

Leland Initiative:
Africa Global Information Infrastructure Gateway Project
(Project No. 698-0565)

Strategic Objective 3: End User Applications

**Country Assessment and Implementation Strategy for
Ghana**

Prepared for

U.S. Agency for International Development
Africa Bureau
Sustainable Development Office

and

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Executive Summary

Introduction

Strategic Objective 3 of the USAID Africa Global Information Infrastructure Gateway Project, also known as the Leland Initiative, seeks to achieve broad-based utilization of information and global information technologies within USAID's development partner community to promote sustainable development in Africa. This component of the Leland Initiative is managed by the USAID Center for Development Information and Evaluation (CDIE) Research and Reference Services Project (R&RS), which is operated by the Academy for Educational Development (AED). The first stage of country level implementation of the Leland Initiative is to conduct assessments in the three strategic objective areas: 1) telecommunications policy; 2) telecommunications technology, specifically, Internet infrastructure and Internet Service Provider industry; and 3) Internet end user applications.

Institutional assessments for S.O. 3 are designed to collect basic institutional data; data on information resources used and needed in institutions; data on Internet usage; and data on country level issues such as costs of Internet related technologies. A survey interview instrument was used to collect data from institutions identified in cooperation with USAID/Accra. Data on country level issues were collected both during institutional interviews and through interviews with key individuals in the telecommunications and information industries. These data will be processed to assist the assessment team in determining how institutions might benefit from the introduction or broader use of the Internet, as well as the type and level of assistance needed at the institutional level to introduce or broaden Internet access and use.

Initial Indicators of Readiness for Effective Use of the Internet

As a result of the S.O. 3 assessment in Ghana, six criteria or indicators were developed to measure an institution's readiness for effective use of the Internet, including: 1) whether or not the institution had in place an Institutional Information/Communication Strategy; 2) whether or not the institution was currently producing and using publications and databases; 3) whether or not the institution recognized the potential contribution of the Internet to its institutional mission; 4) whether or not there was an individual in the institution who could serve as Internet "champion" or catalyst; 5) the status of the institution's telecommunications and computer infrastructure; and 6) the potential for sustainability.

Each institution interviewed was given an initial rating of High, Medium or Low in each of the indicators. It is anticipated that the indicators and their measurement will become more refined and precise as the data collected are thoroughly analyzed and as additional data are gathered in the remaining countries.

Institutions in the Economic Growth sector in Ghana are the leaders in terms of their readiness for Internet. Specifically, the following institutions stand out for their high rankings across these indicators: Council for Scientific and Industrial Research; AMEX; West African Enterprise Network; Ghana Investment Promotion Council; and the Ghana Export Promotion

Council. In the Education, Health and Population and AIDS sectors few institutions received consistently high rankings. Only the University of Ghana Medical School Library earned a High ranking in four of the six indicators (HealthNet, a FIDONET e-mail based service received high rankings but because of its current technology does not or will not depend on the Internet). Most institutions in these three latter sectors are not very advanced in their current approach to information exchange and communication. While several of the institutions in the latter three sectors recognize the potential contribution the Internet could make in their institutions, most face daunting technological and/or funding challenges; without significant technical and financial assistance from the donor community, Internet introduction and sustainability in these institutions will be difficult.

Barriers to Internet Access and Effective Use

The assessments in Ghana also highlighted two levels of barriers to Internet access and use. First level barriers deal with issues which effectively block Internet access in most institutions. It has become clear that these barriers will need to be addressed before institutions can be expected to think strategically about Internet use. In Ghana these first level barriers include: 1) national telecommunications policy; 2) quality and service of the national telecommunications infrastructure; 3) lack of computer technology or outdated computer and computer related technologies; 4) lack of adequately trained technicians and lack of availability or poor quality of technical and Internet training; 5) absence of a competitive Internet Service Provider industry; and 6) cost and quality of current Internet Service Provider services.

Second level barriers to effective use of the Internet arise once first level barriers are addressed. These include: 1) lack of awareness or real understanding of the Internet and its potential uses; 2) lack of institutional information and communication strategies which the Internet, as a global information and communication resource, is especially designed to support; and 3) lack of adequate training on the strategic use of the Internet in an institution.

Summary of Survey Results

The majority of institutions responding reported producing printed and electronic information resources (69% and 75% respectively), while 75% also reported maintaining a library or documentation center. Almost all reported a need for additional information resources. Lack of funding was the most common reason for not being able to acquire these additional resources.

Forty-four percent (44%) of reporting institutions have access to Internet e-mail, while only 25% have access to the World Wide Web. A subscription to the service of the sole local ISP costs \$100 for installation and \$100 per month for unlimited usage. The existing service is slow and technical support is poor. The private sector expressed a desire for a service costing half as much, while the public and non-profit sectors desire a service costing even less, between \$10 - \$20 monthly. Most judge the national telecommunications infrastructure as poor and list this as one of the principal barriers to Internet access in Ghana. Technology essential for Internet usage in institutions is available and locally serviceable, and though

currently there are no import tariffs on computer technology, prices of computers and modems remain high (between \$6,000 - \$9,000 for Pentium and Multimedia computers and \$200 - \$400 for modems).

Fast-Track Pilot Activities

Four fast-track pilot activities were identified in the economic growth sector in Ghana. This sector is best prepared to make effective use of the Internet and ideas for possible pilot activities are described for AMEX International, Inc., the Ghana Export Promotion Centre, the Ghana Investment Promotion Centre, and the West African Enterprise Network. All of these institutions work in the Economic Growth sector and all either have or are establishing national and/or regional networks for the exchange of information and the provision of technical services.

Implementation Strategy

Implementation strategy ideas developed in this report include the following:

- 1) Addressing First Level Barriers - It is clear that wider acceptance of this information resource will not be feasible in Ghana until the first level barriers identified in this report are resolved. Modest policy reform and significant improvements in the telecommunications infrastructure must precede the creation of a viable, competitive ISP industry in Ghana and increased Internet usage in Ghanaian institutions.
- 2) Internet Resources Training in USAID/Accra - USAID/Accra can demonstrate leadership in the strategic usage of Internet that can later be transferred to development partners. USAID/Accra may wish to take advantage of Internet Resources Training offered by CDIE/DI/RRS in order to increase the Internet skill level in the Mission.
- 3) USAID Assistance for Institutional Internet Connectivity - USAID/Accra and the Africa Bureau can prioritize those institutions who could best benefit from assistance through joint Leland Initiative/Mission Program funding and technical assistance. CDIE/DI/RRS can help design specific assistance activities using data gathered from institutional assessments as the baseline for the types of assistance needed and for measuring the impact of any eventual assistance given.
- 4) Develop and Implement Appropriate Fast Track Pilot Activities - Pilot activities in Ghana serve the purpose of helping USAID learn how best to assist institutions in this relatively new type of programmed assistance. Lessons learned from activities in Ghana can be shared with other USAID Africa Missions who will also participate in this initiative.
- 5) Ghana Internet Workshop - The S.O. Assessment Team hosted an Internet Demonstration Open House during the afternoon of the last day of the TDY in Ghana. This open house highlighted the need for a broader event that could more effectively and widely introduce the Internet to institutions in Ghana. A workshop for USAID invitees could serve to raise awareness and interest in this information resource in Ghana's development partner community.
- 6) Internet Society Development - The development of a professional association to encourage more active exchange of ideas on the Internet, its use in Ghana, challenges to using it effectively, etc. could help formalize interest.

- 7) Internet Demonstration and Training Centers - Over the long-term, demonstration and training centers could be established to provide on-going training and Internet-related services to institutions, some for free and some fee based.

Leland Initiative: Africa Global Information Infrastructure Project

Strategic Objective 3: End User Applications

Country Assessment and Implementation Strategy for Ghana

Background

The African Global Information Infrastructure (GII) Gateway Project is a five year, \$15 million project, whose main purpose is to assist up to twenty African nations in connecting to the Internet, and to facilitate and encourage the application of this information and communication tool by Africans and their development partners to meet the challenges of achieving sustainable development. This project, also known as the Leland Initiative, was approved by the U.S. Congress in 1995. It is named in honor of Mickey Leland, a former member of the U.S. Congress who was killed in a plane accident in Africa. Mr. Leland had done extensive work in African affairs while a member of the U.S. Congress, and was a strong advocate of U.S. support to Africa.

The Africa GII Gateway Project is an interagency effort being coordinated by the U.S. Agency for International Development. It has three strategic objectives.

Strategic Objective One: Creation of an enabling policy environment in Project countries to facilitate electronic networking and access to GII technologies.

Strategic Objective Two: Strengthening of the local telecommunications infrastructure to facilitate Internet access and support to a local Internet Service Provider industry to ensure the local availability of reliable, accessible, and cost-effective Internet access.

Strategic Objective Three: Achievement of broad-based utilization of information and global information technologies within USAID's development partner community to promote sustainable development.

The first stage of the Project is to do country assessments covering the three areas of telecommunications policy, technology and applications. These assessments are of the government policies and regulations concerning telecommunications and information access and utilization, telecommunications infrastructure (level of development and condition), and the present condition and potential demand for, and supply of, Internet access in the public and private sectors. The assessments form the foundation for the development of individualized country implementation plans for the Africa GII Gateway Project.

The Academy for Educational Development's Research and Reference Services Project, funded through USAID's Center for Development Information and Evaluation, has been asked to do the Assessment for the SO 3 area. The Assessment allows for the collection of contact, mission statement and activity summary information for each institution. Institutional assessments for S.O. 3 are also designed to:

- assess the current use of information and communication resources in institutions
- determine institutional information and communication needs
- measure the current level of awareness and use of Internet resources
- assess institutional technology capacity and needs for introduction or broader use of Internet
- serve as the foundation for recommendations on how USAID might best support the introduction or heightened use of the Internet in African institutions to promote sustainable development

Finally, S.O. 3 country assessments are also designed to point out at the country level:

- those institutional sectors which are the heaviest and weakest users and producers of information and Internet resources
- the principal barriers to broader Internet use
- the efforts of other donors to promote broader Internet use
- procedures and fees for telephone use
- the status of any existing information industry
- the availability and price of Internet related technologies

Methodology

Since the Leland Initiative is geared toward working within the bilateral Mission's current project structure, and following the already established priorities and Strategic Objectives (SOs) in the Mission, the Team was dependent upon the Mission identifying partners, collaborators and institutions they work closely with, as well as leaders in the electronic networking arena. The following criteria were given to the Mission to use as a guideline in identifying organizations to be interviewed:

1. Key institutions the Mission works with in their SOs
2. Institutions the Mission feels could benefit from effective use of information on a local, regional and international level.
3. Potential organizations or individuals to form a network for sharing information, ideas, and collaborative working methods around a common theme or sector.
4. Donors who are providing assistance in the telecommunication and electronic networking arena, as well as recipients of their funding.
5. Major collectors or producers of information in country, such as libraries or government-sponsored statistical organizations.
6. Private sector organizations who currently make effective use of modern communication technologies, such as satellites, electronic networks, or Internet.

Internet Demonstration Open House

It became evident early on in the interview process that the majority of institutions to be interviewed in Ghana had little or no prior exposure to the Internet. While most individuals had heard news of the Internet on television or in magazines, most had never actually seen or used the Internet first hand. With this in mind, the S.O. 3 Assessment Team met with the sole Internet Service Provider (ISP) in Ghana and requested permission to host at the ISP's offices an Internet Demonstration Open House for those who would be interviewed. The ISP agreed. The S.O. 3 Assessment Team prepared a flier (Annex A) that was distributed to all those who were interviewed, inviting them to come to the ISP's offices to see a live demonstration of the Internet. This open house was held on the afternoon of the last day of this TDY. Over 80 individuals from 20 different institutions attended one of three, one-hour sessions repeated between 2:00 and 5:00 p.m. The sessions focused on giving an overview of the Internet's origins and history and demonstrating how to search on the Internet. Questions during question and answer periods focused largely on technical issues related to how the Internet works and the requirements for using it in an institution. While the ISP service was notably slow and occasionally problematic (server access was denied or locked up several times requiring system re-boot), overall the open house was successful in showing participants how the Internet works. That such a hastily organized and little publicized event was so well attended is an indication that a much broader event would be important for launching an effective Internet awareness campaign in Ghana.

Questionnaire

Individuals and organizations were interviewed using a survey developed by the Assessment team. The Survey was divided into two parts: 1) Institutional Information Resources and Needs covering institutional objectives; current projects; print publications and electronic databases produced; information resources used; information needs; and communication technology status; and 2) Internet end user issues, such as telephone availability and cost, cost and availability of computers, modems and service and other perceived barriers to Internet access which were applicable on a country wide level.

Though this questionnaire was quite lengthy and cumbersome the information gathered was essential to the ultimate goal of the Assessment. The Questionnaire was designed as an interview guide and a tool for recording responses. Though it was not the original intention, the Mission had distributed the Questionnaire prior to the TDY Team's arrival to organizations to be interviewed. Some individuals were able to fill out the questionnaire, others were not. For some, the interviewer filled out the form during or after the interview. However, it was clear that if the questionnaire is to be distributed directly to institutions, it will need some revisions. It was too long and overwhelming; many organizations or individuals interviewed did not fit within the scope of the questionnaire, yet their information was quite valuable and important to the Assessment process. Current instructions on the questionnaire are inadequate for a self-administered survey. The Team will have to address this problem prior to carrying out further assessments. Some sort of analytical tool is

necessary, but it must be manageable. At the time this report was prepared, the S.O. 3 Assessment Team was awaiting additional completed questionnaires being forwarded by USAID/Accra. Once all completed questionnaires are collected, an in-depth analysis of the survey tool's effectiveness will be possible, and the Assessment Team will analyze and summarize the data gathered under separate cover.

General Findings

The Team interviewed 61 individuals and 24 organizations during the 9 working days in Ghana (see Annex C). There were some very clear results from the interviews.

The assessments in Ghana highlighted two levels of barriers to Internet access and use. First level barriers deal with issues which effectively block Internet access in most institutions. It has become clear that these barriers will need to be addressed before institutions can be expected to think strategically about Internet use. In Ghana these first level barriers include:

- national telecommunications policies (i.e., costs of telecommunications services, particularly, local metered telephone charges)
- quality and service of the national telecommunications infrastructure
- lack of computer technology or outdated computer and computer related technologies
- lack of adequately trained technicians and lack of availability or poor quality of technical and Internet training
- absence of a competitive Internet Service Provider industry
- cost and quality of current Internet Service Provider services

Second level barriers to effective use of the Internet arise once first level barriers are addressed. These include:

- lack of awareness or real understanding of the Internet and its potential uses
- lack of institutional information and communication strategies which the Internet, as a global information and communication resource, is especially designed to support
- lack of adequate training on the strategic use of the Internet in an institution

First Level Barriers to Internet Access in Ghana

1. National Telecommunications Policies (see SO1 Report)

2. Quality and Service of the National Telecommunications Infrastructure (see SO2 Report)

3. Cost and Quality of Current Internet Service Providers

We heard repeated complaints about the high cost (\$100 per month) of Internet access. Most organizations said they simply could not afford this fee. The private sector

reported that \$50 per month would bring the cost to a level they would consider; however, public sector institutions reported that \$10 to \$15 was within their range. If metered local telephone rates are added to these expenses, the cost of Internet access becomes even more prohibitive. Those organizations who already subscribed to Internet complained about the slowness of the service provided, as well as the poor technical support. This discouraged others from even considering Internet access. This negative publicity makes it difficult to introduce a new technology and provides a reason for not considering a new approach.

4. Lack of Computers

Lack of computers, outdated computers, poor supply of modems, and lack of powerful computers also provide a stumbling block to the consideration of the application of this new technology. We saw very few LANs set up and operational in organizations. Most computers were simply stand alone, and used primarily for word processing. The Government of Ghana has recently lifted the import duty on all computers and related materials. This has made a tremendous difference in attitudes toward the more open consideration of computerization. Though organizations say equipment is a financial barrier, they do not see it as insurmountable.

5. Lack of Trained Technical Staff

The availability of trained computer technical staff for repair, systems configuration, LAN maintenance, etc. is limited. Computer businesses we spoke with reported the educational institutions in Ghana are very outdated, and therefore the students are not adequately prepared for a job in the computer field. Companies indicated they prefer to train their own staff, both in Ghana and abroad. However, this is a lengthy and expensive investment.

These first level barriers, some of which are also being examined by other US Government Agencies within this country assessment, must be adequately changed and supported before any real progress can be made in introducing the effective use of the Internet at the institutional level in Ghana.

The second level barriers confronted by a Ghanaian Institution considering the adoption of Internet within their organization deal with the actual use of the Internet and communication policies. Strategies need to be developed both within an organization and among Internet Service providers to overcome these issues.

Second Level Barriers

1. Awareness

Although there is a general level of awareness of the Internet within Ghana, due to media coverage, there is a lack of real understanding of the Internet and its potential uses. On a very broad level this needs to be addressed through demonstrations, conferences, workshops and educational institutions.

2. **Information/Communication Strategy**

Development of an institutional information/communication strategy must be operational to make the most use of Internet. Many institutions have not gone through the exercise of developing a strategic plan for the function of communication and information in the institution. This prevents institutions from being able to think about the benefits of increased access to information resource and delivery tools such as the Internet. Institutions which demonstrate some strategy development in this area, though not necessarily formalized and articulated, are able to conceptualize the potential contribution of the Internet to their communication and information related functions. To make optimal use of the Internet, institutions will have to have developed and articulated a formal information and communication strategy.

3. **Training**

Training must be provided to develop the infrastructure to support the effective use of the Internet. Training of Internet Service Providers, similar to that currently done by the Internet Society, must be made available within Ghana. But there must also be training of how to use the Internet for business and research purposes, as well as developing an understanding of the open "ownership" of the Internet and all users' responsibility to maintain its integrity. This training could be structured around basic training as well as sector interest.

Institutional Findings

As part of the assessment, the SO3 Team met with and interviewed Mission identified institutions and organizations who are partners and collaborators in order to assess their readiness for the effective use of the Internet.

As interviews proceeded six criteria or indicators were developed to assist in identifying institutional readiness for the effective use of the Internet.

Indicators of Institutional Readiness for Effective Use of the Internet

1. **Institutional Information and Communication Strategy**

This indicator is based on the institution's ability to understand and communicate to itself and an outside audience its mission and main objectives. The institution should be able to articulate a position on the role of communication and information in the institution.

2. **Currently Producing and Using Publications, Databases, etc.**

If the institution is currently producing publications, such as newsletters and research reports, and/or collecting data, as well as routinely using information and data from other organizations to accomplish their goals and make decisions, then there is a good indication that communication and information are integral to the institution's operations. These institutions could make use of the Internet for both gathering and

disseminating information.

3. **Recognize Potential Contribution of Internet to Institutional Mission**

This indicator is intended to demonstrate if the institution recognizes the need for and potential use of information from outside its usual resources. With a basic understanding of the Internet, is the institution able to articulate the potential contribution of the Internet to the institution's operations?

4. **Champion**

The institution has an identified individual to serve as catalyst/enthusiast for Internet. In order for a new technology or idea to be accepted within an organization there is a need for an individual who will be the spokesperson for the idea. This individual will persuade others within the organization of the importance of this technology as well as set an example for its effective use in the workplace.

5. **Telecommunication and Computer Infrastructure**

It is expected that every institution at a minimum will probably have to upgrade and/or purchase some new equipment to use this new technology. However, for some institutions this will require a major investment above their current status. They have very few computers, and those are not powerful enough to use for the Internet. Some institutions have inadequate telephone lines. Most institutions will have to provide further training to the systems staff so support can be provided.

6. **Potential for Sustainability**

It is anticipated that the Internet would become a standard tool within the institution, being maintained and sustained in the operational budget in the same way the telephone or fax machine is. It is also anticipated that this resource will be used for reaching out to find new ideas and incorporate them into the institution's program. This indicator rates the ability of the institution to build into its current program the maintenance of this resource both in financial and human resource terms.

Ranking Institutional Readiness for Effective Use of the Internet

A matrix (Annex C) was prepared showing each institution interviewed, arranged by Strategic Objective and indicating an initial ranking (High/Medium/Low) within the six categories indicated above. This matrix was intended to give the Mission a straightforward tool to identify those institutions who would be most ready to effectively use Internet, and those that would need the greatest support to be able to do so. The Assessment Team recommends the Mission consider adding a 7th category to this matrix ranking the organizations in priority order for the Mission's goals and objectives. It should be mentioned that a more detailed analysis of data gathered through the institutional surveys may allow for refinement of the rankings and may change some of these preliminary rankings.

As is made clear by the initial rankings in Annex C, institutions in the Economic Growth

sector in Ghana are the leaders in terms of their readiness for Internet. Specifically, the following institutions stand out for their high rankings across these indicators: Council for Scientific and Industrial Research; AMEX; West African Enterprise Network; Ghana Investment Promotion Council; and the Ghana Export Promotion Council. In the Education, Health and Population and AIDS sectors few institutions received consistently high rankings. Only the University of Ghana Medical School Library earned a High ranking in four of the six indicators (HealthNet, a FIDONET e-mail based service received high rankings but because of its current technology does not or will not depend on the Internet). Most institutions in these three latter sectors are not very advanced in their current approach to information exchange and communication. While several of the institutions in the latter three sectors recognize the potential contribution the Internet could make in their institutions, most face daunting technological and/or funding challenges; without significant technical and financial assistance from the donor community, Internet introduction and sustainability in these institutions will be difficult.

Summary of Survey Results

Following we present a summary of the data gathered from institutional surveys. We do not identify individual institutional results here, but rather try to present general observations based on patterns observed in the responses. Individual institutional results will be made available in electronic and print format once the data entry instrument is prepared and data is entered for each responding institution. The following observations are based on results from 16 surveys. The surveys were filled out with varying levels of thoroughness by and for the different institutions, but the following general observations are possible:

Information Resources

- 1) Sixty-nine percent (69%) of reporting institutions producing publications ranging from brochures and annual reports to analytical research studies and periodic newsletters.
- 2) Seventy-five percent (75%) of reporting institutions produce electronic information resources, typically relational databases for office management or statistical analysis
- 3) Seventy-five percent (75%) of reporting institutions maintain a library or documentation center.
- 4) Almost all institutions reported a need for additional information resources. Principal reasons for why additional information resources could not be acquired included lack of funding and the poor telecommunications infrastructure for the delivery of electronic information resources.

Internet Usage and Costs

- 1) Forty-four percent (44%) of reporting institutions had access to Internet e-mail (or an e-mail system with a gateway to Internet e-mail)
- 2) Twenty-five percent (25%) had established a full service Internet account through the local ISP.
- 3) Costs of current Internet access through the local ISP include a \$100 installation fee and a \$100 monthly subscription fee for unlimited usage. (This does not include the costs of

- local telephone calls required to dial into the ISP's Internet server.)
- 4) Institutions in the private sector typically reported that half of the current ISP's subscription fee (or \$50 monthly) would make the Internet more viable in their institutions. Public sector and non-profit institutions expressed the need for fees ranging much lower, typically, between \$10-\$20 monthly.

Highlights of Country Level Data

- 1) Sectors judged to be the strongest generators and users of electronic information resources include: Government; Private; For Profit; Industry; Trade/Investment.
- 2) Sectors judged to be the weakest generators and users of electronic information resources include: Education; Not for Profit; Environment; Agriculture; Health.
- 3) Sectors judged to be the strongest generators and users of Internet resources include: Private; For Profit; Technology
- 4) Sectors judged to be the weakest generators and users of Internet resources include: Government; Not for Profit; Education; Environment; Agriculture; Health.
- 5) Principal barriers to Internet access and use from the perspective of reporting institutions include: a) high costs of existing Internet service; b) high costs of new or upgraded computers and modems to make effective use of Internet; c) poor national telecommunications infrastructure; d) costs of national telecommunications service, in particular, metered local telephone charges; and e) overall poor quality of the national telecommunications infrastructure.
- 6) Generally, computers and modems are available commercially in Ghana and are locally serviceable. The PTT does not regulate the use of computers or modems and there are currently no import tariffs on computer technology. The price of computers ideally suited for Internet usage (Pentium or Multimedia machines) range between \$6,000 - \$9,000, while modems cost between \$200 - \$400.

Possible Fast-Track Pilot Activities

As a result of the institutional assessments, several ideas for possible fast-track pilot activities in Ghana under the Leland Initiative are indicated. Summaries of these activities are provided below. Given Africa Bureau and USAID/Accra interest in further developing these ideas, the S.O. 3 Assessment Team will assist in preparing more detailed activity descriptions, scopes of work, indicators, etc. It should be noted that these four activities all fall under USAID's Economic Growth Strategic Objectives, the first three fitting squarely into USAID/Accra's current and planned program and the last dealing with a USAID Africa Bureau supported institution.

AMEX

AMEX International, Inc. is a Washington, D.c. based consulting firm contracted by USAID/Accra to promote non-traditional exports by providing technical assistance to non-traditional export firms under the Trade and Investment Program (TIP). AMEX's Accra office produces attractive and useful technical studies on the export sector in Ghana and also

produces a periodic newsletter with updates on its programs and developments in the export sector. AMEX also maintains a Trade Information Database and operates an "Information Store" or small documentation center at the Accra office. AMEX currently operates and plans on expanding regional offices in Ghana to provide more direct access to services and information for exporters. Generally, AMEX is forward-thinking about the role of information and the potential contribution of Internet access to improved export promotion in Ghana. AMEX is not yet connected to the Internet due to cost concerns. A secondary concern is about the potential loss of productivity due to "Net surfing." AMEX efforts to promote more immediate access to market information and other technical support services could be significantly facilitated by connecting the central office and any regional centers through the Internet. The central office could maintain an Internet site that allows regional offices direct access to its databases and other information resources, as well as provides links to outside sources of information vital to the export sector. Regional centers could provide Internet access and training to exporters of nontraditional products on a cost recovery basis. Exporters would then have direct access to the wealth of data and information in this sector available through the Internet.

Ghana Export Promotion Centre (GEPC)

GEPC is a quasi-governmental Ghanaian institution that also receives funding under the USAID/Accra TIP project to support an export lead economy in Ghana. GEPC provides policy guidance to the Government of Ghana and serves as the primary liaison between the government and the private export sector. Like AMEX, GEPC produces valuable reports, newsletters and databases to support the export sector in Ghana. GEPC also maintains a library with approximately 6500 monographs and nearly 90 subscriptions to export related periodicals. While the collection is not yet automated, automation has been planned and approved. Like AMEX, GEPC is not yet connected to the Internet but sees great potential utility in this technology. GEPC opens its library and databases to all users and provides valuable information and document related services to government officials, exporters, academics and students. Also like AMEX, GEPC plans to expand to regional offices (three have already been approved) which will initially have telephone and fax capability but could greatly benefit from Internet access. Technologically, GEPC is quite advanced by Ghanaian standards. GEPC operates under a Novell LAN and Lotus Notes server and the majority of PCs are Pentium-based multimedia machines. GEPC's two computer support personnel are well versed in networking. Establishing an Internet connection in the GEPC library, and perhaps extending that connection to GEPC users via the LAN (though the public access PC in the library is currently not on the LAN for security reasons) would enable GEPC to further fulfill its role as an information services provider in this vital sector.

Ghana Investment Promotion Centre (GIPC)

GIPC is a Government of Ghana agency charged with encouraging, promoting, coordinating and monitoring investment in Ghana. As such, GIPC has produced an "Investor's Guide to Ghana" with a collection of valuable documents. GIPC also commissions studies and produces a wealth of reports on investment in Ghana. GIPC currently uses FIDONET e-mail

and recently purchased a subscription for full Internet connectivity through the local ISP, but the installation has not yet occurred. GIPC provides information on investment in Ghana for a World Wide Page at www.sittdec.org.my (Malaysia), but this service is on a trial basis only and GIPC will not likely continue with this service once the trial period is over and it must begin to pay for the service. Senior management at GIPC expressed great interest in expanding its Internet presence by getting a local connection and, if possible, setting up its own Web server in order to provide Internet service to investors in Ghana. GIPC is running 20 486mhz PCs on a Novell LAN and has two well trained computer support staff. Establishing a special World Web Server at GIPC for investors and those seeking investment would allow GIPC to more effectively fulfill the part of its mandate dealing with providing information services to investors and potential investors.

West African Enterprise Network (WAEN)

WAEN is a regional organization of over 300 businessmen and women from eleven countries in the ECOWAS region. WAEN receives support from the USAID Africa Bureau. WAEN hosts quarterly meetings in capital cities to promote active dialog on policy reform, cross border trade and investment in the region. Regional administrative headquarters for WAEN are in Accra and each country involved has a national coordinator. Accra also hosts WAEN's trade Information Centre. WAEN publishes the newsletter *Networker* and also the *Trade Information Flash*. The Ghana office has access to the Internet through the local ISP, but expressed concerns about the speed and quality of the service. WAEN is enthusiastic about the opportunity to extend Internet access to country level enterprise offices in West Africa and believes that this tool could allow WAEN to be much more effective in its Trade Information Program by providing information to country offices and meeting its own many information needs. At a minimum, establishing an Internet e-mail link between enterprise offices and at best providing each country level enterprise office with full Internet connectivity would go a long way toward helping the West African private sector advance into the information age.

Country Implementation Strategy

The following recommendations form the structure for the Leland Initiative Country Implementation Strategy for Ghana. More detailed development of these ideas will occur once they have been reviewed by USAID/Accra and the Africa Bureau and specific activities have been selected to launch Leland Initiative Implementation in Ghana.

1) Addressing First Level Barriers

It is clear that the first level barriers to Internet access identified above will have to be addressed and for the most part resolved before implementation of S.O. 3 will be possible in Ghana. The reports on S.O. 1 and S.O. 2 should indicate the specific concerns existing in the areas of policy, infrastructure and the local ISP industry and should indicate implementation strategies for the Leland Initiative in these first two strategic objectives. Once policy and infrastructure issues are resolved, the following activities may be pursued. However, since most of the following activities will require

substantial advanced planning, this planning can begin even before S.O. 1 and S.O. 2 issues are fully resolved.

2) **Internet Resources Training in USAID/Accra**

USAID/Accra has Internet access through an Agency VSAT. Selected Mission staff have access at their desk-top, while all others have access to an Internet work station in the MIS offices on a first come first served basis. Still, Internet awareness in USAID/Accra could be significantly improved through an Internet Resources Training Workshop. R&RS staff have conducted such workshops at USAID Missions in the past and could design and conduct this training. The training centers around raising awareness and giving Mission staff hands on experience with the valuable Internet resources they can use to do their jobs more effectively. This training can have special sector level tracks and can be scheduled over a five day period. USAID/Accra has a large conference room facility well suited for such training. This training is important in that in order for USAID/Accra to promote effective use of this technology among its development partners in Ghana, staff must first become familiar enough with this resource and its potential uses to be able to provide encouragement and direction to partners.

3) **USAID Assistance for Institutional Internet Connectivity**

As part of the Internet Resources Training, or as a separate activity, R&RS could develop materials and training to assist USAID/Accra (and other participating Missions) in learning how to incorporate assistance for Internet connectivity and related technologies into the project planning stage. Using the assessments that have already been performed or conducting additional assessments among current or potential USAID partners, R&RS could advise USAID/Accra and the Africa Bureau on the type and level of assistance needed in given institutions in order to introduce or expand Internet connectivity. At the project design stage, R&RS could assist USAID/Accra and the Africa Bureau in designing Internet related assistance activities, including the development of indicators on how to measure the impact or contribution of Internet connectivity in an institution.

4) **Develop and Implement Appropriate Fast Track Pilot Activities**

As USAID/Accra is one of the early USAID Missions participating in the Leland Initiative, important practical experience can be gained through the implementation of selected fast-track pilot activities such as those indicated previously in this report. It is recommended that USAID/Accra and the Africa Bureau select those pilot activities to receive Agency support and begin to develop more fully the ideas that have been presented here. Again, R&RS could assist in the planning and activity design for these pilots and could provide valuable technical assistance in Internet training in selected institutions.

5) **Ghana Internet Workshop**

A national, development-oriented introduction to the Internet would be very useful.

While general level awareness of the Internet is relatively high among those institutions surveyed by the S.O. 3 Assessment Team, there is very little actual exposure to the technology in Ghana and very little awareness of the full potential contribution of this resource in an institution. A hastily organized "Internet Open House" for those surveyed by the S.O. 3 Assessment Team was conducted by the Team and held at the offices of the local ISP on the last afternoon of the last day of this TDY. Response was good and participants were generally enthusiastic about this "new" resource. This small effort helped to confirm that individuals and organizations need to see how the Internet operates, get some hands on introduction, and receive some basic instruction on what is required to have and operate the Internet. If this national workshop were just for development organizations, the sessions could be organized around sectors, demonstrating real life problems and uses for the Internet. This level of introduction is necessary to begin the process of assimilating the use of electronic information and networking into organizations.

6) **Internet Society Development**

A loose network or society of Ghanaians interested in the Internet already exists, much due to the efforts of the local ISP who hosts occasional gatherings. USAID may wish to provide nominal assistance to the formalization of a Ghana Internet Society, perhaps as a national chapter of the official Internet Society. USAID would likely have to provide guidance on how to set up and operate an effective professional society. This type of society could do much of the marketing and awareness raising that will need to occur in Ghana as long term follow-up to the national workshop. This society may also serve the purpose of bringing together the principals of international donors currently working on or interested in working on Internet related activities in Ghana.

7) **Internet Demonstration and Training Centers**

Beyond any isolated assistance that USAID/Accra or the Africa Bureau may be able to provide to selected Ghanaian institutions, there will be a need in the country for a place or places where individuals and institutions can come to learn about the Internet. An Internet Demonstration and Training Center could provide the following types of services: a) free, public demonstrations; b) fee-based Internet accounts and Internet work stations for those without access to computers at home or in the office; c) fee-based end user training; d) fee-based Web page development and training; e) free Institutional Information and Communication Strategy consulting; f) fee-based Internet publishing consulting services and training; and g) free proposal development consulting for Internet related activities. It could be the role of the Ghana Internet Society to set up and run this type of center, or some other public or private sector entity could establish it. At least one group interviewed by the S.O. 3 Assessment Team had already conceived of a similar type of activity (ghanaclassifieds), but lacked funding to implement the idea. The local ISP remarked at the conclusion of the S.O. 3 Assessment Team's Internet Open House that they also have felt the need to do more of this type of end user demonstration and training work.

ANNEX A

INTERNET DEMONSTRATION OPEN HOUSE FLIER

Internet Demonstration Open House

You are cordially invited to attend an open house demonstration of the Internet hosted by USAID/Academy for Educational Development consultants Linda Leonard and Steven Dorsey at **Network Computer Systems Ltd. (NCS) in Accra, Friday, May 3, from 14:00 - 17:00**. NCS is located at 7 Sixth Avenue, Ridge, Osu (Tel. 220622, 225472, 300340 for directions). Come any time between 14:00 and 17:00 and see a live demonstration of this global information resource. Talk with experts about how this resource can help you and your institution communicate with the world.

What is the Internet?

The Internet is a global network of computer networks and is home to vast amounts of data, information, graphics, sounds, video and more on almost any imaginable topic. Whether you work in the public or private sector in industry, business, trade and investment, administration, education, health care, family planning, AIDS or the environment, there is a world of information resources awaiting you on the Internet. Whether you are a policy or decision maker, an entrepreneur, a banker, an investor, a lawyer, a doctor or health care worker, a teacher, a student, an artist or a computer professional, you can find information on the Internet that will help you increase your knowledge and skills and perform better.

Who runs the Internet?

The Internet is run like a global telecommunications/information cooperative. Telecommunications corporations, both public and private, in cooperation with Internet Service Providers and computer network administrators worldwide offer their equipment and services to provide end users (individuals) access to publicly available information in government institutions, nongovernmental organizations, academic institutions and commercial enterprises

How does one access the Internet?

Currently in Ghana, you will need a computer with a modem and a telephone line to access the Internet. You purchase a subscription for the services of a local Internet Service Provider (such as Network Computer Systems), who will provide you with the necessary software for your computer. Then, when you want to access the Internet, you use your computer's modem, operating through the telephone line to connect to your Internet Service Provider's network, through which you will have access to the worldwide Internet. You will use easy-to-use, Windows-based graphical software to access the Internet. You will have electronic mail access to Internet users worldwide and you will have full access to the World Wide Web, an amazing global collection of documents, graphics, pictures, sounds and videos.

[Graphic Image: Man giving demonstration in front of map of world]

Please come and

**DISCOVER THE
WORLD!**

ANNEX B

STRATEGIC OBJECTIVE 3: INTERNET END USER APPLICATION ISSUES

U.S. Agency for International Development (USAID)
Leland Initiative: Africa Global Information Infrastructure Gateway Project

Strategic Objective 3: Internet End User Application Issues

Introduction

Objective 3 of the USAID Africa Global Information Infrastructure Gateway Project seeks to achieve broad-based utilization of information and global information technologies within USAID's development partner community to promote sustainable development in Africa. This component of the Leland Initiative is managed by the USAID Center for Development Information and Evaluation (CDIE) Research and Reference Services Project (R&RS), which is operated by the Academy for Educational Development (AED).

Objective 3 Country Assessments

The first stage of country level implementation of the Leland Initiative is to conduct assessments in the three strategic objective areas: 1) telecommunications policy; 2) telecommunications technology, specifically, Internet infrastructure and Internet Service Provider industry; and 3) Internet end user applications. Institutional assessments for objective 3 are designed to:

- assess the current use of information and communication resources in institutions
- determine institutional information and communication needs
- measure the current level of awareness and use of Internet resources
- assess institutional technology capacity and needs for introduction or broader use of Internet
- serve as the foundation for recommendations on how USAID might best support the introduction or heightened use of the Internet in African institutions to promote sustainable development

Objective 3 country assessments are also designed to point out at the country level:

- those institutional sectors which are the heaviest and weakest users and producers of information and Internet resources
- the principal barriers to broader Internet use
- the efforts of other donors to promote broader Internet use
- procedures and fees for telephone use
- the status of any existing information industry
- the availability and price of Internet related technologies

Objective 3 Assessment Methodology A survey interview instrument is used to collect data from institutions identified in cooperation with USAID field Missions. Data on country level issues are collected both during institutional interviews and through interviews with key individuals in the telecommunications and information industries. These data are then processed to assist the assessment team in determining how institutions might benefit from the introduction or broader use of the Internet, as well as the type and level of assistance needed at the institutional level to introduce or broaden Internet access and use.

Initial Indicators

As a result of the initial objective 3 assessments, six criteria or indicators were developed to measure an institution's readiness for effective use of the Internet. Each institution interviewed was given an initial rating of High, Medium or Low in each of the indicators. It is anticipated that the indicators and their measurement will become more refined and precise as the data collected are thoroughly analyzed and as additional data are gathered through remaining assessments. The initial set of indicators includes:

1. Institutional Communication/Information Strategy - This indicator is based on the institution's ability to understand and communicate to itself and an outside audience its mission and main objectives. The institution should be able to articulate a position on the role of communication and information in the institution.
2. Currently Producing and Using Publications and Databases - If the institution is currently producing publications, such as newsletters and research reports, and/or collecting data, as well as routinely using information and data from other organizations to accomplish their goals and make decisions, then there is a good indication that communication and information are integral to the institution's operations. These institutions could make use of the Internet for both gathering and disseminating information.

3. Recognize Potential Contribution of Internet to Institutional Mission - This indicator is intended to demonstrate if the institution recognizes the need for and potential use of information from outside its usual resources. With a basic understanding of what the Internet is, is the institution able to articulate the potential contribution of the Internet to the institution's operations?

4. Champion - The institution has an identified individual to serve as catalyst/enthusiast for the Internet. In order for a new technology or idea to be accepted within an organization you need an individual who will be the spokesperson for the idea. This individual will persuade others within the organization of the importance of this technology as well as set an example for its effective use in the workplace.

5. Telecommunications and Computer Infrastructure - It is expected that every institution at a minimum will probably have to upgrade and/or purchase some new equipment to use this new technology. However, for some institutions this will require a major investment above their current status. They have very few computers, and those are not powerful enough to use for the Internet. Some institutions have inadequate telephone lines. Most institutions will have to provide further training to the systems staff so support can be provided.

b. Potential for Sustainability - It is anticipated that the Internet would become a standard tool within the institution, being maintained and sustained in the operating budget in the same way the telephone or fax machine is. It is also anticipated that this resource will be used for reaching out to find new ideas and incorporate them into the institution's program. This indicator rates the ability of the institution to build into its current program the maintenance of this resource both in financial and human resource terms.

Barriers to Internet Access and Effective Use The initial assessments also have highlighted two levels of barriers to Internet access and use. First level barriers deal with issues which effectively block Internet access in most institutions. It has become clear that these barriers will need to be addressed before institutions can be expected to think strategically about Internet use. First level barriers include:

- national telecommunications policies (i.e., costs of telecommunications services and technologies, including metered local calling rates, and import tariffs)
- quality and service of the national telecommunications infrastructure
- lack of computer technology or outdated computer and computer related technologies
- lack of adequately trained technicians and lack of availability or poor quality of technical and Internet training
- absence of a competitive Internet Service Provider industry
- cost and quality of current Internet Service Provider services

Second level barriers to effective use of the Internet arise once first level barriers are addressed. These include:

- lack of awareness or real understanding of the Internet and its potential uses
- lack of institutional information and communication strategies which the Internet, as a global information and communication resource, is especially designed to support
- lack of adequate training on the strategic use of the Internet in an institution

Best Practices Study

The Leland Initiative objective 3 team is currently developing a "best practices" study which will survey and report on the experiences of international donors and the public and private for-profit and non-profit sectors in extending Internet access to the developing world. This study will look at relevant and valuable experiences in policy reform, infrastructure development and end use of the Internet in order to point out important "lessons learned" which can be applied in Africa under the Leland Initiative. This study will be updated periodically throughout the life of this initiative to incorporate new research and add the experience of this USAID initiative.

Broad Strategy and Country Implementation Plans Data from the best practices study and the initial country assessments will form the basis for the development of a broad implementation strategy for objective 3 of the Leland Initiative. A strategy document will outline the general approach to be taken in order to ensure that objective 3 is effectively achieved and will indicate how this achievement is to be monitored and measured along

the way. Data from individual country assessments and the broad strategy recommendations will be used to develop country implementation plans for each country receiving assistance under the Leland Initiative. These plans will recommend specific activities to be conducted under the initiative.

USAID, through the Leland Initiative, is committed to helping Africa enter the information age that is sweeping most of our globe. Objective 3 is designed to ensure that strategic, effective use is made of the Internet in those institutions which contribute to the sustainable development of USAID-assisted countries in Africa.

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ANNEX C

**SUMMARY RESULTS OF LELAND INITIATIVE S.O. 3
VISITS IN GHANA**

SUMMARY MATRIX FOR GHANAIAN INSTITUTIONS

Summary Results of Leland Initiative S.O. 3 Visits in Ghana

	Institutional Communication/ Information Strategy	Currently Producing and Using Publications, Databases, etc.	Recognize Potential Contribution of Internet to Institutional Mission	Champion - Identified Individual to Serve as Catalyst/ Enthusiast for Internet	Telecommunications and Computer Infrastructure, Equipment and Technical Support Staff	Potential for Sustainability
S.O. 1- Economic Growth						
Private Enterprise Foundation	Medium	Low	Medium	Low	Medium	High
Council for Scientific and Industrial Research	Medium	High	High	High	Medium	High
AMEX	High	High	High	Medium	Medium	Unknown
West African Enterprise Network	High	High	High	High	High	High
Ministry of Trade and Industry	Medium	Medium	Medium	Low	Medium	Low
African Project Development Facility	Medium	High	High	Medium	Unknown	Medium

	Institutional Communication/ Information Strategy	Currently Producing and Using Publications, Databases, etc.	Recognize Potential Contribution of Internet to Institutional Mission	Champion - Identified Individual to Serve as Catalyst/ Enthusiast for Internet	Telecommunications and Computer Infrastructure, Equipment and Technical Support Staff	Potential for Sustainability
S.O. 1- Economic Growth (continued)						
Ghana Investment Promotion Council	High	High	High	High	High	Medium
Ghana Export Promotion Council	High	High	High	High	High	Medium
Ministry of Food and Agriculture	Medium	Low	Medium	Medium	Low	Low
S.O, 2- Education						
Ministry of Education	Low	Low	Low	Low	Medium	Low
University of Cape Coast - Library	High	Medium	Medium	Medium	Medium	Medium
University of Ghana - Library	High	Medium	High	High	Low	Medium

	Institutional Communication/ Information Strategy	Currently Producing and Using Publications, Databases, etc.	Recognize Potential Contribution of Internet to Institutional Mission	Champion - Identified Individual to Serve as Catalyst/ Enthusiast for Internet	Telecommunications and Computer Infrastructure, Equipment and Technical Support Staff	Potential for Sustainability
S.O. 3 - Health and Population						
HealthNet	High	High	N/A	High	High	High
University of Ghana Medical School Library	High	High	High	High	Medium	Medium
University of Cape Coast Health Sciences Department	Low	Low	Low	Low	Low	Low
Ministry of Health - Health Research Unit	Medium	Medium	High	High	Medium	Low
National Population Council	Low	Low	High	High	Low	Medium
Ghana Registered Midwives Association	Low	Medium	Low	Unknown	Low	Low

	Institutional Communication/ Information Strategy	Currently Producing and Using Publications, Databases, etc.	Recognize Potential Contribution of Internet to Institutional Mission	Champion - Identified Individual to Serve as Catalyst/ Enthusiast for Internet	Telecommunications and Computer Infrastructure, Equipment and Technical Support Staff	Potential for Sustainability
S.O. 4 - AIDS						
National AIDS Control Board	Medium	Low	Medium	Low	Low	Low
Other						
Ministry of Local Government	Low	Low	Low	Low	Low	Low
Network Computer Systems	High	N/A	High	High	High	High
ghanaclassifieds	High	High	High	High	High	High
Volta River Authority	Medium	Low	Medium	High	High	High
P&T	Medium	Low	Low	Low	High	High