



OSIWA

Community /Village Information and Communication Infrastructure Plan (VICI) for Ghana

May 2004

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Mandate of the Study

The study was commissioned by the Development Information Services Division (DISD) of ECA. The terms of reference required a survey instruments and a methodology be developed for measuring and assessing the level of ICT usage at the village level and how the Ghana NICI policy process can be decentralized at the village level.

The objectives of the study

1. Determine the policy gaps between ICTs and socio-economic development at the district or village level.
2. identify how ICT can support socio-economic development at the grassroots level through the Ghana NICI policy process;
3. define how policy can be implemented at a decentralized level;
4. provide opportunity for developing ICT initiatives at the village level
5. Support the democratization of the information society in Ghana in general.

The study was to:

- Undertake needs assessment exercise aiming at identifying existing ICT resources and potential in Amanokrom and its environs in the Eastern Region of Ghana.
- The Development of guidelines for the establishment of a VICI Plan taking into account the socio-economic and cultural situation of the village
- Organizes local consultations aiming at discussing and building

- consensus from local stakeholders as well as invited guests on ICT issues and priorities identified during the needs assessment phase
- Propose and describes practical relevant ICT applications for building the local information and communication infrastructure
 - Prepare a proposal on developing and sustaining the local ICT workforce
 - Liaise with the Ghana Lead NICI Consultant and the NICI Task Force members to ensure synergies between the VICI and NICI plans and that the VICI will be an integral part of the NICI

PART ONE

I

Background

Recognizing the important role information and communication technologies (ICTs) play in facilitating the attainment of development goals and encouraging the diffusion and utilization of information technologies in Africa and enhancing the entry of the continent into the global information society, the Economic Commission for Africa (ECA) launched the African Information Society Initiative (AISI), which serves as a guiding framework for building the information and communication infrastructure in Africa. Since the launch of AISI, ECA has been supporting member States to embark on the development of NICI policies, strategies and plans which are instrumental to implement the global visions enshrined in the AISI at national level and to create conducive environment for liberalisation and deregulation of the Telecommunication sector. Since the elaboration of national ICT strategies helps countries address development challenges, it is imperative that member States demonstrate readiness to commit their scarce resources and foster ownership of the process. Ghana has embarked on the development of national ICT strategies. The country is also developing strategies at the sector and micro level. Ghana is in the process of finalizing its e-strategy development process; it also will embark on the development of a Village Information and Communication Infrastructure (VICI) Plan with emphasis on African traditional heritage and values, as a pilot project.

The study, the first of its kind in a NICI country, will study the ICT needs and potential of a typical Ghanaian traditional village with a view to defining a guiding framework and setting up a program for the exploitation of ICTs for local development.

What is VICI

The concept of VICI policies and plans was adopted by AISI to emphasize the importance of the communication component at the decentralised level. VICI includes more than the physical infrastructure and the equipment used to host, process, transmit or display data, text, voice and images. It involves the development of human resources at the village level, poverty alleviation/reduction, give ICT access to the people at the community level, ICT as a tool for rural development, etc. In summary VICI is

- An instrument developed to decentralize the NICI process after the formulation of the national policy as a way of democratizing access under the AISI framework and philosophy.
- Introduced to give a chance to the majority of the African people living in the rural areas and that constitute approximately 60-70 per cent of the national populations to become actors and identify their ICT needs.

Advantages of VICI

Envisaged advantages of introducing VICIs:

- allows more people living across the country to have an input to the information society building process;
- Buy-in of the process at the local government level, sharing and spreading the responsibilities of policy-making across the political ladder;
- provides the opportunities for 'champions' at the

regional/local levels in ICTs;

- Enables effective faster implementation of the policy if regional and local governments are involved;
- Democratization of the policy process spreads further knowledge of the role of ICTs in development throughout the country
- Offers opportunities of scaling up and implementation of universal access goals.

VICI Challenges

Strategic challenges to be addressed by VICI are;

- Prioritizing ICTs for rural development in the area of education, health, agriculture, employment etc.
- investment in rural ICT infrastructure
- literacy: both formal and functional literacy to increase widespread access to ICTs by farmers, small scale entrepreneurs, traders among others

Funding

The Open Society Initiative of West Africa (OSIWA) provided funds for this research. OSIWA is part of a global network of 32 autonomous foundations founded and supported by George Soros, committed to the advancement of an open society. OSIWA recognizes the importance of incorporating global developments in building open societies and the key role of the media and information technology.

II

Methodology

This section deals with definitions, the study design, the instruments and procedures used in the data collection.

Definition of ICTs

In the sampling process for this research, the term ICTs refers to technologies that can be combined to facilitate communication and the process and transmission of information by electronic means such as radio, television, computers, fixed and mobile phones, and so on.

Procedure and Design

This section involved the development of research instruments and the methodology for assessing the ICTs needs and potential of Amanokrom for the implementation of the VICI project. This phase also involves the consultation and notification processes. Consideration includes who to consult with at the village level, and notifying the opinion leaders on the relevance of the project. This phase also considered the main questions for the study, which team members will go on the field to conduct the interviews and administer the questionnaires.

Sampling Process

The plan for the collection of data for the study specifies what kind of data will be collected, from whom, where the information would be collected and how it will be collected.

Various data collection instruments were used to gather information for the study. The questionnaire was used to sample the views of the ordinary people of Amanokrom to access their knowledge on ICTs for development. In all 373 people answered the questionnaire. It was divided among the youth, women and men. Researchers made to include the youth and the women in the sampling process. Consultations were made with some governmental agencies as well as private agencies to know whether they have access to ICTs and the benefits of ICTs to them. People interviewed included health workers, assembly men (local government structures) teachers, private organizations and public organization among others.

Interview technique was also used to collect data for the study. The Omanhene of Amanokrom was interviewed to know his views concerning ICTs, and also how best ICTs can be harnessed for development. The queen mother as well as the Akempimhene was also consulted on how best ICTs can be used for the rural development of Amanokrom. The Akempimhene was very much interested in the study and has promised his total support for the successful implementation of the project.

Another procedure used was observations. Researchers were sent to the field to observe and collect data for the study.

Finally archival search was also used to collect data.

Selection of Team Members

A team of experienced researchers were selected for the study. We had a renowned historian and an expert on traditional governance and culture, a professor of social anthropology, a research fellow of the Institute of African Studies, an adult educator, educational

technologies and ICTs for development expert who were all in the research team.

Data Collection

Guidelines were formulated for the research and each researcher was to conduct the research according to the agreed guidelines. The duration for the data collection was 4 weeks. The researchers summarized their findings and drew their preliminary conclusions. The study carried information about: ICT infrastructure in Amanokrom, the types of infrastructures, access to ICTs, the usage of ICTs for both personal and commercial activities, peoples' perception on ICTs for development, their expectation on rural development using ICTs etc.

Data Processing

The data collected was coded and entered into a SPSS database. To provide knowledge of the ICTs infrastructure, access to ICTs and their perceptions on the uses of ICTs, each item was assigned to a major category. Three major categorizations were created. These fell under section A, B, and C. Section A dealt with issues relating to personal information of respondents such as, age, sex, occupation, educational background etc. Section B dealt with availability of ICT infrastructure and access to ICTs. And section C has to do with the peoples' perception on ICTs for development etc. The quantitative data was broken down and analyzed in a qualitative manner.

Writing up the report

The last part of the study was the writing up a report of findings of the study and a proposal for a possible implementation of ICT led development initiative for the people of Amanokrom. The survey results and findings were collated into this final report which contains an analysis of the data as well as proposals on how best to implement the VICI initiative. The report also contains some recommendations for further research.

III

Needs Analysis

Amanokrom, a village in the Eastern Region of Ghana is one of the 17 principal settlements on the Akuapem ridge. It is sited between Mamfe and Abotakyi with its other closest neighbor being Mampong Akuapem. The Tetteh Quarshie Hospital and the Centre for Scientific Research into Plant Medicine are just ten minutes drive from Amanokrom.

Amanokrom has a population of 2407 (2000 pop. census). This comprises 1053 males and 1354 females. It is estimated that the population now stands at about 2460 based on the phenomenal population growth of 2.5% in Ghana.

The main occupation of the people is farming. However there are civil servants, artisans, traders as well as self-employed individuals.

A Needs Assessment exercise was conducted in Amanokrom to identify the existing ICT resources and potential in Amanokrom and its environs in the Eastern Region of Ghana by administering questionnaire to the respondents as well as, conducting face to face interviews in their local language. This special exercise centered on the availability and usage of telecenters with the community and the impact it creates in the lives of persons availing themselves of their uses for social and economic purposes. Special emphasis was placed on the utilization of ICT resources by the Youth and the female population in that village.

In carrying out the needs assessment exercise aimed at identifying existing ICT resources and potential in Amanokrom and its environs in the Eastern region of Ghana, 373 people were interviewed of which 193 representing 51.1% are males and 180 are females. This distribution can be seen in the table that follows.

Sex Distribution of the Respondents

Sex	No. of Respondents	Percentage
Male	193	51.7

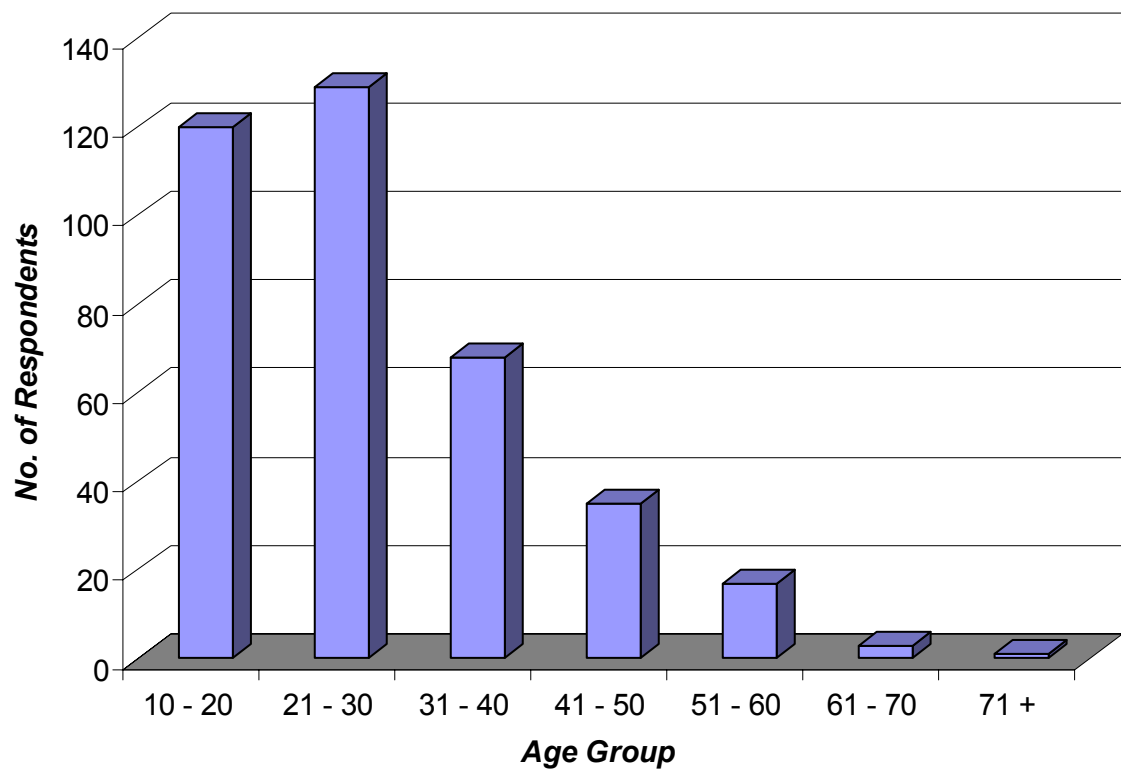
Female	180	48.3
Total	373	100.0

Most of the respondents (66.8%) were under age 31.

Age Distribution of the Respondents

Age Group	No. of Respondents	Percentage
10 - 20	120	32.2
21 - 30	129	34.6
31 - 40	68	18.2
41 - 50	35	9.4
51 - 60	17	4.6
61 - 70	3	0.8
71 +	1	0.3
Total	373	100.0

Chart Showing the Age Distribution of the Respondents

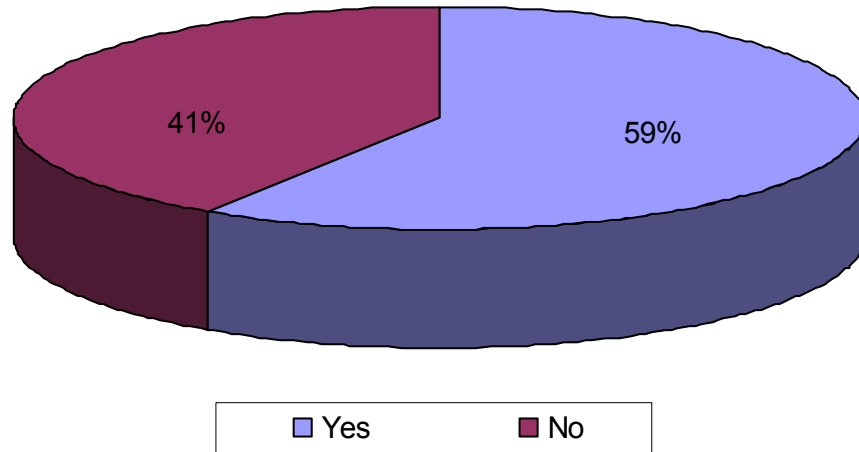


Distribution of Knowledge of ICT among Respondents

Heard of ICT?	No. of Respondents	Percentage
Yes	221	59.2
No	152	40.8
Total	373	100.0

Of the lot, 221 respondents have heard of ICT whereas 152 of them have not. Those who have not heard about ICT form as much as 40.75% of the all the respondents. This distribution is shown in the chart below.

Chart Showing Whether or Not Respondents Have Heard About ICT



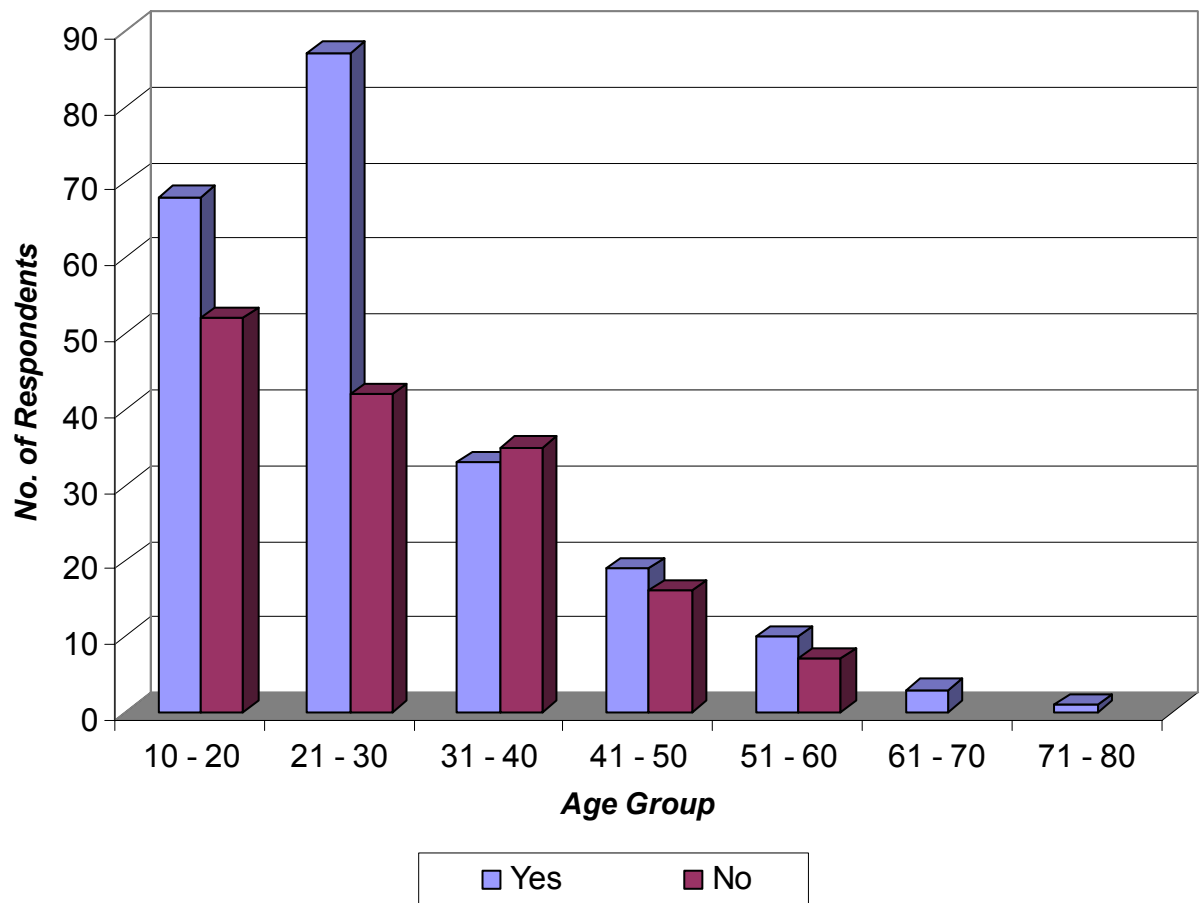
Age Group * Heard of ICT Cross tabulation

Age Group	Heard of ICT?		Total
	Yes	No	
10 - 20	68	52	120
21 - 30	87	42	129
31 - 40	33	35	68
41 - 50	19	16	35
51 - 60	10	7	17
61 - 70	3	0	3
71 - 80	1	0	1
Total	221	152	373

From the cross tabulation of Age Group and Knowledge of ICT it can be inferred that Knowledge of ICT among the under 31 year old was very high of the 249 interviewed, as much as 155 of them representing 62.25% have knowledge of ICT and only 94 or 37.75% of them did not have any knowledge of ICT. A high proportion of the respondents thus 152 of the 373

representing 40.75% have not heard of the ICT term as can be seen in the table.

Chart Showing Respondents' Age Group and Whether or Not They Have Heard of ICT



A cross tabulation of Sex and Knowledge of ICT also revealed that almost half of the female respondents have not heard of ICT whereas only a third of the males have not as can be seen in the following table.

Sex * Knowledge of ICT Cross tabulation

Sex	Heard of ICT?		Total
	Yes	No	
Male	127	66	193
Female	94	86	180
Total	221	152	373

Educational Background Distribution of the Respondents

Level of Educational	No. of Respondents	Percentage
MSLC	60	16.1
BECE	116	31.1
O' LEVEL	26	7.0
TERTIARY	34	9.1
OTHERS	136	36.5
No Education	1	.3
Total	373	100.0

It can be seen from the table above that, apart from one of the respondents all the others have had education to one level or another.

258 representing 69.2% of the total of 373 respondents are single as can be seen from the table below. This is an indication of the youthfulness of the respondents.

Marital Status Distribution of the Respondents

Marital Status	No. of Respondents	Percentage
Married	110	29.5
Single	258	69.2
Divorced	1	.3
Widowed	4	1.1
Total	373	100.0

Occupation Distribution of the Respondents

Occupation	No. of Respondents	Percentage
Civil Servant	82	22.0
Artisan/Self Employed	125	33.5
Student	125	33.5
Unemployed	27	7.2
Others	14	3.8
Total	373	100.0

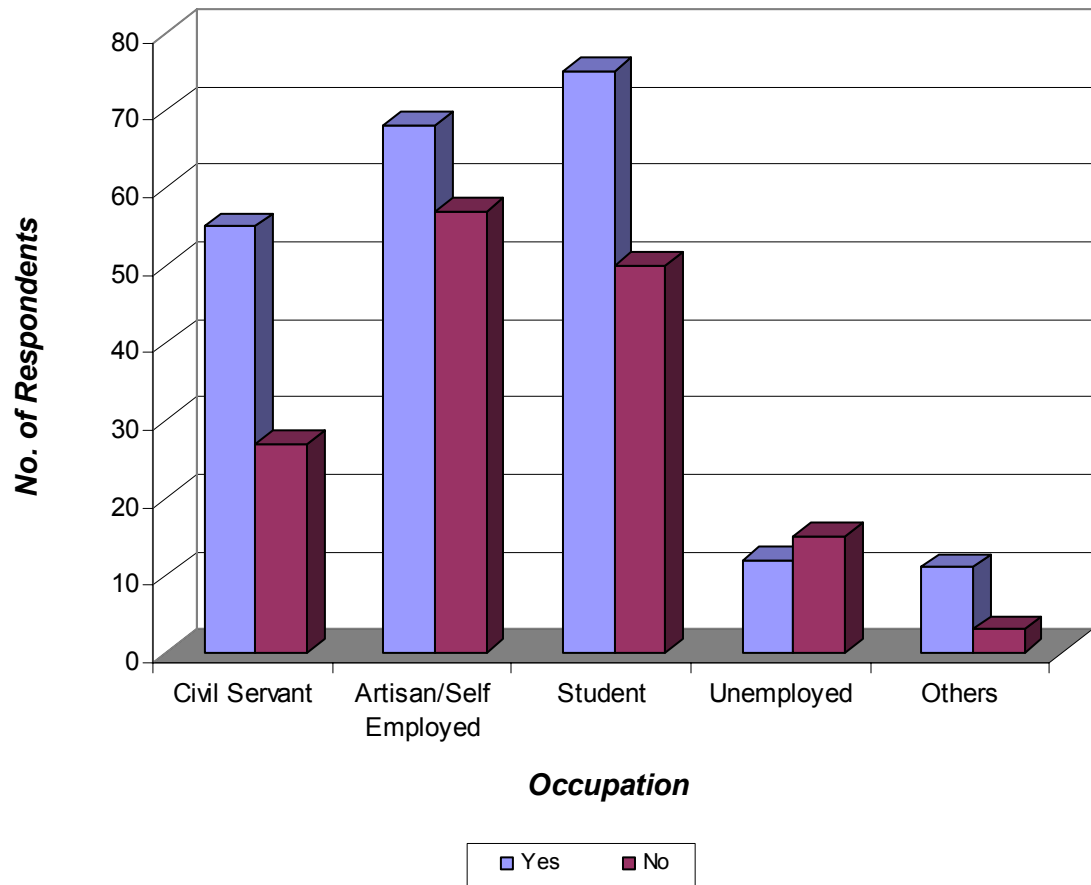
Students and Artisans/Self employed constitute the highest occupations of the respondents of 125 each. The two occupations put together form 67.03% of the lot.

Occupation * Knowledge of ICT Cross tabulation

Occupation	Knowledge of ICT		Total
	Yes	No	
Civil Servant	55	27	82
Artisan/Self Employed	68	57	125
Student	75	50	125
Unemployed	12	15	27
Others	11	3	14
Total	221	152	373

From the cross tabulation above, it can be seen that the occupation that had the highest number of respondents having heard about ICT is students. Of the 221 respondents who have heard about ICT, students constitute 33. 94% of them. This is well depicted in the following chart.

Chart Showing the Respondents' Occupation and Whether They Have of ICT



Respondents' Explanation of ICT

Explanation of ICT	No. of Respondents	Percentage
Means of communication	110	29.5
About communication equipment	43	11.5
Others	16	4.29
Not Applicable	152	40.75
No Idea	52	13.9
Total	373	100.0

Most of the respondents who have heard of ICT said it is a means of communicating. A substantial number of them also said it was about communication equipment. It can be concluded that most respondents who have heard of ICT do it think it was to do with communication in one way or the other.

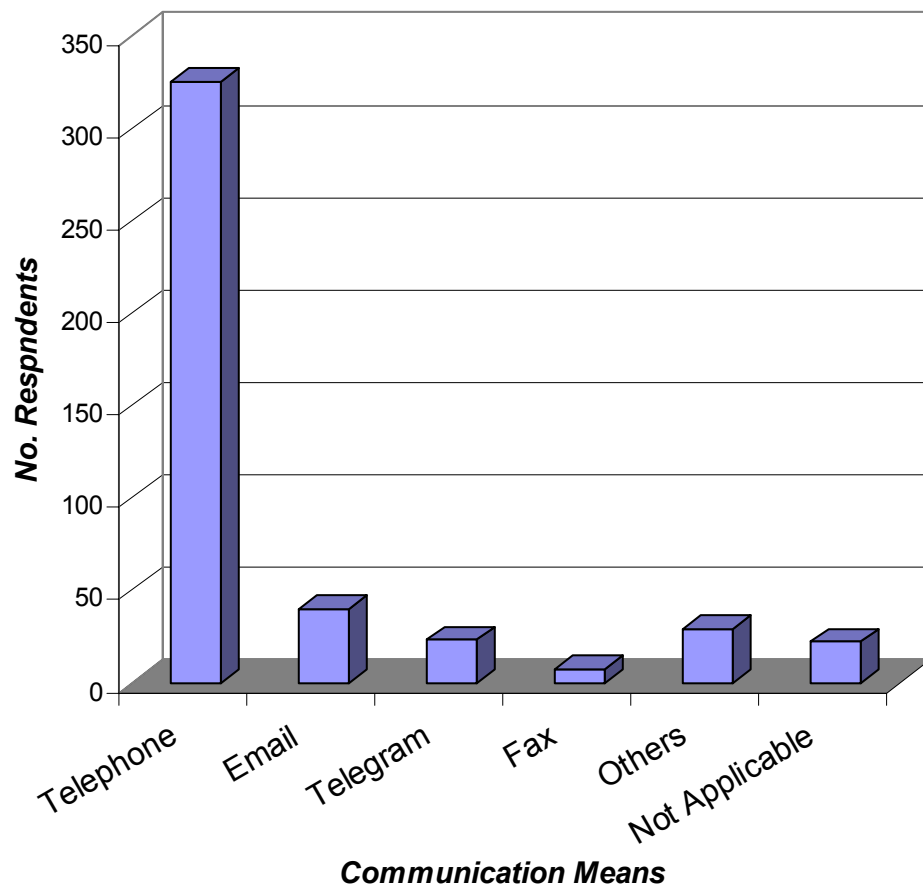
Respondents' Communication with outsiders

Do you communicate with people outside?	No. of Respondents	Percentage
Yes	351	94.1
No	22	5.9
Total	373	100.0

94.1% of the respondents do communicate with people living outside their environs and this is done mainly through the telephone as can be seen from the table below. It can also be seen from the table that the respondents use

ICT methods of old and these are the telephone, telegram, fax and others. 40 of them do use modern ICT methods in communicating with people living outside their environs and that is through electronic mail (email). This is shown in the table below.

Chart Showing the Distribution of Respondents' Means of Communicating with People outside their Environs



It can be seen from the graph above that communication with people outside the environs of Amanokrom is done mainly through the telephone.

Availability of Cyber Cafes & Communications Centers

Com. Centre/ Cafes	No. of Respondents	Percentage
Yes	368	98.7
No	5	1.4
Total	373	100.0

Apart from five of the respondents, the rest of the respondents said they have one or more of communication centers, public phones or cyber cafes in their communities. Also from the table below, it's clear that the communication centers and cyber cafes are privately owned by individuals. Quite a number of the respondents said they had no idea who owns these facilities.

Distribution of owners of Communication Centre, Cyber Cafes etc

Comm. Centre /Cyber Café Owners	No. of Respondents	Percentage
Private	325	86.9
Government	14	1.3
Others	1	.3
No Idea	41	11.0
Total	373	100.0

The category of users of such communication facilities is fairly distributed and as such no particular group of people distinguished themselves in the usage of the said facilities. In fact 154 of the respondents said everybody use these facilities. This can be seen in the table below and thus it can be concluded that such facilities are fairly used by people from all walks of life.

Category of Com. Centre Users

Facility Users	No. of Respondents	Percentage
Student	71	19.03
Workers	64	17.16
Everybody	154	41.28
Parents	40	10.72
Youth	61	16.35
No Idea	33	8.8

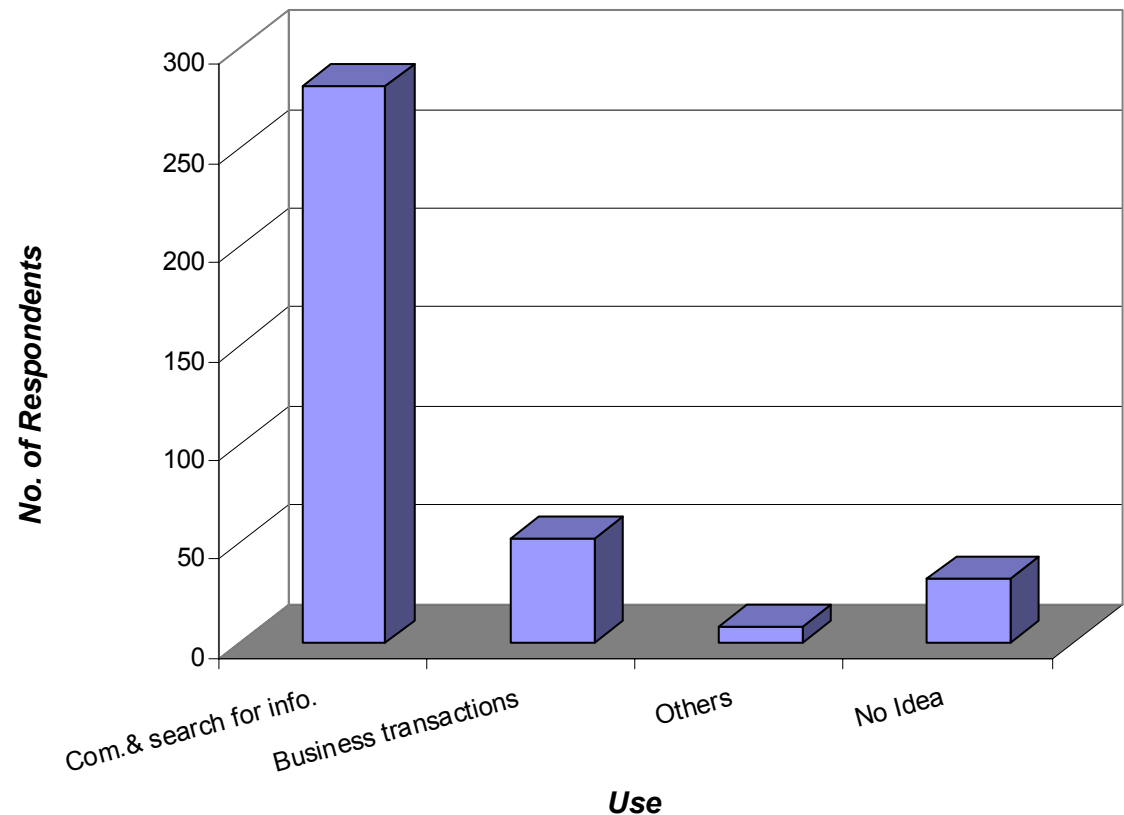
From the field survey, it came to light that, more men than women use these facilities and also this is evident in the table below.

Distribution of Whether or Not More Men than Women Use Communications Facilities

More men than women?	No. of Respondents	Percentage
Yes	226	60.6
No	94	24.9
No Idea	53	14.2
Total	373	100.0

With regards to uses of these facilities, most of the respondents said they are used for communication and search for information. Quite a number of them also said that they are used for business transactions. This is evident in the chart below.

Chart Showing the Uses of Communication Facilities



It is interesting to note as much as 8.6% of the respondents have no idea what these facilities are used for as can be seen from the chart above.

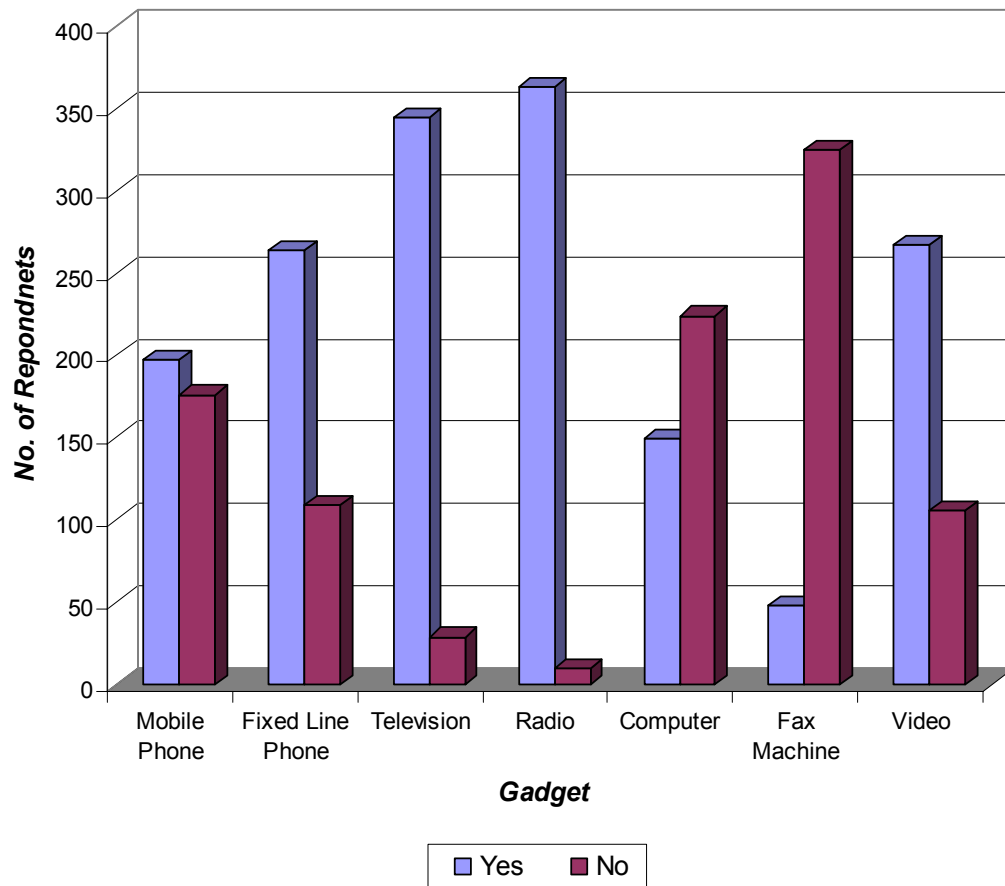
Accessibility and Ownership of Communication Gadgets

97.3% of the respondents said they have access to a radio and 92.2% to a television. Accessibility to telephones and fax as well as computers is quite low and this is to be expected in a rural area in Ghana.

Quite a number of respondents who have access to these facilities actually own them. The above observations can be vividly seen in the tables and charts below.

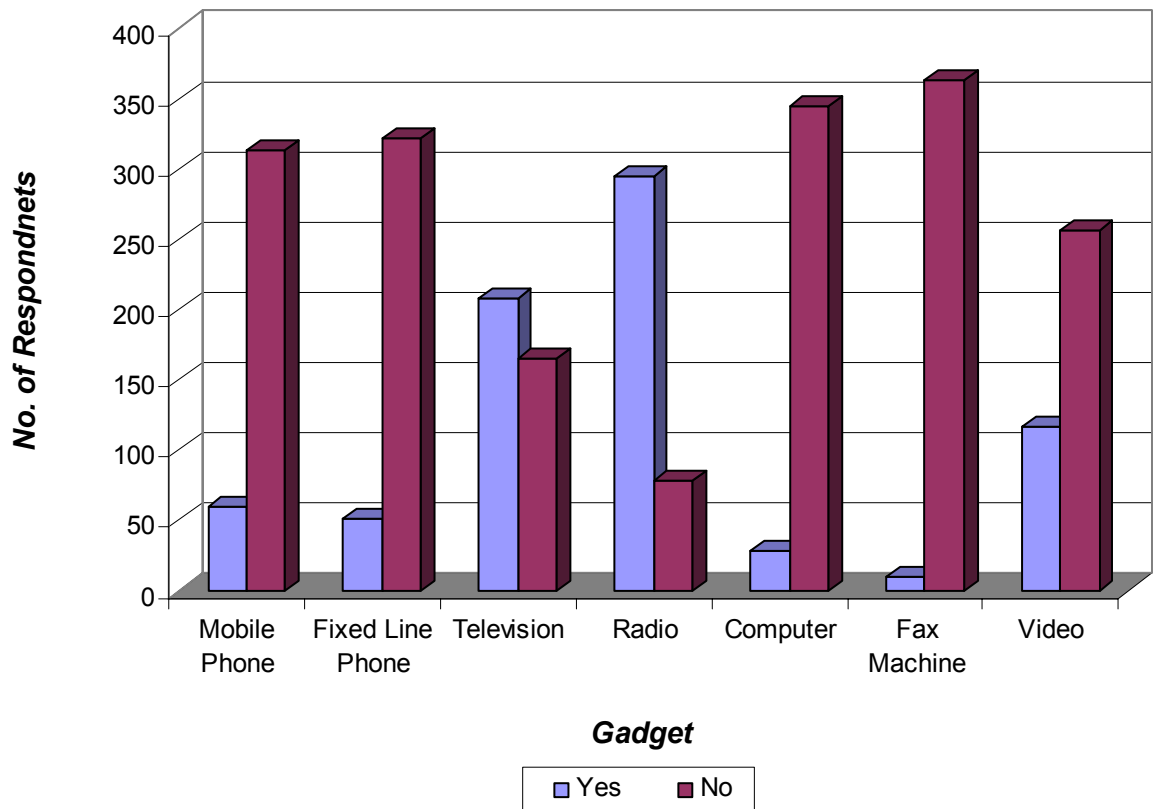
Distribution of Accessibility of Communication Gadgets among Respondents

Chart Showing Respondents' Accessibility to Communication Gadgets



Distribution of Ownership of Communication Gadgets among Respondents

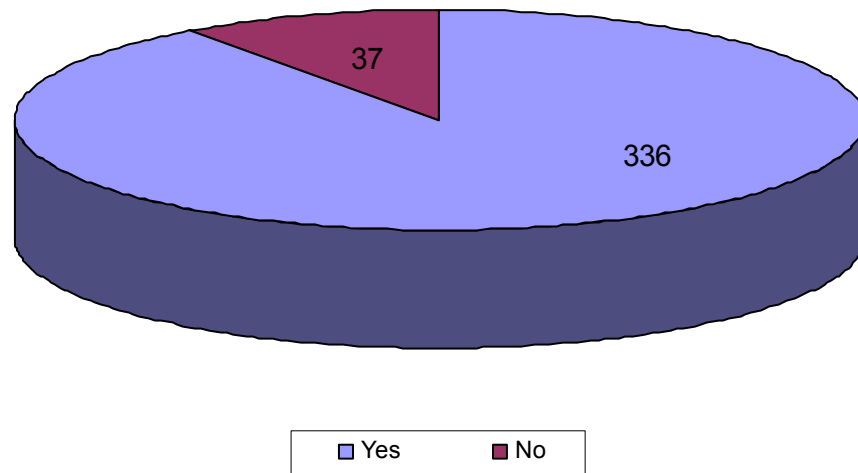
Chart Showing the Distribution of Ownership of Communication Gadgets Among Respondents



It can be seen from the chart above that, apart from radio and television which the respondent who own them are more than those who did not own, the number of respondents who do not own the gadgets are more than those who own them.

90.1% of the respondents have electricity at home as against 9.9% who do not. Ownership of telephone at home is low among the respondents. In fact only 83 out of the 373 respondents have telephone at home. These distributions can be seen in the following chart.

Pie Chart Showing Whether Respondents Have Electricity at Home or Not



Distribution of Whether or Not Respondents Have Telephone at Home

Have Phone at Home?	No. Respondents	of Percentage
Yes	83	22.3
No	290	77.7
Total	373	100.0

Computer Literacy

Computer literacy among respondents is very low. Out of the 373 respondents, only 76 are computer literate. This is not surprising as only 149 and 28 of the respondent do have access to and own computers respectively.

However, 275 representing 73.7% of the respondents do wish to be computer literate and only 28 of them for whatever reason said they do not

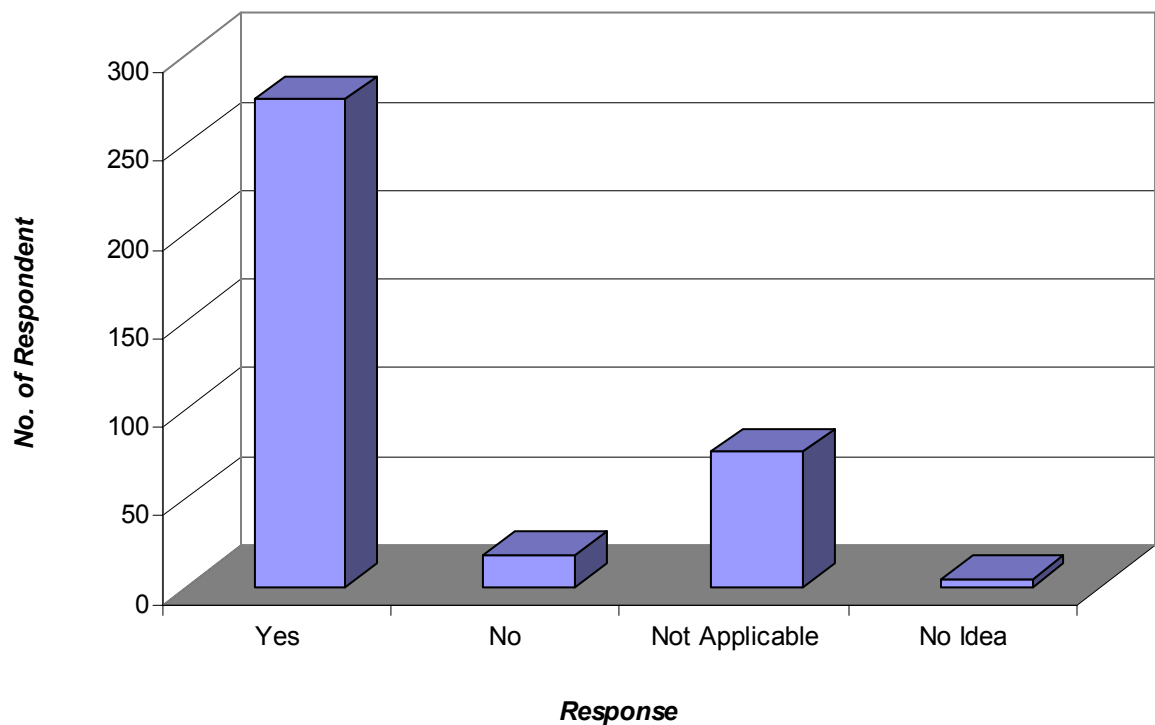
wish to be computer literate. 7 of them also said they have no idea as to whether they wish to be computer literate or not.

The actual distributions can be seen below.

Table Showing Whether or Not Respondents are Computer Literate

Computer Literate?	No. of Respondents	Percent
Yes	76	20.4
No	297	79.6
Total	373	100.0

Chart Showing Whether or Not Respondents Wish to be Computer Literate



Benefits of Computer Literacy

Benefit	No. of Respondents	Percent
Research & search for information	138	36.99
Business transactions	29	7.77
Employment	16	4.2
Not Applicable	76	20.38
Others	42	11.26
No Idea	72	19.3
Total	373	100.0

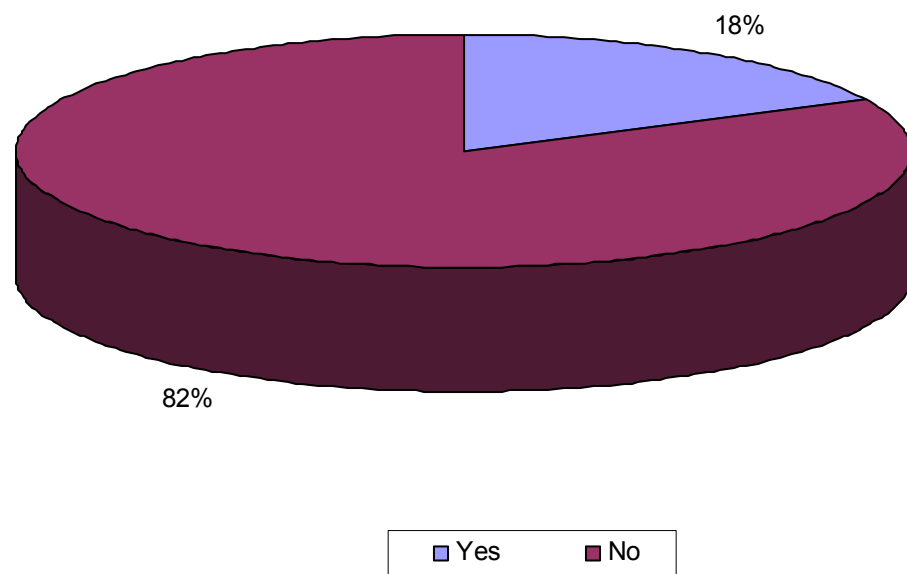
Usage of Computers

Usage of Computers	No. of Respondents	Percentage
Research & search for info	80	21.4
Business/secretarial services	81	21.72
Communication	39	10.56
Entertainment	21	5.6
Others	2	0.54
No Idea	180	48.3

The tables above show the distribution of benefits to be derived from being computer literate and the uses to which respondents put computers. From

the tables, it can be seen clearly that a lot of the respondents rely for computers for their researches and search for information.

Chart Showing Whether or Not Respondents Have Access to the Internet



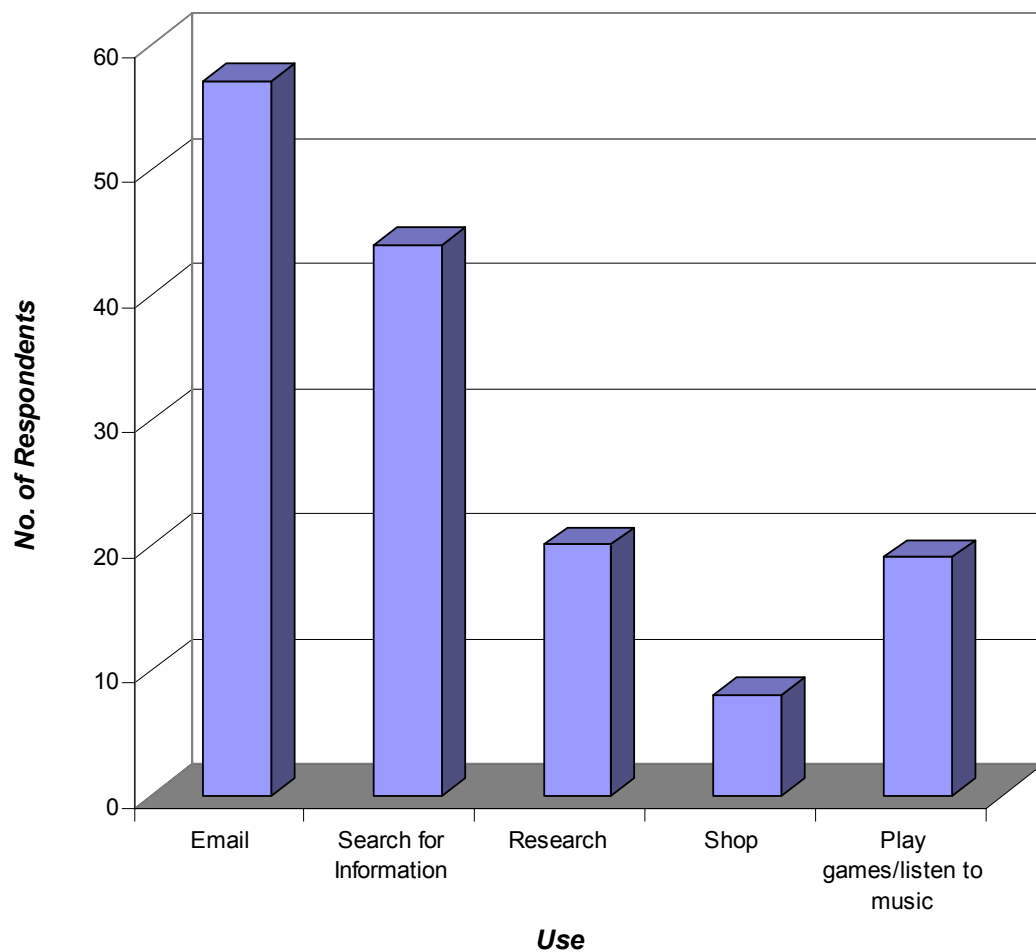
From the chart above, it is clear that only 18% of the respondents have access to the internet. Of the 307 respondents who do have access to the internet, as much as 164 said the reason is that the internet services are not available in their community. 53 said they did not know how to use the internet while 21 said internet services are expensive. The distribution of their reasons for not having access to the internet is shown in the table below.

Reason for non internet access

Reason	No. of Respondents	Percentage
Not available	164	27.6
Don't know how to use it	53	14.2
Expensive	21	5.6
Not Applicable	66	18.5
No Idea	69	18.5
Total	373	100.0

For those who do have access to the internet, 57 said the use it for sending and receiving electronic mail, 44 said the use it to search for information, 20 uses it for research work and 19 use it for playing games/listen to music. The chart below shows this distribution

Chart Showing What Respondents Use the Internet For



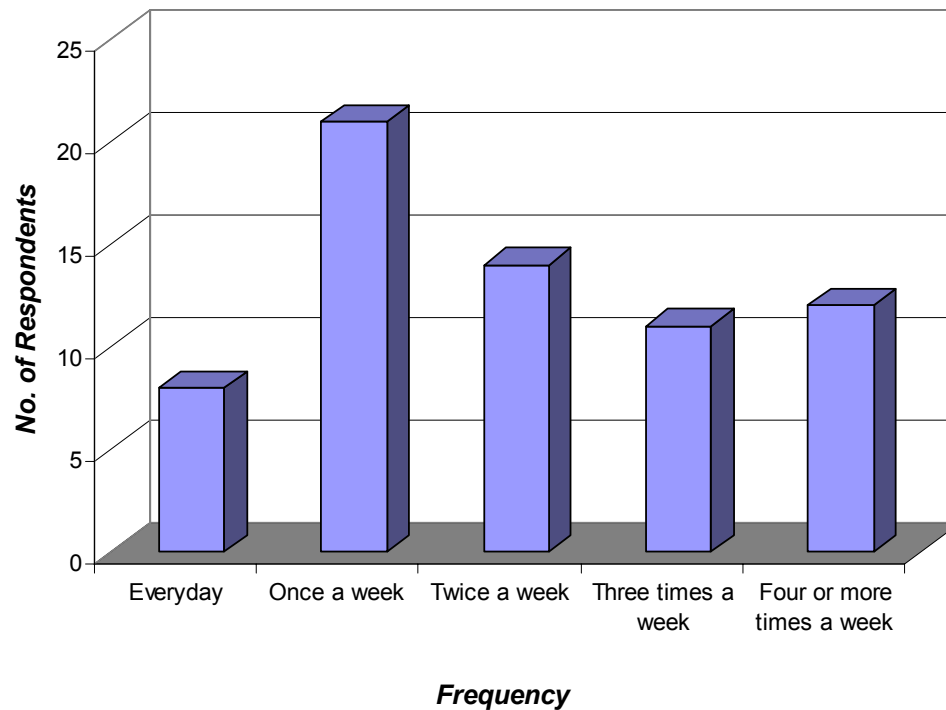
With regards to where respondents get access to the internet, as much of 62% said the access the internet in Accra which implies that they had to travel to Accra to do so. Another 7 said the do so at Koforidua while 14 do so at Mampong. 3 of the respondents do access the internet at Mamfe and only 1 do so at Amanokrom. This can be seen the following table.

Where do you access the internet?

Access Point	No. Respondents	Percentage
Amanokrom	1	1.51
Mamfe	3	4.54
Mampong	14	21.21
Koforidua	7	10.60.
Accra	41	62.21

The following chart shows how many times a week respondents who have access to the internet do access it.

Chart Showing How Often Respondents Access the Internet in a Week



Information accessed on the internet

Information Accessed	No. of Respondents	Percentage
Local events	31	46.81
Government policies	27	40.77
Health information	35	52.85
Educational services	42	63.42
Agricultural practices	5	7.55

The table above shows the type of information accessed by the respondents through the internet. As much as 63.42% said they access information on educational services while 52.85% access health information. It is interesting to note that 5 of the respondents said they access information on agricultural practices. This implies that making internet services more available will help in the dissemination of information on agricultural practices and services.

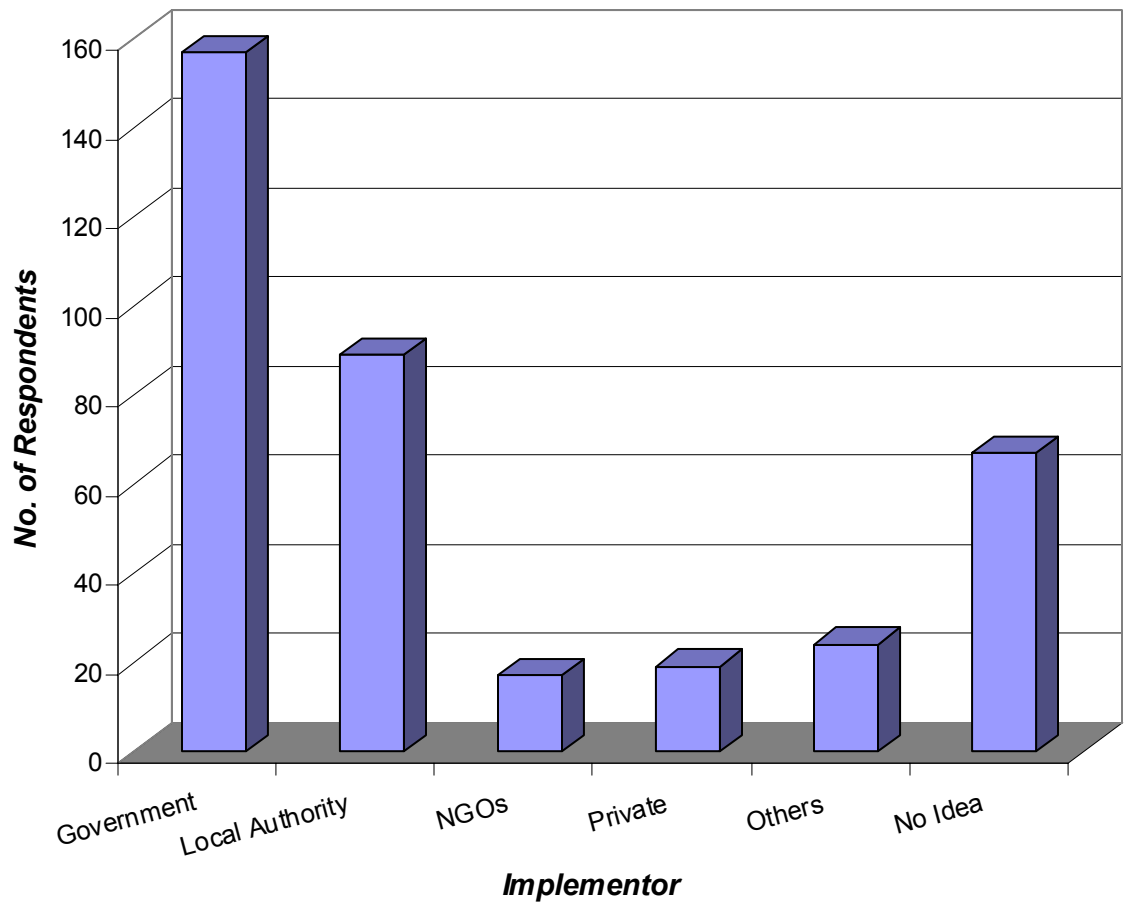
ICT Projects

Project of Benefit	No. of Respondents
Provision of more Computer training centers	170
Provision of more phones	198
Provision of more Internet services	155
Provision of more Fax machines	21
Provision of more Videos	10
Provision of more Radios	27
Provision of more Television	29
No Idea	40

On the question of what ICT projects respondents think will benefit their communities, 198 said provision of more telephone lines will do so while 155 said making internet services more available will do so. Provision of more computer literacy training centers featured prominently as 174 of the respondents think that the provision of such centers will benefit their communities. The distribution can be seen from the table above.

With regards to the implementation of these projects, 42.1% of the respondents said the government should do it while 23.9% of them said it should be done by the Local Authority. 17 respondents said these projects should be taken up by NGOs while 19 of them said private individuals should implement them. This can be seen the chart below.

Chart Showing How ICT Projects Should be Implemented



The following tables show what respondents expect ICT to do in the area of Education, Health, Agriculture, Traditional Governance and Culture & Tourism.

Expectation of ICT in Education

Expectation	No. of Respondents	Percentage
Aid distant learning	39	10.5
Offer computer training	52	13.9
provide research avenues	38	10.2
No Idea	244	65.4
Total	373	100.0

Expectation of ICT in Health

Expectation	No. of Respondents	Percentage
Help in drug prescription	41	11.0
Aid the dissemination of health news/information	25	6.7
No Idea	307	82.3
Total	373	100.0

Expectation of ICT in Agriculture

Expectation	No. of Respondents	Percentage
Avenues for assistance/growth	13	3.5
Dissemination of information on better farming practices	28	7.5
No Idea	331	88.7
Total	373	100.0

Expectation of ICT in Traditional Governance

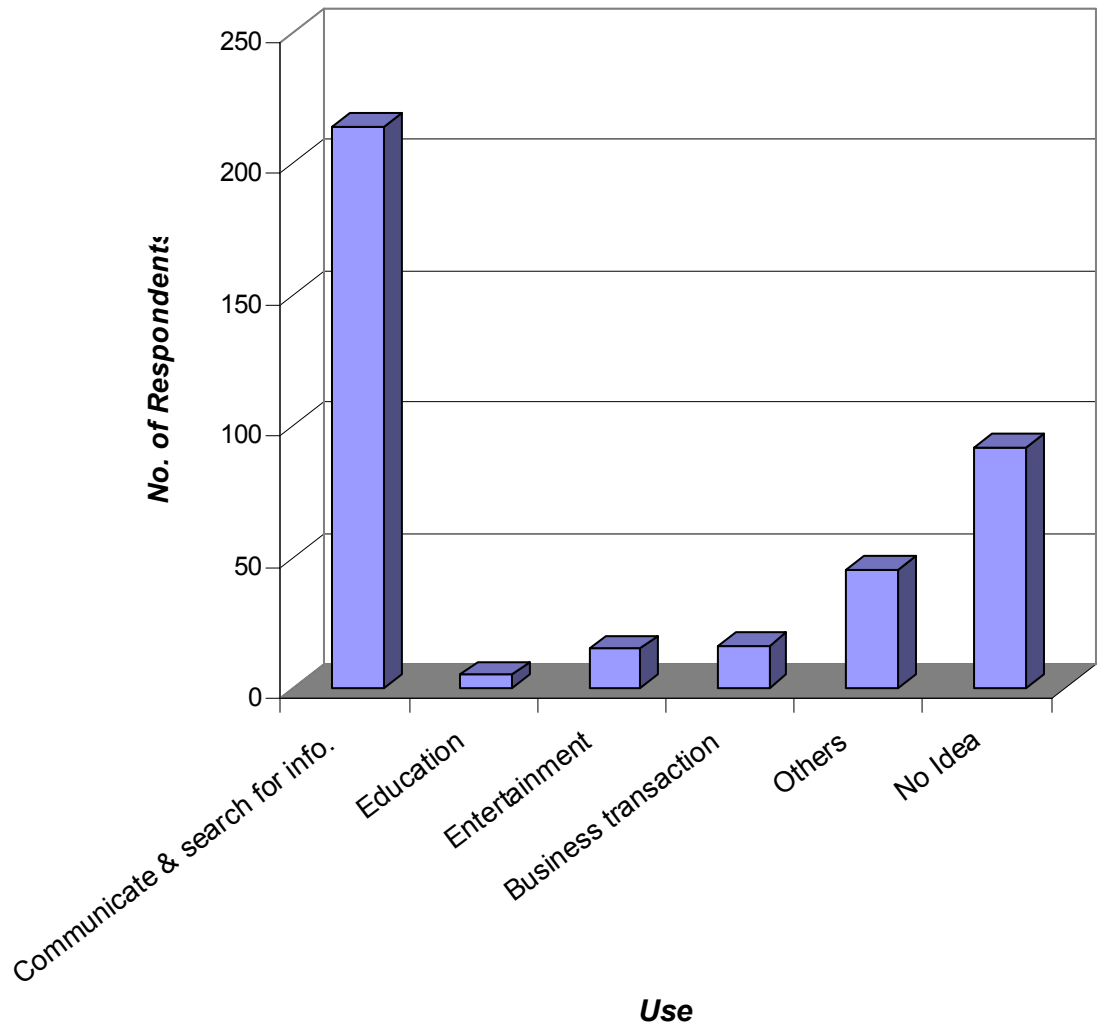
Expectation	No. of Respondents	Percentage
Enhance unity among chiefs	11	2.9
networking of palaces	12	3.2
Inform chiefs on government policies & program	10	2.7
No Idea	340	91.2
Total	373	100.0

Expectation of ICT in Culture and Tourism

Expectation	No. of Respondents	Percentage
Tourist web site publishing	7	1.9
Advertisements	15	4.0
No Idea	351	94.1
Total	373	100.0

The uses of ICT within the community are shown in the chart below.

Chart Showing Uses of ICT Within Respondents' Communities



It can be inferred from the chart above that ICT is mainly used for communication and search for information in the respondents' communities.

On the question of what policies respondents expect the government to develop, 110 said ICT equipment should be provided. 61 want available ICT

facilities should be upgraded. 99 also wanted other things done including, providing and public hall for ICT access such cinema and/or video for dissemination of information to all manner of people for free. 119 of the respondents however said they have no ideas as to what ICT policies they expect the government to develop.

The distribution of the responses by the respondents on the question of what policies they expect from government to gain more access to ICT did not vary so much from the observations above. Basically the respondents want policies which are aimed at the provision of ICT equipment, upgrading the existing or available ICT equipment.

On the whole 334 representing 89.5% of the respondents think there are benefits to be derived from ICT policies/projects. 5 of them said they did not think there are any benefits to be derived from any such policies/projects while 34 respondents said they have no idea as to whether or not there are any benefits to be derived.

Prominent among the benefits to be derived are:

- Quick and efficient dissemination of information
- Help in distant education and learning
- Avenue for growth and assistance
- Provide research avenues
- Networking of people and ideas
- Effective tool for the dissemination of government policies and information.

Conclusion

From all the responses and observations above, one can infer the ICT plays a vital role CT in the dissemination of information and knowledge acquisition. There is therefore the need to develop effective ICT policies which are geared towards the specific needs of the people of Amanokrom and its environs.

PART TWO

SECTOR FOCUS

Vision

To achieve a transformation of the social, cultural and economic wellbeing of the Amanokrom community using information and communication technologies as a critical tool to drive an accelerated and sustainable development

Developmental Challenges

In the Amanokrom community's drive to enhance the social, cultural and economic wellbeing of its citizenry, is the acknowledgement that any attempt at achieving a significant transformation must also aim at addressing the developmental challenges facing the community. Eight developmental challenges could be identified for the Amanokrom community. Defined in terms of the challenges of the larger socio-economic context of the Country context (Ghana) to which the Amanokrom community belong, the challenges are as follows:

- The Amanokrom community share in the relatively high population growth rate, 2.5%) pertaining in the country (Ghana) as a whole. Consequently, the Amanokrom community is more likely to double its current population figure of ...
- Given that 60% of the Ghanaian population is under 25 years of age and 5% over the age of 65% years the Amanokrom community is probably in a situation of having to deal with a relatively youthful population
- Another of the Amanokrom community's challenge is that it is part of a country (Ghana) situation reflecting a high illiteracy rate with about

40% of the population above the age of six years of age without any form of educational attainment and only about 3% with tertiary level education. Furthermore, there is a high primary school drop-out rate (about 50%) and a very low secondary school enrolment rate as well as a high proportion of senior secondary school leavers failing to continue to the tertiary level. It is highly probable that the youthful population of the Amanokrom community is also a highly illiterate or constituting of a significant number of dropouts at the primary or secondary level.

- The Amanokrom community is part of a country situation where about 40% of Ghanaians live below the poverty line of less than US\$1 a day. Clearly, in all probability a significant number of the Amanokrom community members eke out a living in one form or another below US\$1 a day
- The country context (Ghana) to which the Amanokrom community belongs has a mainly subsistence agricultural-based economy, with hardly any improvement on agricultural production methods or practices since the last half century. Furthermore, about 70% of the total agriculture workforce is illiterate. Women constitute a high percentage of this workforce. In all probability, this situation is as much a challenge to the Amanokrom community as it is for Ghana as a whole.
- By extension, the country situation of an economy based mainly on subsistence agriculture, of which the Amanokrom community is a part of, means that the country has a narrow industrial base, with only 13% of the workforce involved in the industrial sector. Another of the challenges, which the Amanokrom community has to contend with, therefore, is an inability to relocate some of its agricultural labor force

to work in industry because vacancies hardly exist in such a narrow industrial base.

- The country context to which the Amanokrom community belongs has to contend with yet another challenge, that of an informal private sector which is by far the largest employment sector of the Ghanaian economy. It accounts for about 81% of employed work force, but has a weak job creation capacity, hardly possessing any potential to generate additional jobs or employment opportunities. What this means for the Amanokrom community is that it is faced with a challenge involving a workforce environment made up of two sectors namely, an agriculture sector and an informal private sector both of which, individually and together, constitute a significant source of jobs, but have an extremely low job creation capacity.
- Should Amanokrom community wish to develop its agricultural sector and expand its industrial base it would need a dynamic service sector and an enhanced research and development capacity. Both of these areas need an enhanced human resource base involving improved technical and managerial skills as well as the capacity to conduct and engage in cutting-edge research and development work. This is a challenge for the Amanokrom community because the country situation to which the Amanokrom community belongs to lacks a human resource base with strong technical and managerial components. It lacks the necessary capacity to conduct and engage in sophisticated research and development work.

Addressing the Developmental Challenges

Addressing the eight developmental challenges would mean that the Amanokrom community would need to develop and implement comprehensive and integrated socio-economic development policies, strategies and plans set within the wider framework of the socio-economic development objectives of the country context to which the Amanokrom community belongs. The following is an outline of the focus of such an integrated socio-economic development policy.

Preamble

The emerging knowledge and information age and the new technological revolution are harbingers of a new economic and social order characterized by the development and exploitation of ICTs, and permeating all spheres of human endeavor. Traditional economic, industrial and commercial activities are making a fundamental shift towards information, knowledge and technology driven processes. The transformation the Amanokrom community is looking at might as well be a part of what drives the new economic and social order, because it is the order informing the transformation of the country as a whole and therefore the Amanokrom community cannot preclude itself. Furthermore, since knowledge and information have become the critical drive behind human development it is imperative that the Amanokrom community either takes advantage of it and pull ahead or fall behind.

Priority Areas of Focus

A Globally Competitive Local ICT Industry

A critical aspect of the growth and development of key areas of the Amanokrom political economy involves the development of a globally competitive local ICT industry expressly focused on the development,

production and distribution of information, knowledge, and technology products and services. The key areas are:

- Human Resource Development
- Education
- Agriculture
- The private sector
- Local governance and administration
- Health

Human Resource Development

The young population of the Amanokrom community could be transformed into an asset by adding value to human resources through ICTs development and exploitation.

The strategy

The value-adding factor involves the development of the right types of skills in critical skill areas required in an information society and economy. Consequently, the human resources of key areas of the Amanokrom local political economy would be subjected to a major transformation as far as knowledge and skills are concerned, using ICTs to support the process.

Strategy Objectives

- Promote basic training in ICTs skills in formal (schools, the district assembly, the police et cetera) and non-formal (training outside schools and other formal and informal organizations) setups.

- Ensure the development of a large pool of ICT professionals with a wide range of state-of-the-art ICT skills that would constitute the knowledgeable ICT workforce. This workforce would be the drive behind the training and development of the human resource needed in the identified critical skill areas and professions that will contribute to the information and knowledge based development process in the Amanokrom community. Particularly, they would be the main drive behind the development and selling of information and knowledge.

Link with National Policy

This dovetails in with the Country strategy of accelerating human resource development.

Educational Access and Delivery

Closely related to the accelerated human resource development strategy is improvement on educational access and delivery, including support to teaching and learning from primary school upwards as well as in extramural contexts, using ICTs development and exploitation. This would add further to the value of the young population of the Amanokrom community.

The strategy

The proposed strategy to achieve this involves the following:

- Introduce computers into existing basic, primary, secondary, vocational and technical schools in the Amanokrom community.
- Repackage the curriculum content of basic, primary, secondary, vocational and technical schools in the Amanokrom community into electronically compatible formats, which the various levels could use to teach and learn through the medium of a computer.
- Develop an educational intranet for updating teachers and students at the basic, primary, secondary, vocational and technical levels of the educational system on:
 - current research into educational materials and Teaching/learning tools development

- what educational materials and teaching and learning tools are available and how they could be accessed
- availability of orientation program for teachers on current Educational materials and teaching/learning tools
- Strengthen science and math education at the primary, secondary, and technical levels of the educational system with electronic distance education facilitated through the computers provided for the various types of educational institutions.
- Promote electronic distance education and training and virtual learning program to complement and supplement face-to-face campus-based education and training systems. The objective is to promote:
 - Informal learning- that is promoting a teaching/learning situation In the Amanokrom community that is gained incidentally and casually from the varied information posted on the intranet and internet.
 - Adult basic education- emphasizing the skills of reading (literacy) And handling figures (numeracy) for adult members of the Amanokrom community who wish to be able to read and do arithmetic.
 - Functional literacy- designed purposefully to combine the Teaching of reading with the teaching of another skill, in say an agricultural extension program in the Amanokrom community aimed at poverty reduction.
 - Post-literacy education- education program beyond the basic Literacy stage for those members of the Amanokrom community who wish to enhance their educational status beyond the basic level.

- Civic Education- involving program related to enhancing the Individual's awareness towards community responsibility, including issues related to: the improvement of the community; the functioning of a socio-economic grouping such as a farmer's cooperative or a water and sanitation committee; the political system such as learning how to vote or understanding the constitution.
- Training- for adults who are already literate and (probably Working) want to improve themselves in their jobs and therefore undergo courses designed expressly to enable adults to understand their work, perform it more effectively and advance.
- Non-formal- education an unlike school teaching/learning Situation designed for specific individuals and groups such as fish farmers in the Amanokrom community.

Strategy Objectives

The strategy aims at achieving the following objectives:

- Encourage the deployment, utilization and exploitation of ICTs within the formal educational system to improve on educational access and delivery and to support teaching and learning from basic school upwards.
- Encourage the deployment, utilization and exploitation of ICTs to promote extramural studies that seek to enhance skills and knowledge in key sectors of the Amanokrom political economy such as agriculture, Civic education et cetera.
- Ensure that a significant number of the members of the Amanokrom community are at least functionally literate and productive.

- Strengthen science and math education, especially at the primary and secondary school levels.

Link with National Policy

The objectives fit in with the national ICT policy of promoting an improvement on educational access and delivery, through the deployment and exploitation of ICTs in education.

Agriculture and Agro-Business Industry

The foundation of the economy of the Amanokrom community, subsistence-based agriculture with very little if any mechanization or use of modern agricultural production methods and practices, could achieve a fundamental shift from the subsistence-based production context to large-scale production environment through the following strategy:

The Strategy

- Through the medium of informal learning (radio and television), adult basic education (literacy and numeracy classes), functional literacy (literacy combined with agriculture extension activities), training program (in one agricultural method/practice or other), and non-formal-education (such as teaching alternative processing practices for cassava farmers), create ICT awareness for all types of farmers at all levels nationwide.
- Create ICT centers (kiosks) from which farmers (or would be farmers) could access agriculture related knowledge and information such as:
- Sustainable environment usage in areas like land and water management, yield assessment and livestock management, for instance derived from Geographical Information Systems (GIS) applications designed to monitor and support such activities.

- Specific knowledge and skills designed to improve on predominantly traditional and rain-fed agricultural practices.
- Provide specific and targeted support for the planning, production, storage, and distribution of crops, livestock, and fisheries products.
- Link up farmers and farmers' groups and associations to resources and services that they need to improve their agricultural practices and consequently their livelihoods.
- Deliver concurrent information and tailor-made information, knowledge and skills to improve farmers' decision-making capacity to match farm output with the market forces of demand and supply.

Strategy Objective

- Promote growth and development in crop, livestock and fisheries production, processing, storage, marketing and distribution in the Amanokrom community through:
 - ICT skills development among players in the agriculture sector of the Amanokrom community
 - development of ICT software program in support of agriculture production, processing, storage, marketing, and distribution
 - Utilization of ICT sourced knowledge and information to enhance farmers' capacities in the production, processing, storage, marketing, and distribution of agriculture products, materials and services.

Link with National Policy

The strategy objective for this section is in consonance with that of the national policy objectives: modernize agriculture and develop an agrobusiness industry.

The Private Sector

ICTs have a critical role to play as the important set of tools for moving the Amanokrom community into information and knowledge based private sector.

The Strategy

The suggested strategy is to create the environment for developing and exploiting ICTs to enhance the enterprise and dynamics of the private sector.

Strategy Objectives

- Develop and exploit ICTs to achieve the following:
 - An effective and efficient system of administration designed to Support the private sector
 - ICTs as the main tool behind the drive to promote an enabling Environment, including a conducive legal and social framework, for private sector investments in industry
 - Fiscal mechanisms that respond quickly to the needs of an ICT-Based private sector environment
 - promote investment, innovation, research and development, and Diffusion of ICTs within the private sector

- Enact reforms to encourage local and foreign direct investment in the area of ICT services and related products, targeted specifically at servicing the private sector, and also at developing a globally competitive local ICT industry developing and producing information, knowledge, and technology products and services relevant to the private sector (and other sectors) of the Amanokrom community
- Establish a Free-Zone ICT Park and incubator facility equipped with the necessary infrastructure and designed to promote and support ICT-related business and services
- Establish a community ICT Development Fund, with a capacity to provide venture capital finance to start-up ICT-related small and medium enterprises (SMEs)
- Equip private sector establishments involved with technology development with modern ICTs-powered technology to enable them produce useful ICT-intensive capital equipment and machinery

Link with National Strategy

The objectives are consonance with the National Strategy of facilitating the development of the Private Sector.

Local governance and administration

Governance in the Amanokrom community consists of two parts. There is the decentralized central government structure, which comprise the District Assembly and its head, the District Chief Executive. Then there is the traditional governance institution at the apex of which is the Chief of the Amanokrom community. Despite this, effective leadership is not in doubt. The governance agenda of central government has relied on chiefs as important links between them and people in the rural areas, and have

utilized the offices of the traditional leadership to reach the people. The point is to enhance the efficiency of this unique governance structure through the development and use of ICTs.

The Strategy

Modernize the governance structure of the Amanokrom community to achieve enhanced administrative efficiency, effectiveness and service delivery through the implementation of electronic government and governance.

Strategy Objectives

- Improve the ICT literacy (capability and capacity) within the dual government structure (district administration and traditional governance), through computer and internet training for Chiefs, registrars and secretaries of the Houses of Chiefs and Traditional Councils, civil and public, and the Assembly Members of the District Assembly.

- Facilitate the creation of a favorable environment for electronic governance by providing computers, email and internet connectivity, as well as develop the appropriate software for supporting electronic governance in the following areas:
 - electronic government interoperability framework with the Objective to facilitate knowledge and information sharing between all parties and players in governance in the Amanokrom community

 - facilitate access to public and government information and Services with an objective to ensure information accessibility and sharing, transparency, accountability

Link with National Strategy

The objectives tie in with the National Strategy of promoting electronic government and governance.

Community Health

ICTs would help to provide access to health information to a wider section of the Amanokrom community. It would be particularly useful to the effort at collecting, analyzing and disseminating information to support health education and awareness creation, for instance in the community. It would serve as an important support to preventive medicine, the bedrock of community health promotion.

The Strategy

Utilize ICTs to enhance health care delivery and health-worker performance.

Strategy Objectives

- Establish a compulsory ICTs skills acquisition program for healthcare professionals in the Amanokrom community, including those in the field of traditional medicine.
- Establish a Health Management Information System, consisting of a data bank from which health workers communicate and share collated information on various aspects of health care delivery.
- Promote telemedicine using the kiosks system where remote diagnostics could be achieved and thus achieve an enhanced geographical and socio-cultural access to health care services.

Recommendations

Amanokrom and its environs host several important groups, which would benefit from a Village ICT program. They include farmers, civil servants, students, artisans, health workers, traders, retired persons (especially teachers) as well as the unemployed youth. For each of these categories Village ICT could offer immense potential opportunities for self-development towards improved living standards. It may be in job creation, technology transfer, and acquisition of new ways of doing things and so on. Be it as it may, the potential opportunities and their attendant benefits may be outlined as follows:

Education and Training

Amanokrom and its environs accommodate several educational institutions, including secondary schools and a teacher training college. Teaching and learning could improve dramatically with the aid of a village ICT program. Teachers could improve on course or subject content and teaching techniques. Students could improve on learning with further information and experiences from areas other than their environment accessed through ICT facilities.

Knowledge and skills could be packaged in a manner, which addresses the teaching and learning requirements of both teachers and students, presented through ICT facilities.

The immense benefits to be acquired from the opening up of the information highway to education in Amanokrom and its environs through a village ICT program is suggested to cut across the various levels of the educational structure in Amanokrom and its environs, namely: nursery, kindergarten, primary, Junior Secondary School, Senior Secondary School, and Teacher Training College

The benefits for education and training need not preclude potential learners outside the walls of educational institutions. Indeed, presently, a lot more would be learners are unable to gain admission into the educational institutions. Unable to access other avenues for education and training these would be learners drift to the urban areas where they are forced to compromise on their living standards and even participate in antisocial practices. The advent of a village ICT program could improve this social problem. Distance learning programs could be introduced, hosted by the well-established institutions of education and training, but reaching out to all who wish to learn outside the walls of the educational institutions.

Agriculture

The main occupation of the people of Amanokrom and its environs is farming. The farming community is however ageing. There is a high concentration of the aged in active farming. The youth are not interested in farming. The causes of the disenchantment with farming are many. An important one, however, has to do with the age-old methods of farming which only racks in enough for subsistence living. It is possible for a village ICT program to provide a medium through which improved and environmentally friendly methods of farming could be introduced.

Elsewhere in Ghana, improved species of animals for food and leafy vegetables have been developed. Good extension officers are in short supply. Consequently, the propagation of the new species countrywide is painfully slow. A village ICT program could be the channel through which young farmers of Amanokrom and its environs could benefit.

Overall, a village ICT program could host the redesign and diversification of agricultural opportunities in Amanokrom and its

environs. For it can offer information on all types and forms of agricultural practices, including best practice for enhancing the environment. It can accommodate a redesign of the types and forms of practices to suit local conditions, and even translate information written in other languages into the local language.

Culture and Tradition

Tradition and culture is an important aspect of the social context in which the people of Amanokrom and its environs live. Modernization and change has had an effect of breaking the continuity in knowledge transition from the old to the young. The economic demands on the average individual citizen of Amanokrom and its environs make it difficult for him or her to learn the culture and tradition of Amanokrom through the age-old channel of oral tradition, observation, and practice. A village ICT program could package this knowledge in recreational forms, which could be referred to as at when the individual needs it or has time to learn from it or simply enjoy it.

Traditional leadership could also benefit from the opportunity to network through the connectivity, which could be offered by a village ICT program. In addition, there is the potential for storing important documentation coming out of any one of the many functions of traditional leadership. This is besides documenting the rich folklore of the people of Amanokrom and its environs.

Counseling Resource Centre

Career counseling for the youth of Amanokrom could be achieved through a village ICT program. Through such a program resource persons for diverse careers with diverse experiences (achieved probably in the context of diverse socio-cultural backgrounds other than that of Amanokrom) could be accessed to meet with youth through an E-chart framework. Currently, this kind of opportunity, which is the right of any growing and developing person, is only available in Accra, the capital of Ghana and at prohibitive costs.

Career counseling is only one of two major aspects of counseling required by the youth of Amanokrom. The second is health counseling. In this aspect of counseling, HIV/AIDS, child and maternal health care, as well as reproductive health is important. Through the medium of a village ICT program culturally sensitive programs could be developed packaged and used to counseling aids to bring the people of Amanokrom and its environs in touch with the reality of these health issues.

Health

Preventive health care is a critical aspect of Ghana's health. The various education aids adopted to communicate health messages could be enhanced with access to a village ICT program. The medium of ICT could offer a range of learning and teaching aids, current information and dept of content not achievable without ICT. A village ICT program can also afford a repackaging of health information, which takes into consideration cultural sensitivity, language, literacy, and other local conditions which when overlooked may prove unhelpful to any health education endeavor.

Governance

A village ICT program would benefit governance, traditional and otherwise. The presence of central Government is felt in the structures of local governance, namely the District Assembly with its Chief Executive. The knowledge and skill base of the human resources of local governance could be greatly enhanced with access to the information highway offered by ICT facilities.

Traditional leadership stands to gain also from a village ICT program. First, they are a part of the local governance structure. They are governance at the community level and oversee all the concerns of their community. Be it judicial, economic, cultural, traditional and political. Taking the judicial responsibility of traditional leadership alone ICT facilities would enhance its adjudicating capacity, not to mention the potential for recording judgments at the courts of the chief, for example.

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Appendices A

Informants

1. Oyeeman Wereko Ampem III- Amanokromhene and Gyaasehene of the Akuapem Traditional Area
2. Nana Adu Ababio II - Ankobeahene
3. Nana Amanor Ntiamoah I - Akyeamehene
4. Nana Kofi Akotua II - Mankrado
5. Nana Awuku Sakyi - Akyempemhene
6. Boribahemaa - Obaapanyin
7. Nana Atua Asamoah II - Osafohene
8. Nana Twumhene YiadomII - Dawurubohene

Focus Group

1. Nurses
2. Teachers
3. Farmers
4. Internet Operators

Institutions

1. Tetteh Quarshie Memorial Hospital
2. Centre for Research into Plant Medicine
3. Traditional Council

Appendix B - Questionnaire

Needs Assessment for Community /Village Information and Communication Infrastructure Plan (VICI)

SECTION A

Sex; F/M ()
 Age
 Hometown:.....Place of Domicile.....
 Educational Background.....MSCL.....BECE.....O’Level Tertiary..... Other.....
 Religion.....Marital Status
 Occupation.....

SECTION B

1. Have you heard the term Information Communications and Technology(ICT)
 - ()Yes
 - ()No
- 1b. If yes, explain.....
2. Do you communicate with people living outside Amanokrom and its environs?
 - ()Yes
 - ()No
3. How do you communicate with them?
 - Telephone
 - Email
 - Telegram
 - Fax
 - Other (specify).....
4. Are there any communication centers, cyber cafes or public phones in Amanokrom?
 - ()Yes
 - ()No
5. Who owns the communication centers and / cyber café in this community?

- 5b what categories of people use communication centers frequently in Amanokrom?

 ...

6. Do you think more women than men utilize the communication centers/cyber cafe?

7. What do they use these facilities for?

8. Do you have access to the following;

- mobile phone Yes() No ()
- fixed line phone Yes () No()
- television Yes() No ()
- radio Yes () No()
- computer yes () No()
- fax machine Yes() No()
- video yes () No ()

9. Do you own any of the following?

- Mobile Phone
- Fixed line phone
- Television
- Radio
- Computer
- Fax machine
- video

10. Do you have electricity in your house?

11. Do you have telephone line in your house?

12. Are you computer literate? **If No go to 12 b & c.**

- () Yes
- () No

12b If No do you wish to be computer literate?

12c If No what benefit would there be in being computer literate

13. What do you use the computer for?

14. Do you have access to the internet? If yes, what do you use it for?

- Email
- Search for information
- Shop
- Research
- Play games/listen to music/watch films

14b. If No, Why?

15. where do you access the internet

16. How often do you access the internet

17. what information do you need access to on the internet

- Local Events

- Government policies etc
- Health information
- Education services
- Agriculture Practices

SECTION C

18. What kinds of ICTs projects do you think will benefit this community?
.....

19. How will these be implemented in this community?
.....

20. What do you expect ICT to do in the area of;

- Education
 - Health
 - Agriculture
 - Traditional Governance
 - Culture and Tourism
 - Other (please specify)
-

21. How is ICT used within this community?
.....

22. What ICT policies do you expect the government to develop?
.....

23. what kind of policies do you expect from government to gain more access to ICTs
.....

24. Do you think there are benefits to be derived from ICT policies?
.....
.....