



Information and Communication Technology for Development: USAID's Worldwide Program



U.S. Agency for International Development
Bureau for Economic Growth, Agriculture and Trade
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“In the new century, growth will be based on information and opportunity...The keys to prosperity in an information economy are education, individual creativity, and an environment of political and economic freedom.”

—Secretary of State Colin L. Powell
Before the World Economic Forum
June 22, 2003



“A vital IT sector brings the world of commerce and ideas to one’s home or workplace, helping a nation’s economy grow and bringing people everywhere in contact with the global marketplace of ideas.”

—USAID Administrator Andrew S. Natsios
Cisco Networking Academy Signing Ceremony with President Museveni of
Uganda
November 5, 2003



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Executive Summary

The United States Agency for International Development (USAID) and others have made tremendous progress in providing new digital opportunity to the developing world. This report documents key activities and accomplishments of Information and Communication Technology (ICT) for development in the Agency at the present time.

According to a recent survey of current programs, 95 percent of the more than 80 USAID Missions worldwide have one or more ICT activities in their portfolio – comprising 351 separate ICT for development activities worldwide. The total estimated spending on these activities in FY02-03 is about \$200 million in USAID funds and \$240 million in outside contributions. About 30 percent of these activities focus on ICT as a sector and 70 percent on ICT as a development tool.

Historically, USAID has used ICTs to instruct children from a distance, lower infant mortality rates, control population growth, battle HIV/AIDS, promote sound practices for agricultural production and natural resources management, and support relief and reconstruction efforts. Most recently, the Internet and related information technologies have increased the importance of ICT as sector in its own right, driving economic growth and transforming social and economic activity faster than the steam engine, railroad, and electricity did in earlier times.

Reflecting the power of ICT to assist development, the Agency has assumed leadership in promoting access to telecommunications and information technology services through the Leland Initiative for Africa; Presidential initiatives under two administrations – the Internet for Economic Development Initiative and the Digital Freedom Initiative; and, most recently, the Administrator's Last Mile Initiative.

There are five elements of USAID's strategic approach to ICT for development:

Policy Reform: Getting telecommunications policy right is the foundation for growth in the sector and for the affordable spread of ICT applications.

Access: Connecting with those at the end of the "last mile," economically and geographically, is essential for expanding access to the benefits of ICT applications to those of greatest concern to USAID.

Capacity Building: Building the capability of professionals and the capacity of institutions leads to broader and more targeted use of these applications.

Applications: Innovations in how to apply ICTs to benefit users can speed development.

Partnerships: Implementing all these strategic elements depends on collaboration with partners to ensure the needed technical and financial resources.



Dot-COM Alliance

Senegalese students take part in their school's TechnoFair to introduce the use of computers in classrooms.

Highlights

Partnerships: USAID collaborates with partners to provide the financial and technological resources needed to build and use ICT capabilities in developing countries. These partners include U.S. firms, non-governmental organizations (NGOs), higher education institutions, other U.S. agencies, international organizations, and other bilateral donors.

- Since 1999, USAID has collaborated with Cisco Systems to expand workforce training for ICT technicians to 89 Cisco Academies in 32 countries with over 5,000 students enrolled—25 percent are women.
- Initiated in 2001, the Digital Opportunity through Technology and Communications (DOT-COM) Alliance is a partnership with Academy for Educational Development, Internews, Inc., and Education Development Center involving over 75 affiliated institutions—each with specialized expertise in using ICT for development.
- The Digital Freedom Initiative (DFI) places volunteers in businesses and community centers in Senegal, Indonesia, and Peru to provide small businesses and entrepreneurs with ICT skills and knowledge.
- On telecommunications policy reform, USAID works closely with the Department of State and the International Telecommunications Union (ITU). Together, they helped to establish the Arab Telecommunications Regulators Network in 2003 and the West African Telecommunications Regulators Association in 2000.

Policy: USAID promotes pro-competitive policy and regulatory reform in telecommunications and electronic commerce to encourage private sector leadership in expanding and using ICT for development.

- Ten African nations joined the Leland Initiative in 1996. Since then, Leland has helped a total of 22 African countries either to create Internet policies

where none existed or to liberalize existing policies—in particular to lower prices and to introduce competition among Internet Service Providers (ISPs).

- Through the joint Telecommunications Leadership Program (TLP), USAID and the State Department have provided expertise from federal agencies in support of numerous regional workshops, training programs and international conferences for ICT policy and regulatory reform.
- NetTel@Africa has developed a comprehensive curriculum for training IT policy and regulatory officials and has developed a growing network of more than 20 higher education institutions in the United States and Africa offering joint degrees in this field.
- Recognizing the increased need for protecting the critical information infrastructure, USAID has collaborated with the Department of Justice and the State Department to promote international and regional cooperation in combating cyber-crime and enhancing cyber-security in APEC and aid-recipient Asian nations, the Middle East, Southeast Asia, and Eastern Europe.

Access: USAID fosters ICT access for under-served populations—particularly the poor, rural residents, ethnic minorities and women—thus creating development opportunities through the use of ICT.

- The Leland Initiative established the principal Internet gateway and national connection for 10 African countries and provided an estimated 2 million Africans with Internet access, a number that is growing daily.
- Between 1996 and 2003, the LearnLink Program established a number of sustainable networks of Community Learning Centers (CLCs) in Bulgaria, Ghana, Paraguay, and several other countries.
- Peace Corps, Freedom Corps, and Geek Corps volunteers help local entrepreneurs in all regions of the world to adapt the latest technologies to

bridge the “last mile” to afford access for the disadvantaged.

- Digital satellite radio technology, developed by WorldSpace and implemented with the assistance of USAID and others, has proved sustainable over the past four years in Africa and is now being tested in Asia. This technology offers increased delivery range, timely content dissemination, associated capacity building for FM stations, and potential for incorporating multimedia into radio programs.

Capacity building: USAID develops the capacity of institutions and individuals to achieve regulatory reform, conform to international trade norms, and use ICT for development.

- Throughout the past 20 years, USAID’s \$10 million investment in the U.S. Telecommunications Training Institute (USTTI) has leveraged more than \$45 million from the private sector for policy and regulatory courses and has provided a vital source of funding for USTTI trainees from developing countries.
- USAID and the IT Association of America (ITAA) have established the IT Mentors Alliance for IT business associations to ensure they have the capacity to actively and effectively engage policymakers to create favorable ICT policy environments.
- Throughout the Europe and Eurasia (E&E) region, USAID is combining ICT and business training to develop ICT businesses. USAID is assisting many ICT start-up companies by providing training in business plan development and by providing technical assistance to make the firms more appealing to venture capitalists.
- USAID has joined with IBM, the Bank of Brazil, and other firms to create IT workforce training centers for youth in poor communities in Brazil. Similar programs are also being developed in other countries.

Applications: USAID demonstrates innovative ICT applications across all development objectives, including e-commerce, distance education, telemedicine, e-government, and geo-spatial mapping.

To improve agricultural production, the **Southern Africa Sustainable Tree Crops Program (STCP)** uses a portal, consisting of a website and Intranet, for coordination of field activities among partners in coffee, cocoa and other tree crops.

To encourage democracy and good governance, the **Mongolia Courtroom Automation Program** uses case management software and public information centers to promote efficiency and transparency in 14 Mongolian courtrooms.

To advance economic growth, the **Bangladesh Shoe Industry Program** uses a variety of e-commerce tools to help the industry prosper, dramatically increase exports, generate revenue to local businesses, and increase employment for women.

To improve education, the **Guatemala Mayan Language Program** is developing bilingual educational technology resource centers and multimedia versions of their training materials to increase the bilingual education skills of teachers.

To improve access to energy, the **Philippines Off-Grid Rural Energy Alliance** is using Geographic Information Systems (GIS) and spatial analysis tools to plan rural energy project activities.

To protect the environment, the **Indonesia GreenCOM Project** uses ICT in media campaigns to build a coalition of NGOs committed to communicating with the public about the urgent need to preserve the country’s forests and natural heritage.

To ensure public health, the **Albania Patient Care Management System** uses a Health Information System (HIS) to record data for every patient. The system is used for better decision-making both at the facility and Ministry of Health level.

*To prevent the spread of HIV/AIDS, the **Mali Community Radio Campaign*** has used GIS software to fine-tune HIV/AIDS awareness messages to high-risk zones thus ensuring that the radio messages reach the most appropriate audiences.

*To improve natural resources management, the **Guinea Expanded Natural Resources Management Project*** is using GIS software to develop a forest management plan involving both the national government and local population.

*To improve population programs, the **Bolivia Technology-Assisted Learning Centers (TALCs)*** are being developed for reproductive health trainers and faculty. The centers provide access to the latest reproductive health information.

*To reduce poverty, the **Mexico Microlending Program*** developed microloan-processing software for the Palm Pilot to record data, take applications, and make loan calculations on the spot in order to minimize the time to process microloans.

*To enhance urban programs, the **Indonesia CityLinks Program*** partnered Bekasi, Indonesia, with Gresham, Oregon, to use traffic modeling technology in order to develop solutions to Bekasi's traffic challenges.

*To expand opportunities for women in development, the **Morocco Information Technology in the Service of***

Women in Politics Program provides ICT training in an effort to increase the number of female political candidates and to build their capacity to use ICT.

*To improve post-conflict societies, the **Afghanistan Codan Radio Program*** has linked communications among the Kabul-based Afghan government and its 32 provincial governments through an electronic network.

*To provide humanitarian assistance, the **El Salvador Earthquake Reconstruction Program*** uses GIS technology to carry out risk mapping for land use planning and disaster mitigation. It is also used to establish an early warning system for future disasters.

Challenge for the Future

While tremendous progress has been made in providing new digital opportunity to the developing world, billions of people remain out of touch with the benefits of the information revolution, particularly the rural and low-income populations of developing countries. Technological advances in recent years, such as new wireless access devices, have driven down the cost of connectivity and opened the possibility of affordable access for billions of new users worldwide. USAID must take advantage of these advances and continue to pursue the removal of policy and regulatory barriers so that the "last mile" can be bridged in reaching these billions of people.



USAID Record in ICT for Development

1



C h a p t e r

O n e

Chapter

One

USAID Record in ICT for Development

For more than 30 years, USAID has played a leadership role in applying ICT to development. Initiatives have ranged from instructing children from a distance¹, lowering infant mortality rates², controlling population growth³, battling HIV/AIDS⁴, increasing the adoption of sound practices for agricultural production⁵ and natural resources management⁶, and supporting relief and reconstruction efforts⁷. USAID has been able to draw on its experience in building capacity and on the technological strength of the United States to establish the Agency's comparative advantage in applying technology to support development.

By the mid-1990s, it became clear that a more strategic approach was needed to assist developing nations to participate more fully in the information revolution. USAID responded by designing programs to help develop telecommunications infrastructure as well as build capacity to use that infrastructure to support socio-economic development. In 1995, the Leland Initiative was launched to promote telecommunications policy reform and the use of the Internet in Africa—22 countries eventually participated.

In 1998, USAID was asked to take the lead in implementing the Internet for Economic Development Initiative, a White House initiative coordinated by the State Department that eventually included 21 developing countries. In 2000, the Digital Opportunity Task Force of the G-8 raised the importance of ICT for development to the international political level. In 2003, the Bush Administration launched the Digital Freedom Initiative in Senegal, Indonesia, and Peru with plans for expansion to additional countries. Most recently, USAID has announced the Last Mile Initiative to bring

the benefits of communication to those in rural and disadvantaged areas.

Today, the majority of USAID programs have an ICT component, ranging from Teacher Training Resource Centers in Namibia to courtroom automation software in Mongolia. USAID is a leader in helping developing nations close the digital divide and apply ICT to all sectors of development. The depth and breadth of USAID's ICT experience is evident in a recent inventory of USAID Mission's ICT activities.* Key findings include:

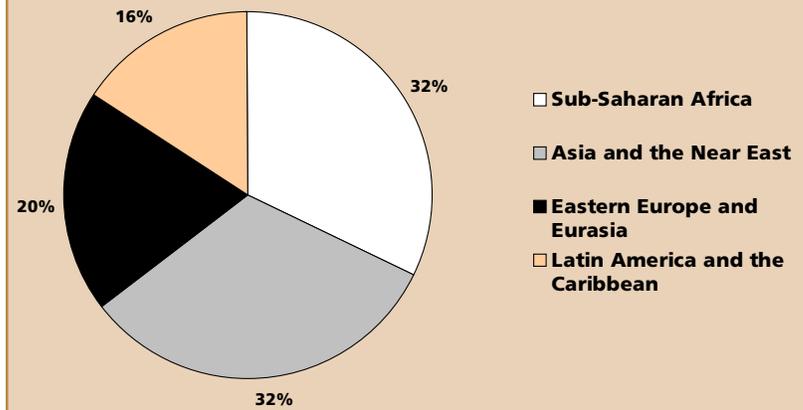
- Ninety-five percent of the more than 80 USAID Missions worldwide have one or more ICT activities in their portfolio—comprising 351 ICT for development activities worldwide;
- In FY02-03, USAID spent an estimated \$200 million in Agency funds and leveraged \$240 million in outside contributions on ICT for development;

* **Technical Note:** In May 2003, the EGAT Office of Energy and Information Technology sent an e-mail survey to contacts in all USAID Missions for information about their ICT for development activities. The survey requested a brief description of Mission ICT activities, an estimate of FY 02 – 03 funding for these activities, an estimate of matched or leveraged resources, and a detailed description of success stories. An activity is an entire program or an important element of a program. Activities were reported in two categories: those that used ICT as a tool for development impact in applied programs or those that assisted development of the ICT sector itself. FY 02–03 USAID funding for these activities is estimated at \$200 million, and FY 02-03 leveraged or matching resources are estimated at \$240 million. These estimates provide a good indication of overall magnitude of funding. However, the estimates are usually based on staff judgments about funding for ICT components of larger projects rather than on precise obligation data for entire projects, and averages were used to compensate for missing data. Results of the ICT inventory are available at www.dec.org/partners/ict.

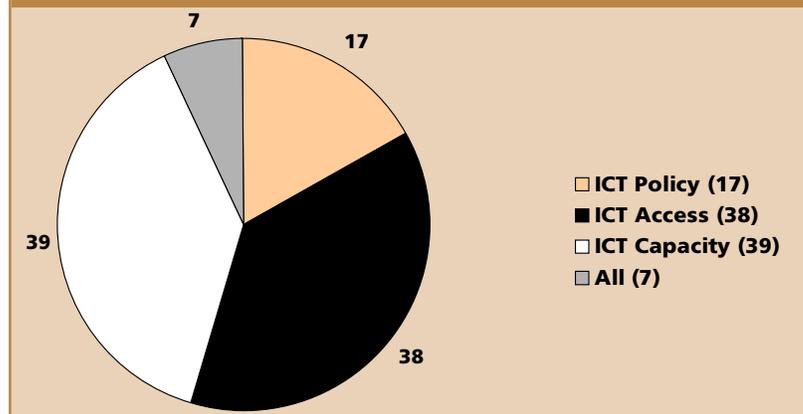
- Geographically, 32 percent of the ICT for development activities are in sub-Saharan Africa, 32 percent in the Asia and the Near East region, 20 percent in Eastern Europe and Eurasia, and 16 percent in Latin America and the Caribbean; and
- About 30 percent of these activities focus on ICT as a sector and 70 percent on ICT as a development tool.

Reflecting the power of ICT to assist development, information technology has become an important USAID cross-cutting theme. USAID defines information and communications technology as *“the combination of hardware, software, and the means of production that enable the exchange, processing and management of information and knowledge.”*⁸ Here ICT refers not only to the underlying computer, Internet, telecommunications, and broadcasting technologies, but also to access and use of these technologies. For USAID, ICT is important both as a means and as an end—a tool for

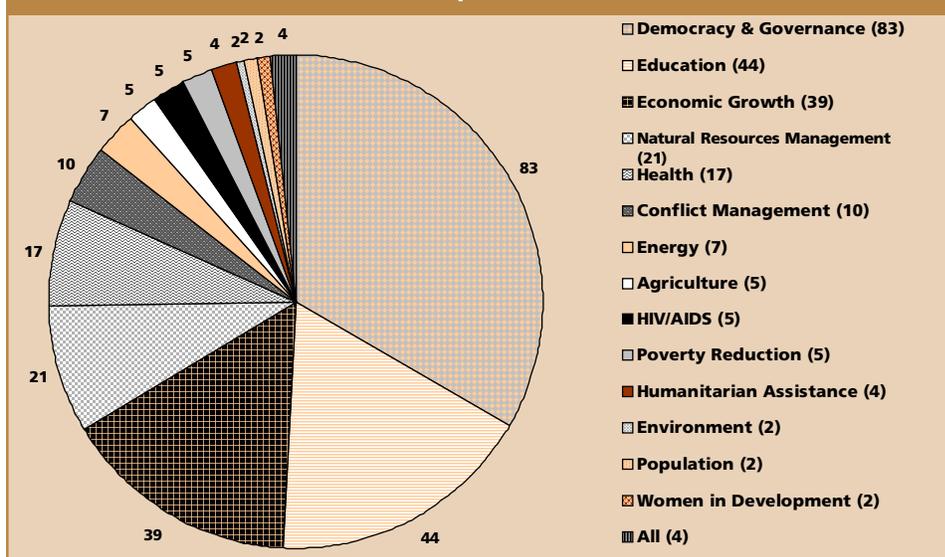
USAID ICT Activities by Region



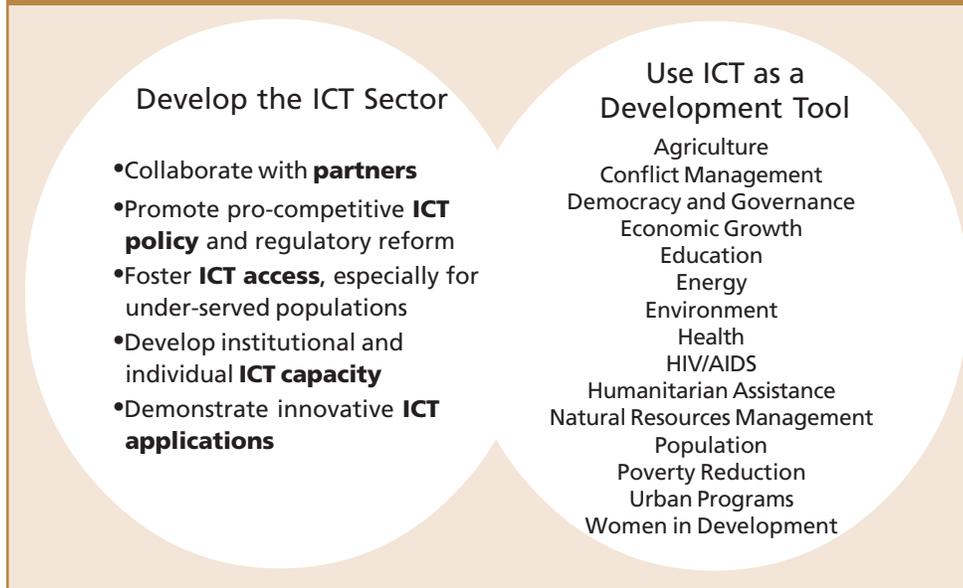
USAID ICT Sector Activities



USAID ICT as a Development Tool



USAID Approach to Information and Communication Technology (ICT) for Development



development as well as an economic sector to be developed.

To ensure the rapid and innovative adoption of ICT across sectors, USAID established a new Office of Energy and Information Technology (EIT) within the Economic Growth, Agriculture and Trade (EGAT) Bureau. The IT Division within EIT works with coordinators in the Agency’s regional and other central bureaus in an informal “I Team.”

USAID’s strategic approach to ICT for development has five principal elements:

1. **Partnerships:** Collaborate with partners to provide the financial and technological resources needed to build and use ICT capabilities in developing countries. These partners include U.S. firms, non-governmental organizations, higher education institutions, other U.S. agencies, international organizations, and other donor agencies;

2. **Policy reform:** Promote pro-competitive policy and regulatory reform in telecommunications and

electronic commerce to encourage private sector leadership in expanding and using ICT for development;

3. **Access:** Foster ICT access for under-served populations—particularly the poor, rural residents, ethnic minorities, and women—thus creating development opportunities through the use of ICT;

4. **Capacity building:** Develop the capacity of institutions and individuals to achieve regulatory reform, conform to international trade norms, and use ICT for development; and

5. **Applications:** Demonstrate innovative ICT applications across all development objectives including e-commerce, distance education, telemedicine, e-government, and geo-spatial mapping.

The following chapters examine each of these elements of USAID’s approach to ICT for development, giving examples of Mission and USAID/Washington activities exemplifying implementation.



Dot-COM Alliance

Partnerships for Digital Opportunity 2



C h a p t e r

T w o

Chapter

Two

Partnerships for Digital Opportunity

The recent survey of USAID Mission ICT activities indicates that funds from development partners exceed funds from USAID. Overall, \$1 of USAID funds are matched with \$1.50 of leveraged funds where USAID is working with other partners to develop the ICT sector. Where ICT is used as a tool, USAID funds are matched dollar for dollar with funds from partnership sources.

A sampling of partnerships are included in this chapter to provide an overall impression of how USAID's way of doing business is evolving.

Partnerships with U.S. Firms

Developing countries look to the U.S. for ICT know-how, technology, management, and business development, and U.S. companies are often anxious

Cisco Certified Networking Academy

In March 2003, CISCO Systems opened the first Cisco Certified Network Professional (CCNP) degree program in Uganda. The Uganda program—part of the Cisco Networking Academy Program—is the first CCNP within Cisco's successful Less-Developed Countries (LDC) Initiative. The LDC initiative trains students in the world's least developed countries for jobs in the Internet economy. To date, 32 countries have participated in the LDC Initiative.

The Uganda CCNP curriculum is another milestone in the partnership, which began in July 2000, between Cisco and international development organizations including USAID. The partnership also addresses the gender digital divide through the Gender Initiative aimed at increasing women and girls' access to IT training and career opportunities. Of the more than 5,000 students who have taken part in the LDC Initiative, 25 percent are women.

In addition, through a Global Development



Yoweri Museveni, President of Uganda, with (left to right) Christine Hemrick, Cisco Systems; Andrew S. Natsios, USAID Administrator; and William R. Sweeney, EDS.

Alliance (GDA) grant, USAID and Cisco Systems are partnering to provide \$350,000 in scholarships for approximately 500 women in Algeria, Morocco, Tunisia, Bangladesh, Nepal, Mongolia, and Sri Lanka, to attend Academies in their country.

Together, these initiatives provide a compelling example of how business, international development organizations, and governments can work together to promote digital opportunity.

cisco.netacad.net

to provide that expertise. USAID expects the private sector to lead with investment to stimulate economic growth and job creation to improve the overall economic and social conditions in a country.

U.S. firms have played a significant role in several recent partnerships:

- Since 1999, USAID has collaborated with Cisco Systems to expand workforce training for ICT technicians to 89 Cisco Academies in 32 countries with over 5,000 students enrolled—25 percent are women.
- USAID has joined with IBM and other firms to create IT workforce training centers for youth in poor communities in Brazil. Similar programs are also being developed in other countries.
- Hewlett-Packard (HP) was a founding partner in developing the Senegal pilot for the Digital Freedom Initiative—a Presidential Initiative established to transfer the benefits of ICT to small businesses and entrepreneurs in the developing world.

Many collaborations with the U.S. private sector are made possible by funds from a new USAID program, the Global Development Alliance (GDA). GDA facilitates agreements between companies, not-for-profits, and government agencies that maximize the benefit of USAID assistance dollars. In addition, these alliances bring significant new resources, ideas, technologies, and partners to bear on ICT problems in countries where USAID works. In the ICT sector, partnerships have been established with private sector companies that leverage private sector to USAID funds at 12:1, 10:1, and 8:1 ratios.⁹

Partnerships with Non-Governmental Organizations

USAID's partnerships with non-governmental institutions are long standing and rooted in the development programs of every sector. Increasingly, partnerships in the ICT sector are proving successful:

- Throughout the past 20 years, USAID's \$10 million investment in USTTI has leveraged more than \$45 million from the private sector for policy and regulatory courses and has provided a vital

Strategic planning workshop for IT Associations in Sri Lanka.



World Information Technology and Services Alliance (WITSA)

Information Technology Mentors Alliance

IT trade associations play an important role in the IT industry in the United States. Key players in the design of policy and regulations, they create synergy between the private sector and the government. Associations are the common voice of many small IT businesses advocating policy and regulatory changes to their governments.

The IT Mentors Alliance (ITMA), a Global Development Alliance (GDA) activity of USAID, focuses on building the capacity of local IT associations to effectively support IT industries and users. ITMA also works, where appropriate, to build new associations.

A mentoring program links U.S. association members, their peers in other countries, and other industry experts to provide needed technical assistance to associations in targeted developing countries. This mentoring ensures that IT trade associations in those countries have the capacity to actively and effectively engage their policymakers and regulators in dialogue to create favorable policy environments for business growth.

www.witsa.org

source of funding for USTTI trainees from developing countries.

- USAID and the ITAA have established the IT Mentors Alliance (ITMA) to strengthen IT business associations in developing countries. Its goals are to improve IT association management, enhance their advocacy capabilities, and improve linkages with member companies.

- Initiated in 2001, the Digital Opportunity through Technology and Communications (DOT-COM) Alliance is a partnership with Academy for Educational Development, Internews, Inc., and Education Development Center involving over 75 affiliated institutions— each with specialized expertise in using ICT for development.

Partnerships with Higher Education Institutions

Partnerships with higher education institutions have played a critical role in building institutional capacity.

Partnerships include:

- NetTel@Africa has developed a comprehensive curriculum for training IT policy and regulatory officials and has developed a growing network of more than 20 higher education institutions in the United States and Africa offering joint degrees in this discipline.
- The WiderNet Project Digital Library, comprised of almost one million documents, has been installed at six African universities to date. The project has made its digital library accessible at no cost to professors and students over local area networks rather than Internet connections.
- In 1999, the Caribbean Institute of Technology was founded in order to train software developers that would support a sustainable software development industry in Jamaica. Established in partnership with Furman University and the University of the West Indies, the institute has trained over 200 students, half are women. Over two-thirds of the graduates are employed in the Jamaica IT sector.

Partnerships with Other U.S. Agencies

USAID seeks to augment its technical resources and policy expertise by partnering with other U.S. government agencies to deliver development services. Through an interagency agreement, USAID and the State Department have established the Telecommunications Leadership Program (TLP). This



African regulators and academics discuss a course activity during the Botswana Safari conference.

NetTel@Africa

In 2003, USAID's Leland Initiative launched NetTel@Africa, a training program to build policy and regulatory capacity in the region. NetTel's comprehensive course curriculum for African regulators is prepared by leading African and American telecommunications experts from academia and government. These courses are delivered on CD-ROM and in workshops organized by the National Association of Regulatory Utilities Commissioners (NARUC).

NetTel@Africa created ten course modules in telecommunications policy and regulation for programs at the post-graduate diploma and master's levels at African universities. Each module requires collaboration between at least one U.S. and one developing country institution. This collaboration creates synergy by bringing together institutions from developing and developed countries to deliver a program that no institution could do alone. Sharing content among the partners avoids re-inventing resources. Students and professors communicate electronically across national and international borders as well as in periodic face-to-face meetings.

www.nettelafrika.org

program provides expertise for ICT policy programs from the Federal Communications Commission (FCC), the National Telecommunications and Information Administration (NTIA), the Justice and State Departments, and other federal agencies. These experts are not only highly cost-effective and representative of U.S. policy objectives but also often possess knowledge not readily available elsewhere.



Cybercafe in Kolda, Senegal.

Digital Freedom Initiative

Digital Freedom Initiative

The Digital Freedom Initiative (DFI)—a Bush Administration Presidential Initiative—was launched in 2003 to promote economic growth by transferring the benefits of ICT to entrepreneurs and small businesses in the developing world. Recognizing that growth requires the right synergy between public and private sectors, the DFI leverages the leadership of the U.S. government, the creativity and resources of America's leading IT companies, and the vision and energy of entrepreneurs throughout the developing world. It is funded by the U.S. departments of Commerce, State, USAID, USA Freedom Corps, and Peace Corps.

Volunteers from North American private sector companies and NGOs are placed with local small businesses and entrepreneurs to assist them in growing their businesses through the application of ICTs and business expertise. DFI includes practical assistance to businesses as they identify real opportunities to leverage existing infrastructure (e.g., in-country cybercafes and telecenters); to generate information and services; and to help entrepreneurs and small businesses better compete in both the regional and global marketplace. In addition, with assistance from the U.S. FCC, the DFI will help to develop pro-growth regulatory and legal structures, where needed, to enhance business competitiveness.

After a three-year pilot phase in Senegal, Peru, and Indonesia, the DFI will be rolled out to additional countries. The goal is to increase business activity, develop more efficient markets, create more jobs, and help establish a business-friendly regulatory framework in DFI beneficiary countries.

www.dfi.gov

USAID ICT activities in collaboration with other US Government (USG) agencies include:

- FCC and NTIA experts conducted regional and bilateral workshops in telecommunications policy and regulation as well as, in the past year, providing special training in spectrum management for Iraqis and Afghans.
- USAID collaborated with the departments of Justice and State to promote international and regional cooperation in combating cyber-crime and enhancing cyber-security in APEC and aid-recipient Asian nations, the Middle East, Southeast Asia, and Eastern Europe.
- State Department conducted workshops on e-commerce for East Europeans in 2003 and for Mexico in 2002 as well as an International Conference on Implementation eGovernment with the Trade and Development Agency in 2002.

Perhaps the most significant collaboration with other U.S. agencies during 2002-2003 was the Digital Freedom Initiative, the primary program of the U.S. Government to assist developing countries in bridging the digital divide.

Partnerships with International Organizations and Other Bilateral Donors

USAID also seeks to collaborate with international organizations and other donor agencies involved in ICT for development whether through burden sharing on specific activities or through general coordination and knowledge sharing.

USAID ICT activities in partnership with other donors include:

- On telecommunications policy reform, USAID works closely with the

Nepal Digital Broadcast Initiative



EqualAccess

Nepal Yogi Ayastha training community members on the digital satellite radio.

Using the latest in ICT- satellite broadcast direct to digital radio receivers - USAID/Nepal and its partners, can now disseminate life improving information, in Nepali, across the entire country. Although USAID/ Nepal had been using 'traditional' radio to communicate with rural populations from the Terai to the Mountains, the new satellite radio technology allows communications with even the most remote and previously inaccessible areas. Now, rural health clinics, community information centers, micro-finance groups, and government offices all can

receive valuable health, agriculture, and governance information.

With funding from the United Nations Development Program (UNDP), WorldSpace Satellite broadcasts clear digital radio signals from the satellite to inexpensive portable radios, transmitting appropriate development information prepared by the NGO Equal Access. Now USAID/ Nepal and its partners, broadcasting in CD-quality sound, can also broadcast large files of data, video images, text and graphics that can be downloaded to a computer hard disk, without the need for telephone lines. Broadcasts can be saved to the computer twenty-four hours a day, allowing for replay at times more convenient for classroom teaching. Because the information can be retained until needed, its impact is greater. Solar power powers receivers and computers at remote sites, so there are services even where electricity is unavailable or unreliable.

www.equalaccess.org/programs/nepal/index.htm

Department of State and International Telecommunications Union (ITU). Together, they helped to establish the Arab Telecommunications Regulators Network in 2003 and the West African Telecommunications Regulators Association in 2000.

- USAID/Leland Initiative has collaborated with the World Bank in telecommunications reform in Senegal and in developing rural access policy in Nigeria.
- Since September 2000, USAID has been collaborating with the Japanese Ministry of Foreign Affairs (MOFA) and Japanese International Cooperation Agency (JICA) on ICT. Both the U.S. and Japan are active in the Asia region and have conducted joint IT assessments, participated in regional workshops together, and provided a joint planning framework for cooperation.



Promote Pro-Competitive ICT Policy and Regulatory Reform

3



Chapter

Three

Promote Pro-Competitive ICT Policy and Regulatory Reform

New technologies may enable economic and social transformation, but only in a conducive policy and regulatory environment. The old model of the state-owned and -managed telecommunications monopoly adopted in the second half of the nineteenth century simply does not accommodate the fast changing, knowledge-based, and global information revolution.

Just to survive in the highly competitive world of the global knowledge economy, country after country introduced competition (usually in the form of mobile cellular phone providers); corporatized, if not privatized, the national fixed line provider; and established a more-or-less independent regulatory agency. Over 70 nations have adopted the World Trade Organization (WTO) Basic Telecommunications Services Agreement of 1998, and many of those also adopted the attached annex on regulatory principles. Over 110 nations since 1990 have established more or less independent regulatory bodies.

Challenge

Despite this clearly established trend toward liberalization and privatization, many developing nations still retain telecommunications monopolies, often privatized or at least with corporatized management. Indeed for properly functioning markets, the one thing worse than an inefficient state-owned monopoly, usually responsive to government, is a private monopoly, unfettered to exercise its legal monopoly efficiently. Moreover the legacy of the old statist monopolistic model still weighs heavy on many countries that are trying to introduce competition.

An independent regulatory body is needed to maintain a level playing field for new entrants, ensure network interconnection, and protect consumer

interest. The regulator should function in ways that are fair, non-discriminatory, transparent, timely, and independent of the operators. However, in the face of a former monopoly, regulators lack the training and experience needed to confront national operators intent on retaining or deepening market dominance and excluding or hobbling competitors. Furthermore, judicial systems do not often provide the necessary reinforcement for regulatory and policy decisions such as requiring the dominant provider to establish interconnection for new competitive entrants.

Universal access programs may be needed for high cost, low-income users, often in rural areas. However, these are difficult to implement in countries with a low subscriber base. With appropriate pro-competitive policies in place, private investors will often seek out areas of low return on investment normally shunned by dominant national operators. This competition drives down prices and introduces new services making advanced ICT access newly affordable to large numbers of



Dot-COM Alliance

Ten Internet-enabled computer labs facilitate the learning process for University of Bamako teachers and students in Mali.

potential users. Policy and regulatory reform is thus seen as an enabler of expanded and affordable access to and application of ICT for development.

USAID Response

In telecommunications, USAID promotes competition and private investment; independent regulation; and universal access. In e-commerce, USAID promotes private sector leadership in the conduct of business on the Internet and advocates for an open and secure global Internet. USAID also promotes adherence to international agreements on basic telecommunications services, information technology, intellectual property protection (IPR), tariff moratorium on electronic transmissions, and cyber-crime. Among the strategic priorities are:

- **Promoting telecommunications competition and private investment.** One of the main challenges for developing nations wishing to rapidly expand their ICT infrastructure is to introduce competition and privatization and move to open markets to replace the outmoded state-owned monopoly model. To ensure these ends, USAID provides experts to help draft telecommunications laws and policies that promote adherence and compliance with the Basic Telecommunications Services Agreement (including the Annex on Regulatory Principles), TRIPS (trade-related aspects of intellectual property rights), and other WTO instruments.
- **Strengthening independent regulators.** Because almost all the telecommunications regulatory bodies in developing nations are less than 10 years old, they typically lack the necessary legal, economic, and engineering expertise and experience. Drawing on 70 years of U.S. regulatory experience at the federal level and even longer at the state level, USAID can assist independent regulators in building capacity in information management, planning, billing, and consumer protection as well as in licensing, interconnection, competition, pricing, and spectrum management.
- **Promoting universal access policy.** In most developing nations, the dominant telecommunications company tends to neglect populations where the return on investment is low

Philippines Electronic Commerce Act

In May 2000, computer systems across the globe were paralyzed by a virus, which came to be called the "I Love You" virus. Damage from the virus was estimated at \$10 billion. With the help of computer experts, the virus was traced to a student in the Philippines. However, even as Philippine law enforcers managed to go after the suspect, legal charges could not be filed because there was no Philippine law against hacking or any cyber-crime, and evidence in electronic form was not admissible in Philippine courts at that time.

The incident immediately spurred the Philippine Congress into passing the Electronic Commerce Act (ECA). The ECA, in addition to creating a regulatory environment where e-commerce could flourish, penalizes cyber-crimes, including hacking, and establishes rules on the admissibility of electronic evidence in court.

USAID/Philippines actively supported the ECA by providing technical assistance and by supporting the dissemination of information on e-commerce and cyber-crimes. The Mission helped to establish a Computer Emergency Response Team (CERT) led by Filipino officials. USAID also trained law enforcement agencies and private entities, such as Internet Service Providers, in the investigation of cyber-crimes.

In May 2002, exactly two years after the passage of the ECA, a landmark computer hacking case was heard for the first time in a Philippine Trial Court, signaling that computer-related crime will be punished. The National Bureau of Investigation, through its AntiFraud and Computer Crimes Division (AFCCD), has since investigated and made arrests in a number of online fraud cases using provisions in the ECA.

www.dai.com/projects/projects_fs.htm

in favor of investment in providing new and expanded services in urban areas where profits are higher. USAID support for reaching the neglected populations includes promoting “bottom-up” or community-based universal service policies administered by an independent regulator; encouraging competitively neutral universal access programs for high-cost and low-income subscribers; and demonstrating new low-cost access technologies and encouraging flexible regulatory procedures to foster their use.

- **Promoting private sector leadership.** In most developing nations, the private sector, especially small- and medium-sized enterprises (SMEs), is hampered in using the Internet to conduct business by excessive or outmoded policy and regulatory barriers. Hence they are hampered in participating in global electronic commerce, now measured in trillions of dollars. USAID has provided country and regional workshops on e-commerce policy and has developed e-commerce policy training tools.
- **Maintaining an open and secure global Internet.** In keeping with Article 14 of the UN Declaration of Human Rights, the U.S. Government strongly supports the free flow of information. USAID assists international policy efforts to maintain an open, affordable Internet by supporting in-country advocacy, training, and national/regional Internet exchange points. USAID also seeks to foster international cooperation in combating cyber-crime and other threats against the critical global information infrastructure by conducting regional cyber-security workshops.

Key Achievements

Among USAID’s achievements in ICT policy and regulatory reform are:

- The Leland Internet Initiative, since 1996, has helped 22 African countries either to create Internet policies where none existed or to liberalize any existing policies, in particular to lower prices and to introduce competition among Internet Service Providers. In recent years, Leland has also reached out to newly formed telecommunications

Telecommunications Regulators’ Association of Southern Africa

In 1995, the USAID Regional Center for Southern Africa instituted the Regional Telecommunications Restructuring Program (RTRP) to promote telecommunications policy and regulatory reform in 14 southern Africa nations. In 1997, with U.S. Government agencies and the ITU, RTRP established the Telecommunications Regulators’ Association of Southern Africa (TRASA).

The program now focuses on policy and regulatory activities to support expanded access to information and communications for rural and other populations disadvantaged by income, education, disability, or social discrimination. In the last two years, TRASA has served as a model for the development of other regional telecommunications regulatory associations, including the West African Telecommunications Regulatory Association (WATRA) in 2001; the Association of Regulators of Information and Communications in East Africa (ARICEA) in 2003; and the Arab Telecommunications Regulators Network in 2003.

With TRASA available as a framework for assistance and cooperation, successor telecommunications programs have continued to promote pro-competitive policy reform by supporting the development of a model policy and model law; helping governments draft specific policies and laws; building regulatory capacity; and promoting rural access by developing a set of universal service principles.

www.trasa.org.bw

regulatory bodies to strengthen their ability to monitor and reinforce the competitive “level playing field.”

- Through the joint Telecommunications Leadership Program (TLP), USAID and the State Department have provided expertise from U.S. federal agencies in support of numerous regional workshops, training programs, and international conferences to foster telecommunications and e-commerce policy and regulatory reform. These events have been held in Central America, the Caribbean, West and South Africa, North Africa and the Middle East, and Southeast Asia.
- Recognizing the increased need for protecting the critical information infrastructure, USAID has collaborated with the Department of Justice and the State Department to promote international cooperation in combating cyber-crime and enhancing cyber-security. In little over a year, USAID provided funding for cyber-crime and cyber-security workshops for APEC and aid-recipient Asian nations, for the Middle East, for Southeast Asia, and for East Europe. For distribution at each of these regional workshops, the Department of Justice developed a guide entitled “Legal Frameworks for Combating

Cyber-Crime.” In some cases, follow-on technical assistance has been provided by USAID in order to implement specific cyber-security legislation.

Future Prospective

There are a growing number of policy issues surrounding the Internet and electronic commerce that will have a profound impact on how ICT will be accessed and used worldwide. USAID is piloting activities in South Africa, Uganda, Namibia, and Nigeria to demonstrate how pro-competitive policies and regulation can promote rural access. In addition USAID is demonstrating new wireless access devices as well as Voice Over Internet Protocol (VOIP) that offer new possibilities to provide broadband data and voice services at low costs. Overall, policies that ensure legal certainty, security, and consumer protection for online transactions and interactions should be enacted. In order to accomplish this, an appropriate mix of government regulation and private sector solutions should be put in place that considers both consumer and business interests.



Jeff Cochrane, USAID

Foster ICT Access Especially for Under-Served Populations

4



Chapter

Four

Foster ICT Access Especially for Under-Served Populations

With the right policies in place, the private sector will usually be in a position to furnish access to many of the information and communications technologies that consumers need. Gaps will remain, however, and some populations within society will inevitably remain under-served whether because of the high cost of bringing connectivity to their villages or town, or because of low income and the inability to afford service.



Judy Payne, USAID

This entrepreneur-led Internet Café in the Ziguinchor region of Senegal is an important source of Internet access for small businesses in the fishing and cashew industries.

The number of ISPs, hosts, and users is now growing in many developing countries at the same pace or faster than in advanced countries, albeit from a very low base and very unevenly. Of 325 million estimated Internet users in the world, over 80 percent are in high-income countries while only 1 percent is in Africa. While virtually all countries in Africa now have at least one ISP, almost 90 percent of the sub-Saharan African market is in South Africa and more than 99 percent of all users are in main urban centers.¹⁰

The extent to which women are using the Internet is even more telling. Regional figures in Asia indicate that 22 percent of users in 2000 were women. For Latin America, overall figures reveal that 38 percent of users were women. In the Middle East, an estimated 6 percent were women. No regional figures were available by gender for Africa.¹¹

Challenge

The “digital divide” describes a phenomenon where classes or categories of people are excluded from the benefits of the information age. We tend to think of this divide as one separating wealthy countries from poor ones, but more often the divide separates particular populations within countries.

- For a variety of social and cultural reasons that vary from place to place, some children are less likely than others to receive basic skills training in the use of information and communications technologies.
- Technologies can easily be adapted to make them accessible to persons with many kinds of disabilities, but such adaptations are rarely

Ukraine Women for Women Telecenters

Unemployed, low-skilled women are vulnerable to traffickers who lure them by promising them jobs abroad. USAID/Ukraine opened seven Women for Women Centers to provide job skills and crisis prevention services to at-risk women. The results are impressive. After four years, over 22,600 women have received training in trafficking and violence prevention, more than 30,800 women have received training in basic job skills and entrepreneurship with a strong focus on ICT training. As a result of the training programs, over 15,100 women report that they are no longer seeking employment abroad, more than 4,300 women have found jobs in the Ukraine, and more than 4,000 are staying in school to finish their degrees or are returning to school or retraining programs.

In addition, over 50 Ukrainian NGOs in 30 cities, towns, and villages throughout Ukraine have received small grants as part of this project to conduct information campaigns, provide training for at-risk women, and improve prevention services—thus increasing the capacity of these NGOs to deliver services. These centers are also linked over the Internet to share information that helps to build awareness and to deter trafficking.

www.winrock.org.ua

taken, often simply because no one thought to do so.

- Youth from low-income communities often attend schools where access to chalk, let alone textbooks and computers, is problematic.
- Major transmission lines carrying Internet traffic pass between large cities, but rarely touch the many rural communities along the way.

USAID Response

USAID works with local and international partners to ensure that participation in the benefits of the information age extend to under-served groups—particularly the poor, rural residents, ethnic minorities and women—thus creating development opportunities through the use of ICTs.¹² USAID programs assist in overcoming social, economic, and infrastructure constraints to ICT access.

USAID calls upon the wealth of expertise developed within the U.S. economy, adapting technologies and applications to meet the special needs of the under-served in developing economies. These needs include:

- **Providing affordable access of ICTs to under-served populations.** Where half of the world's population lives on less than \$2 a day and the cheapest PC still costs \$500, institutions rather than individuals will more likely serve as the means of providing affordable access to ICT.
- **Developing and sustaining public access telecenters.** Telecenters in various forms (cybercafes, computer labs, business centers, and so on) developed with local partners and often based on commercial principles are important means of ICT access in the developing world. Demand for telecenter services is often present but frequently needs to be uncovered and nurtured through special programs.
- **Overcoming insufficient infrastructure in rural and disadvantaged areas.** Outside the main urban centers, innovative technical solutions must be applied to overcome problematic telecommunication links. Both terrestrial and satellite wireless technologies hold particular promise for reaching the greatest number of rural areas.
- **Seeking and creating locally relevant software and content.** People not familiar with 'Internet' languages, cannot take advantage of the vast amount of available content and applications. Currently, 68 percent of the content on the Internet is in English.
- **Ensuring equal access to ICTs for women and girls.** In all ICT activities, ensuring equal access for

women and girls is key. Emphasis is frequently placed on common-use facilities, such as telecenters, phone shops, and other forms of public access in places convenient and accessible to women, recognizing that cultural norms in some parts of the world may necessitate innovative solutions.

Key Achievements

Many of USAID's accomplishments in helping the under-served gain access to information and communications technologies are impressive and easy to identify. However, perhaps the greatest impact is felt in the thousands of activities USAID implements in the field in each and every development sector. In these activities, ICTs are now fully integrated in basic activity design, management, and implementation. Without predictable access to ICTs, this would not be possible.

For example, in addition to improving the policy environment, the Leland Initiative has also been instrumental in increasing ICT access in sub-Saharan Africa. In 22 countries, Leland activities include establishing national Internet gateways, pioneering Internet remote access in secondary and tertiary towns, supporting a vigorous ISP industry, piloting information cybercafes to extend telecommunication services, and using cutting edge technology, for example wireless metropolitan networks, to leap-frog antiquated networks.

Similarly, across the Asia and Near East (ANE) region, the Internet and electronic commerce are emerging realities, though outdated national policies and inadequate infrastructure frequently impedes progress. In 16 ANE countries, USAID supports the private sector with an emphasis on policy reform to make access to ICT more affordable.

In Latin America and the Caribbean (LAC), the emphasis is more often on the effective application of ICT to serve poor communities. Examples include: wireless links to school computer labs in Brazil, and assistance to small municipal governments accessing and contributing to geographic information systems in Central America.

Honduras Renewable Energy for Rural Connectivity

There is growing interest in connecting rural areas to the Internet, but connectivity typically requires electricity. Almost half of Central America's population of 35 million has no access to electricity. Photovoltaic (PV) technologies can be used to bring telephony, distance education, and access to the Internet to the more isolated communities located beyond the electric grid.

PV is especially important in solving the difficult challenge of "the last mile" access—reaching those populations beyond the current limits of the electric grid. Sandia National Laboratories and its partners are working to spread the use of PV by training local people in applications and technology development.

One promising application of PV in Central America is distance education. In Honduras alone, there are more than 2,000 unelectrified schools. With USAID support, the Ministry of Education developed a distance education program for 36 participating rural schools in Honduras. As part of the program, a pilot PV installation and associated capacity building workshops have helped to raise local awareness of the potential for PV to help extend the reach of these new programs. The pilots have shown that it is key to include energy considerations in the planning process from the start.

www.re.sandia.gov

In Eastern Europe, for example in the Former Yugoslav Republic of Macedonia and in Romania, USAID supports public access telecenters combined with specialized services to support the growth of small- and medium-sized enterprises. In Armenia USAID has helped the central bank introduce smart cards so that citizens without the resources to obtain international bank cards can still take advantage of electronic banking locally.

Future Prospective

Newer information and communication technologies—including terrestrial and satellite wireless telecommunications and handheld devices—hold great promise for bridging the “last mile” to afford access for the disadvantaged. USAID has recently announced the start of its own Last Mile Initiative to contribute to this goal. Applications that

take advantage of cellular telephone networks, such as the medical disease reporting system for rural clinics now being implemented in Peru, will play an increasingly important role. U.S. volunteers (Peace Corps, Freedom Corps, etc.) will assist local entrepreneurs in adapting the latest technologies to fit the special circumstances found in low-income economies. Strategic alliances with the private sector will in most cases result in the fastest expansion of access.



Dot-COM Alliance

Develop Institutional and Individual ICT Capacity

5



C h a p t e r

F i v e

Chapter

Five

Develop Institutional and Individual ICT Capacity

In addition to ICT policy and access, developing institutional capacity is a key component in strengthening the ICT sector. The sector spans a wide variety of businesses—those that develop software and provide related services to Internet Service Providers, hardware component manufacturers, and those that build and maintain telecommunications networks. To support the sector, a wide variety of skills are required—from developing e-marketing skills for business development to developing computer-network skills for businesses, community Internet centers, and government.



Dot-COM Alliance

Giving girls access to ICTs provides access to new worlds of opportunities in Brazil's LNet Training Program.

The global ICT marketplace has grown, from \$1.3 trillion in 1993 to over \$2.4 trillion in 2001. The compound annual growth rate for that eight-year span is 7.6 percent. However, the digital haves and have-nots remain a concern, with the top 10 information economies representing 80 percent of the global ICT marketplace and the bottom 10 representing less than 1 percent. The trend is the same in e-business, where eight of the top 10 Internet commerce per capita countries are found in either North America or Western Europe.¹³

Worldwide, the ICT sector is the second largest after only the services sector. Combined, both sectors represent over 66 percent of the world GDP. The global economic trend is that the services and ICT sectors are steadily increasing while the agriculture, manufacturing, and industry sectors continue to decrease. This trend emphasizes that economies based on the more traditional sectors will fall behind those that are centered on services and ICTs—thus increasing the economic divide.

Challenge

The ICT sector itself is important for developing countries, but it is also a critical ingredient for growth of many, if not most, other sectors where the use of ICT has become a prerequisite for competitive operations and expansion. Not surprisingly, the gap between the haves and have-nots that exists in access to information and communication telecommunications persists in the ICT sector itself. Many developing countries have placed a high priority on narrowing the gap. To do this, they must develop an educated ICT-knowledgeable workforce as well as ICT private sector businesses able to compete locally, regionally, and sometimes globally.

Kazakhstan USTTI Training

In the last 20 years there have been profound changes in technology— changes that have shaped the communications and IT sectors. During these 20 years, the U.S. Telecommunications Training Institute (USTTI) has been offering training courses to telecommunications officials from 164 countries allowing them to keep up with these dramatic changes. The USTTI curriculum has significantly expanded and now boasts 87 courses for scholars, engineers, and policymakers. USAID provides scholarships for USTTI participants from developing countries and often assists with the selection of candidates through USAID Missions.

USAID is currently working with USTTI to provide training for a critical mass of officials from Kazakhstan and other countries in Central Asia. This targeted training is based on similar successful initiatives specific to Morocco and South Africa. The series starts with the FCC–developed course, “Spectrum Management in the Civil Sector.” The trainees will then travel to the Burns Telecommunication Center in Bozeman, Montana, for an intensive weeklong training program at the state-of-the-art facility.

www.ustti.org

USAID Response

USAID has a multi-pronged approach to help developing countries build their ICT sectors, working with both public and private sector partners. Areas of focus include:

- **Supporting innovative ICT workforce development opportunities for students, out-of-school youth, and adults.** For example, USAID, in collaboration with the International Youth Foundation (IYF), developed an ICT training project for 500 youth from lowest income strata around Bogota, Colombia.

- **Increasing ICT knowledge for policymakers and government officials in order to understand the impact and implications of ICT in society.** For example, the TLP, through an inter-agency agreement with Department of State, funded the travel of highly technical spectrum engineers to assist the Government of Jamaica with spectrum management.
- **Building management and operational capacity of individual private sector firms in the ICT sector.** For example, USAID sponsored an e-marketing workshop for ICT firms from Tunisia, Morocco, and Algeria. The workshop highlighted barriers to greater ICT usage and helped the companies hone their marketing and selling skills as well as their business practices to sell more e-business and e-commerce related products and services within their own countries.
- **Supporting efforts to increase the regional and global competitiveness of the entire ICT sector or sub-sets of it (e.g., the software industry).** For example, a USAID/Sri Lanka project is working with the Competitiveness Initiative (TCI) to increase the competitiveness of the ICT industry. The initiatives for the ICT cluster are to launch centers of excellence (CoE), establish virtual business incubators (VBI), and create a world-class policy environment.
- **Fostering ICT sector business associations focusing on strengthening the industry.** For example, the ITMA was formed as a public/private partnership between USAID and the ITAA to strengthen ICT industry business associations in developing countries. In Kenya, the alliance has worked with the Computer Society of Kenya to develop a strategic plan, communications program, and formal advocacy program

Key Achievements

Throughout the past 20 years, USTTI has offered a total of 1,158 diverse training courses and graduated 6,290 women and men who are the key regulators, communications managers, and IT providers in 164 countries of the world. USAID provides a vital source of travel and subsistence funding for USTTI

trainees from developing countries. In addition, USAID Missions overseas provide assistance in selecting qualified applicants. The continued popularity and need for the USTTI's tuition-free training is reinforced by the fact that in 2002, the USTTI received 8,546 applications for the 815 training slots available in the 87 course curriculum.

In 2000, USAID, Cisco Systems, Inc., United Nations Development Program, and United Nations Volunteers (UNITeS) announced the formation of a strategic partnership to create opportunities for ICT skills development in USAID-assisted countries. To date, the program is active in 32 countries where over 5,000 students have been enrolled. In many of the countries, USAID and Cisco Systems are partnering to provide scholarships for women. Through the Gender Initiative, which has been at the core of these partnerships, and gender mainstreaming within the Cisco Networking Academy Program, approximately 25 percent of the students are women.

Throughout the E&E region, USAID is combining ICT and business training to develop ICT businesses. In these countries, a large number of ICT start-up companies are being formed. While these companies have the technical skills, they often lack general business knowledge that makes them truly competitive in the world marketplace. USAID is assisting these companies by providing training in business plan development and by providing technical assistance to make the firms more appealing to venture capitalists.

Future Prospective

In the future, the ICT sector will not only continue to grow globally—and continue to be of critical importance to developing countries, it will also steadily incorporate new technologies and approaches to developing and delivering them. For USAID and developing countries, this means making sure processes are in place to adapt ICT sector activities accordingly. In particular, ICT workforce development initiatives will need to incorporate ways to continually update curriculum and serve both young people and those already in the workforce.

E-learning techniques will be one important aid in adapting programs and reaching the wide variety of

Brazil Youth at Risk ICT Employability Training

Northeast Brazil is the site of USAID/Brazil's *Programa para o Futuro* (Program for the Future) for unemployed at-risk youth. The program prepares youth to enter the job market as ICT technical support staff in small- and medium-sized enterprises, NGOs, and the public sector. Fifty boys and girls from disadvantaged communities in Recife, Brazil receive an innovative mix of "hard" and "soft" skills needed to successfully find meaningful employment in this difficult job market. The students use collaborative learning projects that integrate Portuguese language, writing, and oral communication skills with IT skills to set up and upgrade computer systems, install software, manage and troubleshoot computer networks.

Classroom training is only part of the program; it also includes job matching and counseling. More important, a strong internship and e-mentoring program provides ongoing support to these youth during and after the training portion of the program.

A core strength of *Programa para o Futuro* is the partnerships with both private sector companies and public sector agencies that provide critical resources. Partners include: the Bank of Brazil, IBM-Brazil, Microsoft Brazil, Brazil and America's Association (ABA), the Ministry of Justice, and the State Government of Pernambuco. Other local and international companies and organizations provide support via the project's internship and e-mentoring activities. The close relationships with the local and international private sector additionally benefit the program by ensuring that the training is kept aligned with the current needs and requirements for the Brazilian job market.

www.programaparaofuturo.org.br

people needing regular updates to their skills. ICT methodologies can be used to expose individuals and businesses in developing countries to new technologies, such as advances in wireless

communications and electronic security. For example, Internet-based conferencing techniques and virtual knowledge management systems can be used, as they are today by ICT sector firms, in developed countries.



USAID/Lebanon

Demonstrate Innovative ICT Applications

6



Chapter

Six

Demonstrate Innovative ICT Applications

It is hard to imagine any social or economic activity in industrial societies that does not depend in one form or another on ICT— whether for managing a global business empire or managing a small shop, whether for championing human rights worldwide or running a small social club; or simply for maintaining ties with family and friends. And the situation is being repeated in the better off social strata in developing nations. The socio-economic utility of ICT is such that its spread and application is inevitable both as a tool and a consequence of development. As the largest bilateral donor assistance agency and able to draw on American technological leadership and experience, USAID has an enormous comparative advantage in assisting developing nations in applying ICT to development challenges across all sectors.

As shown in the recent USAID Mission ICT Inventory, hundreds of USAID activities rely heavily on ICT as a tool to accomplishing their program objectives. ICT activities can be found in all USAID

development sectors including: agriculture, democracy and governance, economic growth, education, energy, environment, health, HIV/AIDS, natural resources management, population and reproductive health, poverty reduction, urban programs, and women in development. ICT activities can also be found in emergency response situations such as conflict management and humanitarian assistance where the speed and accuracy of information exchange is often a matter of life or death. Woven throughout are activities that encourage gender equity in the production and use of ICT and activities that encourage public-private partnerships where ICT can flourish.

The purpose of this section is to look at how various USAID development sectors are using ICT tools to meet their development objectives. In the long run, this is also key to increasing demand for ICT services which, in turn, provides a catalyst for ICT sector reform.

Agriculture

ICT in the agriculture sector facilitates knowledge sharing within and among a variety of agriculture networks including researchers, importers/exporters, extension services, and farmers. ICT enables vital information flows by linking rural agricultural communities to the Internet, both in terms of accessing information and providing local content.

USAID ICT activities in agriculture include:

- Using Internet and e-mail for extension purposes
- Communicating agro-meteorological information
- Communicating market price information
- Facilitating networks of agriculture researchers
- Developing land registries

International Institute of Tropical Agriculture (IITA)



Researcher checks cassava harvest in DR Congo and coordinates with other field sites.



Southern Africa Sustainable Tree Crops Program

The USAID Sustainable Tree Crops Program (STCP) in southern Africa was created to achieve a more stable production and distribution system for tree crops such as coffee and cocoa. The STCP is a public-private partnership among industry, producers, researchers, government agencies, public sector institutions, and conservation groups.

Through effective use of ICT, the STCP allows cooperation and coordination of field activities among all the partners. In order to bring these different and geographically dispersed groups

together, a portal consisting of a website and Intranet were created. On the website, one can find general information on the crops as well as a "meeting place" for those dealing with specific crops. The Intranet gives activity participants a space to store work in progress as well as a shared workspace with their partners. While the initial website and portal were created and managed within the U.S., they have now been turned over to the International Institute of Tropical Agriculture for management and updating.

www.treecrops.org

Democracy and Governance

ICT in the democracy and governance sector helps to provide public services and information to the citizen—commonly referred to as e-Government. It also encourages participation of civil society in democracy—from election monitoring to policy making to legislative and judicial reform.

USAID ICT activities in democracy and governance include:

- Encouraging participatory decision-making by supporting grassroots networks and providing citizens with a wide range of information
- Facilitating services to citizens by making government content available online and by delivering services electronically
- Improving efficiency and reducing corruption in government processes
- Providing decision support to public



Mongolia courtroom staff update records electronically, making them available to the public more easily and quickly.

- administrators
- Protecting human rights by awareness raising activities and information sharing among groups
- Increasing the transparency of legislative and legal decisions



Mongolia Courtroom Automation

Prior to 2001, trial courts in Mongolia mostly operated with manual systems using old typewriters and even pens and paper. To access cases, the public had to rely on the goodwill of judges and courtroom staff. Mongolia needed courtroom automation. Working with the Ministry of Justice, the USAID-funded Judicial Reform Program set up a pilot to provide Local Area Network (LAN) servers as well as desktop computers to four courtrooms. Simultaneously, USAID also worked with the German aid program (GTZ) to update case management software.

Already, the program is increasing efficiencies in the courtrooms. Even more importantly, the automation strengthens transparency. Each participating courtroom has also constructed a “public information center,” allowing the media, attorneys, and members of the general public to

access court information. Mongolia’s President Bagabandi visited two of the pilot courts in May 2002. At the conclusion of his visit, he noted that the automated courts are “examples of how courts in Mongolia should be open and accessible to the public.” He also stated that “these two courts are examples of openness and fairness that all courts in Mongolia should strive to copy.”

Following this success, the USAID-funded Judicial Reform Program extended the pilot automation program to nine other trial courts in late 2002. Again, the new procedures, case management software, and accessibility dramatically increase transparency and accountability within the Mongolian judiciary. As of summer 2003, courts representing nearly half the country’s total caseload have now been automated.

www.ncsc.mn

Economic Growth

ICT in the economic growth sector provides the developing world with access to the digital economy. Using ICT, local businesses can reach a global marketplace, access real-time market information, improve internal efficiencies and processes, and complete business transactions electronically.

USAID ICT activities in economic growth include:

- Information service applications including market pricing, export requirements, and public commodity auctions
- Promotion support applications including distribution of information on a product
- Sales support applications including ordering, payment, delivery



USAID/Bangladesh JOBS Program

Using e-commerce in the Bangladeshi shoe industry to increase exports and create new jobs.

- Business-to-business applications including inventory and invoicing

Bangladesh Shoe Industry Uses e-Commerce

The Jobs Opportunities and Business Support (JOBS) Program—sponsored by USAID and implemented by the University of Maryland’s IRIS Center—implements e-commerce to help entire industries. In 1998, JOBS began a three-year plan to increase exports of shoes to Japan from Bangladesh. Electronic commerce tools were an integral part of the plan. As JOBS got underway, the Bangladeshi enterprises began receiving orders from Japanese buyers. Much of the communications with these buyers was conducted via e-mail, reducing the costs of communication. The buyers often sent pictures of the products they wanted or adjustments needed in samples sent. Also, some of the Bangladeshi firms were able to use electronic commerce to identify and source raw materials from new suppliers.

After the program’s first year, shoe exports had increased from 160,000 to 200,000 pairs valued at \$4.4 million, up from \$2.6 million. By 2001, exports stood at 933,000 pairs valued at \$20.5 million. Initially, three firms exported shoes to Japan. Today, 10 firms are exporting shoes and about 200 new jobs have been created, many of them filled by very poor women from villages near the factories. Because many of the exported shoes require handiwork not possible in the factory set-up, village women are subcontracted to do delicate hand stitching in their homes. The JOBS program illustrates how innovative business development services can leverage a variety of e-commerce tools across business processes to help an industry prosper, dramatically increasing exports, revenue to local businesses, and employment for women.

www.iris.umd.edu/adass/proj/bangladesh.asp

Education

ICT in the education sector both ensures that schools have access to ICTs and that education is enhanced with ICTs. ICT can enhance education content, teacher training, and technology skills development and can reduce cost and location barriers in providing those services.

USAID ICT activities in education include:

- Supporting teacher professional development through computer-mediated networks that facilitate tele-collaboration
- Developing networks that promote student collaboration both within their country and with students abroad
- Using technology to break down entrenched rote-based teaching practices and to support educational reform towards more student-centered learning
- Using computers in classrooms for online access to the latest textbooks and teaching materials



Dot-COM Alliance

Mayan girl from the Guatemala department of El Quiche use a computer for the first time at the mini-center in her school.

- Developing education management information systems (EMIS) to improve the administration of the education setting
- Integrating broadcast technologies, such as interactive radio instruction (IRI), TV, and video programs, with digital technologies to improve delivery and content of teaching and learning activities

Guatemala Mayan Language Program

For the first time, children in the El Quiché' province of Guatemala are studying in their native language. New bilingual educational technology resource centers offer IT-based training programs to help teachers learn local Mayan languages, develop bilingual education skills, and produce learning materials in K'iche' and Ixil, the languages spoken by 95 percent of the people in the region. The USAID Enlace Quiché project, in coordination with the Ministry of Education, teacher training high schools, and local NGOs, creates digital educational resource materials and builds a virtual community of bilingual educators through a web portal.

These centers have been installed in 12 schools in the Guatemalan western highlands—schools that are committed to preparing the region's future bilingual educators. Students are using the centers to create their own teaching materials in CD-ROM, web, and print formats. Miguel Angel, a school principal says,

"We now have a book on local traditions, which we never expected to have. We want to move forward and create more books...with games, poems, and other Mayan literature."

The Mayan Language Program is developing a multimedia version of their training materials for literacy in five Mayan languages to make learning how to read and write in these languages easier. Another issue is the cost of dissemination of the materials. Gloria, their graphic designer, notes that "we have produced many materials, but before we had digital publishing we could not afford to print them all." Now with ICTs, it is cost-effective to make this information available to all. Students and teachers are using the Internet to gain access to information and to share resources and ideas with other schools through a web portal designed to be a virtual meeting point for students, teachers, and others involved in Guatemala's bilingual education efforts.

www.enlacequiche.org.gt

Energy

ICT in the energy sector is used to facilitate the creation and distribution of energy and to improve the delivery of energy services. It can also be used to facilitate transnational efforts to promote energy efficiency and reduce industrial pollution.

USAID ICT activities in energy include:

- Improving access to rural electrification
- Computerizing and automating electric cooperatives
- Utilizing geographic information systems for rural power mapping
- Participating in research efforts on renewable energy



USAID/Philippines

Philippines rural electrification project celebrates a lights-on ceremony in Mindanao.



Philippines Off-Grid Rural Energy Alliance

The Off-grid Rural Energy Alliance, sponsored by USAID and the Government of the Philippines, is a program combining technologies to promote economically and socially productive activities in Mindanao, including agricultural processing, fishing, aquaculture, and livestock production and processing. Renewable energy is an entry point for improved access to ICT systems, ranging from simple rural telephony to lower-cost wireless connectivity options (e.g., e-mail, Internet).

The Alliance is a good example of the practical uses of integrating several ICTs: GIS and spatial analysis tools augmented by aerial digital imagery, satellite images, and ground data are being used for planning project activities.

VSAT (Very Small Aperture Terminal) connectivity is being piloted by Winrock and the CISCO NetHope Initiative.

Using these combined technologies, the project provides access to economically useful information, strengthens education, and reduces remote communities' sense of isolation.

Demographic data on each sub-region is collected and evaluated in geo-referenced databases including population density; poverty levels; literacy rates; child mortality rates; access to potable water and medical services; number and location of schools, health clinics, community centers, municipal government buildings, or churches; and land ownership patterns.

www.usaid-ph.gov/energy_activities.htm

Environment

ICT in the environment sector is often used to communicate traditional forms of environmental knowledge to communities and to facilitate the citizen monitoring of environmental issues.

USAID ICT activities in environment include:

- Using remote sensing, geographic information systems, and other global information in environmental planning
- Promoting technology transfer partnerships with U.S. companies to facilitate the analysis and monitoring of threats to the environment
- Enhancing the capacity for countries to design, develop, and maintain their own environmental information systems



U.S. Geological Survey

U.S. Geological Survey personnel gather control points using a Global Positioning System.

- Developing environmental enforcement measures and processes



Indonesia GreenCOM

Indonesia is blessed with 10 percent of the world's tropical forests that contain 20 percent of the planet's plant and animal biodiversity. Tragically, however, illegal logging threatens Indonesia's bountiful biodiversity and stunning natural beauty. Programs to combat illegal logging run up against the country's excessive international debt from building saw, plywood, and pulp mills; the need to restructure the nation's management of natural resources; and the still fragile independent media.

USAID's GreenCOM Project uses ICT in collaboration with dozens of NGOs to communicate with the public about illegal logging and the urgent need to preserve the country's forests and natural heritage. GreenCOM is a large-scale media campaign on citizen rights and responsibilities.

Specifically, the message is that the forests rightfully belong to everyone, not just a privileged few and that the public also has a responsibility to advocate for the protection of the forests.

The media campaign is only the beginning of what GreenCOM hopes will be a sustained (and sustainable) interest on the part of journalists and other communication professionals in providing regular media coverage of environmental issues to the public. To that end, GreenCOM staff is conducting workshops for Indonesian communicators on environmental reporting and strategic communication for social change. The project also provides technical training to enable students to take advantage of communication technologies, such as video editing programs that will help them reach a wide variety of audiences.

www.greencom.org/greencom/project_profile.asp?id=39

Health

ICT in the health sector is a key to improving quality of life. ICT can be used to capture and disseminate medical information and to bring medical knowledge to under-served populations. It can also be used to manage the delivery and quality of health services.

USAID ICT activities in health include:

- Handling surveillance and epidemiological information
- Disseminating public health information
- Facilitating the management of health services
- Accessing and evaluating knowledge and medical literature
- Expanding access to diagnostic and prognostic information in the treatment of patients



PHRplus, ABT Associates

Health center staff in Albania are assisted by a new Health Information System.

Albania Patient Care Management System

In Albania, USAID is assisting the Ministry of Health in reforming primary health care. The assistance is focused on improving health outcomes in Albania through a participatory approach in reforming and strengthening the primary health care delivery system. The approach is a bottom-up, pilot effort to produce evidence for informed decision-making at the local and central level.

A key part of the primary health care reform project is the Health Information System (HIS). Every patient encounter is entered on a form,

read directly by a scanner, and transformed into data. This tracks patient demand and facility utilization, diagnosis, prescription, and referrals, etc. The results are regularly discussed with health staff and community representatives, thereby strengthening accountability and transparency of the local health system.

As a result of the reform, patients express the feeling of getting more attention from doctors, and ultimately better health care. The Ministry of Health is quite enthusiastic about the potential impact of the new HIS system.

www.phrplus.org/countries_alb.html

HIV/AIDS

ICT in the HIV/AIDS sector can be a key tool in helping to fight the worldwide pandemic. ICT can be used both in the prevention of HIV/AIDS and in the care of persons with AIDS and their families. It can also be used to track the disease on a community, national, and international level.

USAID ICT activities in HIV/AIDS include:

- Strengthening HIV/AIDS awareness and prevention campaigns
- Using GIS to support disease surveillance
- Communicating guidelines and training materials for doctors, nurses, and midwives for proper treatment of persons with AIDS
- Providing access to the latest medical information to the medical community and the general population
- Supporting diagnostic tools to disseminate and track test results



USAID/Mali

Privately owned local radio stations link Malians to the outside world and to vital information on HIV/AIDS prevention.



Mali HIV/AIDS and Community Radio

It has been observed that the only countries registering a deceleration in HIV/AIDS prevalence rates are those with strong information campaigns. Because information is key in the fight against the spread of the disease, USAID/Mali has funded several radio campaigns on HIV/AIDS. These campaigns have been fine tuned using the Mission GIS software to target HIV/AIDS high-risk zones thus ensuring that the radio messages reach the most appropriate audiences. Mali's community radio stations play an essential role in Mali's new information campaign by informing the population of the dangers and realities of this deadly disease.

In December 2000, the Mission's Information

& Communications Special Objective Team conducted a survey in six secondary cities, located in four different regions of Mali, to assess the degree of HIV/AIDS awareness in these areas. The survey included 360 people living in these cities, covered by 22 radio stations that included AIDS awareness messages. The results of the survey showed that on average, about 96 percent of the population received information on HIV/AIDS, and knew about the modes of transmission and prevention. Nearly half (47 percent) of the population said they discussed HIV/AIDS issues in their families, as a result of hearing the broadcasts. The results suggest that community radio is the primary communication channel to reach these people.

mali.viky.net/usaaid

Natural Resources Management

ICT in the Natural Resources Management sector is used to monitor and manage resources such as water, forests, wildlife, and minerals. With ICT, data can be aggregated at all geographical levels and used for decision-making about actions to be taken to preserve the natural resources.

USAID ICT activities in natural resources management include:

- Developing natural resources monitoring and management systems
- Aggregating data and information on natural resources at national and international levels
- Providing a knowledge sharing and community building forum around natural resources management topics



Survey participant taking Global Positioning System coordinates in a local Guinean village.

- Enabling remote sensing and constant mapping of natural resources
- Raising public awareness about natural resources management issues and policy implications

Guinea GIS for Natural Resources Management

Most of the classified forests in Guinea have become degraded due to years of uncontrolled grazing, wildfires, clandestine timber cutting, and illegal encroachment. Because of limited government resources, the forests have received little active management over the years. To stabilize and improve conditions in these classified forests, USAID/Guinea is protecting Guinean forests through a co-management approach, sharing the management responsibilities, as well as the benefits, between national government and the local population. The program uses GIS as a tool that combines ordinary statistics with geographic location to create meaningful, clear, and attractive maps and applies them to address issues. Because GIS maps present the data visually, together with the surrounding factors that make up that data, they have much greater impact among the local populations.

In collaboration with the National Directorate of Waters and Forests (DNEF), the USAID-sponsored Expanded Natural Resource Management project currently works on co-management activities in five different classified forests throughout Guinea, covering more than 89,000 hectares. The first co-management five-year contract was signed in 1999 between DNEF and an inter-village committee for Nialama classified forest. The population of more than 30 villages and hamlets surrounding the forest are now involved in the co-management of the forest resources. Using GIS, a forest management plan was developed. With the plan, the local population has improved its management oversight by developing maps relating to fire management, water source protection, and the conservation and management of wildlife habitat.

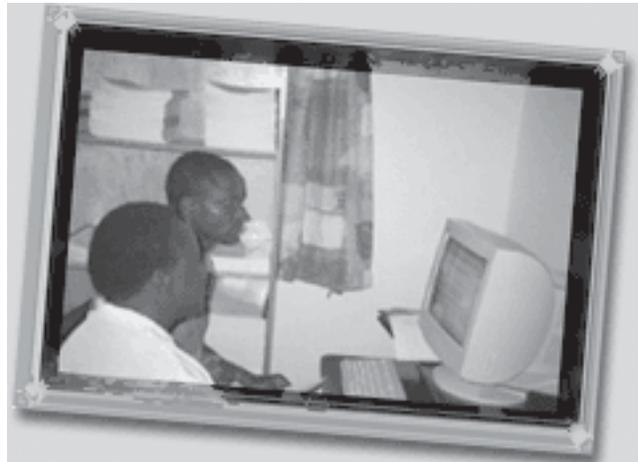
www.usaid.gov/gn/infotechnology

Population and Reproductive Health

ICT in the population and reproductive health sector is used as a tool to stabilize world population growth and to promote maternal and child health.

USAID ICT activities in population and reproductive health include:

- Increasing access to and quality of family planning and other selected reproductive health information and services
- Communicating the availability of new technologies and approaches for contraceptive methods and family planning programs
- Enhancing the capacity for organizations to design, implement, and finance family planning activities
- Developing demographic surveys containing geographic information for population mapping and analysis



JHPiEGO, Johns Hopkins University

TALCs bring computers, CD-ROM learning packages, and reliable e-mail to reproductive health trainers in Bolivia.



Bolivia Technology-Assisted Learning Centers

USAID's Training in Reproductive Health Project is supporting the development of technology-assisted learning centers (TALCs) for its trainers and healthcare professionals. These learning centers provide the latest reproductive health information linked to a trainer network. This project brings computers, CD-ROM-based learning packages, computer user training, and reliable access to e-mail and the World Wide Web to trainers.

The impetus to establish the TALCs comes from the significant number of reproductive health trainers who are unable to access the wealth of information comprising the performance support services (PSS) due to lack of

access to computers and the Internet. To maximize the effectiveness of the PSS, the project is establishing TALCs within major healthcare training institutions. Establishment of the centers includes arranging for a center administrator/trainer and technical (computer) support, initial training of users, and helping the host institution to plan cost recovery mechanisms and work toward sustainability. The project's central Learning and Performance Support Office works closely with regional office staff and host institutions, using technology tools such as a needs assessment questionnaire, to set up processes that both fulfill immediate needs and provide for long-term sustainability.

www.jhpiego.jhu.edu/global/talc.htm

Poverty Reduction

ICT in the poverty reduction sector is used as a tool to strengthen the capacity of the poor to accumulate assets and to reduce the vulnerability of the poor to external shocks and risks. Specifically in the area of microlending, ICTs can be used to extend the reach of lending institutions into under-served areas, improve efficiency of processing of microloans, establish secure records and identities for customers, and lower transaction costs.

USAID ICT activities in poverty reduction include:

- Facilitating the processing of loans for micro, small- and medium-sized enterprises
- Enhancing business development services available to microentrepreneurs
- Conducting client-level and market-level research and assessments for microenterprise development
- Providing computer-based training for both lending institutions and microentrepreneurs
- Developing and expanding partnerships with institutions providing financial services to microenterprises
- Improving microfinance infrastructure through the development of credit reference bureaus or ratings agencies



Accion International

Compartamos loan officer in Mexico collects client information with his Palm handheld computer.

Mexico Microloan Processing Software

Microlending is a very effective way to fight poverty, but it can also be labor-intensive and, therefore, expensive. In fact, the high cost of lending is one of the major obstacles to extending microcredit to all that need it. Typically, loan officers record all data by hand—a common practice that takes, on average, 25 minutes per client. After the data is re-entered at the office, the total processing time stretches to one hour. Microloan-processing software is one solution to minimizing the time to process microloans.

USAID funded the development of a new application called PortaCredit™, microloan processing software for personal digital assistants (PDAs). Palm Computing, a 3Com Company, also donated 30 of its Palm Pilots to the project. The new software allows

loan officers to record client data, take applications, and make loan calculations on the spot. Back at the office, data can be quickly uploaded to a centralized database, eliminating the time-consuming and error-prone task of re-entering it. Evaluating a client using this process takes about 15 minutes total. In addition to recording non-financial data, the software incorporates other details to help loan officers assess the needs of a microbusiness. Ultimately, the software will make it possible for loan officers to approve loan applications in the field.

Staff and clients are pleased. Clients “like the idea of you bringing technology to them,” says Carlos Membre’o, an ACCION consultant who has worked on the project since its inception. “They feel they’re being treated as serious businesspeople.”

www.accion.org/services_technical_assistance_detail.asp_Q_T_E_3

Urban Programs

ICT in the urban programs sector is used to promote improvements in the way that cities foster economic growth, assure sound governance, and provide safe and adequate housing and other infrastructure for their citizens.

USAID ICT activities in urban programs include:

- Strengthening the capacity of local government to deliver services
- Facilitating the financing of basic service delivery and infrastructure development
- Conducting urban analyses for the evaluation of policy implications and the sharing of best practices
- Fostering partnerships between developing country city officials and their US local



International City/County Management Association (ICMA)

Portland, Oregon, and Rayong, Thailand, mayors review river basin project.

government peers to identify and apply field-tested approaches to urban management



Indonesia Traffic Modeling Technology

Traffic in Bekasi, Indonesia, impedes the movement of goods, services, and people. The hours spent traveling short distances, such as Bekasi to Jakarta, represent a major economic loss for the city, as workers are late and less productive. As roadway congestion increases, air quality and residents' quality of life decreases. In USAID's CityLinks project, Gresham, Oregon, worked with Bekasi to develop solutions to traffic congestion. The partners use software to develop models to predict future traffic volumes for five, 10, and 20 year periods. All transportation data is

now analyzed using the software, and various scenarios are used to develop and evaluate alternatives.

The results of the Bekasi transportation modeling program are impressive:

- Over 100 million person-hours of commuting time saved through re-timing of traffic lights
- A strategic location for a bus terminal has been identified
- A special area has been reserved for street vendors
- A new traffic management control room has been created

www2.icma.org/inter/rc_main.asp?ssid1=1561&ssid2=&hsid=2

Women in Development

ICT in the women in development sector is an important tool that can provide access to resources that lead women out of poverty. However, the gender gap in ICT is of increasing concern. If access to and use of these technologies is directly linked to social and economic development, then it is imperative to ensure that women in developing countries understand the significance of these technologies and use them.

USAID ICT activities in the women in development sector include:

- Extending ICT access to women as knowledge beneficiaries
- Developing ICT capacity for women as knowledge experts/producers
- Improving job opportunities for women who develop ICT skills



Dot-COM Alliance

Romanian women-owned and -run NGO uses ICTs and distance education to create a learning community for social workers.

- Using ICT to combat the trafficking of women and girls

Morocco Information Technology in the Service of Women in Politics

The participation of women in the political process, both as citizens and as candidates, is an important objective. This USAID ICT training activity is aimed at enhancing the political participation of Moroccan women, as part of a national effort to increase the number of female political candidates in Morocco and to build their capacity to use ICTs.

The bilingual (French and Arabic) Information Technology in the Service of Women in Politics Project (Les Technologies de l'Information au Service de la Femme Politique), is the first in a two-phase program. To prepare for the ICT training and to build indigenous capacity, 10 Moroccan women participated in an intensive training-of-trainers (TOT) activity. Under the supervision of

the two TOT experts, the 10 Moroccan trainers subsequently trained 46 women political candidates and NGO representatives in the use of ICT to enhance political campaigns, strengthen advocacy skills, carry out Internet research for informed decision-making, and better serve their communities. In addition to the formal training activities, the women participated in discussions around broad issues of ICTs, gender, and policy making.

The second phase of the program, to be conducted by Morocco Trade and Development Services (MTDS), will train 100 women who are involved in community development and political activity outside Rabat and Casablanca, in basic computer and Internet skills.

www.dot-com-alliance.org/newsletter/morocco.htm

Conflict Management and Mitigation

ICT for conflict management and mitigation is key in reducing time and distance required to quickly respond to and manage conflict situations. ICT can be used to communicate among responders, to those impacted, and to the general public about the situation at hand.

USAID ICT activities in conflict management and mitigation include:

- Coordinating conflict response among various organizations
- Supporting communication in situations where individuals are prohibited from meeting face-to-face
- Delivering services and information to those most impacted
- Providing a means to get information out to the rest of the world about the situation



USAID, DCHA/OTI

Technicians install and test a radio system that links the Kabul-based government with its 32 provincial governments.

Afghanistan Radio System Connects Local Governments

Never before in the history of Afghanistan has the central government been able to communicate directly with all of the provinces, nor the provinces with each other. This lack of communication made it difficult to govern effectively. USAID, in collaboration with Afghanistan's Ministry of Communication, has implemented a \$290,000 initiative to link the Kabul-based Afghan government with its 32 provincial governments through an electronic network.

USAID is funding equipment purchase and personnel training. The Ministry is funding operational costs, including maintenance and repair in Kabul and the provinces. The equipment—the high frequency radio set—can send voice messages, e-mail, and scanned documents, and can operate as a telephone. The system, connected to the local and international phone/e-mail systems in Kabul, will

enable central government officials to have two-way communications with the provinces, and the provinces will be able to communicate with each other. An added benefit is that the system will also be open to the general public on a fee basis.

The first phase of the project began in mid-December 2002 with training and installation of radio sets in Kabul and the provinces of Khost, Paktia, Paktika, Bamyán, Nooristan, and Kunduz, which were identified by the government as its highest priorities. Two of the provinces—Paktika and Nooristan—have never been connected directly to Kabul before. As of the end of March 2003, all 32 high-frequency radio sets have been installed. A major step in the stabilization of the country, these connections will be of enormous benefit to the average Afghan citizen who will benefit from a more efficient and more responsive government.

www.usaid.gov/stories/afghanistan/ss_afghanistan3.html

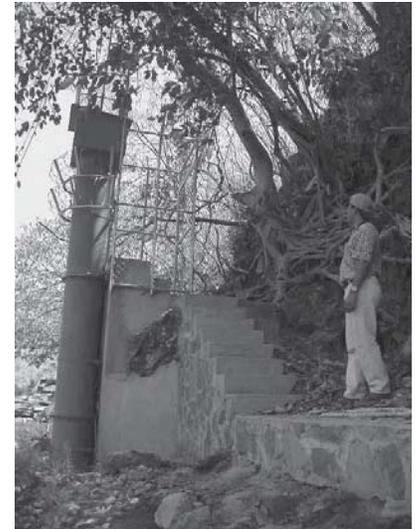
Humanitarian Assistance

ICT in the Humanitarian Assistance sector is used to facilitate and coordinate responses to natural and man-made disasters worldwide. ICT is used as a tool in the immediate-term to help save lives and alleviate human suffering. In the longer-term, it is used as a tool to reduce the social and economic impact of the disaster.

USAID ICT activities in humanitarian assistance include:

- Promoting information sharing in peace support and humanitarian operations
- Using GIS in post-conflict rebuilding
- Improving donor coordination and facilitating the development of common standards for information sharing and data exchange
- Promoting wider participation in disaster awareness, training, and preparedness
- Coordinating and facilitating international humanitarian assistance efforts and speed the

This flood monitoring gauge and related GIS database provide flood hazard assessments in El Salvador.



USAID/El Salvador

provision of necessary relief supplies during disasters.

- Facilitating transnational and national efforts to use information and data to develop vulnerability assessments and mitigation and preparedness activities

El Salvador Earthquake Reconstruction/Disaster Mitigation

In 2001, El Salvador was still recovering from Hurricane Mitch three years earlier when earthquakes shook the country. The devastation from the 2001 earthquakes was far greater than that of Hurricane Mitch. The lives of over 1.5 million people or 25 percent of El Salvador's population were affected. More than the direct damage to the country's housing, there was additional damage to the country's social infrastructure: 2,647 public schools, 24 hospitals, and 28 health clinics were damaged or destroyed. 75 percent of potable water systems sustained damages.

The earthquakes brought economic activity to a standstill in earthquake areas (one in 10 micro and small businesses nationally suffered severe damage). Economic damages were estimated at almost \$2 billion, or more than 15 percent of GDP.

The earthquakes also exposed weaknesses in the country's national disaster management response capability, the lack of disaster mitigation and land use planning at municipal levels, and in seismic, landslide, flood, and volcanic monitoring at the national level.

USAID is working in partnership with the U.S. Geological Survey (USGS) to strengthen the government's capacity to manage future natural disasters at the municipal and national levels and improve the country's monitoring capacity. Using GIS technology, USGS is carrying out risk mapping in selected parts of the country. These risk maps will be used to assist the Ministry of the Environment and municipal governments in land use planning and disaster mitigation. They will also be used to establish an early warning system to help reduce the impact of future disasters.

mitchnts1.cr.usgs.gov

Terms of the Trade

CD-ROM (Compact Disc Read Only Memory) - an optical data storage medium with a capacity of about 640 megabytes of data. Used primarily for the storage and distribution of multimedia, software, and databases.

Cybercafes - public establishments offering access to Internet-enabled terminals in addition to other services, such as food and drink. Also known as Internet cafes and online cafes.

E-commerce (electronic commerce) - business transactions which incorporate the use of ICTs to enhance interactions and exchanges, and which augment or replace physical contact or exchanges.

ISP (Internet Service Provider) - a company which offers Internet access (and possibly other services such as e-mail and webhosting) to individuals or companies through either temporary or dedicated connections.

LAN (Local Area Network) - a group of computer workstations connected to one or more common servers for the sharing of files, printing services and Internet access.

Personal Digital Assistant (PDA) - a lightweight, hand-held, usually pen-based computer.

Satellite - a communications device in orbit above the Earth.

Software - the programs or other “instructions” that a computer needs to perform specific tasks. Examples of software include word processors, e-mail clients, web browsers, video games, spreadsheets, accounting tools, and operating systems.

Telecenter - a facility that offers community members the ability to use ICTs in a publicly shared manner. Telecenters often provide the only connectivity available to many community members, and their services may be offered with or without a fee.

Telecommunications - the networks that support or the act of communication across a distance through telephone, cable, and radio signals.

Website - an information resource on the World Wide Web. Websites may provide information on any topic.

Photovoltaic (PV) Technology – an energy supply which transforms solar radiation directly into electricity.

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