9	1	1.6	0	0.0	0	0.0
Avaga/Wangara	28	20	71.5	2	7.1	5	17.8	1	3.6	0	0.0
Kofigya	15	14	93.3	1	6.7	0	0.0	0	0.0	0	0.0
Kwabena Kumi	41	29	70.7	1	2.5	8	19.5	3	7.3	0	0.0
Ntoaso	59	43	72.9	7	11.8	1	1.7	8	13.6	0	0.0
Okanta	47	35	74.5	1	2.1	4	8.5	5	10.6	2	4.3
Oparekrom	35	9	25.7	15	42.8	3	8.6	7	20.0	1	2.9
Traio	39	11	28.2	13	33.3	11	28.2	3	7.7	1	2.6
Ahwerease	36	14	38.9	8	22.2	1	2.8	13	36.1	0	0.0
Akoti	36	16	44.4	1	2.8	13	36.1	5	13.9	1	2.8
Amanfrom	84	65	77.4	13	15.5	6	7.1	0	0.0	0	0.0
Amanhyia	40	25	62.5	3	7.5	9	22.5	3	7.5	0	0.0
Asarekrom	56	41	73.2	0	0.0	9	16.1	6	10.7	0	0.0
Darman	20	19	95.0	0	0.0	0	0.0	1	5.0	0	0.0
Fotobi	37	28	75.7	0	0.0	5	13.5	1	2.7	3	8.1
Kukua	74	40	54.0	11	14.9	13	17.6	6	8.1	4	5.4
Okonam	83	53	63.9	27	32.5	1	1.2	0	0.0	2	2.4
Total	1062	691	65.0	143	13.5	121	11.4	89	8.4	18	1.7

The most frequent challenge reported by Local Government officials surveyed was associated with poor network connectivity (70.0%) as well as the cost of internet data (20%) and ICT devices (10.0%). Figure 20 shows challenges faced by Local Government officials in using specified ICT devices.
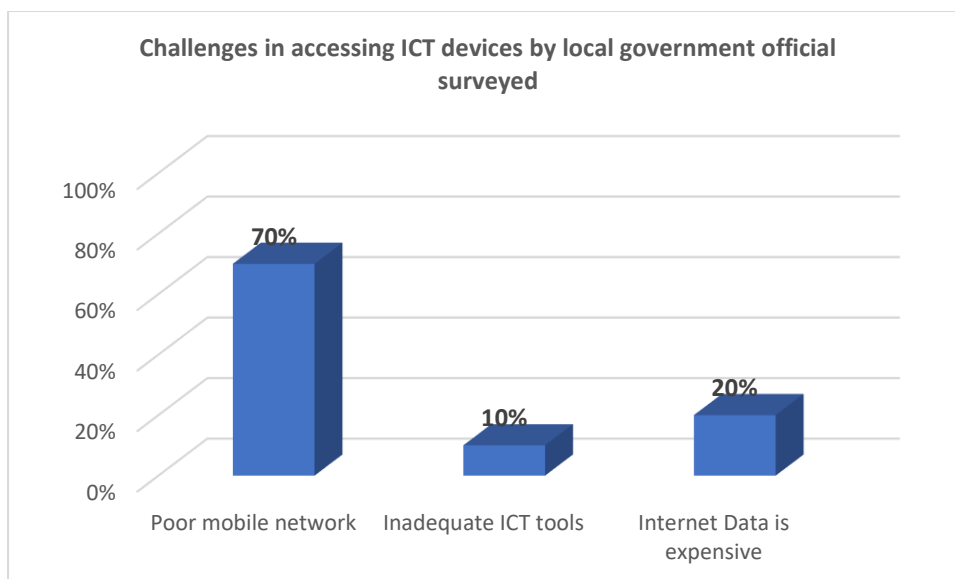
Figure 20: Challenges in accessing ICT devices by local government officials surveyed

3.4. Ownership, and Access to Mobile Phones

The survey results indicated that the vast majority of the people (92.1%) in the municipalities either owned a cell phone. Table 29 shows the mobile phone ownership of respondents per community surveyed which was considerably high (83.3% to 100%) across all communities with 20 out of 27 communities with more than 90% of respondents reporting owning a mobile phone.

Table 29: Mobile phone ownership of respondents per community

Community	Frequency (n)	Yes	Percent (%)	No	Percent (%)
Adoagyiri	29	28	96.6	1	3.4
Ahenbronum	20	18	90.0	2	10.0
Ahojo	35	33	94.3	2	5.7
Amoakrom	39	38	97.4	1	2.6
Ministries	18	18	100.0	0	0.0
Paradise	20	19	95.0	1	5.0
Sakyikrom	27	26	96.3	1	3.7
Suhum Zongo	25	24	96.0	1	4.0
Sunshine	21	19	90.5	2	9.5
Akrabo	37	36	97.3	1	2.7
Akwene Dobro	61	51	83.6	10	16.4
Avaga/Wangara	28	24	85.7	4	14.3
Kofigya	15	15	100.0	0	0.0
Kwabena Kumi	41	36	87.8	5	12.2
Ntoaso	59	59	100.0	0	0.0
Okanta	47	43	91.5	4	8.5

Oparekrom	35	32	91.4	3	8.6
Traio	39	36	92.3	3	7.7
Ahwerease	36	30	83.3	6	16.7
Akoti	36	36	100.0	0	0.0
Amanfrom	84	80	95.2	4	4.8
Amanhyia	40	38	95.0	2	5.0
Asarekrom	56	50	89.3	6	10.7
Darman	20	20	100.0	0	0.0
Fotobi	37	33	89.2	4	10.8
Kukua	74	66	89.2	8	10.8
Okonam	83	70	84.3	13	15.7
Frequency (N)	1062	978	92.1	84	7.9

Disaggregation of reported mobile phone ownership per age of respondents (Table 30) shows that more than 90% of individuals in all age cohorts except for those above 55years (78.1%) owned mobile phones.

Table 30: Mobile phone ownership of respondents by age distribution

Mobile phone ownership	Frequency (n)	Yes	Percentage (%)	No	Percentage (%)
18-25 years	248	231	93.1	17	6.9
26-35 years	303	294	97.0	9	3.0
36-45 years	214	203	94.9	11	5.1
46-55 years	146	132	90.4	14	9.6
Above 55 years	151	118	78.1	33	21.9
Frequency (N)	1062	978	92.1	84	7.9

A breakdown per gender distribution of respondents (Figure 21) shows that slightly more males (94.7%) than females (89.7%) reported owning a mobile phone.
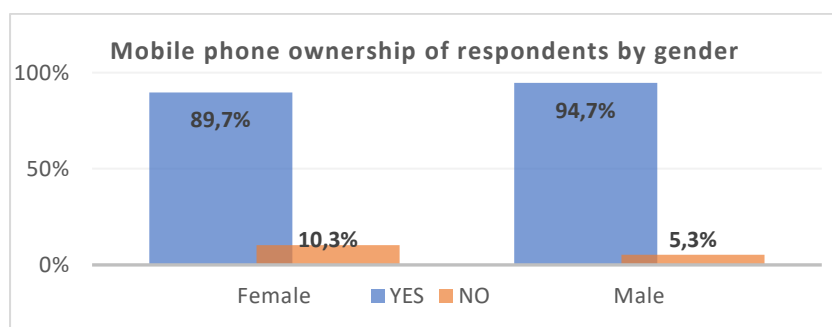
Figure 21: Mobile phone ownership of respondents by gender

Close to half (48%) of the community members surveyed reported owning basic phones locally called "yam phones" or feature phones.[4] Proportionally, more than a third (41%) reported smartphones while (11%) reported owning both. All local government officials surveyed reported using mobile phones. However, most of them (68%) reported using smartphones while others (32%) reported using them with feature phones. Figure 22 shows the frequency of specified mobile phones owned by community members compared with local government officials.
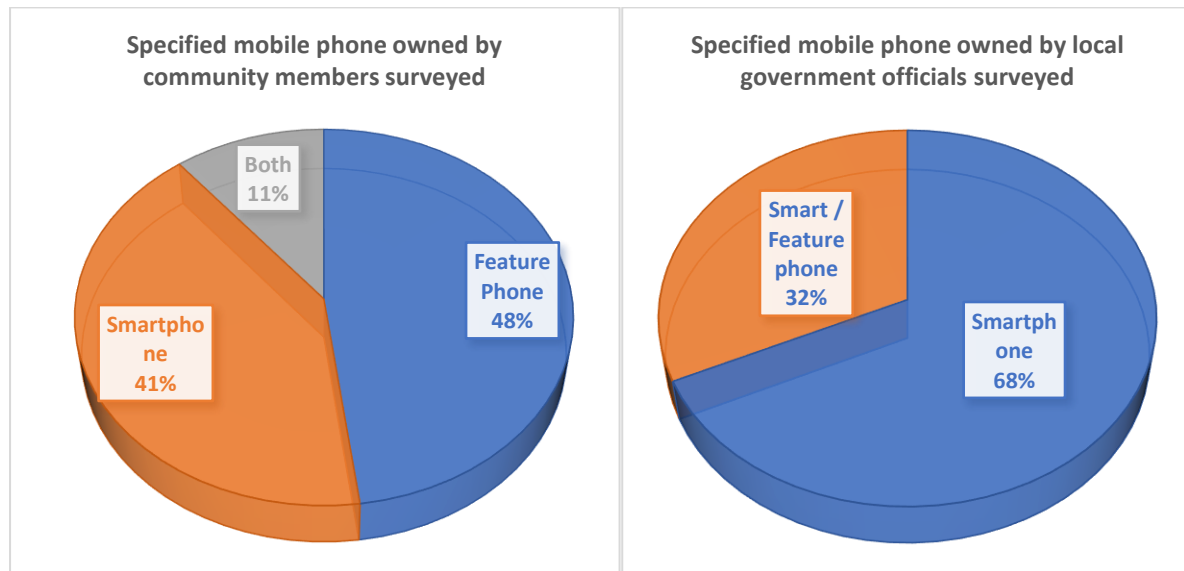
Figure 22: Specified mobile phone owned by community members and Local Government officials

Mobile Phone Access

Of those respondents who reported no ownership (84 /7.9%), 56 % reported to have access to mobile phones. As shown in figure 23 below, most respondents who reported not owning a mobile phone but having access were in the higher age cohorts. The disaggregation per age indicates that about three-quarters of respondents in the age group 46-55years who reported no ownership, have access to a mobile phone. In the same category, more than half of these respondents in the age cohort 26-35years, and above 55 years were recorded. A breakdown per gender distribution of respondents shows that females (58.9%) were slightly higher than males (56.0%) who do not own but have access to mobile phones. Figure 23 shows respondents who do not own but have access to a mobile phone in the surveyed communities.

---

[4] Mobile phones that allow users to perform functions such as make/receive calls and send/receive text messages. Basic phones are often referred as "yam" in Ghana (GSS & NCA,2020). Feature phones occupy the middle ground between simple basic / yam phones and smartphones. They generally have basic GPS, a camera, an MP3 player, limited Internet access capability, and the ability to run simple apps (Murugesan, 2013).
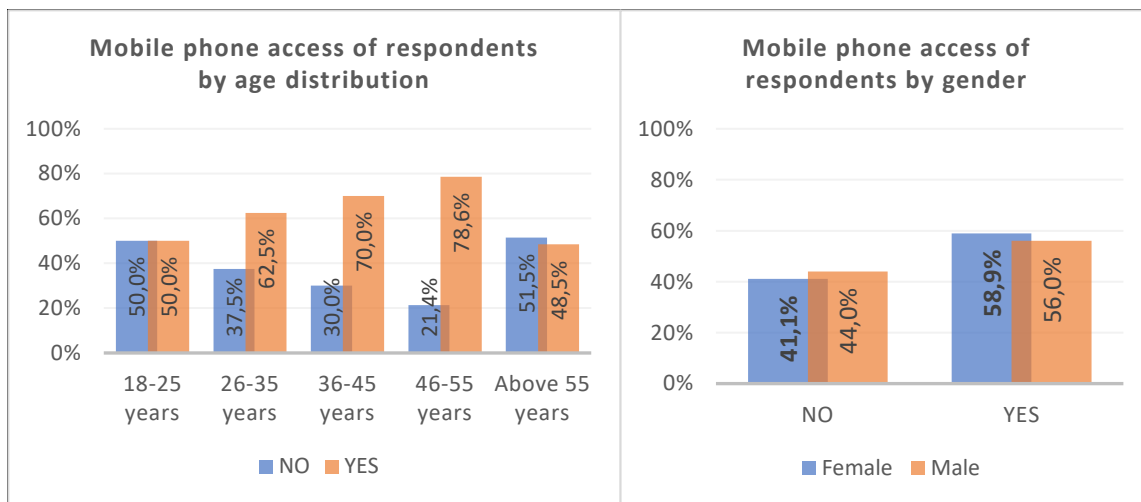
Figure 23: Comparison of mobile phone access of respondents per age and gender

Additionally, among persons living with disability surveyed who reported not owning a mobile phone, only 7 (25%) indicated having access to a mobile phone while 21 (75%) stated no access at all. Figure 24 shows mobile phone access of persons living with disabilities who reported not owning a mobile phone.
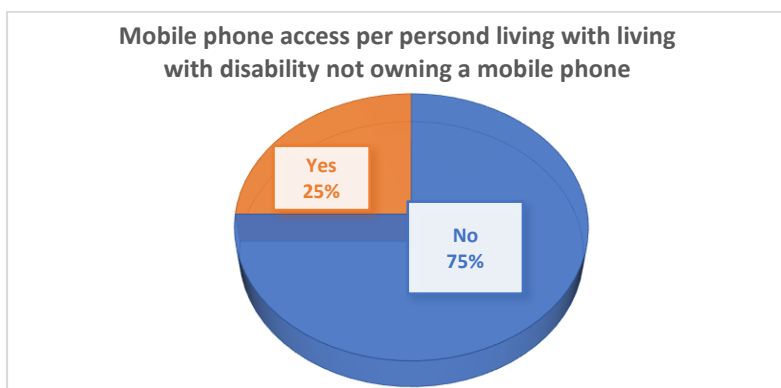
Figure 24: Mobile phone access per person living with a disability

3.5. Internet Service Providers, Access, and Nature of Connectivity

Major network operators in Ghana are Vodafone, MTN, AirtelTigo, and Glo. Even though most respondents reported having subscribed to more than one network, in the survey more than half of the respondents (53.7%) reported using MTN followed by Vodafone (31.7%). Fewer of the respondents reported using Airteltigo (12.2%) or Glo (2.4%)[5]. Figure 25 shows the type of mobile network and internet service providers in the municipalities.

---

[5] See a survey report by the Ghana National Communications Authority (NCA)
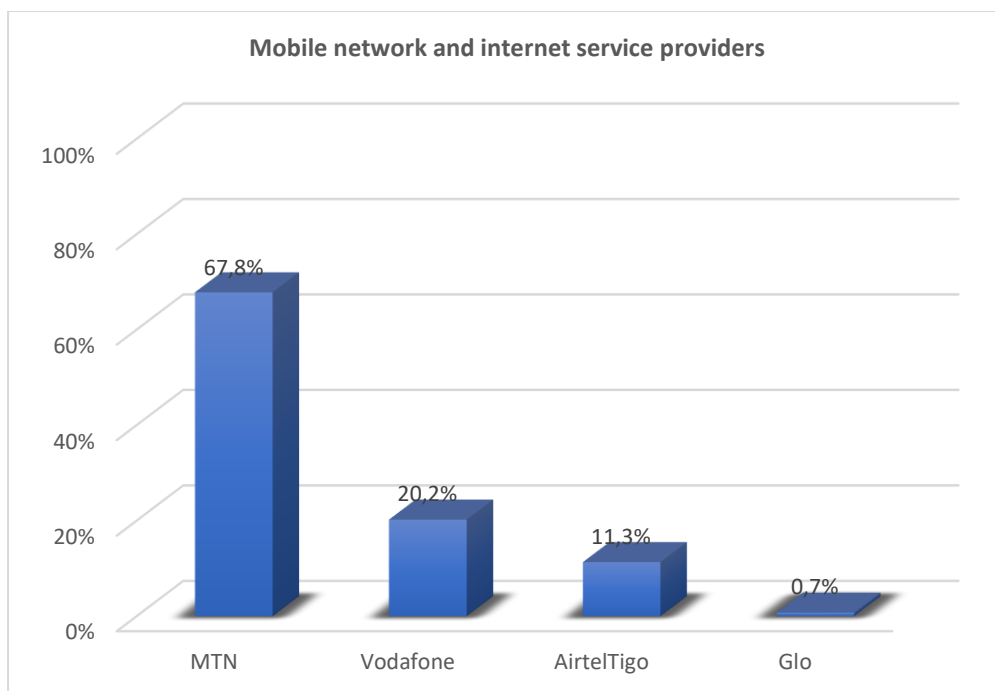
Figure 25: Mobile network and internet service providers

Internet Access

Internet access refers to the ability of individuals to connect to the internet using a network access device (NAD). In the survey, more than half of the community members (584/55.0%) reported no access to the internet. Nevertheless, (478/45%) of respondents reported access to the internet. Correspondingly, all local government officials surveyed reported access to the internet. Table 31 shows general internet access in the surveyed communities. The table shows significant differences between the communities when it comes to internet access, but no correlation between access and remoteness of the community.

Table 31: Internet access in the surveyed communities

Distance	Community	Frequency (n)	No	Percent (%)	Yes	Percent (%)
Close	Adoagyiri	29	10	34.5	19	65.5
	Ahenbronum	20	11	55.0	9	45.0
	Ahojo	35	18	51.4	17	48.6
	Amoakrom	39	32	82.1	7	17.9
	Ministries	18	6	33.3	12	66.7

---

https://statsghana.gov.gh/gssmain/fileUpload/pressrelease/Household%20Survey%20on%20ICT%20in%20Ghana%20(Abridged)%20new%20(1).pdf

		Frequency (N)	No	Percent (%)	Yes	Percent (%)
	Paradise	20	9	45.0	11	55.0
	Sakyikrom	27	10	37.0	17	63.0
	Suhum Zongo	25	11	44.0	14	56.0
	Sunshine	21	10	47.6	11	52.4
Intermediate	Akrabo	37	22	59.5	15	40.5
	Akwene Dobro	61	35	57.4	26	42.6
	Avaga/Wangara	28	14	50.0	14	50.0
	Kofigya	15	3	20.0	12	80.0
	Kwabena Kumi	41	19	46.3	22	53.7
	Ntoaso	59	18	30.5	41	69.5
	Okanta	47	34	72.3	13	27.7
	Oparekrom	35	12	34.3	23	65.7
	Traio	39	31	79.5	8	20.5
Remote	Ahwerease	36	16	44.4	20	55.6
	Akoti	36	25	69.4	11	30.6
	Amanfrom	84	66	78.6	18	21.4
	Amanhyia	40	22	55.0	18	45.0
	Asarekrom	56	34	60.7	22	39.3
	Darman	20	4	20.0	16	80.0
	Fotobi	37	13	35.1	24	64.9
	Kukua	74	33	44.6	41	55.4
	Okonam	83	66	79.5	17	20.5
	Frequency (N)	1062	584	55.0	478	45.0

Disaggregation per age distribution of respondents (Table 32) indicates that younger adults between the ages of 18-25 (63.7%) followed by 26-35 (63.0%) have greater access to the internet than older people above 55years.

Table 32: Internet access of community members as per age distribution of respondents

	Frequency (n)	No	Percent (%)	Yes	Percent (%)
18-25 years	248	90	36.3	158	63.7
26-35 years	303	112	37.0	191	63.0
36-45 years	214	137	64.0	77	36.0
46-55 years	146	107	73.3	39	26.7
Above 55 years	151	138	91.4	13	8.6
Frequency (N)	1062	584	55.0	478	45.0

Additionally, the distribution per gender of respondents shows a clear difference between males (52.3%) and females (38.3%). Figure 26 shows internet access in the surveyed communities per gender distribution of respondents.
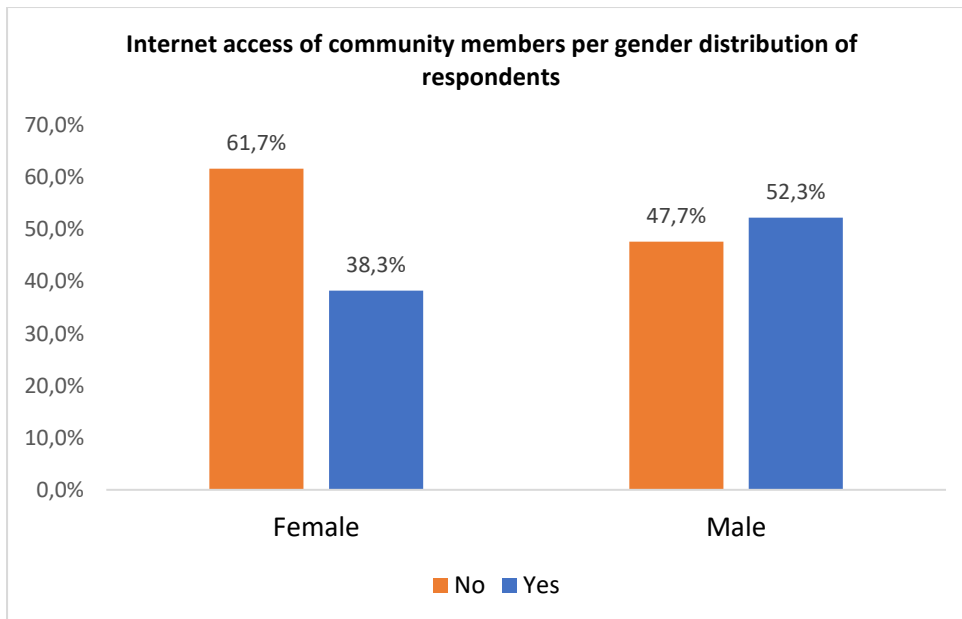
Figure 26: Internet access of community members per gender distribution of respondents

For educational distribution, the lowest access (14.2%) was reported among respondents in the non-formal education category and significantly higher among those in the formal educational levels such as Senior High School (61.5%), Graduate (90.8%), and Postgraduate (83.3%). Table 33 shows a direct correlation between the level of education and internet access.

Table 33: Internet access of community members per the educational level of respondents

	Frequency (n)	No	Percent (%)	Yes	Percent (%)
Junior High School	321	185	57.6	136	42.4
Senior High School	252	82	32.5	170	67.5
Non-Formal Education	204	175	85.8	29	14.2
Middle School (GCE)	160	134	83.8	26	16.3
Graduate/Technical	119	8	6.7	111	93.3
Postgraduate	6	0	0.0	6	100
Frequency (N)	1062	584	55.0	478	45.0

Figure 27 shows that a significant number of persons living with disability in the communities surveyed (91.5%) reported no access to the internet whilst only a few (8.5%) reported access to the internet.
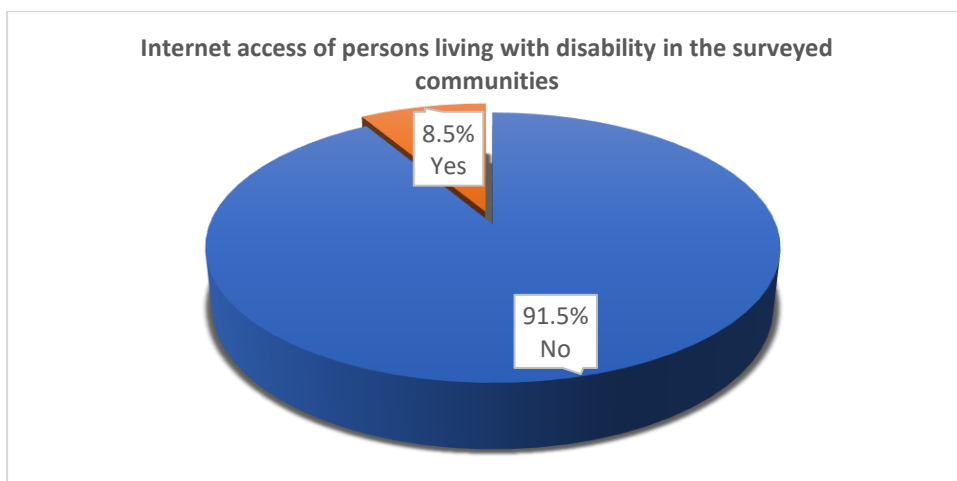
Figure 27: Internet access of persons living with disability in the surveyed communities

Internet Connectivity

Almost all respondents (89.9%) reported using mobile phones to connect to the internet. Other internet access methods marginally reported were Wi-Fi hotspot (4.0%), internet modem (3.6%), and Broadband (2.5%). Table 34 shows the internet connection method in the surveyed communities with mobile phones being the primary connection method across all communities. In a few communities, several respondents use other internet access methods.

Table 34: Internet access method in the surveyed communities

Distance	COMMUNITY	Frequency (n)	Mobile Phone	Percent (%)	Wi-Fi Hotspot	Percent (%)	Internet Modem	Percent (%)	Internet Café / Broadband	Percent (%)
Close	Adoagyiri	20	19	95.0	0	0.0	1	5.0	0	0.0
	Ahenbronum	9	9	100	0	0.0	0	0.0	0	0.0
	Ahojo	19	17	89.4	1	5.3	1	5.3	0	0.0
	Amoakrom	7	7	100	0	0.0	0	0.0	0	0.0
	Ministries	12	12	100	0	0.0	0	0.0	0	0.0
	Paradise	11	11	100	0	0.0	0	0.0	0	0.0
	Sakyikrom	27	17	63.0	3	11.1	6	22.2	1	3.7
	Suhum Zongo	21	13	61.9	1	4.8	3	14.3	4	19.0
	Sunshine	12	11	91.7	1	8.3	0	0.0	0	0.0
Intermediate	Akrabo	17	15	88.2	1	5.9	1	5.9	0	0.0
	Akwene Dobro	26	26	100	0	0.0	0	0.0	0	0.0
	Avaga/Wangara	15	13	86.7	0	0.0	0	0.0	2	13.3
	Kofigya	13	11	84.6	0	0.0	0	0.0	2	15.4
	Kwabena Kumi	25	22	88.0	2	8.0	1	4.0	0	0.0
	Ntoaso	44	41	93.2	0	0.0	1	2.3	2	4.5
	Okanta	13	13	100	0	0.0	0	0.0	0	0.0
	Oparekrom	23	23	100	0	0.0	0	0.0	0	0.0
	Traio	10	8	80.0	1	10.0	1	10.0	0	0.0
R e	Ahwerease	21	20	95.2	0	0.0	0	0.0	1	4.8

Akoti	14	11	78.7	1	7.1	1	7.1	1	7.1
Amanfrom	18	18	100	0	0.0	0	0.0	0	0.0
Amanhyia	19	18	94.7	0	0.0	1	5.3	0	0.0
Asarekrom	27	21	77.8	5	18.5	1	3.7	0	0.0
Darman	16	16	100	0	0.0	0	0.0	0	0.0
Fotobi	27	24	88.9	3	11.1	0	0.0	0	0.0
Kukua	44	41	93.2	2	4.5	1	2.3	0	0.0
Okonam	17	17	100	0	0.0	0	0.0	0	0.0
Frequency (N)	527	474	89.9	21	4.0	19	3.6	13	2.5

Table 35 shows frequencies of internet access methods per age distribution of respondents. Out of 474 respondents who reported using mobile phones to access the internet, all the age cohorts in the survey communities recorded an aggregate above 85 percent. However, older people above 55years recorded the highest (100%) aggregate in the use of mobile phones to access the internet. Younger people between the ages of 18-25 years recorded 94.6% in the use of mobile phones to access the internet but less the other means. However, those in the age group 36-45 and 45-55years recorded 86.4% and 88.4% respectively but slightly higher in the other specified means compared to the rest of the other age groups. This might be due to job-related access opportunities through broadband, Wi-Fi hotspots, or modems.

Table 35: Internet access method per age distribution of respondents

	Frequency (n)	Percentage	18-25 years	Percent (%)	26-35 years	Percent (%)	36-45 years	Percent (%)	46-55 years	Percent (%)	Above 55 years	Percent (%)
Mobile Phone	474	89.9	158	94.6	189	87.5	76	86.4	38	88.4	13	100
Wi-Fi Hotspot	21	4.0	4	2.4	8	3.7	6	6.8	3	7.0	0	0.0
Internet Modem	19	3.6	4	2.4	10	4.6	4	4.5	1	2.3	0	0.0
Internet Cafe	11	2.1	0	0.0	1	0.5	1	1.1	0	0.0	0	0.0
Broadband	2	0.4	1	0.6	8	3.7	1	1.1	1	2.3	0	0.0
Frequency (N)	527	100	167	100	216	100	88	100	43	100	13	100

Out of 474 respondents who reported using mobile phones to access the internet, both genders recorded an aggregate above 85 percent with females reporting 94.2%. However, males dominated the use of other means such as Wi-Fi hotspots, modems, and internet cafés to access the internet. Table 36 shows frequencies of internet access methods per gender distribution of respondents.

Table 36: Internet access method per gender distribution of respondents

	Frequency (n)	Percent (%)	Male	Percent (%)	Female	Percent (%)
Mobile Phone	474	89.9	261	86.7	213	94.2
Wi-Fi Hotspot	21	4.0	17	5.7	4	1.8
Internet Modem	19	3.6	15	5.0	4	1.8
Internet Cafe	11	2.1	7	2.3	4	1.8
Broadband	2	0.4	1	0.3	1	0.4
Frequency (N)	527	100	301	100	226	100

Out of 474 respondents who reported using mobile phones to access the internet, the various educational groups recorded an aggregate above 80%. People with non-formal education recorded 97.3% use of mobile phones to access the internet and 3.3% for internet cafes. Those who have completed junior high school recorded 95.1% use of mobile phones to access the internet but less than 3% for each of the other means while those in the Junior high school group recorded 90.3% use of mobile phones but up to 4.8% for modem and slightly higher in the other specified means. Even though university graduates recorded the lowest aggregate in the use of mobile phones to access the internet, they recorded the highest in all the other specified means. Table 37 shows the internet connection access method per education distribution of respondents.

Table 37: Internet access method per education distribution of respondents

	Frequency (n)	Percent (%)	Junior High School	Percent (%)	Senior High School	Percent (%)	Non-Formal Education	Percent (%)	Middle School (GCE)	Percent (%)	Graduate/Technical	Percent (%)	Postgraduate	Percent (%)
Mobile Phone	474	89.9	136	95.1	168	90.3	29	96.7	26	96.3	110	81.5	5	83.3
Wi-Fi Hotspot	21	4.0	1	0.7	5	2.7	0	0.0	0	0.0	14	10.4	1	16.7
Internet Modem	19	3.6	2	1.4	9	4.8	0	0.0	0	0.0	8	5.9	0	0.0
Internet Cafe	11	2.1	4	2.8	3	1.6	1	3.3	1	3.7	2	1.5	0	0.0
Broadband	2	0.4	0	0.0	1	0.6	0	0.0	0	0.0	1	0.7	0	0.0
Frequency (N)	527	100	143	100	186	100	30	100	27	100	135	100	6	100

In the survey, out of 10 persons identified as living with disabilities and having access to the internet 9 (90%) reported accessing the internet using a mobile phone. Only one person reported accessing the internet at the café. Figure 28 shows the internet connection access method among persons living with severe disabilities (PLWD) in the surveyed communities.
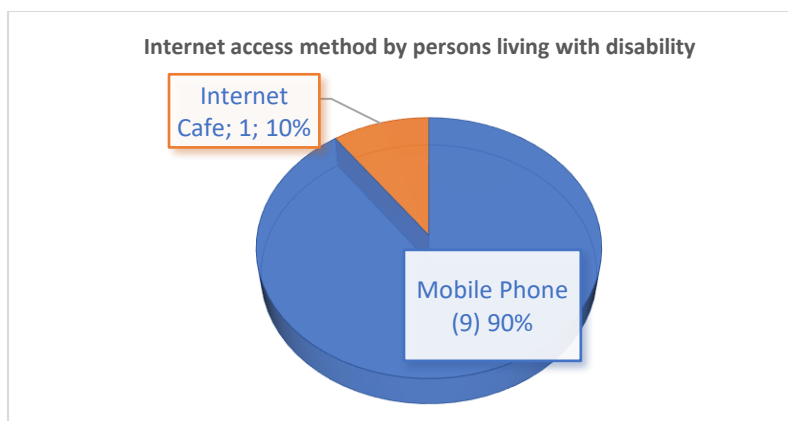
Figure 28: Internet access method by persons living with disability (PLWD)

Frequency of Internet Usage

The study sought to find out about the frequency of internet usage in the municipalities. Of those who reported using the internet (478), 461 (96.4%) indicated daily usage whilst only 13 (2.7%) stated weekly. Table 38 shows the frequency of internet usage in the surveyed communities with a vast majority of respondents across all communities using the internet daily (85.7 to 100.0%).

Table 38: Frequency of internet usage by the community

Distance	Community	Frequency (n)	Daily	Percent (%)	Weekly	Percent (%)	Once a while	Percent (%)
Close	Adoagyiri	19	19	100	0	0.0	0	0.0
	Ahenbronum	9	9	100	0	0.0	0	0.0
	Ahojo	17	16	94.1	1	5.9	0	0.0
	Amoakrom	7	7	100	0	0.0	0	0.0
	Ministries	12	12	100	0	0.0	0	0.0
	Paradise	11	11	100	0	0.0	0	0.0
	Sakyikrom	17	17	100	0	0.0	0	0.0
	Suhum Zongo	14	12	85.7	2	14.3	0	0.0
	Sunshine	11	11	100	0	0.0	0	0.0
Medium	Akrabo	15	14	93.3	0	0.0	1	6.7
	Akwene Dobro	26	24	92.3	2	7.7	0	0.0
	Avaga/Wangara	14	14	100	0	0.0	0	0.0
	Kofigya	12	12	100	0	0.0	0	0.0
	Kwabena Kumi	22	20	90.9	2	9.1	0	0.0
	Ntoaso	41	40	97.6	1	2.4	0	0.0
	Okanta	13	12	92.3	1	7.7	0	0.0
	Oparekrom	23	23	100	0	0.0	0	0.0
	Traio	8	8	100	0	0.0	0	0.0
Remote	Ahwerease	20	20	100	0	0.0	0	0.0
	Akoti	11	11	100	0	0.0	0	0.0
	Amanfrom	18	18	100	0	0.0	0	0.0
	Amanhyia	18	18	100	0	0.0	0	0.0
	Asarekrom	22	21	95.5	1	4.5	0	0.0

Darman	16	16	100	0	0.0	0	0.0
Fotobi	24	24	100	0	0.0	0	0.0
Kukua	41	36	87.8	2	4.9	3	7.3
Okonam	17	16	94.1	1	5.9	0	0.0
Frequency (N)	478	461	96.4	13	2.7	4	0.8

Disaggregation per age (Table 39) indicated that almost all the age cohorts use the internet on daily basis. However, younger people aged 18-25 (98.7%) and 26-35 (95.6%) use the internet more frequently as compared to older people 55years and above (6.6%).

Table 39: Frequency of internet usage by age distribution

	Frequency (n)	Daily	Percent (%)	Weekly	Percent (%)	Once a while	Percent (%)
18-25 years	158	156	98.7	0	0.0	2	1.3
26-35 years	191	190	99.5	1	0.5	0	0.0
36-45 years	77	74	96.1	2	2.6	1	1.3
46-55 years	39	32	82.1	7	17.9	0	0.0
Above 55 years	13	9	69.2	3	23.1	1	7.7
Frequency (N)	478	461	96.4	13	2.7	4	0.8

The frequency of internet usage by gender (Figure 29) indicates that slightly more females (97.7%) than males (95.5%) use the internet daily. Correspondingly, all local government officials surveyed reported using the internet daily.
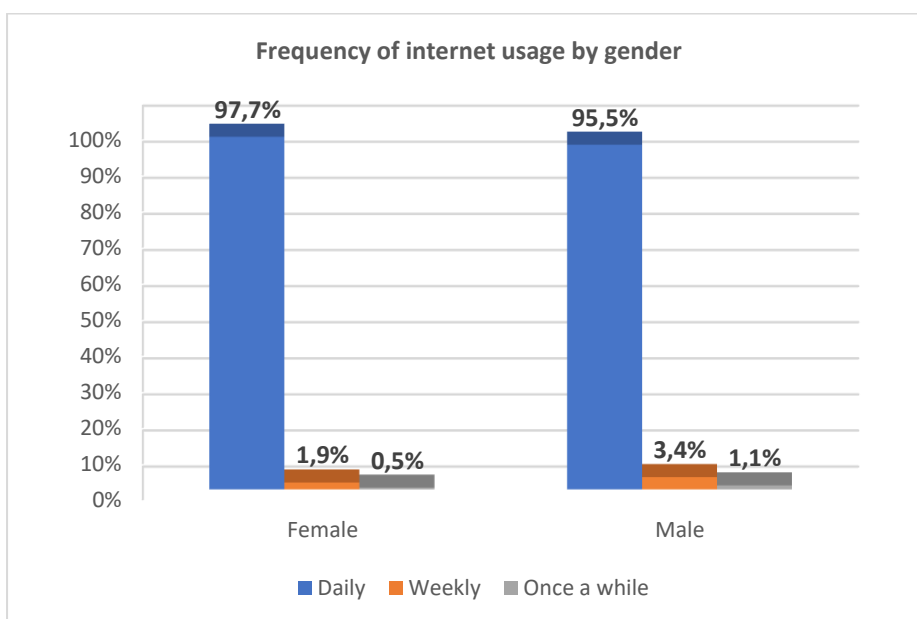

Figure 29: Frequency of internet usage by gender

On the assessment, most respondents (70.2%) reported that the internet connection was good. Only a few respondents (14.9%) reported bad internet connections.
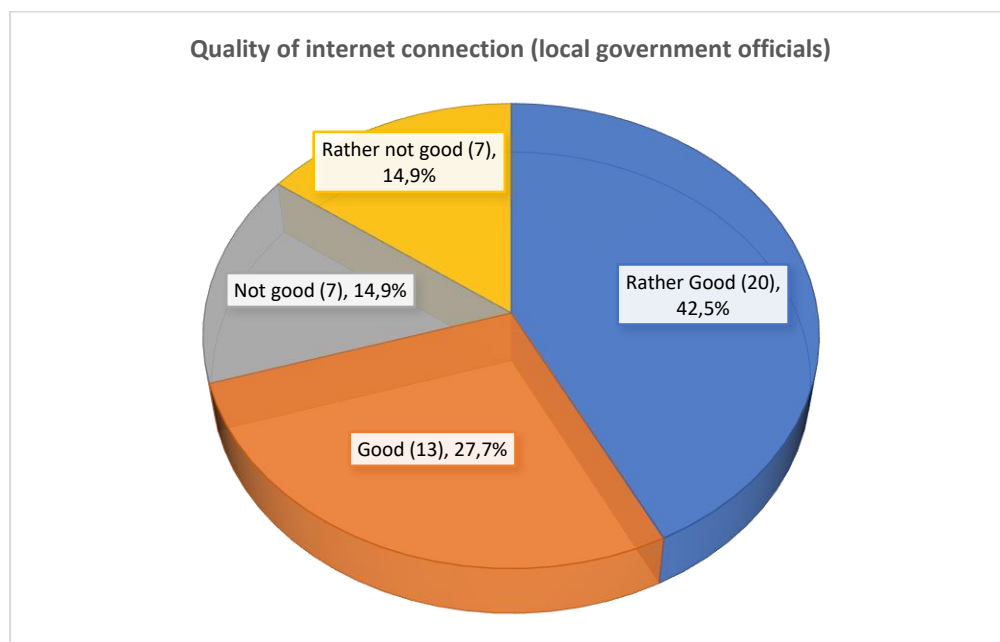

Figure 30: Quality of internet connection (local government officials)

3.6. Mobile App Usage

Frequently used Mobile Apps

Respondents were asked to indicate the most frequently used web application on their ICT devices. Most community members surveyed reported using WhatsApp (43.8%) followed by Facebook (34.4%) and mobile money-related services (11.4%). Other communications and entertainment apps such as Instagram, YouTube, Twitter, Telegram, and TikTok were reported to be marginally used by a couple of respondents. Comparatively, all local government officials surveyed reported using WhatsApp (100.00%) followed by Facebook (57.5%) and Instagram (14.9%). A relatively low number of local Government officials reported using Email (6.4%), Telegram (6.4%), YouTube (31. %), and Zoom (2.1%). Table 40 shows data from the comparison between community members and local Government officials surveyed.

Table 40: Frequently used mobile apps

Frequently used mobile apps	Frequency (N)	App Users	Percent (%)	Non-Users	Percent (%)
Community Members					
WhatsApp	1062	465	43.8	597	56.2
Facebook	1062	365	34.4	697	65.6
Mobile Money App	1062	121	11.4	941	88.6
Instagram	1062	95	9.0	967	91.0
YouTube	1062	80	7.5	982	92.5

Web Browser	1062	74	7.0	988	93.0
Twitter	1062	67	6.3	995	93.7
TikTok	1062	26	2.5	1036	97.5
Telegram	1062	18	1.7	1044	98.3
Snapchat	1062	17	1.6	1045	98.4
Zoom	1062	5	0.5	1057	99.5
Bible App	1062	4	0.4	1058	99.6
Email (Gmail/Yahoo)	1062	7	0.7	1055	99.3
Skype	1062	3	0.3	1059	99.7
LinkedIn	1062	2	0.2	1060	99.8
True Caller	1062	2	0.2	1060	99.8
Local Government Officials					
WhatsApp	47	47	100.0	0	0.0
Facebook	47	27	57.5	20	42.5
Instagram	47	7	14.9	40	85.1
Web Browser	47	5	10.6	42	89.4
Email	47	3	6.4	44	93.6
Telegram	47	3	6.4	44	93.6
YouTube	47	3	6.4	44	93.6
Zoom	47	1	2.1	46	97.9

Responses per gender distribution of community members surveyed show that about half of both genders reported using the indicated mobile apps for communication with friends and family followed by news and sources of information. Slightly more men (0.6%) than women (0.2%) reported using mobile apps for learning and business transactions.

Table 41: Specified use of mobile apps by community members per gender distribution

	Frequency (n)	Percentage (%)	Female	Percentage (%)	Male	Percentage (%)
Communication with friends /Family	1797	51.0	906	51.1	891	50.8
News and source of information	850	24.1	427	24.1	423	24.1
Entertainment	840	23.8	427	24.1	413	23.5
Learning	15	0.4	4	0.2	11	0.6
Business Transactions	10	0.3	3	0.2	7	0.4
Playing Games	8	0.2	2	0.1	6	0.4
Mobile Money	7	0.2	3	0.2	4	0.2
Frequency (N)	3527	100	1772	100	1755	100

The frequency of mobile app usage by community members in the figure below shows that up to 90.5% of respondents reported daily use while a few (7.8%) could not specify. Weekly (1.3%) and annual usage (0.3%) were marginally reported.
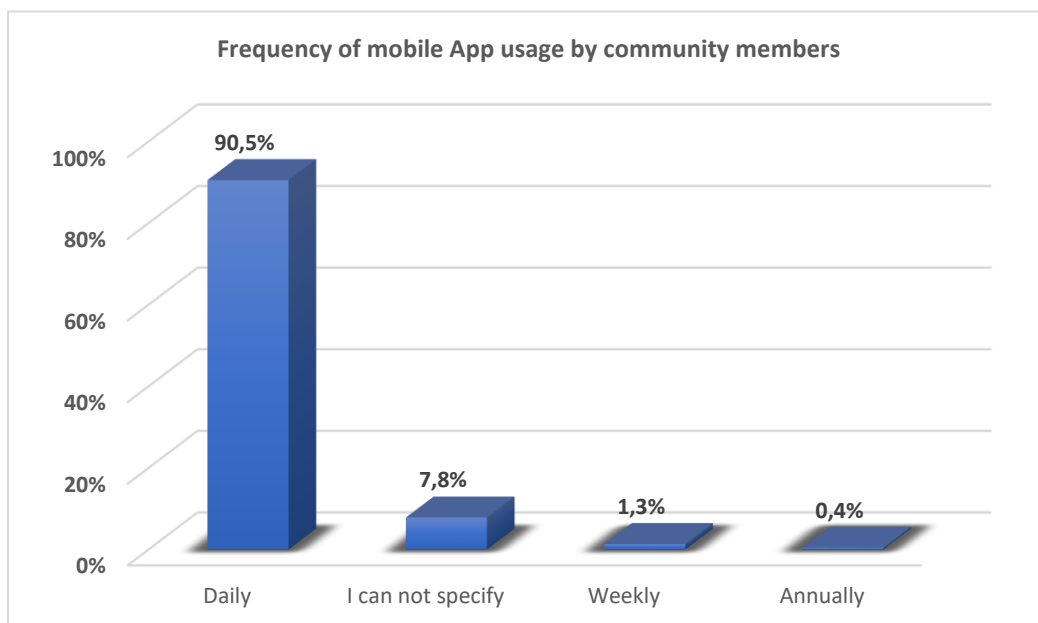
Figure 31: Frequency of mobile app usage by community members

ICT Training Acquired

As indicated in figure 15 (ICT devices commonly used in the municipality) most respondents reported using smartphones and basic phones (yam or feature) as ICT devices. A few respondents (12.1%) reported having had some form of ICT-related training and are likely to have acquired respective digital skills themselves or through exchanges with peers. Table 42 shows that more than three-quarters of the people surveyed (87.9%) across all age groups claimed they have not acquired any form of ICT-related training.

Table 42: ICT training of respondents by age distribution

	Frequency(n)	No	Percent (%)	Yes	Percent (%)
18-25 years	248	204	82.3	44	17.7
26-35 years	303	257	84.8	46	15.2
36-45 years	214	196	91.6	18	8.4
46-55 years	146	133	91.1	13	8.9
Above 55 years	151	143	94.7	8	5.3
Total Frequency (N)	1062	933	87.9	129	12.1

A breakdown per educational background (Table 43) shows that most respondents with graduate degrees (38.7%) or higher (postgraduate, 50.0%) responded in the affirmative followed by those with senior higher education. Considerably, the frequency of respondents with non-formal education (98.0%) reported having had no formal ICT-related training.

Table 43: ICT training of respondents by education

	Frequency (n)	No	Percent (%)	Yes	Percent (%)
Junior High School	321	291	90.7	30	9.3
Senior High School	252	215	85.3	37	14.7
Non-Formal Education	204	200	98.0	4	2.0
Middle School (GCE)	160	151	94.4	9	5.6
Graduate/Technical	119	73	61.3	46	38.7
Postgraduate	6	3	50.0	3	50.0
Frequency (N)	1062	933	87.9	129	12.1

A breakdown of respondents per gender in Figure 32 shows that more males (13.5%) than females (10.9) reported having acquired some form of ICT-related training. However, an aggregate of more than 85% of both genders reported no form of ICT training acquired.
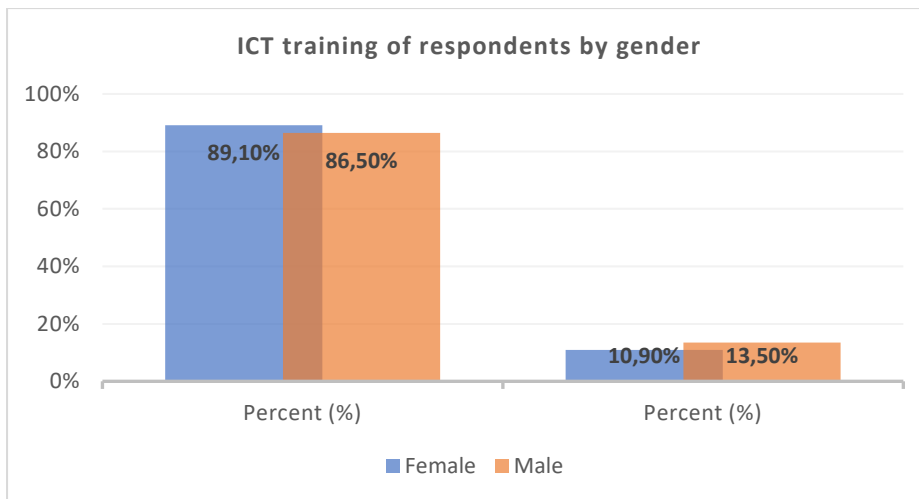

Figure 32: ICT training of respondents by gender

Figure 33 indicates that the share of persons living with disability who reported no form of ICT-related training was considerably higher (97.7%).
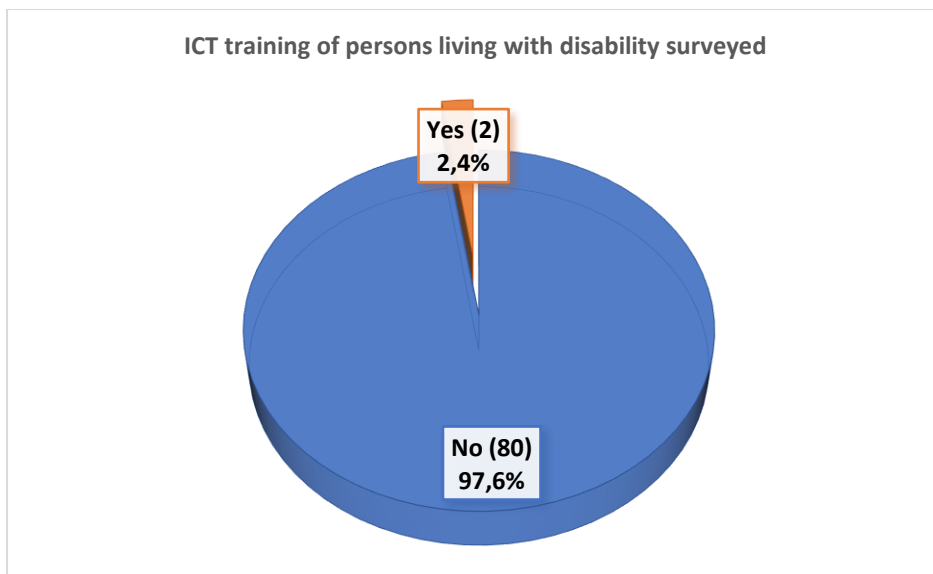
Figure 33: ICT training of persons living with disability surveyed

About three-quarters of the local Government officials surveyed (72.3%) reported no form of ICT training. It becomes evident that the proportion of local Government officials with ICT training is 15% higher compared to the general population surveyed. Figure 34 shows ICT training acquired by local government officials.

Figure 34: ICT training by local government officials

Frequencies of responses from the surveyed communities (Table 44) indicated that more than three-quarters (87.9%) of the respondents reported having not acquired any form of ICT-related training. The data did not show any significant correlation between the distance of communities to the location of the Municipal Assembly and the ICT training acquired. This is confirmed by some remote communities such as Kukua and Okonam which reported higher frequencies of respondents with some

form of ICT training as compared to close communities such as Ahenbronum and Paradise in the Suhum municipality.

Table 44: ICT training of respondents by community

Distance	Community	Frequency(n)	No	Percent (%)	Yes	Percent (%)
Close	Adoagyiri	29	28	96.6	1	3.4
	Ahenbronum	20	20	100.0	0	0.0
	Ahojo	35	31	88.6	4	11.4
	Amoakrom	39	39	100.0	0	0.0
	Ministries	18	17	94.4	1	5.6
	Paradise	20	20	100.0	0	0.0
	Sakyikrom	27	24	88.9	3	11.1
	Suhum Zongo	25	23	92.0	2	8.0
	Sunshine	21	21	100.0	0	0.0
Medium	Akrabo	37	24	64.9	13	35.1
	Akwene Dobro	61	48	78.7	13	21.3
	Avaga/Wangara	28	28	100.0	0	0.0
	Kofigya	15	12	80.0	3	20.0
	Kwabena Kumi	41	36	87.8	5	12.2
	Ntoaso	59	58	98.3	1	1.7
	Okanta	47	46	97.9	1	2.1
	Oparekrom	35	24	68.6	11	31.4
	Traio	39	36	92.3	3	7.7
Remote	Ahwerease	36	36	100.0	0	0.0
	Akoti	36	33	91.7	3	8.3
	Amanfrom	84	76	90.5	8	9.5
	Amanhyia	40	34	85.0	6	15.0
	Asarekrom	56	45	80.4	11	19.6
	Darman	20	18	90.0	2	10.0
	Fotobi	37	29	78.4	8	21.6
	Kukua	74	62	83.8	12	16.2
	Okonam	83	65	78.3	18	21.7
	Frequency (N)	1062	933	87.9	129	12.1

Respondents who claimed to have had some forms of ICT-related training were asked to specify. Figure 35 shows specified ICT training by respondents. More than half of the respondents (62.0%) claimed they were taught ICT in school as a subject whilst a few others (17.8%) said they had training in Microsoft office suite only. Training acquired for mobile money business (4.7%) and mobile phone repairs (3.9%) were marginally reported.
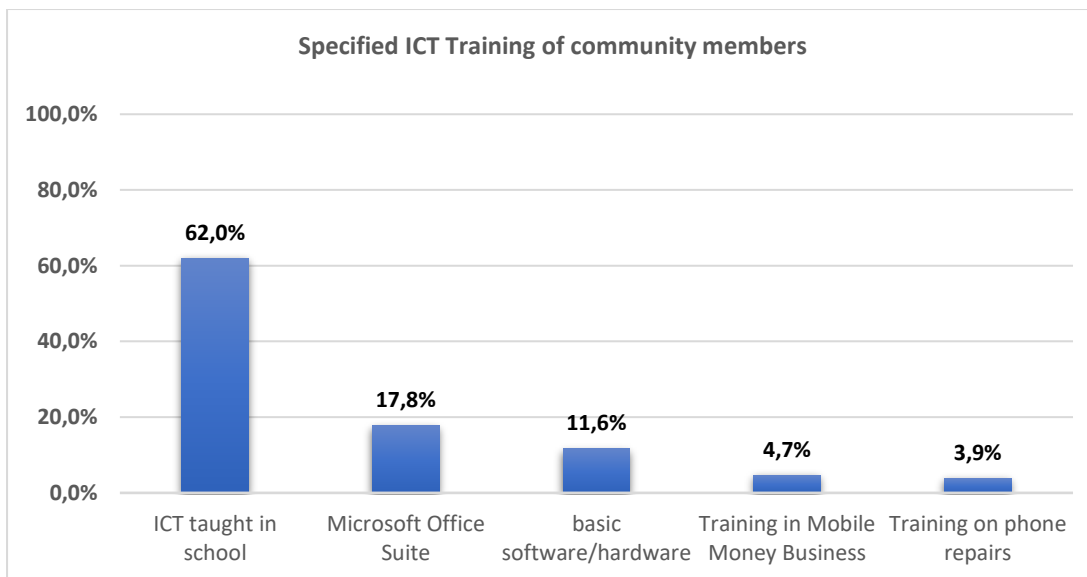
Figure 35: Specified ICT Training of community members

Figure 36 shows that more than half of the local Government officials surveyed (61.5%) reported having acquired training in Microsoft office suits. The others reported acquiring ICT certification (23.1%), AutoCAD (7.7%), and GIFMIS (7.7%).
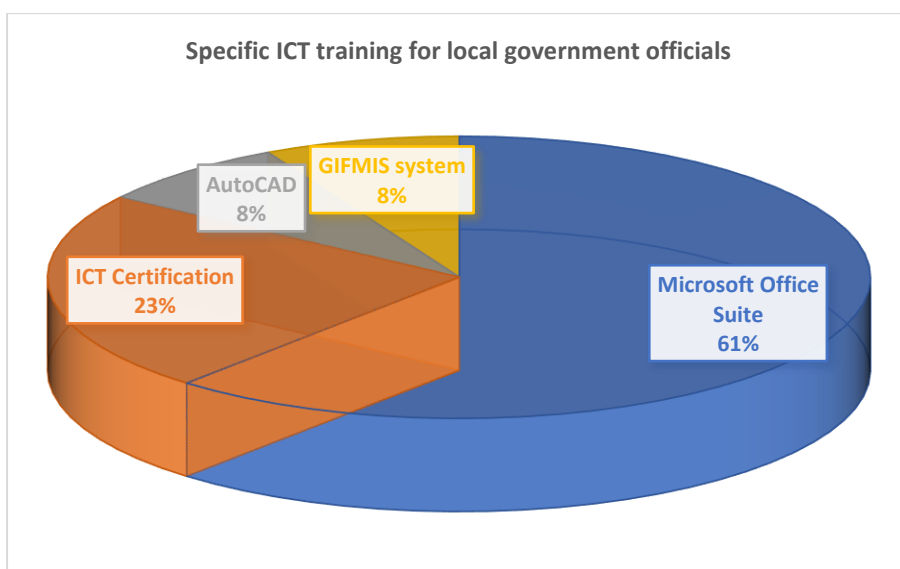

Figure 36: Specific ICT training for local government officials

3.7. Existing Public Digital System of Communication in the Municipalities

Digital communication involves connecting people across online mediums such as mobile apps, emails, television, and radio. Out of 47 local government officials surveyed, 31(66.0%) reported no knowledge of an existing public digital communication system in the municipalities for health-related or social welfare services (39 /83.0%). Nonetheless, 16(34.0%) reported knowledge of an existing public digital communication system in the municipal assembly for health-related or social welfare services (8 /17.0%).
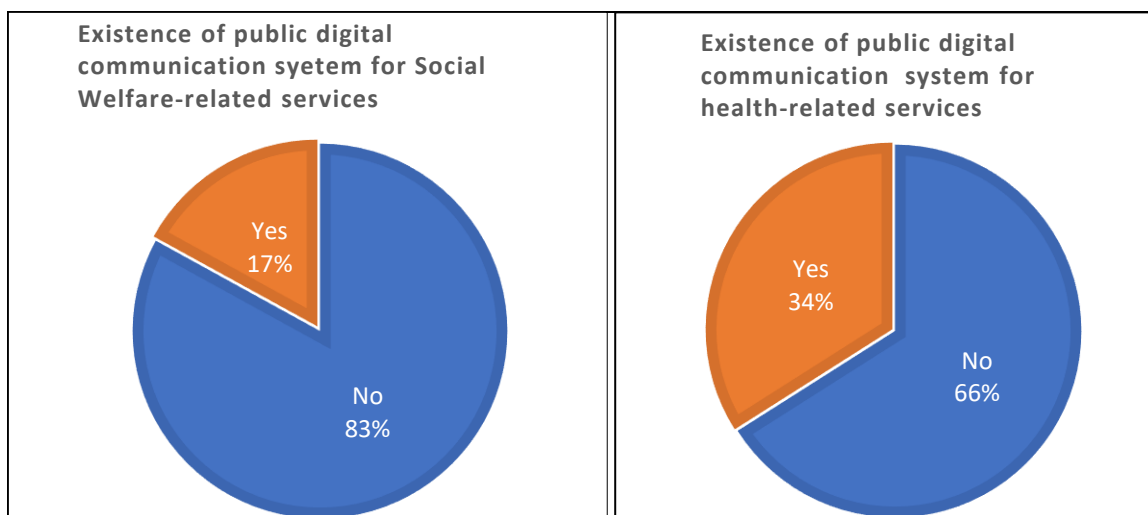
Figure 37: Existence of a public digital system of communication in the municipalities

Specified Public Digital Means of contacting the Municipal Assembly

Of the local government officials who reported knowledge of public digital communication systems in the municipalities, WhatsApp (81.2%) and helplines (50.0%) were indicated as the main existing digital means of communication on health and social welfare-related services respectively.
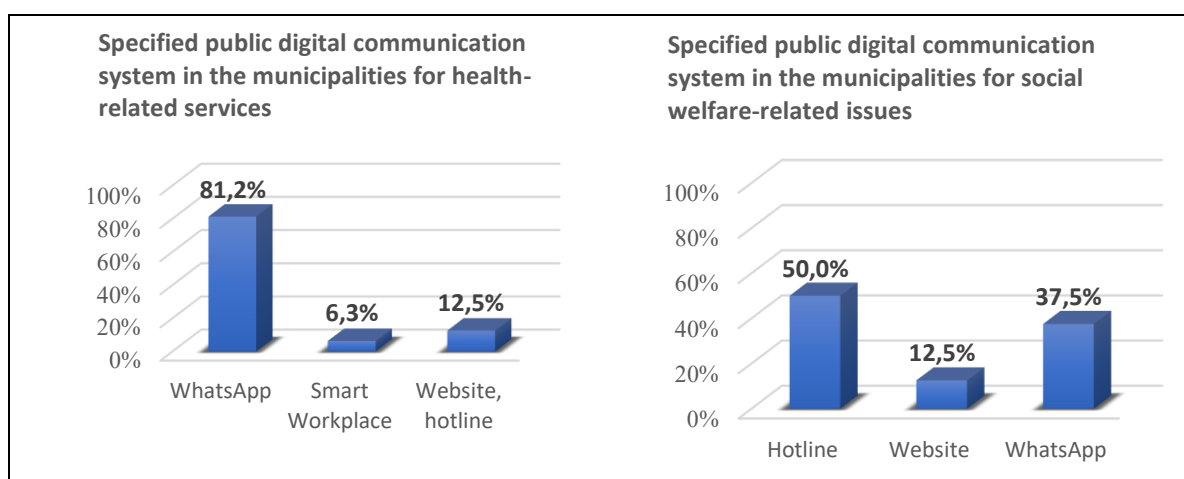
Figure 38: Public digital system of communication on social welfare and health-related services

The Website and Helplines of the Municipal Assembly

An effective system of communication in the municipality creates trust and inspires participation in local governance. During field-entry workshops, the importance of the local government hotline for contacting citizens was highlighted by representatives of the Municipal Assemblies. The local government officials surveyed further reported the helplines as the most reliable means of reaching out for social welfare, health, and emergency services in the municipalities. Figure 39 shows the helplines displayed at the reception of the Nsawam Municipal Assembly.

Figure 39: Helplines of the Municipal Assembly displayed at the reception

The study sought to find out the rate of awareness and patronage of the helplines advertised by the municipal assembly. Data obtained from the survey shows that the rate of respondents' awareness of an opportunity to reach out to the municipal assembly through a hotline/helpline per community ranges from 0 to 16.7%. The data explicitly shows the vast majority (93.2%9) of respondents reported no knowledge of the possibility of contacting the municipal assembly through a helpline/hotline. Remarkably, the data did not indicate any correlation between awareness rate and distance of the community but a slight difference in the awareness of a hotline ranging from 0.0 to 16.7%

Table 45: Awareness of the municipal assembly's helplines by the surveyed communities

Community	Frequency (n)	No	Percent (%)	Yes	Percent (%)
Adoagyiri	29	29	100	0	0.0
Ahenbronum	20	19	95.0	1	5.0
Ahojo	35	31	88.6	4	11.4
Amoakrom	39	39	100	0	0.0
Ministries	18	17	94.4	1	5.6
Paradise	20	20	100	0	0.0
Sakyikrom	27	27	100	0	0.0
Suhum Zongo	25	25	100	0	0.0
Sunshine	21	21	100	0	0.0
Akrabo	37	34	91.9	3	8.1
Akwene Dobro	61	60	98.4	1	1.6
Avaga/Wangara	28	26	92.9	2	7.1
Kofigya	15	15	100	0	0.0
Kwabena Kumi	41	35	85.4	6	14.6
Ntoaso	59	58	98.3	1	1.7
Okanta	47	45	95.7	2	4.3
Oparekrom	35	29	82.9	6	17.1
Traio	39	34	87.2	5	12.8
Ahwerease	36	36	100	0	0.0
Akoti	36	30	83.3	6	16.7
Amanfrom	84	83	98.8	1	1.2
Amanhyia	40	35	87.5	5	12.5
Asarekrom	56	52	92.9	4	7.1

Darman	20	20	100	0	0.0
Fotobi	37	31	83.8	6	16.2
Kukua	74	65	87.8	9	12.2
Okonam	83	74	89.2	9	10.8
Frequency (N)	1062	990	93.2	72	6.8

A disaggregation of the awareness rate of the Municipal Assembly helplines per gender (Figure 40) and age showed a similar distribution for all genders and age cohorts.
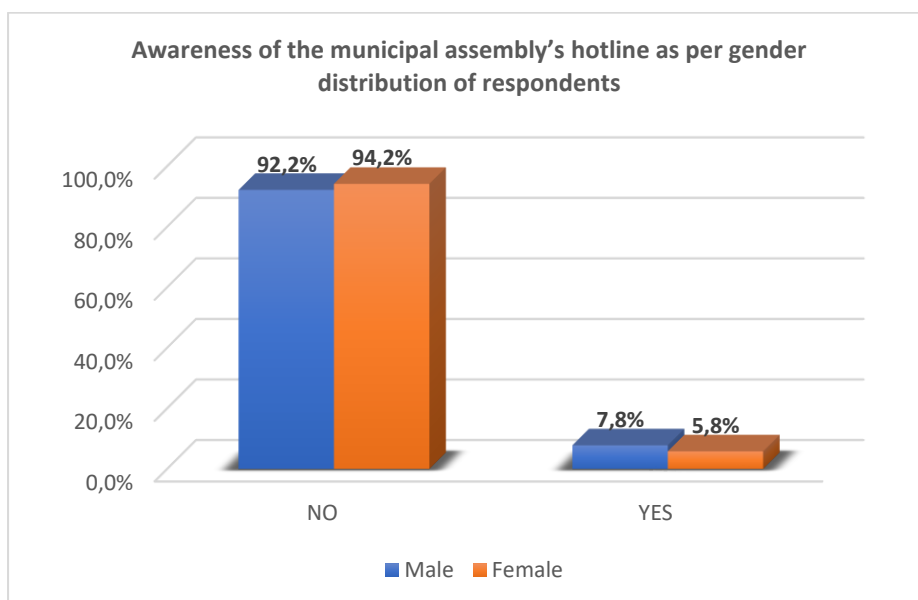

Figure 40: Awareness of the Municipal Assembly's helplines per gender distribution of respondents

The distribution of awareness rate of the Municipal Assembly's hotline per educational level of respondents shows a correlation between awareness and educational level. The higher the level of education, the higher the awareness rate of the Municipal Assembly's hotline by respondents. For instance, 96.1% of respondents in the non-formal education category as against 83.3% of respondents with postgraduate and 81.5% of graduates reported no awareness.

Table 46: Awareness of the Municipal Assembly's helplines per educational level of respondents

	Frequency (n)	No	Percent (%)	Yes	Percent (%)
Junior High School	321	307	95.6	14	4.4
Senior High School	252	235	93.3	17	6.7
Non-Formal Education	204	196	96.1	8	3.9
Middle School (GCE)	160	150	93.8	10	6.2
Graduate/Technical	119	97	81.5	22	18.5
Postgraduate	6	5	83.3	1	16.7
Frequency (N)	1062	990	93.2	72	6.8

The awareness of respondents with disabilities on the opportunity to call the district assembly via hotline (Figure 41) is slightly higher at 12.2% than the value of the total respondents (6.8 %). This could be because people with disabilities may on average have more contact with the social administration than people without disabilities when claiming disability-related social services. Another explanation could be that self-advocacy and self-help groups of people with disabilities in Suhum and Nsawam work closely with the local government. Nevertheless, 87.8 percent of respondents with disabilities were not aware of the opportunity to contact the district assembly through the hotline.
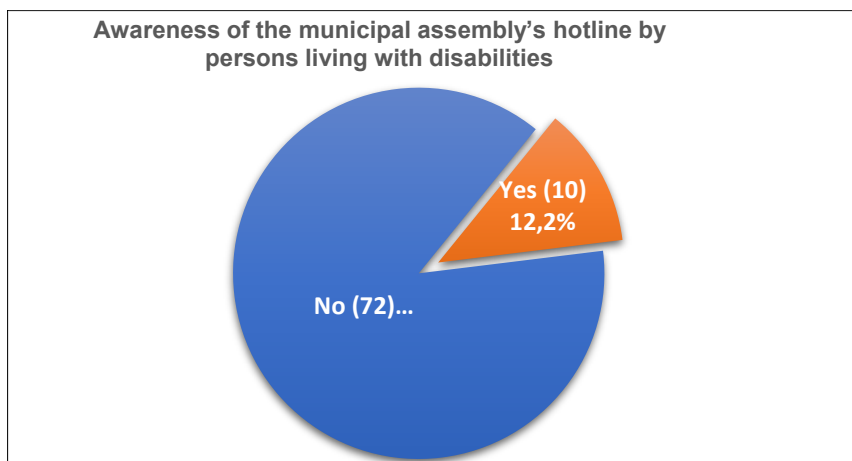

Figure 41: Awareness of the Municipal Assembly's helplines by persons living with disability

Correspondingly, the local government officials surveyed were asked if they knew of the existence of a hotline/helpline in the Municipal Assembly for inquiries or complaints. 31 out of the 47 local government officials surveyed representing 66.0% said no whilst 16 representing 34.0% said they know about such a hotline.
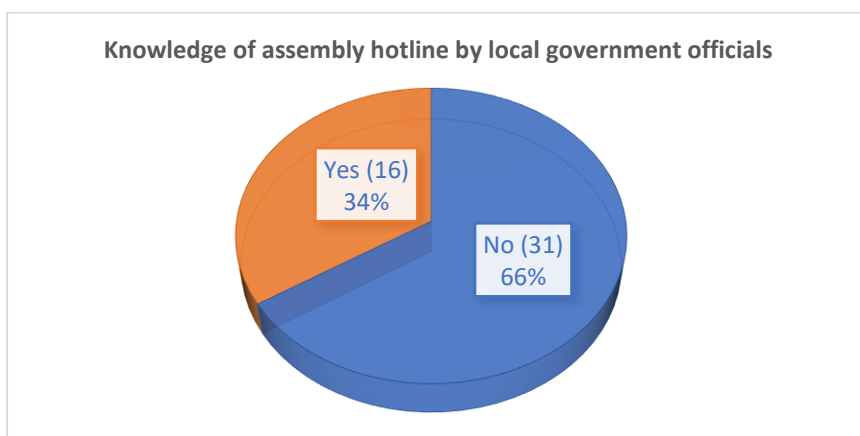

Figure 42: Awareness of the Municipal Assembly's helplines by local government officials

Further, the study sought to find out respondents' awareness of the municipal assemblies' website. The rate of respondents' awareness of the municipal assembly's website ranges from 0 to 14.3 percent. The data presented (table 47) did not show a significant correlation between awareness rate

and distance of a community. On the contrary, there are clear differences in the awareness of the website[67] between the communities within the individual distance categories.

Table 47: Awareness of the municipal assembly's website per the community surveyed

COMMUNITY	Frequency (n)	No	Percentage (%)	Yes	Percentage (%)
Adoagyiri	29	29	100	0	0.0
Ahenbronum	20	19	95.0	1	5.0
Ahojo	35	30	85.7	5	14.3
Amoakrom	39	39	100	0	0.0
Ministries	18	18	100	0	0.0
Paradise	20	20	100	0	0.0
Sakyikrom	27	27	100	0	0.0
Suhum Zongo	25	25	100	0	0.0
Sunshine	21	21	100	0	0.0
Akrabo	37	32	86.5	5	13.5
Akwene Dobro	61	58	95.1	3	4.9
Avaga/Wangara	28	27	96.4	1	3.6
Kofigya	15	13	86.7	2	13.3
Kwabena Kumi	41	40	97.6	1	2.4
Ntoaso	59	59	100	0	0.0
Okanta	47	46	97.9	1	2.1
Oparekrom	35	31	88.6	4	11.4
Traio	39	39	100	0	0.0
Ahwerease	36	36	100	0	0.0
Akoti	36	36	100	0	0.0
Amanfrom	84	81	96.4	3	3.6
Amanhyia	40	40	100	0	0.0
Asarekrom	56	55	98.2	1	1.8
Darman	20	19	95.0	1	5.0
Fotobi	37	32	86.5	5	13.5
Kukua	74	69	93.2	5	6.8
Okonam	83	83	100	0	0.0
Frequency (N)	1062	1024	96.4	38	3.6

Almost all respondents (96.4%) said they were not aware of the existence of the Municipal Assembly's website. The response was also reflected in all the age cohorts as well as the gender of the respondents surveyed. Figure 43 shows a comparison of awareness of the Municipal Assembly websites per gender and age distribution of respondents.

---

[6] Official website of the Nsawam-Adoagyiri Municipal Assembly is https://nama.gov.gh/

[7] Suhum Municipal Assembly. http://www.easternregion.gov.gh/index.php/suhumkraboacoaltar/

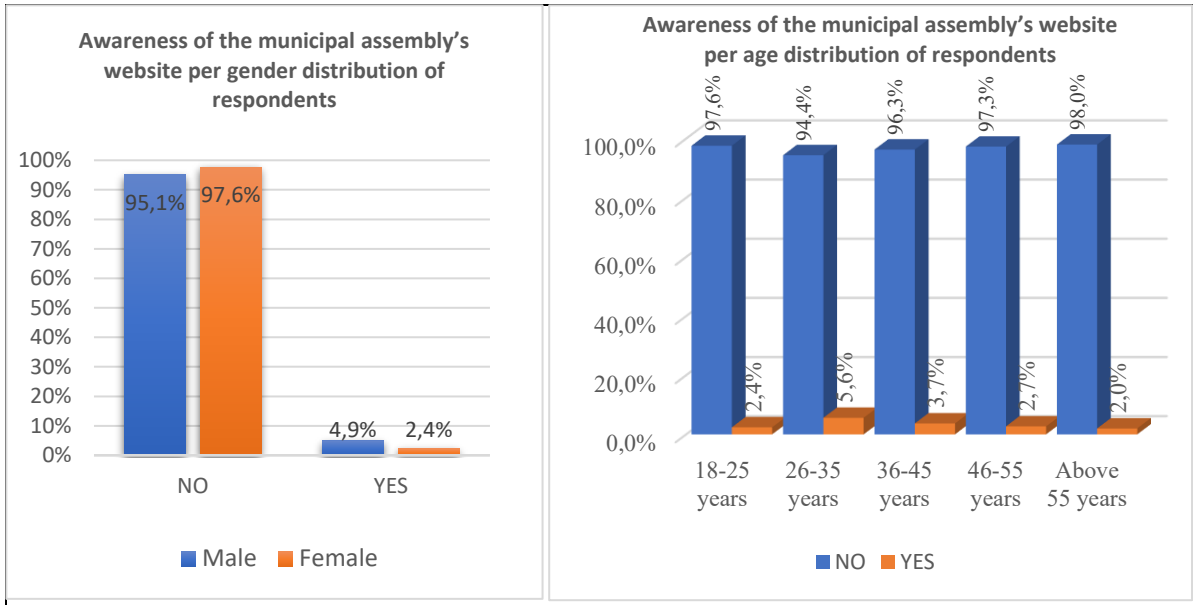**Figure 43: Awareness of the Municipal Assembly's website per age and gender distribution of respondents**

Largely all persons living with disability surveyed (98%) reported no knowledge of the existence of a website that provides an opportunity for people to access information in the municipality.
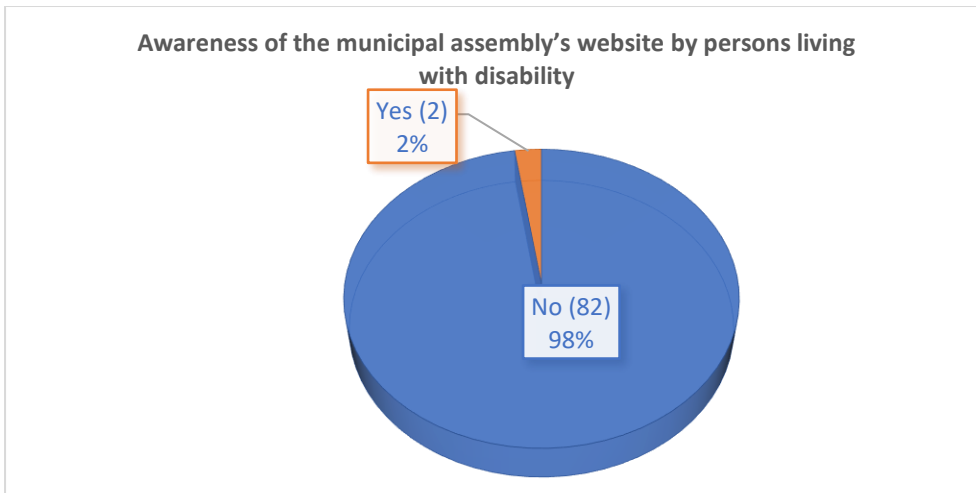

Figure 44: Awareness of the Municipal Assembly's website by persons living with disability

3.8. Appraisal of the Respondents

Finally, respondents were asked for their appraisal of the potential of ICT usage in the communication between community members and the social welfare and health bodies of the local government. Table 48 provides an overview of respective statements and recommendations given by community members and government officials.

Table 48: Distribution of respondent's appraisal

THEME/CATEGORY	COMMUNITY MEMBERS	LOCAL GOVERNMENT OFFICIALS
Improvement of the existing system	- Effective use of the information centre is commendable - Use radio and television for information dissemination - Create awareness of the Municipal Assembly's website and helplines - a flyer with the contact number and website of the Municipal Assembly for distribution in the municipalities - The Municipal Assembly's website should be updated regularly	- We need to create effective awareness of the Municipal Assembly helplines and Websites - The Municipal Assembly's website should be easy to use and optimized for mobile phones
Digital solutions	- Provide a dedicated number (hotline/helpline) - Utilize digital platforms (Website, Mobile Apps, social media) - Offline mobile apps – create apps and other related software for accessing basic social welfare and health-related information - Customize ICT devices to use local languages to be accessed by those without formal education - Create a regulated digital community for social welfare and health-related issues - LEAP and Disability Common Fund (DCF) cash transfer through mobile money	- A toll-free helpline - Create a platform to disseminate information to the community members and develop a digital platform - Improve the network connection - ICT should be effectively promoted in the municipality
Infrastructure and Financial challenge	- Need for an ICT centre (information kiosk) - Subsidize airtime/data charges and the cost of ICT devices - Education and training in ICT device usage - Procuring IT equipment and making the community more familiar with such tools to make social welfare services care closer	There is a need for an ICT centre to offer training to the community members
Proposed benefits	- ICT will improve health delivery - It will shorten the time for our challenges to be addressed	ICT will promote faster, cost-effective, and easy access to public services
Proposed challenges	- Network challenges will hinder the use of ICT - Financial challenges - the cost of mobile phones and airtime is high	- People call in outside working hours - High cost of procurement and maintenance

CHAPTER FOUR

4. KEY FINDINGS, DISCUSSION, AND RECOMMENDATIONS

This study examined the possibilities of effectively improving communication between inhabitants and local government structures using Information and Communications Technology (ICT) to promote participation in decision-making and the implementation process. It built on existing communication practices in Ghana, which are systematically surveyed to identify possible uses of ICT specifically in social welfare and health-related services. The focus was particularly on the interaction between the local administration located in the urban centres and the citizens of the associated rural dispersed communities.

Through the purposive sampling technique, participants were selected from the Municipal Assembly, community-based Civil Society Organizations (CSOs), heads of households, and traditional authorities in the municipalities of Nsawam-Adoagyiri and Suhum in the Eastern Region of Ghana. Data was collected through questionnaires and focus group discussions. The questionnaires were administered to a total of 1109 respondents from 27 communities within the municipalities while the focus group discussions took the form of stakeholder consultation meetings and validation workshops. Two sets of questionnaires (See appendix) were administered separately to local government officials and community members.

This chapter presents key findings which are structured along the following dimensions:

- Knowledge of the Functioning of the Municipal Assembly
- Access to Social Welfare and Health-Related Services in the Municipalities
- The existing system of communication
- Digital competence and ICT usage
- Mobile phone ownership and usage
- Internet access and usage

4.1. Key Findings

Knowledge of the Functioning of the Municipal Assembly

- Findings from the study indicated that more than half of the people surveyed (56.5%) rate their knowledge of the functioning of the Municipal Assembly as not good. Participants who reported good knowledge (43.5%) were slightly higher among heads of households compared to other community members.

- The data did not show any correlation between the distance between communities to the district capital and knowledge of the functioning of the Municipal Assembly. However, there was a clear indication of good knowledge of the Municipal Assembly's mandate among people with higher education.

- Overall, the knowledge of community members about the mandate of the Municipal Assembly increased with age.

- Most of the people surveyed in the various communities said they were not reached by any form of awareness raising or advocacy campaigns by the Municipal Assembly. Those who expressed knowledge reported issues relating to health and community development.

Access to Social Welfare and Health-Related Services in the Municipalities

- About half of the people surveyed claimed to have only little difficulty accessing health-related services in the municipality. Nevertheless, those who expressed some form of difficulty accessing health-related services in the municipality were higher among older people 55 years and above as compared to younger individuals. Challenges in accessing social-welfare and health services were also higher for people with disabilities.

- Inadequate health facilities followed by unavailability of effective communication channels were reported as the main challenges in accessing social welfare and health-related services in the municipalities

- CHPS compounds were by far reported as the most relevant health facility of first contact in the local communities and therefore can be regarded as a hub for information and communication on health-related services in the municipalities.

- Challenges in accessing social welfare and health-related services reported were to a significant extent related to aspects of information and/or communication between the social welfare department and the people living in the communities surveyed. For instance, inadequate information on existing programs, application procedures and lack of contact person addresses, and long waiting hours.

The existing system of communication

- Information centres, followed by community gatherings were reported as the primary means of awareness raising in the communities by the Municipal Assembly.

- Almost all respondents were not aware of the existence of the Municipal Assembly's website (96.4%) or the helpline (93.2%).

- Findings suggest that digitalized systems are currently of very little importance in the work of government officials in social welfare.

- There was a clear indication that little importance is attached to digital means of awareness raising such as the use of radio and television, phone call, SMS, social media, or website on health and social welfare-related services by the Municipal Assembly.

Digital Competence and ICT Usage

- Findings suggest a high level of digital competence and expressed knowledge of ICT device usage.
- Most of the people surveyed across all age groups claimed they have not attained any form of formal ICT-related training. Those who reported ICT-related knowledge acquired it from friends or school. Almost all persons living with disability (PLWDs) surveyed, have had no formal ICT-related training.
- All local government officials surveyed, reported good digital competence.
- There is a disparity in digital competence among the various age groups, levels of education, gender, and persons living with disabilities. Higher education correlates with better digital competence. Higher education correlates with better digital competence. Young adults in the age cohorts 26-35 and 18-25 reported better digital competencies than adults of middle age 36-45 and older people above 55 years.
- More than half of respondents across all the age cohorts reported daily use of an ICT device at home or the workplace while data is again showing a gender and age gap.
- The main challenges reported in using the specified ICT devices are poor network connectivity, lack of training on device usage, and high cost of devices and airtime charges.

Mobile Phone Ownership and Usage

- Almost all the respondents (96.1%) in the municipality either own a cell phone or have access to one. Disaggregation by gender and age shows that more males (94.7%) than females (89.7%) own a cell phone whereas that of individuals in the age cohort 26-35 (97.0%) surpasses those between 46-55 (90.4%) and above 55years (78.1%).
- Mobile phone ownership was much lower (68.3%) among persons living with disabilities.
- About half of the people surveyed (47.9%) own a smartphone and can be reached via internet-based means of communication.
- About 92.1% of community members can be reached via mobile phone (calls / SMS), and only 7.9% of the surveyed population cannot be directly reached through mobile phones.
- The most common ICT device reported in the surveyed communities is the basic phone (locally referred to as "Yam phone") or feature phone followed by the smartphone. Some respondents reported using both smart and basic phones.

- Only a few respondents reported owning other devices such as Laptops, Tablets, and Desktop Computers together with mobile phones.
- WhatsApp followed by Facebook and Mobile money-related services was reported as the most used mobile App in the surveyed communities. Others also use communication and social media platforms such as Instagram, YouTube, Twitter, Telegram, and TikTok.

Internet Access and Usage

- The main mobile network and internet service providers in the surveyed communities are MTN and Vodafone.
- Younger adults have greater access to the internet than older people above 55years. The data collected further suggests a gender gap as well as a significant disability gap when it comes to internet access.
- All people with access reported using the internet daily.
- Most of the people in the surveyed communities reported accessing the internet with their mobile phones. Only a few reported accessing the internet through Wi-Fi, modem, and internet café.
- The main challenge reported concerning internet access was poor network coverage.
- Findings show that internet quality and usage transcend physical proximity as there was no correlation between the distance of communities to the location of the Municipal Assembly and internet quality/usage.

4.2. Discussion and Conclusion

Ghana adopted a 40-year development plan (2018-2057) under the national decentralization and local government policy (GNDPC, 2018). The plan is aligned with the Sustainable Development Goals (SDGs) and aimed among other things to create opportunities for all citizens to participate in the decision-making and implementation process to achieve a free prosperous society. Correspondingly, the 2030 Agenda for Sustainable Development (UN, 2015) emphasizes the importance of participation not only as an important dimension of governance but as one of the main pillars of sustainable development. It further aims to significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet, including for particularly vulnerable populations (ibid., SDG 9.c, 17.8, 4.b, 5.b). In this context, the implementation of the e-government strategy in Ghana is aimed at facilitating public service delivery and enabling people to participate more effectively in the decision-making process.

Accordingly, the country initiated a remarkable digital roadmap in 2019 intending to expand its digital infrastructure, develop digitalization of public service delivery, improve the "digital skills" of the people, and bridge the digital divide between urban and rural areas (GPSD, 2017; World Bank Group, 2019). Moreover, the decentralization and local government policy in Ghana is aimed at promoting popular participation in the decision-making and implementation process to facilitate service delivery to improve the quality of life of the people. The policy is enshrined in the 1992 Constitution of the Republic of Ghana which established the Local Government Act (Act 462) of 1993 and its amendment (Act 963) in 2016. The act authorizes Metropolitan Municipal District Assemblies (MMDAs) as the pivot of local governance directly responsible to ensure the provision of essential services for the people at the local level to improve conditions of life.

Against this background, the present research asked about the current potential of using ICT in the communication between local governments and people in more rural Ghanaian communities when it comes to public service provision in the fields of health and social welfare. This includes both the readiness of local governments and the local people when it comes to access and skills in using ICTs. Most importantly, the findings are also meant to inform the development and piloting of ICT-related strategies and/or applications for selected health- and social welfare-related communication processes between local public bodies and rural communities of the two project sites in a subsequent practical project phase.

An assessment of community members´ knowledge of the functioning of the Municipal Assembly indicated that more than half (56.5 %) of the respondents rated their knowledge as not good or rather not good. The comparatively low knowledge about the functioning of the Municipal Assembly is

largely attributed to a low level of participation in the decentralization and local governance processes in Ghana (Ahenkan et al., 2013; Ahwoi, 2018; Anderson, 2022). Notwithstanding, a review of the Medium-Term Development Plan (MTDP) of the Municipal Assemblies (MLGRD, 2018a, 2018b) shows avenues for communal fora such as town-hall meetings, durbars, and community needs assessment forums. Primarily, all these forms of engagement with the community members require their physical presence. The Metropolitan Municipal District Assemblies (MMDAs) have not yet created avenues for digital participation in the decision-making process.

It was observed that most of the remote communities within the municipalities were of poor road networks and mixed mobile network connectivity and were located several kilometres away from the Municipal Assembly. The assumption was that distance might correlate with knowledge of the functioning of the Municipal Assembly. This assumption was based on the Ghana Statistical Service, 2021 survey which found that four in five (80.6%) of the urban population 6 years and older are literate in at least one language compared to half (55.2%) of the rural population of the same age and the rural-urban differential is similar for males and females. However, the findings here did not show a significant correlation between distance and knowledge despite disparities in the expressed knowledge of respondents from the various communities surveyed.

The 2016 Ghana Local Governance Act (Act 936) is explicit on the aims of the decentralization and local government policy which include broadening participation in the decision-making process to ensure effective public service delivery. The act designates the Department of Social Welfare and Community Development (DSWCD) to take responsibility for general community development including social welfare and health-related services. The DSWCD works among others to integrate individuals and marginalized and vulnerable groups into mainstream development processes at the local level. The core mandate of the DSWCD according to the Local Governance Act is to facilitate the mobilization and use of available resources to improve the living standards of the people in the communities within the municipality. The department is also responsible for responding to and preventing any act of social exclusion and maladjustment in the municipality which calls for close collaboration with stakeholders and community members.

The study evaluated community members´ knowledge and access to social welfare schemes and health-related services in the municipalities. The emphasis was on three selected schemes in Ghana; thus, the National Health Insurance Scheme (NHIS)[8], the Disability Common Fund (DCF)[9], and the

---

[8] https://www.nhis.gov.gh/membership

[9] https://www.inclusion-ghana.org/resources/advocacy-toolkits/Guidelines%20for%20Disbursement%20of%20District%20Assembly%20Common%20Fund.pdf

Livelihood Empowerment Against Poverty (LEAP) scheme[10]. The National Health Insurance Scheme (NHIS) was established under Act 650 in 2003 by the Government of Ghana to provide financial access to quality health care for residents in Ghana (Republic of Ghana, n.d.). LEAP is a cash transfer scheme instituted by the Government of Ghana to support exceptionally poor households with orphans, vulnerable people such as persons living with severe disabilities, and elderly persons above 65 years. The District Assembly Common Fund (DACF) Act 1993, (Act 455) under Article 242 of Ghana's constitution was established to provide support for development activities at the local level. In 2005, the Government of Ghana introduced the Disability Common Fund (DCF). The DCF is a 3% (formerly 2%) allocation of the District Assembly Common Fund (DACF). It is meant to support persons with disabilities. Findings from this study indicated that more than half of the respondents reported low knowledge of the Disability Common Fund (DCF) (59.3%) and the Livelihood Empowerment Against Poverty (LEAP) (54.0%). Additionally, less than half of the participants (48.0%) reported as active beneficiaries of the National Health Insurance Scheme (NHIS) while few claimed to be beneficiaries of the Disability Common Fund. Remarkably, none of the community members surveyed benefited from the LEAP scheme.

The study findings indicated that the vast majority of community members (92.4%) access information related to social welfare and health-related services through a direct walk-in. Few participants reported complementing the direct walk-in with information and communication technologies. The indication is that the physical presence of a community member is mostly needed to gain access to public information and services. Poor road network, transport costs, and recent COVID-19 restrictions on physical contact served as a barrier to information access in the rural communities. Moreover, inadequate information about available schemes and long distances to welfare offices and health facilities were reported by the community members surveyed as challenges they encounter when accessing social welfare and health-related services. For this reason, strategies for improving communication and reducing barriers to information access in public service delivery such as for social welfare and health-related services appear reasonable. Data collected also suggests a need to intensify public education and awareness creation on access to social welfare and health-related services in the rural dispersed communities.

To assess the current discourse on ICTs in Ghana's local governance system to promote civic participation in the decision-making process, the study further sought to find out about the digital competences of community members, mobile usage, and the nature of internet connectivity. The

---

[10] https://www.mogcsp.gov.gh/projects/livelyhood-empowerment-against-poverty-leap/

objective is underlined by the fact that in recent years digital competence has become a core skill in a globalized information-driven society. For instance, the global outbreak of the COVID -19 pandemic and ensuing restrictions on physical interactions underlined the need to enhance ICT as an integral part of the day-to-day activities of individuals and public organizations across the world (United Nations, 2020). Accordingly, the development and usage of ICTs are progressing even faster with a wide range of possible applications in addressing all areas of life such as meeting daily personal needs, schools, workplaces, leisure activities, and public service delivery.

According to Ferrari (2012) digital competence is a set of knowledge, skills, attitudes, strategies, and awareness that are required when ICT and digital media are used to perform tasks, resolve problems, communicate, manage information, collaborate, and create and share content. Thus, digital competence encompasses information management, collaboration, creation of content, knowledge, ethics, responsibility, and technical operations. It is a combination of knowledge and skills that are needed in real-life situations to achieve a concrete objective in all life endeavours. Indeed, effective use of ICT occurs when people exhibit some level of digital competence. Remarkably, an assessment of the digital competence of participants in this study suggested that more than half (690/1062) (65%) of the respondents have a rather good knowledge of one ICT device use or the other, above all mobile phones. However, there were relevant differences between communities when it comes to ICT competence. Additionally, more than three-quarters of the people surveyed (87.9%) across all age groups in the communities reported not having acquired any form of ICT-related training even though most respondents indicated either owning or having access to a digital device such as smartphones, basic- or featurephone, tablets, computers, and television. Some respondents also reported having acquired some digital skills themselves or through exchanges with peers. This is in line with findings from a study conducted by Jacobs (2021) about people's mobile digital skills in India and Ghana and corroborated by NCA & GSS (2020) nationwide survey on ICT access, usage, skills, and digital divide in Ghana.

In broader terms, Information and Communication Technology (ICT) is used to encompass devices, network components, applications, and systems that facilitate interactions in a digital community. ICT facilitates government, societal, and interpersonal interactions as well as business transactions locally and internationally (Frempong, 2012). It underpins the global shift from personal face-to-face interactions to various forms of digital communication such as phone calls, messaging, emails, websites, apps, television, and radio. For instance, in Ghana, 54.1% of people from age five own a mobile phone according to a survey conducted by the National Communication Authority and Ghana Statistical Service (NCA & GSS, 2020). An assessment of ICT device usage in the municipalities in this study indicated that smartphones and simple basic phones as well as feature phones were most used

72

by community members. Other communication devices such as computers, laptops, and tablets were by far less common among the community members surveyed. Significantly, all local government officials surveyed reported using smartphones in combination with other ICT devices.

A survey conducted by GSMA (Delaporte & Bahia, 2021) indicated that by the end of 2020, 51% of the world's population (over 4 billion people) were using mobile internet, an increase of 225 million since the end of 2019. Over 3 billion people in low- and middle-income countries now access the internet on a mobile phone as the primary way of access, accounting for 85 percent of broadband connections in 2020. Correspondingly, the Ghana National Communications Authority (NCA) and the Ghana Statistical Service (GSS) report that the number of mobile subscriptions increases rapidly (Jacobs, 2021; NCA & GSS, 2020).

Recent statistics on Ghana's internet penetration rate stood at 53 % of the population at the start of 2022 with an increase of internet users by 350 thousand (+2.1 percent) between 2021 and 2022 and a doubling of users in the past 5 years (Kemp, 2022; Sasu, 2022). For the communities surveyed, this study found an internet penetration rate of 45 % among the local population which might reflect the rather rural settings of the communities surveyed. Access rates further pointed to gaps along the dimensions of age, gender, disability and education, as discussed below.

Indeed, mobile communication has become an integral part of our daily activities by facilitating access to information and helping people to stay connected to friends, family, and co-workers as well as encouraging social interactions. Data presented from this study indicated the mobile phone to be the most common ICT device used by people. A vast majority of the respondents (92.1%) reported owning or having access to mobile phones. More than half of mobile phone users surveyed (52%) had smartphones including 11 percent using both basic and smartphones, while the rest was using basic phones only. This distribution might reflect the peri-urban setting of the project sites. Recent data from Ghana on the type of mobile phone owned by locality shows a 40% to 60% distribution for basic phones and smartphones in urban areas, while the distribution for rural areas is 60% to 40% (ibid., p. 10).

Statistical evidence from across Ghana shows that the mobile phone (92.7%) was by far the device mostly used to access the internet, both in urban and rural areas (ibid., p. 23). This is in line with the findings of this study with 89.9 % of internet users accessing the internet through mobile phones. Against this backdrop and with the prospect of mobile phone penetration and internet use continuing at an extremely fast pace, it seems imperative to focus initiatives to support internet-based communication on smart-phone access and user skills.

Correspondingly, the general findings of this study indicated that the vast majority (92.1%) of community members can be reached via mobile phone through direct calls or short messaging service (SMS) whilst only a few (7.9%) cannot be directly reached through the mobile phone. These findings correlate with data published by the National Communication Authority in Ghana (ibid., p. 8) which highlights the high level of mobile phone access above 80% in the age groups from 20 to 60 years across the country. This data is reflective of most communities surveyed in this study. Notwithstanding, this study's findings did not reflect effective digital communication strategies of local public bodies in the surveyed communities while findings, at the same time, point to ineffective participation in the decision-making process on health and social welfare related services as well as reduced digital social and interpersonal interactions between local public bodies and the local people. Conversely, the high mobile phone penetration rate did not reflect internet access in the surveyed communities as most people reported challenges associated with poor network coverage. In this context, Frimpong (2012) suggests that improvement in digitized infrastructure and internet connectivity in rural communities is key in overcoming geographical isolation, promoting digital inclusion and bridging the gap between urban and rural communities.

Among smartphone users surveyed, WhatsApp and Facebook were by far the most frequently used applications followed by mobile money service applications as well as Instagram, Twitter, TicToc, or Telegram. This is largely in line with findings on the overall situation in Ghana as well as other African countries such as Nigeria, Kenya, Tanzania, and South Africa where the above applications are among those used most frequently (see e.g. Ajene, 2020, 2022). Like throughout the globe, these apps are changing communication channels and patterns in many sectors and areas of life such as banking, information gathering, farming, healthcare, education, training, work/income, public services, social connection, entertainment, or shopping (e.g. Murugesan, 2013; GSMA, 2020). As a result, access to and knowledge about the use of these apps is becoming an increasingly decisive factor for participation processes and dynamics in Ghana as well.

The main barriers to owning a mobile phone and accessing the internet are frequently reported to be associated with digital literacy and affordability, particularly the cost of an internet-enabled mobile phone, and the availability of internet services (NCA & GSS, 2020; GSMA, 2020; Tyers-Chowdhury & Binder, n.d.). With regard to digital literacy, evidence from Ghana suggests that, for example, people, even though having access, are often unaware that the internet provides a potential solution to current needs (GSMA, 2020, p. 16). Such evidence is in line with this study's findings in relation to reported challenges in getting access to the internet such as poor network quality, lack of skills/knowledge, high costs of devices and airtime as indicated by almost one-third of respondents in

the surveyed communities. This inevitably raises the question of digital divides or gaps with regard to the results of this study.

Digital divide can be described as a composition of a skill gap and a gap of physical access to ICT, with the two gaps often contributing to each other in circular causation (Kularski & Moller, 2012). According to Kularski & Moller (ibid.), the "digital divide is caused by and reinforces traditional systems of inequality such as race, socioeconomic status and gender. People caught in the divide are disadvantaged in their access to social interaction, health and governmental information, general educational opportunities and access to some services such as healthcare and financial services". The digital divide hypothesis addresses the concern that social inequalities will intensify in the course of the different uses of new media. From a power relations perspective, it can be stated that "due to its role as a means of information gathering and sharing, use of ICT corresponds to having increased power and control within society. The digital divide draws attention to how disempowered groups with limited economic resources have reduced access to ICTs" (Chadwick et al., 2013, p. 380) which reinforces disempowerment even further. Existing evidence on access to ICTs and required user skills across the globe points to strong gaps intersecting with social characteristics such as age, education, gender and disabilities. This has resulted in inequalities associated with mobile phone ownership and usage as well as access to the internet.

Early concepts of the digital divide assume a binary coding, a differentiation between those who have access to the internet (the 'haves') and those who do not (the 'have-nots'), which adds a fundamental divide to existing sources of inequality and social exclusion (e.g. Norris, 2001; Castells, 2005). Such dichotomous distinction has been criticised, among other things, for being too simplistic, as the distinction between 'onliners' and 'offliners', for example, does not consider that there can also be significant differences in the manner and degree users incorporate technology in their everyday lives or in the quality of Internet connection among the 'haves' (Jung et al., 2001, Webster 2002, Selwyn 2004). It is therefore to be assumed that there is not one digital divide, but digital inequalities that are multidimensional and dynamic (Zilien, 2009). While, for example, inequalities in technological access are reduced on the one hand, inequalities in user competence can increase at the same time (van Dijk, 2005). Therefore, the initial framing of ICT access on the basis of 'haves' and 'have-nots' or 'onliners' and 'offliners' has evolved and the digital inequalities are to be looked at as complex phenomena (Antonio & Tuffley, 2014).

While the role of new ICTs in development was intensively discussed since the 1980s, the discourse was accelerated by the diffusion of digital technologies around the millennium which greatly increased the possibilities for global information sharing and accelerated development (Steeves & Kwami, 2012). As a result, Information and Communication Technologies for Development, 'ICT4D', emerged as a

major field for science, policy, and practice within and beyond the already broad and contested field of communication, development and social change (ibid.). Whereas many countries, including Ghana (see Republic of Ghana 2003a; 2003b), had high hopes for this 'new field' and launched corresponding policies and programmes, those where criticised "for repeating the same mistakes of earlier decades, i.e. by presuming simplistically that inserting technologies will enable developing societies and individuals therein to 'leapfrog' to modernity" (ibid., p. 199). Steeves and Kwami (2012, p. 200) note that within "the mainstream of ICT4D policy and discourse, development is a re-articulation of modernisation achieved through economic growth under globalisation" and that "[m]ost references to ICT4D are in the context of using ICTs to leapfrog the different stages of development to catch up to advancements in the North". Such dominant perspectives were contested by critical intersectional and post-development perspectives emphasizing the use of new technologies for social change through bridging the digital divide for a more socially just world (ibid.). For the case of Ghana, the 2003 'Ghana ICT for accelerated development [ICT4AD] policy' included both perspectives. In addition to huge expectations for development through ICT in all sectors and spheres of society, it includes the strategic objective "[t]o promote equal and universal access to information and communications technologies services and resources to all communities, and within this context, policy directives shall be put in place to ensure and facilitate equal access for women, the disadvantaged, the disabled, and rural and underserved communities" (Gov. Of Ghana, 2003b).

With the increasing collection and processing of massive amounts of data across social life (data from financial transactions, communications, movements, relationships, and interactions with government, etc.) that are used to profile and sort groups and individuals, the more recent discourse on digital inequalities focuses around issues of responsible data and data justice in the contexts of big data, machine learning and artificial intelligence. The normalisation and entrenchment of such systematic collection and analysis of massive data sets across all areas of life, a growing reliance on data-driven technologies across social life, the transformation of people's life into data points has been described as the datafication of society (e.g. Dencik & Sanchez-Monedero, 2022; Dencik et al., 2019). Such processes establish a new set of power dynamics and can affect both individuals and entire communities that may be denied access to opportunities or services and thus impact people's ability to participate in society (Data Justice Lab, n.d.). While much of the critical engagement and scholarship around these processes has emerged in the Global North, more recently, there have been calls for a critical engagement with data from Global South perspectives (e.g. Milan & Treré, 2017; 2019).

The interpretation of a digital divide as a phenomenon of social inequality is to be made against the background of the assumption that restrictions on life chances result from the lack of availability of new technologies (Zilien, 2009). Against this background, a deeper insight into inequalities in access

and use was of particular interest for this study. At the same time, it is evident that digital solutions alone will not enfold the potential to eradicate other pre-existing divides, inequalities, and exclusions. While mobile and internet access and use are constantly increasing strongly, those lacking access and user skills are often disproportionately poorer, less educated, rural, or are female, elderly people, or people with disabilities (e.g. Aranda-Jan, 2020; Antonio & Tuffley, 2015; GSMA, 2020).

The likelihood of excluding certain demographic groups such as **older people** increases exponentially as relevant everyday services are increasingly moved online. Especially in remote communities, with increasing internet connectivity, older people might potentially have increased opportunities to integrate digital technology into their daily live to stay connected, to participate in civic dialogue, and to access services out of reach, particularly in the area of health and social welfare. At the same time, using such digital technologies requires a certain level of digital literacy to be accessed which especially older people frequently have not acquired so far. As populations around the globe are aging, such age-related digital gap and its effects on elderly people with regard to social participation, access to services, and quality of life in general is discussed as a global phenomenon (see e.g. Niehaves & Plattfaut, 2014; Antonio & Tuffley, 2015; Doerr et. al, 2022). Recent data from Ghana, for example, reflects such age-related gap in mobile phone ownership, with a 10% decline in the 60-69 age group and a 30% decline in the 70+ age group (NCA & GSS, 2020, p. 8). Findings from this study also point to age-related gaps in mobile phone ownership and internet access. The former shows a decline from 90% to 78% for the 55+ age group. The latter shows a decline by 10% for the 46-55 age group and by 18% for the +55 age group. Further, people 55+ surveyed reported significantly lower digital competencies. Hence, the lack of access and skills of older people to use digital technologies increases the danger of social exclusion of older people in the study region with the increasing digitalisation of many sectors and areas of life.

Women across the globe face challenges relating to acquiring digital skills, unreliable or no services, data security, affordability, and online harassment among others (Tyers-Chowdhury & Binder, n.d.). Women in low- and middle-income countries are 15 per cent less likely to use mobile internet than men, with a situation for Sub-Saharan Africa, where the gender gap remains largely unchanged (GSMA, 2021c, p. 5). According to the 2020 Mobile Gender Gap Report (GSMA, 2020) women are still less likely to have access to mobile phones and use mobile services, are more likely to have basic mobile phones that do not support mobile internet use, and are 20% less likely than men to own a smartphone. This is particularly the case for women who are mostly underserved such as those with low literacy levels, incomes, disability or living in a rural area (ibid.; Antonio & Tuffley, 2014).

The findings of this study on a gender gap in access to mobile phones are in line with other study results from Ghana showing that on average, ownership of mobile phones and smartphones in

particular nationwide is higher among males relative to females (see NCA, 2020, p. 7, 10). This is corroborated with findings from the study region on disparities in mobile phone and internet access in relation to gender. For instance, mobile phone ownership disaggregation by gender shows that more males (94.7%) than females (89.7%) own a mobile phone. This further correlates with results from a nationwide household survey on ICT in Ghana by the National communications authority (NCA) in conjunction with the Ghana Statistical Service (NCA & GSS, 2020) which shows that mobile phone ownership was higher among males than females while women are more likely than men to access the internet exclusively on a mobile phone, which highlights the specific importance of mobile access for women.

A Similar study conducted by the World Wide Web Foundation on closing the digital gender gap for a more equal world (Chair et al., 2020; Steeves & Kwami, 2019) indicates that across the globe, fewer women than men use the internet. It reported that men are 21% more likely to be online than women and shows extreme gender disparities in internet access and use. This supports this study's findings suggesting that internet access in the study region was significantly higher with males (52.3%) compared to females (38.3%). Further, women reported significantly lower digital competencies than men, as demonstrated by 71.8% of males and 58.6% of females reporting good digital competence.

Discussing barriers to ICT of women in Global South countries, Hafkin & Huyer (2007, p. 135) concluded that "[f]or many women, ICTs remain inaccessible due to affordability issues associated with poverty, lack of basic technological skills, low levels of literacy and numeracy, geographic isolation, and poor technology infrastructure […]as well as the cultural expectations, norms and mores that influence the ability of women to own and/or access ICTs in public places" (cit. from Antonio & Tuffley, 2014). Antonio & Tuffley (ibid.) argue that when such variables are controlled, women are generally more active users of digital technologies than men. They suggest that access and user skills will allow women to use the potentials of ICTs with regard to online social relationships, identity expression, education and training, and economic opportunities. Corresponding examples could be observed during the data collection for the present study, such as women using internet access for learning platforms or young seamstresses in remote villages marketing their products via their WhatsApp status.

Even more pertinent were the differences in access and use of ICTs between people with and without **disabilities**. The UN Convention on the Rights of Persons with Disabilities (CRPD) obliges States Parties to "take appropriate measures [...] to promote access for persons with disabilities to new information and communications technologies and systems, including the Internet; [and] to promote the design, development, production and distribution of accessible information and communications technologies and systems at an early stage, so that these technologies and systems become accessible

at minimum cost [...]" (United Nations, 2006, Art. 9.2). In fact, digitalization and the use of ICT is frequently assumed to allow the removal barriers faced by people with disabilities, to be "a positive force of transformation and a crucial element of any personal development/empowerment and institutional framework for inclusive development", and to allow for "unprecedented levels of access to education, skills training and employment, as well as the opportunity to participate in the economic, cultural and social life of their communities" (ITU, 2013). A 2013 assessment of by the International Telecommunication Union (ITU)[11] estimates a huge potential of mobile devices and services for improving independent living of people with disabilities and a moderate to large potential of internet and mobile devices and services for improvements in the areas of healthcare, education, employment, government services, and participation in public and political life (ibid., p. 7). This positive perspective is contrasted by evidence on a serious gap between people with and without disabilities when it comes to ICT access and digital competence. Around the globe, people with disabilities tend to have much lower levels of mobile phone and smartphone ownership, and are less aware of mobile internet or perceive it as less beneficial compared with non-disabled persons (Aranda-Jan, 2020; Pinet et al., 2021). Existing evidence reports literacy and digital skills to be primary barriers to ownership of mobile phones by people with disabilities followed by affordability and the perceived relevance of mobile phones which, again, are also barriers to mobile internet use (Aranda-Jan, 2020). Against this background, the question arises as to the actual potential in the context of the living realities of people with disabilities.

For the case of the two study regions in Ghana, findings of the present study support a rather critical assessment when it comes to potential effects of ICT on the living conditions of people with disabilities, as access and usage remains relatively low compared to the overall study population. While 92.1% of all respondents reported owning a mobile phone, the proportion among respondents with disabilities was only 65.9%. 34.1% of respondents with disabilities did not own a mobile phone whereas 25.6 % of respondents with disabilities compared to 3.2% of the overall study population had no access to mobile phones at all. And while 45% of all respondents said they had access to the internet, the figure for respondents with disabilities was only 8.5%. Thus, the findings of this study point to a significant disability digital gap for the two study regions which would have to be examined more closely. This is in line with recent findings from a study on the 'Mobile Disability Gap in Ghana' conducted by GSMA in the Ashanti, Eastern, Greater Accra and Northern Region (Satari, 2022)[12],

---

[11] The corresponding publication was jointly produced by the Broadband Commission for Digital Development, the Global Initiative for Inclusive Information and Communication Technologies (G3ict), the International Disability Alliance (IDA), the International Telecommunication Union (ITU), Microsoft, the Telecentre.org Foundation and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

[12] As with the present study, this study is also based on the Washington Group Short Set of Questions.

according to which people with disabilities are 34% less likely to own a mobile phone than people without disabilities (96% of people without compared to 63% of people with disabilities) and 72% less likely to own a smartphone. Further, people with disabilities were 42% less likely to know about the internet compared to people without disabilities and 74 per cent less likely to use mobile internet (61% of people without compared to 16% of people with disabilities) (ibid.). As main barriers to using mobile internet more often, mobile internet users with disabilities reported the cost of data and internet-enabled devices (ibid.). The same study, however, also found that once people with disabilities start using mobile internet, usage of mobile apps and services is similar to that of people without disabilities which points to the need of removing access and skills-related barriers. Satari (2022) discusses mobile internet use as a journey from accessing a mobile to learning how to use, awareness of Internet to adopting digital services and using the mobile internet regularly. This is not always a linear process as many people with disabilities face barriers to regular mobile internet use at different stages of this journey. She concludes that disability gaps frequently widen as users progress through these stages, both in Ghana and other middle- and low-income countries.

Data collected within the framework of this study further suggests digital gaps with regard to educational background and occupation which interact in myriad ways with other dimensions of inequality, as noted before. The data, however, did not allow for any conclusions on correlations of digital inequalities and the remoteness of communities.

The discussion of findings on digital inequalities shows the complexity of intersections between access and skills to use ICTs and the internet and other social characteristics such as age, gender, disability, or education, which in turn form only some of many characteristics that interact and are relevant for life chances in increasingly digitalised societies. It can be assumed that the global COVID-19 pandemic has exacerbated pre-existing inequalities and deepened intersecting vulnerabilities. Already this brief outline of the discourse on digital inequalities in the context of classifying the present results of this study suggests that a market-driven diffusion of ICTs will not lead to a reduction of digital inequalities, but rather increase them. This needs to be considered when reflecting on e-governance and ICT-based communication between local governments and citizens. The results of this study confirm existing assumptions and evidence on digital inequalities for the study regions and thus provide a basis for being responsive to them in the further course of the project and beyond. However, the data do not yet allow a deeper insight into the question, how existing inequalities in access and use reinforce other inequalities such as opportunities for economic mobility and social participation which would require further and also qualitative research based on a more thorough understanding of digital inequality considering how ICT's impact on existing social inequalities and how these enfold in the practical

realities of people in daily community life. This seems particular relevant when it comes to datafication and the need to discuss aspects of data justice.

A United Nations biannual worldwide E-Government Development Index (EGDI) survey of all member states ranked Ghana 101th in 2020 (United Nations, 2020). The survey displayed Ghana among 14 African countries with the highest EDGI in 2020. Ghana's transition to a higher level since 2018 gives credence to e-governance transformation in the country. Nevertheless, findings from this study suggest that even though the development of e-government is on the rise in Ghana, there is a low focus on digital transformation at the local level. For instance, during a stakeholder consultation meeting, the local government representatives highlighted a tradition of having reserved cost-free telephone numbers (helplines/hotlines) and a communicative website with which anyone can reach the Municipal Assembly on specific services and access information respectively. Even though the helplines (hotlines) and the website were visibly displayed at the reception and on a signpost at the entrance of the assembly building, in the survey, more than three-quarters of respondents indicated that they were not aware of the possibility of contacting the Municipal Assembly through a hotline or a website. A lack of awareness of the assembly's hotline and website was evident from the survey's findings across all age groups, and genders, regardless of disability status. However, disaggregation per educational background indicated that knowledge about the municipality's hotline and website is significantly higher among respondents with higher educational levels than those with informal or lower education. It was clear from the survey that the websites and the helplines of the Municipal Assemblies, hardly play any role as sources of information and communication in the municipality.

Additionally, the Community Information Center (CIC) and the public information vans as a relatively new type of technological innovation for information dissemination have achieved a high profile in several Ghanaian communities. However, it was observed that most of the community information centres in the municipalities are not well equipped with digital infrastructure to serve as a public resource base. For instance, almost all the community information centres visited within the Nsawam-Adoagyiri and Suhum municipalities had no internet-enabled devices, telephones, printers, copiers, radio or television. Rather the community information centres were operating from a small room or kiosk where they have installed a microphone, an amplifier, and an outdoor unit where a horn speaker is mounted on a pole to broadcast information to the people. These information centres only serve as a one-way medium of communication and do not allow for standard feedback. It becomes evident from the study that digital communication, especially two-way digitalized systems, has so far not played a significant role in facilitating the interaction between citizens and local government structures in the municipalities.

Largely, findings from this study suggest that in the municipalities only a little importance is attached to digital means of communication and information dissemination such as the use of radio, phone call, SMS, and apps for health and social welfare-related services. The Municipal Assembly´s helplines and website instituted as digital means of communication and reliable source of information are not fully utilized to serve their intended purposes. Most community members surveyed reported no knowledge of the existence of either the helplines or the website.

At the same time, findings indicate opportunities of using ICTs by the local governments in charge of the study districts. This conclusion can be drawn based on (1) a relatively high usage of and competence on ICTs (especially mobile phones) among citizens (daily use), with a tendency to further increase rapidly; (2) high usage and competence among government officials surveyed (100%); and (3) the finding that several social-welfare and health administration challenges reported by respondents had an information and communication dimension. Against this background, the authors assume high potential of using ICTs for local social welfare and health administration which, however, would have to be tapped systematically. This includes a sound responsiveness to existing digital inequalities as outlined above with regard to existing gaps in access and usage of ICT related to location (community), gender, age, disability, education, and other. These have to be considered carefully when developing approaches and policies towards digitalization of local health and social welfare-related communication between local public bodies and the people living in remote rural communities. As to this project, this will be addressed through co-creation workshops including a closer examination of information and communication related challenges between local health and social welfare bodies and the local people as well as a prototyping of ICT-based responses based on the findings of this study and local conditions and resources. This process will not only be guided by questions of technical possibilities but first and foremost by local information and communication needs and practices as well as the crucial question of access and skills, in particular, who gets empowered and who is informationally and communicationally marginalised by the use of potential new tools. This must include a critical assessment of communication cultures, focusing on existing forms and practices of communication in oral communication cultures. It further has to be responsive to aspects of responsible data handling, privacy, and data ethics.

In the background of the study's results, the authors have developed a series of recommendations that will be discussed with local stakeholders in the next steps of the project.

4.3. Recommendations

i. The ICT policy in Ghana could take into consideration the peculiarities of the MMDAs and address issues relating to network and internet access in rural communities. Accordingly, the deployment of case-specific ICT applications and contents in public service delivery could be incorporated into the Medium-Term Development Plans (MTDP) of the MMDAs.

ii. The Community Information Centre (CIC) could be equipped with digital infrastructure to promote effective delivery of public services through more efficient and timely availability of information. In addition, possibilities of developing CICs into communication hubs between local government and people in the communities could be explored. In addition, the extent to which a direct digital link could be established via the CIC' to the service portals of the municipality to promote online communication services could be explored.

iii. Opportunities for low threshold ICT training especially for those at risk of digital marginalisation could be explored systematically, including locally coordinated peer-learning approaches.

iv. The Municipal Assembly could promote e-governance practices by encouraging public authorities to disseminate information using digital tools in addition to existing communication channels. The service could also take into consideration of awareness creation on available digital platforms used by the Municipal Assembly for public service delivery. Familiarisation with the people on new technologies and their application might arouse their interest and patronage.

v. The provision of e-governance services could aspire to bridge the digital gaps among inhabitants by adapting applications to local languages and user-friendly technologies to make them accessible to all user groups, regardless of educational background, social status, age, or disability conditions as well as geographical location.

vi. The establishment of ICT centres such as information kiosks and telecentres in the communities was suggested and partly implemented from the first decade of the millennium under Ghana's 'ICT for accelerated development [ICT4AD] policy (2003) and related policy frameworks. It could be helpful to look at the experiences and the potential and contemporary interpretation of these approaches in the light of the current state of digital technologies and the current accessibility and use of ICTs by the citizens of the two research districts. Respective physical hubs in the communities might provide opportunities to serve different functions around ICT-awareness and skills development, enhancing digital literacy of rural populations, technical support for ICT users, open internet access, or access to various ICTs.

vii. The Municipal Assembly could ensure the usage of Short Messaging Service (SMS) or push message notifications to create awareness or disseminate information relating to public service delivery.

Additionally, community members could be encouraged to form digital community platforms such as WhatsApp groups with people of similar needs/interests such as beneficiaries of LEAP, etc.

REFERENCES

African Union. (2020). *The Digital Transformation Strategy for Africa (2020-2030)*. www.au.int https://au.int/sites/default/files/documents/38507-doc-dts-english.pdf

Ahenkan, A., Bawole, N. J., & Domfeh, K. A. (2013). Improving Citizens' Participation in Local Government Planning and Financial Management in Ghana: A Stakeholder Analysis of the Sefwi Wiawso Municipal Assembly. *Journal of Public Administration and Governance*, *3*(2), 191. https://doi.org/10.5296/jpag.v3i2.3782

Ahwoi, K. (2018). *Decentralization reforms in Ghana: The experience of the Fifth and Sixth Governments of the Fourth Republic*.

Ajene, E. (2020). Africa's most popular apps & the insights they reveal. https://afridigest.substack.com/p/africas-most-popular-apps-and-the [14.09.2022]

Ajene, E. (2022). The top smartphone apps in Africa. https://afridigest.substack.com/p/the-top-smartphone-apps-in-africa [14.09.2022]

Anderson, P. K. L. (2022). Local Government and Community Participation; Prospect of the Unit Committee Model in Ghana´s Decentralization Program. *International Journal of Research and Innovation in Social Science*, *06*(04), 143–149. https://doi.org/10.47772/IJRISS.2022.6411

Antonio, A.; Tuffley, D. (2014). The Gender Digital Divide in Developing Countries. Future Internet 6, no. 4: 673-687. https://doi.org/10.3390/fi6040673

Antonio, A.; Tuffley, D. (2015). Bridging the Age-based Digital Divide. International Journal of Digital Literacy and Digital Competence (IJDLDC), 6(3), 1-15. http://doi.org/10.4018/IJDLDC.2015070101

Aranda-Jan, C. (2020) The Mobile Disability Gap Report 2020. London: GSMA. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/12/GSMA_Mobile-Disability-Gap-Report-2020_32pg_WEB.pdf [19.09.2020]

Castells, M. (2005). Die Internetgalaxie. Internet, Wirtschaft und Gesellschaft. Wiesbaden.

Chair, C., Brudivg, I., & Cameron, C. (2020). *Womens-Rights-Online-Report-1.pdf*. World Wide Web Foundation. https://webfoundation.org/docs/2020/10/Womens-Rights-Online-Report-1.pdf

Data Justice Lab (n. d.). Data Justice. https://datajusticelab.org/about/ [19.09.2022]

De Bastion, G., & Mukku, S. (2019). Data and the Global South: Key Issues for Inclusive Digital Development. In *J. Chem. Inf. Model.* (Vol. 53). Heinrich-Böll-Stiftung. https://us.boell.org/sites/default/files/2020-10/Data and the Global South_Geraldine DeBastion Sreekanth Mukku_20201017_Final_0.pdf

Delaporte, A., & Bahia, K. (2021). *The State of Mobile Internet Connectivity 2021 Connected Society*. www.gsmaintelligence.com

Dencik, L.; Hintz, A.; Redden, J.; Treré, E. (2019). Exploring Data Justice: Conceptions, Applications and Directions, Information, Communication & Society, 22:7, 873-881, DOI: 10.1080/1369118X.2019.1606268

Dencik, L.; Sanchez-Monedero, J. (2022). Data justice. Internet Policy Review, 11(1). https://doi.org/10.14763/2022.1.1615

Doerr, S., Frost, J., Gambacorta, L., Qiu, H. (2022). Population ageing and the digital divide. SUERF Policy Brief No 270, February 2022.

https://www.suerf.org/docx/f_4125b4e94852e1a68b609205afc1f5f7_40251_suerf.pdf
[14.09.2022]

Ferrari, A. (2012). Digital Competence in Practice: An Analysis of Frameworks. *European Commission Joint Research Centre Institute for Prospective Technological Studies*. https://doi.org/10.2791/82116

Frempong, G. (2012). *Evidence for ICT Policy Action Understanding what is happening in ICT in Ghana Evidence for ICT Policy Action*. http://a4ai.org/wp-content/uploads/2014/03/Policy-Paper-4-Understanding-what-is-happening-in-ICT-in-Ghana.pdf

Ghana Local Government Act (Act 936). (2016). *Ghana Local Government Act, 2016 (Act 936)* (Issue August). http://lgs.gov.gh/index.php/local-governance-act-of-2016-act-936/#

Ghana Statistical Service. (2021a). *2021 PHC General Report Vol 3A_Population of Regions and Districts_181121.pdf*. https://statsghana.gov.gh/gssmain/fileUpload/pressrelease/2021%20PHC%20General%20Report%20Vol%203A_Population%20of%20Regions%20and%20Districts_181121.pdf

Ghana Statistical Service. (2021b). *2021 PHC General Report Vol 3D_Literacy and Education.pdf*. https://statsghana.gov.gh/gssmain/fileUpload/pressrelease/2021%20PHC%20General%20Report%20Vol%203D_Literacy%20and%20Education.pdf

Ghana Web. (n.d.). *News: Akufo-Addo outlines policies for 'Ghana beyond aid'*. Retrieved June 4, 2022. https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Akufo-Addo-outlines-policies-for-Ghana-beyond-aid-632060

GNDPC. (2018). *Long-Term National Development Plan of Ghana*. National Development Planning Commission. http://www.ndpc.gov.gh/downloads/2/

GPSD. (2017). *Ghana National Data Roadmap Process*. http://www.statsghana.gov.gh/docfiles/SDGs/Data Roadmap Forum- Concept Note.pdf

GSMA (2020). Connected Women. The mobile gender gap report 2020. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/02/GSMA-The-Mobile-Gender-Gap-Report-2020.pdf [13.09.2022]

International Telecommunication Union [ITU] (2013). ICT Opportunity for a Disability-Inclusive Development Framework. Geneva: ITU. https://www.broadbandcommission.org//wp-content/uploads/2021/02/BBICTOpportunity_Framework2013.pdf [13.09.2022]

Jacobs, L. (2021). *Understanding people's mobile digital skills need Insights from India and Ghana*. http://www.dalbergdesign.com https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2021/05/Understanding-peoples-mobile-digital-skills-needs.pdf

Jung, J.-Y.; Qui, J. L.; Kim, Y.-C. (2001). Internet Connectedness and Inequality. Beyond the „Divide". In: Communication Research 28, No. 4, S. 507-535

Kemp, S. (2022). Digital 2022. Ghana. Kepios. https://datareportal.com/reports/digital-2022-ghana

Kularski, C., & Moller, S. (2012). The digital divide as a continuation of traditional systems of inequality. Sociology, 5151(15), 1-23.

LGS, G. (2019). Annual Progress Report, Republic of Ghana, 2019. In *Local Gov. Serv.* http://lgs.gov.gh/index.php/annual-report/

Milan, S.; Treré, E. (2017). Big Data from the South: The Beginning of a Conversation We Must Have. https://ssrn.com/abstract=3056958 or http://dx.doi.org/10.2139/ssrn.3056958 [19.09.2022]

Milan, S.; Treré, E. (2019). Big Data from the South: Towards a Research Agenda. DATACTIVE Working Paper Series, 4/2019. https://data-activism.net/wordpress/wp-content/uploads/2019/12/BigDataSur_WP_2019-1.pdf [19.09.2022]

MLGRD, R. of G. (2018a). *Medium-Term Development Plan, Nsawam Adoagyiri Municipal Assembly 2018-2021*.

MLGRD, R. of G. (2018b). *Medium-Term Development Plan, Suhum Municipal Assembly 2018-2021*. 111.

Murugesan, S. (2013). Mobile Apps in Africa. In: IT Pro September/October 2013. pp. 8-13.

Norris, Pippa (2001): Digital Divide: Civic Engagement, Information Poverty, and the Internet Worldwide. Cambridge

NCA, G. (2020). *Household survey on ICT in Ghana (abridged). A Nationwide survey on ICT access, usage, skills, and digital divide in Ghana*. https://statsghana.gov.gh/gssmain/fileUpload/pressrelease/Household Survey on ICT in Ghana (Abridged) new (1).pdf

NCA, & GSS. (2020). *Household survey on ICT in Ghana (abridged). A Nationwide survey on ICT access, usage, skills, and digital divide in Ghana—National Communications Authority and Ghana Statistical Service (GSS)*. https://statsghana.gov.gh/gssmain/fileUpload/pressrelease/Household Survey on ICT in Ghana (Abridged) new (1).pdf

NDPC, G. (2016). *Suhum Municipal Assembly´s Annual Progress Report, 2016*. Ghana National Development Planning Commission. https://new-ndpc-static1.s3.amazonaws.com/CACHES/PUBLICATIONS/2017/08/21/ER-+Suhum_APR_2016.pdf

Niehaves, B., & Plattfaut, R. (2014). Internet adoption by the elderly: employing IS technology acceptance theories for understanding the age-related digital divide. Eur J Inf Syst 23, 708–726 (2014). https://doi.org/10.1057/ejis.2013.19

Nsawam-Adoagyiri Municipal Assembly. (n.d.). *Nsawam-Adoagyiri Municipal Assembly*. Official Website of Nsawam Adoagyiri Municipal Assembly. Retrieved July 20, 2022, from https://nama.gov.gh/

Pinet, M.; Sanyu, P.; Youn, A. (2021). Advancing youth-centred digital ecosystems in Africa in a post-Covid-19 world. London: ODI. www.odi.org/publications/17947-advancing-youth- centred-digital-ecosystems-africa-post-covid-19-world [19.09.2022]

Republic of Ghana (2003a). An integrated ICT-led socio-economic development policy and plan development framework for Ghana. Republic of Ghana: Ministry of Communications and Technology.

Republic of Ghana (2003b). The Ghana ICT for accelerated development [ICT4AD] policy. https://cdn.modernghana.com/images/content/report_content/ICTAD.pdf [19.09.2022]

Republic of Ghana, N. (n.d.). *National Health Insurance Scheme*. Retrieved May 17, 2022, from https://www.nhis.gov.gh/Default.aspx

Sasu, D. D. (2022). Total number of internet users in Ghana from 2017 to 2022. Statista. https://www.statista.com/statistics/1171416/number-of-internet-users-ghana/ [14.09.2022].

Satari, A. (2022). Closing the Mobile Disability Gap in Ghana: Insights and Recommendations. London: GSMA. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2022/04/Closing-the-mobile-disability-gap-in-Ghana.pdf [19.09.2022]

Selwyn, N. (2004). Reconsidering political and popular understandings of the digital divide. In: New Media and Society 6 (3), S. 341-362.

Steeves, H. L.; Kwami, J. D. (2012). ICT4D, Gender Divides, and Development: The Case of Ghana. In: Melkote, S. (Ed.). Development Communication in Directed Social Change: A Reappraisal of Theory & Practice. Singapore: AMIC.

Steeves, H. L.; Kwami, J. D. (2019). *Social Context in Development Communication: Reflecting on Gender and Information and Communication Technologies for Development in Ghana* (pp. 106–122). SAGE Publications India. https://journals.sagepub.com/doi/pdf/10.1177/1326365X19856139?casa_token=hJ4sCMak gN8AAAAA:ur_iEb6GRcgKxxB37bMEu_i5WUrbBTVLNFcgrrPgxWsd-ZBKE-Cx3YevSfk1a_XGQnBthm4PiXKqcQ https://doi.org/10.1177/1326365X19856139

Tyers-Chowdhury, A., & Binder, G. (n.d.). *What we know about the gender digital divide for girls:* (p. 23). https://www.unicef.org/eap/media/8311/file/What%20we%20know%20about%20the%20g ender%20digital%20divide%20for%20girls:%20A%20literature%20review.pdf

UNESCO. (2021). *The use and misuse of ICT in the delivery of higher education programmes*. UNESCO Bangkok k Asia and Pacific Regional Bureau for Education. https://bangkok.unesco.org/content/use-and-misuse-ict-delivery-higher-education-programmes

United Nations. (2006a). *UN Department of Economic and Social Affairs Division for Public Administration and Development Management UN Global E-government Readiness Report 2005 From E-government to E-inclusion*. https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2005-Survey/Complete-survey.pdf

United Nations (2006b). Convention on the Rights of Persons with Disabilities. https://www.un.org/disabilities/documents/convention/convoptprot-e.pdf [08.08.2022]

United Nations (2015). *The 2030 Agenda and the Sustainable Development Goals: An opportunity for Latin America and the Caribbean*. 94. https://repositorio.cepal.org/bitstream/handle/11362/40156/25/S1801140_en.pdf

United Nations. (2020). *E-Government Survey 2020 Digital Government in the Decade of Action for Sustainable Development With addendum on COVID-19 Response*. UN Department of Economin and Social Affairs. https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020 UN E-Government Survey (Full Report).pdf

Van Dijk, J. (2005). The deepening divide: inequality in the information society. SAGE: Thousand Oaks

Webster, F. (2002). Theories of the Information Society. 2nd Edition. London/ New York: Routledge.

World Bank Group. (2019). *Digital Economy for Ghana*. World Bank. http://pubdocs.worldbank.org/en/412821598381054828/Ghana-DE4A-LOW-Res.pdf

Zilien, N. (2009). Digitale Ungleichheit. Neue Technologien und alte Ungleichheiten in der Informations- und Wissensgesellschaft. 2. Auflage. Wiesbaden: VS-VErlag.

APPENDIX

Questionnaire for Local Government Officials

(MCD, Assembly Members, and Heads of departments (ICT, Health, Social welfare, Planning)
Demographic Features

1. Please which of these municipalities do you reside in?
    - Nsawam/Adoagyiri
    - Suhum

2. Gender
    - Male
    - Female
    - Prefer not to say

3. Can you tell me which of these age groups you belong to?
    - 18-25
    - 26-35
    - 36-45
    - 46-55
    - Above 55

4. Please, what is your highest level of education?
    - Senior High school/Secondary school
    - Graduate
    - Postgraduate
    - Non-formal education
    - Junior high School
    - Middle school

5. Which of these categories of respondents can you associate yourself with?
    - Local government official

6. If the local government, which of these do you belong to?
    - Municipal Chief Director
    - Assembly/Unit committee members
    - Heads of the department for ICT,
    - Heads of the Department of Health
    - Heads of the department for social welfare
    - Heads of the department for Planning
    - LEAP coordinator
    - Disability desk officer
    - Coordinating director

7. Disability Questions / Washington Group Short Set on Functioning (WG-SS)
    a. Do you have difficulty seeing, even if wearing glasses? Would you say…
        - No difficulty
        - Some difficulty
        - A lot of difficulties
        - Cannot do it at all
    b. Do you have difficulty hearing, even if using hearing aids? Would you say…
        - No difficulty
        - Some difficulty
        - A lot of difficulties
        - Cannot do it at all

c. Do you have difficulty walking or climbing steps? Would you say…
- ○ No difficulty
- ○ Some difficulty
- ○ A lot of difficulties
- ○ Cannot do at all

d. Do you have difficulty remembering or concentrating? Would you say…
- ○ No difficulty
- ○ Some difficulty
- ○ A lot of difficulties
- ○ Cannot do at all

e. Do you have difficulty with self-care, such as washing all over or dressing? Would you say…
- ○ No difficulty
- ○ Some difficulty
- ○ A lot of difficulties
- ○ Cannot do at all

f. Using your usual language, do you have difficulty communicating, for example, understanding or being understood? Would you say...
- ○ No difficulty
- ○ Some difficulty
- ○ A lot of difficulties
- ○ Cannot do at all

Knowledge of the functioning of local government and the current discourse on e-governance and digital participation in the community.

1. How would you rate the community members' knowledge about the mandate of the local government in the
   municipality?
- ● Good
- ● Rather Good
- ● Rather not good
- ● Not good

2. How often do you conduct community sensitization workshops on social welfare delivery in the municipality?
- ● Monthly
- ● Quarterly
- ● Annually
- ● Biannual
- ● Not sure
- ● I do not know

   Please specify the specific social welfare sensitization Program……………………….

3. How often do you conduct community sensitization workshops on health delivery in the municipality?
- ● Monthly
- ● Quarterly
- ● Annually
- ● Biannual
- ● Not sure
- ● I do not know

4. Through which means/medium do you create awareness about health information in the municipality?

- Television
- Radio
- Door to door
- Mobile Phone
- Campaign vans
- Other
- Website

5. Through which means/medium do you create awareness of social welfare issues of the people in the municipality?

If another medium for health information, please specify……………………………………………….

- Television
- Radio
- Door to door
- Mobile Phone
- Campaign vans
- Other
- Website

6. How would you rate the knowledge of community members/stakeholders about the NHIS, Disability common fund, and the LEAP schemes?

 If another medium for health information, please specify……………………………………………….

- Good
- Rather Good
- Rather not good
- Not good

7. Do you have any challenges delivering services related to either of these services: NHIS, Disability common fund, and LEAP schemes? Yes/No

8. Do community members/stakeholders have any challenges accessing either of these services NHIS, Disability common fund, and LEAP schemes? Yes/No

List the challenges in delivering services (NHIS, Disability common fund, and LEAP schemes) …………………
List the challenges accessing services (NHIS, Disability common fund, and LEAP schemes) ------------------------

9. How do the community members/stakeholders get in touch with the local government on issues related to the NHIS, Disability common fund, and LEAP?

- Direct walk into the district assembly
- Through phone calls
- WhatsApp
- Other

Digital inclusion, general knowledge of ICT tools, and usage

10. If other means of contacting the local government, specify …………………………………..

11. What do you know about the ICT policy in the municipality? Yes/No

12. How would you rate your knowledge about ICT and its applications in the municipality?
    - Good
    - Rather Good
    - Rather not good
    - Not good

13. Which of these is/are the most used ICT tools/devices in the municipality?
    - Feature phone
    - Smartphone
    - Laptop
    - Desktops
    - Tablets

 List other ICT Devices in the municipal assembly

14. Which of the ICT tools/devices mentioned in question 12 do you have access to?
    - Feature phone
    - Smartphone
    - Laptop
    - Desktops
    - Tablets

15. Do you know the municipal hotline for service delivery? Yes/No

    Specify the hotline number, ……………………………………………

16. Do you know the municipal website?

17. Please enter the municipal website address, ……………………………………

18. Does the municipality have any digitized system of communication within the assembly for health? Yes/No

    List the existing digitized system for health…………………………………..

19. Does the municipality use this same system for health information access by the community members/stakeholders? Yes/No

20. Does the municipality have any digitized system of communication for social welfare? Yes/ No

    List the existing digitized system for social welfare…………………………………

21. Does the municipality use this same system for social welfare service access by the community members/stakeholders? Yes/No

22. Are you connected to the internet for your work activities? Yes/no

D. Digital Literacy, internet connectivity, access, and Impact of digitization on the decision-making process at the local level

(This describes the extent to which empirical evidence reveals the impact of digitization on the decision-making process at the local level and what evidence is available on the state of digitization of both the public and local governments in Ghana?)

23. How often do you use ICT in your work?
    - Daily
    - Weekly
    - Monthly
    - Quarterly
    - Annually

24. How would you rate your skills in using digital tools?
- Good
- Rather Good
- Rather not good
- Not good

25. Are there any forms of ICT training that are done on the job to help you address this? Yes/no

Please specify the ICT training ……………………….

26. Do you have any challenges accessing or using these ICT tools? Yes/No

What specific challenges do you have in accessing or using ICT tools………………………

27. Do you own a mobile phone? Yes/No

If yes, which of these phones do you use/have access to?
- Feature phone/Yam
- Smartphone
- Both

If not, do you have access to a mobile phone? Yes/No

Which type of phone do you have access to?
- Feature phone/Yam
- Smartphone
- Both

28. Which of these networks do you use?
- MTN
- Vodafone
- Airtel Tigo
- Glo

29. If you own/have access to a smartphone, do you have access to the internet? Yes/No

30. How often do you use the internet?
- Daily
- Weekly
- Monthly
- Quarterly

31. How is your internet connectivity?
- Good
- Rather Good
- Rather not good
- Not good

32. Which applications do you use most on your phone?…………………………………….

33. Do you use any application on your phone to render services in your role in the local government? Yes/No

34. Please which specific application on your phone do you use to render services in your role in the local government?…………………………………………………………......

35. Do you have any existing systems and practices that serve two-way communication between local government/service providers and the people in the local communities? Yes/No

Please specify the existing two-way communication system…………………………………

36. Which of these digital tools/devices support these existing systems and practices?
- Phone
- Laptop
- Desktops
- Tablets
- Other

What other devices are supporting existing two-way communication systems?…………………………………

37. How would you rate the accessibility of these systems and practices to community members?
- Good
- Rather Good
- Rather not good
- Not good

38. How would you rate the user-friendliness of these systems and practices?
- Good
- Rather Good
- Rather not good
- Not good

39. How would you rate the efficiency and effectiveness of these systems and practices?
- Good
- Rather Good
- Rather not good
- Not good

40. What would you say are the benefits of the existing system and practices? ……………………..

41. What would you say are the disadvantages of the existing system and practices?…………………

42. Any further recommendations for the existing system and practices?…………………………………

43. In your opinion how do you think ICT can be used to facilitate communication between the people and the local government officials on health services in the municipality?........

44. In your opinion how do you think ICT can be used to facilitate communication between the people and the local government officials on social welfare?……………………………

Questionnaire for Community Members

A. Demographic Features of Respondents
1. Can you tell me which of these municipalities you reside in?
   - Nsawam/Adoagyiri
   - Suhum

   Enter name of community ……………………………

2. Gender
   - Male
   - Female
   - Prefer not to say

3. Can you tell me which of these age groups you belong to?
   - 18-25
   - 26-35
   - 36-45
   - 46-55
   - Above 55

4. Please what is your highest level of education
   - Senior High school/Secondary school
   - Graduate
   - Postgraduate
   - Non-formal education
   - Junior high School
   - Middle school

5. Which of these categories of respondents can you associate yourself with?
   - Community member
   - Civil society Organization
   - Head of household
   - Traditional leader/chief
6. What is your occupation?...
7. Disability Questions / Washington Group Short Set on Functioning (WG-SS)

   Do you have difficulty seeing, even if wearing glasses? Would you say…
   - No difficulty
   - Some difficulty
   - A lot of difficulties
   - Cannot do at all

   b. Do you have difficulty hearing, even if using hearing aids? Would you say…
   - No difficulty
   - Some difficulty
   - A lot of difficulties
   - Cannot do at all

   c. Do you have difficulty walking or climbing steps? Would you say…
   - No difficulty
   - Some difficulty
   - A lot of difficulties
   - Cannot do at all

   d. Do you have difficulty remembering or concentrating? Would you say…
   - No difficulty
   - Some difficulty
   - A lot of difficulties
   - Cannot do at all

   e. Do you have difficulty with self-care, such as washing all over or dressing? Would you say…
   - No difficulty
   - Some difficulty
   - A lot of difficulties
   - Cannot do at all

   f. Using your usual language, do you have difficulty communicating, for example, understanding or being understood? Would you say...
   - No difficulty
   - Some difficulty
   - A lot of difficulties
   - Cannot do at all

B. knowledge of the functioning of local government and the current discourse on e-governance and digital participation in the community
   1. How would you rate your knowledge about the mandate of the local government in your municipality?
      - Good
      - Rather Good
      - Rather not good
      - Not good

2. How often does the local government/municipal assembly conduct awareness/advocacy campaigns about the work of the local government in your municipality?
   - Monthly
   - Quarterly
   - Bi-annually
   - Yearly
   - None
   - I do not know
3. Could you please specify (in question 2) what these sensitization programs are about?...........
4. What means/medium do you find most effective in awareness creation about the functioning of the local government in the municipality?
5. Do you have any challenges accessing services related to health in the community? Yes/No
   5a. List the specific challenges you face accessing health services ----------------------------
   5b. Have you had an encounter with social welfare services? Yes/No
6. Do you have any challenges accessing services related to social welfare? Yes/No
   6a. List the specific challenges you face accessing health services……………………………
7. Which of the following services is/are available in this community?
   - NHIS
   - Disability common fund
   - LEAP scheme
   - Other
8. What means do you use in accessing health information in the community?
   - Direct walk into the hospital
   - Through phone calls
   - WhatsApp
   - Other
   - Information Center
   8a. If other means of accessing health information, specify……………………

C. Digital inclusion, general knowledge about ICT tools, and usage
9. Do you know/have you heard about technology and its applications? Yes/ No
10. How would you rate your knowledge about ICT and its applications in the municipality?
    - Good
    - Rather Good
    - Rather not good
    - Not good
11. Are you familiar with any ICT tools? Yes/ No
12. Mention any ICT tool you are familiar with………………………
    (Clue: Phone, Laptop, Desktops, Tablets, Radio, Television)
13. Specify any other ICT tool not mentioned above……………….

14. How often do you use the tools/devices mentioned above?
    - Daily
    - Weekly
    - Monthly
    - Quarterly
    - Annually

15. What do you usually use the ICT tools for and for whom do you normally communicate with it?
    - Communication with co-workers
    - Communication with local community members
    - Entertainment
    - News/source of information
    - Other

14.. What else do you use the ICT device for…………………………………………….

16. How would you rate the user-friendliness of this device/how do you think this device is easy to use?
    - Good
    - Rather Good
    - Rather not good
    - Not good

17. Do you know the municipal hotline for service delivery? Yes/No

    If yes, please what is the hotline number……………………………..

18. Do you know if the municipality has a website?

    If yes, please what is the name of the website

19. Does the municipality have digital means through which community members/stakeholders access its services schemes? Yes/No

20. List the existing system for two-way communication you know --

21. Are you connected to the internet? Yes, No

22. How are you connected to the internet?
    - Mobile phone
    - Wifi hotspot
    - Internet modem
    - Broadband
    - Internet café
    - Other

23. Which other way do you connect to the internet? ------------------------------

D. Digital Literacy, internet connectivity, access, and Impact of digitization on the decision-making process at the local level *(This describes the extent to which empirical evidence reveals the impact of digitization on the decision-making process at the local level and what evidence is available on the state of digitization of both the public and local governments in Ghana?)*

24. How often do you use ICT in your workplace/home?
    - Daily
    - Weekly
    - Monthly
    - Quarterly
    - Annually

25. What are the most common ICT tools/devices that are used in the Municipality?
    - Laptops
    - Smartphones
    - Tablets
    - Desktop computers
    - None

26. How often do you use any of these devices mentioned in question 21?
    - Daily
    - Weekly
    - Monthly
    - Quarterly
27. What do you normally use the ICT tool/device for?
    - Communication with co-workers
    - Communication with local community members
    - Entertainment
    - News/source of information
    - Other, please specify--------------------------

    Please specify the other uses of the ICT tools…………………………………..
28. Are there any forms of ICT training that are done to help you in your work or daily activities?

    Yes/No   Please specify the ICT training………………………………………………………….
29. Do you have any challenges accessing or using these ICT tools? Yes/No

    29a. What specific challenges do you have in accessing or using ICT tools
30. Do you own a mobile phone? Yes/No

    i. Which of these phones do you own?
    - Feature phone/Yam
    - Smartphone
    - Both

    ii. If not, do you have access to a mobile phone? Yes/No

    iii. if yes, which phone do you have access to?
    - Feature phone/Yam
    - Smartphone
    - Both

    iv. If yes how exactly or how do you get access to it?

Which of these networks do you use?
    - MTN
    - Vodafone
    - Airtel Tigo
    - Glo
31. If you own/have access to a smartphone, do you have access to the internet? Yes/No
32. How often do you use the internet?
    - Daily
    - Weekly
    - Monthly
    - Quarterly
    - None
    - I do not know
33. How is your internet connectivity?
    - Good
    - Rather Good
    - Rather not good
    - Not good
34. Which applications do you use most on your phone?........................
35. In your opinion how do you think ICT can be used to facilitate communication between the people and the local government officials on health and social welfare services in the municipality?......................................