

The Internet as a Tool to Support USAID Policies

Final Report

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I FINAL EXECUTIVE SUMMARY

A Background The Internet, a vast network of computers, which are able to communicate with one another, has been revolutionizing the way individuals and institutions relate and work with one another. Introduced to the general public just five years ago, its pace of adoption has eclipsed all other technologies that preceded it. One hundred million computers should be wired into the global Internet by the year 2000. One billion people around the world may be using the Internet by the year 2005.

The objective of this ten-month study has been to develop new approaches for USAID to promote economic reform in developing countries and transitional societies via use of the Internet. It was carried out in three stages:

- The first stage inventoried and analyzed Internet development uses among USAID and other donors, U.S. government agencies, universities and voluntary agencies.
- The second phase analyzed USAID's economic policy agenda and developed Internet approaches to strengthen trade and investment policies, improve business environments, and incorporate web-based training across economic policy programs.
- The final stage examined ways in which the Internet could assist USAID economic policy programs in the Philippines and Sri Lanka, and support economic policies that mitigate against global warming, and that deregulate infrastructure markets.

B Findings The major conclusions of this study are that

1 The Internet is beginning to serve as an effective development tool Despite limited (but growing) service in developing countries and transitional societies, the Internet is beginning to serve as an effective development tool. This study identified numerous examples of programs supported by USAID and other donors, governments and universities, and private voluntary organizations where the Internet played a significant role in strengthening economic policies. At the same time, the vast potential of the Internet as an effective development tool is just now being understood.

2 Donors have largely not embraced this new technology Donors do not have a deliberate policy of incorporating Internet technologies as they formulate strategies and design and implement development projects. Some donors have recognized the pioneering nature of the Internet and established pilot projects to experiment with new development approaches. However, the application of the Internet within development projects is taking place largely through a "champion" approach, whereby individual project managers have knowledge and interest in the Internet and utilize those technologies to achieve development goals.

3 Internet Development Applications This study found eight Internet applications that strengthen economic policy programs.

a Economic Research and Analysis Collection of current and reliable information is essential for sound economic policy analysis and formulation. The Internet has a wealth of information and analytical tools for sound economic research and analysis, an ability for professionals to dialogue and conduct joint research, and emerging technologies that allow for interactive database management.

b Public Transparency and Advocacy Transparency is important for an informed public and advocacy is important to lobby for change. The Internet may be an effective tool for transparency and advocacy, depending on the audience given today's uneven Internet access. International financial, business and specialized non-governmental organizations have made very effective use of the Internet for transparency and advocacy. However, the Internet cannot reach large audiences in developing countries so other media may be more effective.

c Professional Networking Economic policy analysts and program managers need to exchange news and views, collaborate on joint projects, and stay current in this dynamic global economy. The Internet by its very nature is ideally suited for professional networking. However, much of the professional networking today is among the donors. Broadening will occur as access and training expands. Virtual conferences and Internet newsgroups offer other opportunities for networking but work best when structured.

d Institutional Networking Institutions need to remain as current on global economic conditions and thinking as do individuals. Economic policy institutions, be they business associations, think-tanks or universities, can grow stronger by having international partnerships. Institutional networking works best when organizations have a common agenda and mutual interest. In such circumstances the Internet is a great tool. When mutual interest is not present, the Internet can be as ineffective a tool as any other.

e Distance Technical Assistance Economic policy reform programs often require expensive, short-term technical assistance for very defined periods of time. The Internet can be a tool to deliver these services, on-line and on-time. The Internet can also provide greater access to leading luminaries who might otherwise decline assignments which require several weeks of undivided attention. Laying the groundwork and having local support is important to ensuring the effectiveness of this approach.

f Distance Education Education and training are often elements of successful economic policy programs. Indeed approximately 28% of all USAID training supports business and free market economics. Distance education offers an alternative to traditional classrooms, and can be cost-effective, reach more students, and be less disruptive to host country institutions. While Internet-based education is growing quickly in the United States, little has been reflected back in USAID's training programs.

g Regional Approaches Many Internet programs follow regional approaches to economic growth. Some focus on extending Internet connectivity to the greatest degree possible in a region, others analyze economic growth constraints and devise Internet and other solutions, and still others seek to maximize electronic linkages between regional economic institutions, from business groups to universities. Regardless, regionally-based Internet programs benefit from the ability to address common problems among professionals and institutions with common histories, culture and language.

h Internet Business Services as a Tool for Policy Reform The number of independent attempts to use the Internet to facilitate international trade and investment is ample evidence of the importance of information in the emerging global economy. Business groups are among the Internet's most enthusiastic supporters for this reason. These business-oriented Internet programs also offer opportunities to influence economic policies, albeit indirectly. By permitting users to compare economic policies across national boundaries, the Internet's transparency can work as an agent of policy change.

4 Access, Knowledge and Mastery of the Internet is limited in developing countries Access to the Internet is uneven today. 85% of all Internet use is now within North America. Africa has only 1% of the phone line density of industrial countries. Surprisingly, 82% of USAID countries have full Internet connectivity and 77% of USAID Missions responding to a survey reported some use of the Internet. However, all too frequently, Internet use is limited by poor service and high prices due to government controls on the telecommunication industry. And even in those countries which have a fairly competitively priced service, economic policy makers and leaders often have limited knowledge and mastery of this new technology.

C Proposed Programs The study developed virtual approaches to liberalize trade and investment, improve business environments, balance economic growth and global climate change, deregulate infrastructure markets, and address economic policy constraints in the Philippines and Sri Lanka. Below are the main features of an Internet solution to general economic policy programs.

1 Support local policy agendas USAID has an established broad strategy for sustainable development that recognizes the importance of economic growth and the contributions that economic policy reform makes to such growth. Yet beyond that, individual country programs have been free to shape their economic policy agenda to meet local conditions. *Any Internet based solutions must meet these local needs and local policy agendas.* The formidable power of the Internet needs to be placed at the disposal of local needs, and not vice versa. At the same time, the Internet permits creation of communities of learning that permit what would otherwise be separate endeavors to learn from one another. The Internet affords an opportunity to bring these two goals together. Meeting local needs while creating global virtual learning communities.

2 Organize the Internet There is a vast amount of information on the Internet. However, it is not organized in a fashion that is useful to economic policy makers. It is difficult to locate the information needed, in a reasonable time, and there is the issue of lack of quality control. Most efforts that attempt to organize this information merely direct readers to several hundred or even thousand hyperlinks, this reduces a search somewhat but does not make the Internet the useful tool it can be. The accompanying text box illustrates the types of information and services that could be established for a useful Internet policy based program. It implies molding the Internet into a virtual workspace for conducting international collaborative research, public transparency and advocacy, networking professionally and institutionally, delivering consulting services, and distance learning.

2 Link and train economic policy institutions in developing countries and transitional societies on effective use of the Internet

There is limited and uneven access and awareness today in the developing world as to the potential of Internet technologies to strengthen economic policy reform programs. At the same time, due to new information and communications technologies and favorable global agreements, conditions are very favorable to the growth of the Internet. Thus, it will be important to increase (i) Internet access for targeted professionals and institutions, (ii) knowledge of how the Internet can be a useful tool for strengthening economic policies, and (iii) mastery of these technologies so that those on-line can collaborate on research, network, advocate, provide and receive consulting services, and benefit from distance learning.

An economic policy web site might contain

- a. A description of all efforts underway by USAID to strengthen a particular policy, with linkages to web sites for those projects having a cyber presence;*
- b. A virtual library with important databases and literature. A virtual librarian could be accessed to help reviewers find other information of interest,*
- c. Participating countries can be encouraged to present their experiences with these policies;*
- d. Linkages to web sites dedicated to that subject. The project's home page would guide viewers to the benefits and shortcomings of each of these links;*
- e. Moderated "chat rooms" which would allow for professional networking and serious discussions of topical issues,*
- f. Listings of "listserves", virtual conferences and other opportunities to dialogue broadly. Virtual conferences on relevant topics could be held,*
- g. Linkages to programs of other donors and non-governmental organizations associated with these subjects;*
- h. Listings of policy consultants and links to USAID requirements contractors willing to provide on-line advice,*
- i. Listings of, and linkages to, web-based training pertaining to this subject matter,*
- j. Public advocacy and transparency fora where groups could issue press releases and other items of interest, and*
- k. A creativity room which would allow experimental pilot projects*

This can be achieved as follows. First, press statist countries to liberalize telecommunications policies to permit private Internet Service Providers to enter the market. Second, offer basic Internet training to novices in key economic institutions. Third, once they gain some familiarity, hold specialized training that would bring professional colleagues from the United States and other countries to demonstrate, hands-on, how to maximize professional benefits from virtual space.

3. Encourage policy institutions to become virtual A third approach would build on the first but also encourage other organizations which could contribute to policy strengthening to become virtual. These could include American training groups with important content, consultant groups willing to offer on-line advice, think-tanks not yet on-line but willing to share research findings, professional and industrial associations, U S universities to join in collaborative research, offer distance learning, and mentor alumni of past USAID training programs, U S federal and local governments, and U S voluntary organizations. Because of the modest costs involved, it should be possible to persuade many of the above groups to establish their own web presence. However, some organizations might encounter additional costs, for example if they were to convert classroom instruction into a virtual education. Small grants might be considered, to encourage the creation of more distance learning content. The above approach would increase the supply of relevant American content, expertise and learning opportunities available on the world wide web to support USAID economic policy solutions.

4 Identify and conduct work on specific economic policies The fourth approach would be to prioritize among economic policies and carry out the first three approaches, but more focused on specific subjects (such as intellectual property rights), rather than on broad policies like trade and investment or improved business environments. Virtual support might entail economic research via the Internet, distance technical assistance, distance education, networking among professionals and institutions, and supporting non-governmental organizations for international advocacy.

5 Carry out regional and pilot Internet activities The case for regional approaches to Internet use were made earlier. USAID might wish to follow the above approaches regionally, as opposed to globally. Issues such as economic and commercial law for the former Soviet Union and Eastern Europe, liberalized trade and investment in sub-Saharan Africa, and private infrastructure development in Asia illustrate how an Internet based program can focus on a regional economic policy issue.

As we enter a fundamentally new global information economy, traditional approaches to economic and social development need rethinking. Thus, a case can be made for pilot projects to test new approaches out. Several donors have launched programs which provide venture capital/pilot project funds to innovate on application of Internet technologies to development. Methodological problems arise, however, in measuring the impact of the Internet on development. The proposed program can pioneer new ways for the Internet to strengthen economic policies. For example, an innovative web site could compare economic and telecommunications competitiveness for the global information age of one country against sets of competitor economies in the region and the rest of the world. A second group might want to establish a web based advocacy forum surrounding a series of issues, such as further deregulation of power industries and its impact on both economic growth and environmental improvements. A third group might experiment with distance learning associated with managing private municipal water supply systems.

6 Incorporate Web-Based Training One third of American colleges and universities offered distance education classes in 1995 and another quarter planned to offer courses in the next three years. Almost 26,000 distance education courses were available, more than 750,000 students participated, and 690 degrees and 170 certificates were awarded in 1995. It is expected the Internet will become the preferred delivery mechanism for such training in 1998. Private corporations are also engaged in distance learning, in fact 30% of all distance learning in the U.S. is being provided by non-academic sources. One private training provider, for example, specializes in short courses on international financial markets and instruments to more than 500 organizations.

Education in business and free market economics was the single largest area for formal USAID training in 1995. This report analyzed USAID's participant training database between 1994-1996. It found that (a) the great preponderance of training is short-term and technical in nature, which should be particularly suited for Internet-based distance learning, (b) much of the training (two-thirds) relates to business administration, finance and management, areas where Internet-based training programs have a dominant role, and (c) the bulk of degreed training is at the associate and masters levels, for which there are multiple options via Internet based distance learning. *At the same time, few examples of USAID utilizing distance learning in these fields were found.*

A number of actions can be taken to better utilize Internet technologies to strengthen economic policy training programs. They can be broken down into four approaches:

- Utilize existing Internet-based distance learning opportunities already available at American colleges, universities, and training institutions. This effort merely records existing opportunities and lets USAID program managers know what is available so that informed choices might be made. It would create a Directory of On-Line Economics and Business Training, containing training opportunities from American colleges and universities, professional and trade associations, and other on-line training. The Directory would also describe technological requirements for delivering all training, and successful examples of how on-line education has been incorporated into foreign aid programs.

- Encourage American institutions to develop and market new on-line training programs customized to the needs of economic policy reform efforts. While the first alternative is passive, basically setting up mechanisms whereby distance learning as practiced in the United States is reflected within USAID economic policy programs, this alternative would play a more aggressive role in shaping how American educational institutions view and interact with emerging overseas markets. After analyzing USAID's need for policy-based training and comparing that with off-the-shelf opportunities, USAID would approach educational institutions where a need for more on-line opportunities to become apparent. A variation on this theme would be to select a global

economic policy of particular importance and encourage appropriate American institutions to develop supportive Internet-based distance learning programs

- Facilitate American distance learning providers to actively target students in particular countries or regions for existing and/or customized courses associated with economic growth and policy reform. By focusing on a country or region, one could better tailor economic and business programs on (a) the instructional needs of the country or region, (b) the language and cultural requirements of the area, and (c) technological solutions to overcome telecommunications barriers to delivery. This might be particularly appropriate in graduating USAID countries and regions, or in a region with compelling development problems, such as sub-Saharan Africa

- Develop a virtual economic growth university for USAID and its contractors, grantees, and host country partners. This would allow USAID to capture, disseminate and cross-fertilize in-country training programs presently developed and conducted in isolation by USAID contractors and grantees. Digital and interactive technologies allow one to begin archiving and networking among training programs. Over time, USAID could develop a series of short-term training programs which could be utilized when and where appropriate, creating a catalogue of in-country training in business and free market economics. A virtual library could also be established with important research results available to all partners. A virtual learning community would thereby evolve

D Organization, Management, And Implementation

1 Choosing a Partner For a virtual program to be successful, it must have an institutional home. Examinations made of various economic policies (from trade and investment to deregulating infrastructure markets) revealed dozens of potential partners. The following chart states criteria that USAID might wish to utilize to select the most appropriate partners, as well as the responsibilities of such a group

Criteria to Select Partners	Responsibilities of Partners
<ul style="list-style-type: none"> •Professional respect in economics and other development communities •Interest in carrying out such a program, with cost-sharing to demonstrate interest •Ability to bridge both economics and technical areas •Demonstrated capacity to mount Internet program •Capacity to reach and attract interest among governments, non-government organizations, universities and associations •Global reach 	<ul style="list-style-type: none"> •Provide intellectual content and direction to engage international economic policy community •Establish and sustain an international network of professionals and institutions •Create a virtual presence for this international network, and provide leadership in its evolution •Assist developing country institutions to gain access, basic understanding and mastery over Internet •Provide virtual support to queries as they arise, ranging from technical to policy to administrative •Facilitate the virtual transformation of other organizations to join the network •Help shape and carry out specific economic policy activities

2 Start Small, Grow Organically Internet applications need to be shaped by users. Too many web-sites have been designed by those imparting knowledge and information, not those requiring it. Start with just a few Missions that are willing to buy into the process with their time and money. The network would begin with those host country institutions that have access and mastery of the Internet as well as an interest and responsibility for formulating economic policies. Once the Internet is meeting specific needs, expand it out, offering different kinds of information and services.

3 Plan of Operation Once an institution were selected, it would be important to establish a plan of operation.

The web presence and Internet technology applications should follow the perceived needs of viewers. It should evolve over time, becoming more sophisticated as time goes by. Chat rooms and opportunities for feedback on the virtual workspace itself can help raise the expectations and improve the performance of the Internet web site. Time should be scheduled at least annually to improve the services and capabilities available from the Internet web site.

Efforts would be made to expand Internet access and mastery in developing countries, as discussed earlier. Increased awareness and mastery over the Internet can be achieved through basic and specialized training. USAID, the United States Government more broadly, and other donors should address telecommunication policy constraints where they exist. Negotiations for more open information and communications policies will likely persist for a number of years.

Another important step will be to facilitate a virtual entrance for organizations which can make substantive contributions towards strengthening economic policies, but which presently do not have an Internet presence or capability. These organizations and programs will be identified over time, and attempts should be made to convince them to develop a virtual capability. Small grants might be useful in some instances to gain an Internet presence, say in developing on-line training from an educational institution.

Pilot projects might begin once the basic virtual system is in place. A process to encourage innovation would need to be worked out. A small grants activity might be considered to begin some of these efforts.

4 Sustainability Careful attention needs to be paid so that the virtual organization created can indeed be sustained. Suggestions for sustaining this program include membership fees, paid advertisements, teaming agreements, commissions from web-based trainers, partnerships with Internet Service Providers, and subscriber fees for basic Internet services. In any case, one should grow such a network organically, start small with modest outreach and goals, and build on successes, adding new services as clients are willing to pay.

E Implications For USAID Looking beyond incorporating the Internet into economic policy programs, the global information age will have a profound impact on USAID and developing countries. To benefit, USAID should take a number of actions:

1 Press Developing Countries to Liberalize Telecommunications Markets

Programs are no longer sustainable unless partners have access to the global information infrastructure. USAID should take steps to convince host governments to deregulate telecommunications and Internet services. If governments are reluctant, USAID should simply insist that new program agreements with those host governments include a clause that development partners should have access to the global information highway. This would create a “*development information corridor*” where private Internet Service Providers could enter and serve. Other donors should be encouraged to join in this dialogue to open telecommunications markets. Over time, this information corridor would widen as other groups learn and then demand the benefits of the Internet.

2 Design Information Age Technologies into Strategies, Programs and Activities USAID should take a more deliberate approach to incorporating the Internet and other global information age technologies within all strategies, programs and activities. A “toolkit” should be developed to provide guidance to USAID’s officers on how to consider the Internet and related information and communication technologies when formulating assistance strategies, developing programs, and designing and implementing activities. Given the rapid evolution of these technologies, this toolkit would need to be updated regularly.

3 Require Contractors, Grantees and Training Institutions to Employ Internet-based Services Some providers of technical services and training are reluctant to embrace the new information age. USAID should prepare scopes of work that require proposers to consider and incorporate the Internet and related information and communication tools in their technical proposals. Evaluation criteria for selection of contractors and grantees should include an understanding and capability to incorporate the Internet in USAID-supported programs. Insist that these groups strengthen their programs by incorporating web-based solutions.

4 Take Steps to Incorporate Internet Technologies in Existing Programs Hold workshops and seminars for managers, contractors and grantees of existing USAID programs to share experiences with utilizing Internet technologies to carry out their programs. Provide flexibility to make modifications to projects, contracts and grants.

5 Knowledge Management USAID should create an environment and incentives supportive of entering the global information age. Encourage innovation and the sharing of lessons learned. Create an annual award for the most creative use of the Internet in development projects. Establish a web site where “best practices” can be highlighted. Encourage virtual communities of learning to foster a spirit of innovation.

II EXECUTIVE SUMMARY THIRD DELIVERABLE

The objective of this study is to develop new approaches for USAID to promote economic reform in developing countries and transitional societies via use of the Internet. The first deliverable, an inventory of Internet development uses and analysis of ten Internet-based programs, was submitted in October, 1997. The second deliverable, submitted in January 1998, analyzed USAID's economic policy agenda and detailed three economic reform initiatives that could be conducted via the Internet: Strengthening trade and investment policies, improving business environments, and incorporating web based training. This third and final deliverable analyzes and proposes Internet technology applications that (a) support economic policy programs in the Philippines and Sri Lanka, (b) strengthen economic policies that balance growth and global climate change, and (c) help deregulate infrastructure markets.

A Field Programs in the Philippines and Sri Lanka Both countries have committed themselves to deregulating and privatizing their telecommunications industries and, as a

result, teledensity rates (phone lines per 100 population) have doubled in the past few years. Both countries have nascent but vibrant Internet Service Provider industries and USAID has applied the Internet within their programs. Where service is available, consumers have choice, and rates are reasonable and comparable with the United States. Despite these significant short-term

accomplishments (a) teledensity rates are still less than one-tenth rates in industrialized countries, (b) the great preponderance of internet service is concentrated around Manila and Colombo, the nations' capitals, and (c) access to and knowledge and mastery of the Internet is limited within economic policy communities.

Comparison between Philippines & Sri Lanka

	Philippines	Sri Lanka
Teledensity	4.5	1.9
No ISPs	130-200	8
No Subscribers	45,000	8,000
Monthly Cost	\$5-\$60	\$10-100
Econ Rsrch OnLine	16	2

USAID/Philippines seeks improved national systems for trade and investment as one of two economic growth strategic objectives. There are a number of economic policy projects that have used the Internet effectively, such as a center which promotes private investments in infrastructure and a capital markets strengthening program. Despite impressive uses of the Internet among a small group of economic policy institutions, government use of the Internet is quite thin. At the same time, the Government of the Philippines sees information technology as essential to "pole-vault" into newly industrialized country status, and has a number of initiatives to achieve these ends.

A two-pronged approach to USAID use of the Internet in the Philippines is suggested. The first is to increase Internet awareness and mastery among economic policy makers, a responsibility of the USAID/Philippines Mission. Basic introductory workshops should be periodically held for economic researchers and policy makers, particularly outside of Manila in the provinces as Internet access expands. Of more relevance in Manila would

be specialized workshops that would bring together professional colleagues from the United States and other Asian countries to work with the participants on how to use the Internet in their daily professional lives. A third activity would be to design, implement, evaluate and publicize innovative pilot activities which utilize the Internet to strengthen economic policies associated with ongoing USAID programs.

The second prong would be to make the Internet a more useful tool for improved trade and investment policies and strengthened financial markets in the Philippines, a role the Center for Economic Growth is better placed to carry out. Three approaches are suggested. The first is to organize a more deliberate and coordinated use of the Internet to strengthen policies and institutions, which would apply a number of Internet technologies to provide virtual support to ongoing efforts within USAID/Philippines programs. The second approach would be to encourage trade and investment and financial markets institutions to become virtual, such as American training groups with important content and American consulting services. The third approach would be to support a specific policy reform, such as the private provision of infrastructure, and employ all Internet applications. There is also considerable interest among USAID staff in distance learning opportunities via the Internet. The Center for Economic Growth could create a Directory of such opportunities. And finally, USAID could consider a more direct approach to strengthening Philippines' initiatives to become a knowledge gateway for Asia, and directly help set the right policies and institutions to become successful.

USAID/Sri Lanka is formulating a new assistance strategy that reflects a diminished budget and staff. The new strategy will seek to strengthen global competitiveness through an improved framework for trade and investment. Intermediate results may include financial market and trade and investment policy strengthening. Since Vice President Gore committed the United States to helping introduce the Internet in Sri Lanka four years ago, USAID has been supporting this telecommunications medium, and a number of projects have utilized the Internet to achieve project purposes. However, the projects tended to support institutional strengthening (such as the Colombo Stock Exchange) and business transactions (as an agroenterprise project) than strictly policy reform. Use of the Internet among Sri Lankan policy makers is much more limited than in the Philippines, yet this has been proclaimed to be the Year of Information Technology by authorities. They, too, recognize the importance of telecommunications in the new global information age.

As with the Philippines, a similar two-pronged approach to USAID use of the Internet in Sri Lanka is suggested. The first is to increase Internet awareness and mastery among economic policy makers, a responsibility of the USAID/Sri Lanka Mission. Basic introductory workshops, specialized workshops and pilot activities should all be undertaken. However, given the more modest foundation of the Internet in Sri Lanka, greater attention may need to be paid to the basic workshops, at least initially.

The second prong would be to make the Internet a more useful tool for improved trade and investment policies and strengthened financial markets, again a role for the Center for Economic Growth. Three approaches are suggested. The first is to organize a more deliberate and coordinated use of the Internet to strengthen policies and institutions, which would apply a number of Internet technologies to provide virtual support. The second approach would be to encourage trade and investment and financial markets institutions to become virtual, such as American training groups with important content and American consulting services. The third approach would be support a specific policy reform, such as diversification of exports or growth of a debt market.

B Balanced Economic Growth and Global Climate Change USAID's Action Plan to combat global climate change recognizes the threats that global climate change pose to international development, as well as the growing contributions of developing countries to the problem of greenhouse gases. The Plan concentrates on (a) decreasing the rate of growth in net greenhouse gas emissions by decreasing sources and maintaining or increasing sinks, (b) increasing developing/transition country success in achieving the UN Framework Convention on Climate Change goals, and (c) decreasing developing and transition country vulnerability to threats posed by climate change. Nine countries and three regions are selected as priority countries.

The Plan also recognizes the importance of economic policies to mitigating against global warming. This is supported by the Harvard Institute for International Development conducting research for USAID's Center for Economic Growth on precisely this relationship -- the links between carbon emissions and economic growth -- and by studies conducted by The World Bank which examine the relationships between economic policies and environmental protection. They both point out that it is critical that economic policy-makers from developing countries become engaged in the debate and formulation of policies that result in their countries accelerating economic growth while they achieve an alternative energy path which emits less greenhouse gasses.

Surveys examined Internet uses

- *Economic research & analysis*
- *Public advocacy & transparency*
- *Professional networking*
- *Institutional networking*
- *Distance technical assistance*
- *Distance learning*
- *Access and mastery of Internet*
- *Experimentation/pilot projects*
- *Regional approaches*
- *Business services*

A survey of Internet use among institutions that stress environmental protection as well as those that concentrate on economic growth reached three basic conclusions with respect to the Internet as a tool to improve economic policies which reduce greenhouse gas emissions.

a. There are a number of Internet applications which seek to facilitate an exchange of information and increase the general public awareness with respect to environment/energy technologies, businesses, and public policies and programs. These applications, however, are passive approaches to making information available, not collaborative international networks,

b. No instances were found of an Internet-based network supporting economic policy-makers in a way to make them more aware and knowledgeable about greenhouse gas emissions, and

c At the same time, the Internet can be a useful tool for economic policy-makers, with a number of relevant applications. The ability to conduct collaborative research, promote transparency, advocate for reforms, network both individually and institutionally, advise on-line, learn through distance education, experiment with pilot projects, and work regionally are important applications to fulfill goals of the Action Plan through improved economic policies.

The objective of the proposed program will be to research, formulate and implement policies which simultaneously accelerate economic growth and decrease the rate of greenhouse gas emissions. The key will be to reach and persuade economic policy-makers to pursue accelerated economic growth, but in a less carbon-intensive manner. The program would have an Internet foundation. While this description outlines an Internet program, such an initiative also needs a physical form, that is it would need an organizational home and committed staff dedicated to its success.

There are five related virtual actions that USAID's Center for Economic Growth could undertake to help strengthen economic policies that mitigate against greenhouse gas emissions via use of the Internet:

- Organize the Internet to study, formulate and implement "green" economic policies
- Link and train economic policy institutions in developing countries on Internet use
- Encourage policy institutions to be virtual
- Identify and conduct work on specific economic-environment policies
- Carry out pilot/regional Internet activities
- Establish a small grants program to spur Internet usage, economic policy initiatives, and regional programs and innovations

The first action is similar to that proposed for both the Philippines and Sri Lanka. It implies molding the Internet into a virtual workspace for conducting international collaborative research, public transparency and advocacy, networking professionally and institutionally, delivering consulting services, and distance learning. The accompanying text box lists the types of services that can be provided virtually.

The web site would be dedicated to balanced economic growth and global climate change. It would contain

- a. Copies of and commentaries on international treaties and agreements to reduce greenhouse gasses,*
- b. Policies and programs of industrial, transitional and developing countries to reduce greenhouse gasses, as well as progress and lessons learned,*
- c. A virtual library with important databases and literature. A virtual librarian could be accessed to help reviewers find other information of interest,*
- d. A technology database that is useful for economists and financing specialists that permits users to examine the costs and benefits of various technology tradeoffs,*
- e. A financiers database that lists sources of private and public funds available for investments that mitigate against greenhouse gas emissions;*
- f. Linkages to web sites that address the economics of global climate change,*
- g. Moderated "chat rooms" which allow professional networking and discussions of topical issues;*
- h. Listings of "listserves", virtual conferences and other opportunities to dialogue broadly on economic-environmental policies,*
- i. Linkages to donor organizations and nongovernment organizations regarding economics & global warming,*
- j. Listings of enviro-economists, environmental law and management specialists, and associated experts, and links to USAID contractors for on-line advice,*
- k. Listings of, and linkages to, web-based training pertaining to the economics of the environment,*
- l. Public advocacy and transparency fora with press releases and other items of interest, and*
- m. A creativity room which would allow innovative pilot projects to balance economic growth and the mitigation of greenhouse gasses. For example, virtual emissions trading negotiations could be conducted.*

Linking and training policy institutions in developing countries is equally important, given the uneven Internet access noted earlier. First, press statist countries to liberalize telecommunications policies to permit private Internet Service Providers to enter the market. If governments balk, USAID should incorporate appropriate language in project agreements to allow development partners access to the global information highway. This would evolve into a “development information corridor”. The latter two actions are conducting basic and specialized workshops, as discussed earlier.

C Deregulated Infrastructure Markets Developing countries invest about 4% of national output and a fifth of total investment annually in new infrastructure. There has been a growing trend towards allowing the private sector a greater role in developing and managing infrastructure services. Total estimated financing of new private infrastructure projects in developing countries doubled between 1993 to 1995, from \$17 billion to over \$35 billion. At the same time, governments sold off \$10 billion of existing infrastructure assets in 1994. However, private infrastructure is concentrated in the power and telecommunications sectors and is limited to a few countries. Others have started to open infrastructure markets but have made limited progress.

Despite these obstacles, twenty-six USAID countries and regions seek to deregulate infrastructure markets. Power, telecommunications, urban infrastructure and transport are the sectors targeted by USAID missions for deregulation, in that order of priority. Donors are beginning to develop a body of knowledge about how best to facilitate the deregulation of infrastructure, based upon a decade of experience. A series of studies and papers have recorded this experience which was reviewed by the World Bank Development Committee in 1997, which agreed upon a five-point Action Plan, summarized in the accompanying text box. It is noteworthy that one of the actions involves better knowledge management and use of the Internet.

Facilitating Private Involvement in Infrastructure: An Action Program

- *Developing country frameworks and status reports on country intentions for private sector involvement,*
- *Providing advisory services to facilitate policy and regulatory reform and assist project development,*
- *Strengthening and expanding multilateral guarantees;*
- *Supporting subsovereign infrastructure, devising financing strategies, improving creditworthiness, and meeting requirements to access domestic and foreign markets, as well as technical and financial support, and*
- *Attending to knowledge management and information on best practices, improved indicators and project databases to facilitate diagnosis and monitor projects, Internet facilities for information exchange and communication among infrastructure market participants, and training in regulation, finance, and operation.*

A survey of USAID and World Bank Group experience with private infrastructure programs was conducted. Three conclusions reached are:

- a. The Internet can be a useful tool for those involved in formulating policies and carrying out actions to deregulate infrastructure markets. Of particular relevance are the research, networking, and virtual support functions of the Internet,
- b. There already are donor-supported attempts to utilize the Internet to further the process of deregulation of infrastructure. All, however, are in their incipient stage of

development, none are comprehensive in approach, and it is unclear how successful they will be individually or collectively, and

c The Internet has development applications which have yet to be utilized by these initiatives, such as distance consulting and distance learning

The objective of this program will be create and sustain virtual networks of professionals and institutions with the common mission of deregulating infrastructure markets by (1) conducting research which results in case studies and best practices, (2) providing distance consulting services, and (3) offering web-based training opportunities. The program would have an Internet foundation. Given the incipient efforts by other donors and non governmental organizations to create these virtual networks, it would be important for USAID to look for as much donor collaboration as is feasible.

There are five related virtual actions that USAID's Center for Economic Growth could undertake to help strengthen economic policies in developing countries that mitigate against greenhouse gas emissions via use of the Internet:

- Organize the Internet for the study, formulation and implementation of policies that lead to the deregulation of infrastructure markets
- Link and train economic policy institutions in developing countries and transitional societies on effective use of the Internet
- Encourage appropriate policy institutions to become virtual
- Identify and conduct work on specific deregulation of infrastructure policies
- Carry out pilot and regional Internet activities

This approach parallels that suggested to balance economic growth and greenhouse gas emissions, but differs on the substance of the content, consulting services, training, and institutional partners associated with this program. Eighteen potential partners are identified that USAID could work with to create and manage a virtual workspace to promote the deregulation of infrastructure markets. The potential partners are for illustrative purposes and demonstrate a wide range of potential groups to work with. The following chart illustrates both criteria for selection of potential partners and the responsibilities of whatever group(s) are selected.

Criteria to Select Partners

- Professional respect in infrastructure and economics communities
- Interest in carrying out such a program, with cost-sharing to demonstrate interest
- Ability to bridge both economics and infrastructure communities
- Demonstrated capacity to mount Internet program
- Capacity to reach and attract interest among governments, nongovernment organizations, and associations
- Global reach

Responsibilities of Partners

- Provide intellectual content and direction to engage international economic policy community on deregulation
 - Establish and sustain an international network of professionals and institutions
 - Create a virtual presence for this international network, and provide leadership in its evolution
 - Assist developing country institutions to gain access, basic understanding and mastery over Internet
 - Provide virtual support to queries as they arise, ranging from technical to policy to administrative

 - Facilitate the virtual transformation of other organizations to join the network
 - Help shape and carry out specific economic policy activities
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Careful attention needs to be paid so that the virtual organization created can indeed be sustained. Suggestions for sustaining this program include membership fees, paid advertisements, teaming agreements, commissions from web-based trainers, partnerships with Internet Service Providers, and subscriber fees for basic Internet services. In any case, one should grow such a network organically, start small with modest outreach and goals, and build on successes, adding new services as clients are willing to pay.

III BACKGROUND

The objective of this study is to develop new approaches for USAID to promote economic reform in developing countries and transitional societies via use of the Internet. The approaches are to provide new, cost-effective models to accelerate economic growth, reduce poverty, and support sustainable development. As a result, USAID may initiate at least three potential applications of internet-based electronic assistance in at least three USAID-assisted countries, including partners in the United States and host countries.

The project has three deliverables. The first deliverable, an inventory of Internet development uses and analysis of ten Internet-based programs, was submitted in October, 1997. The second deliverable, submitted in January 1998, analyzed USAID's economic policy agenda and detailed three economic reform initiatives that could be conducted via the Internet: Strengthening trade and investment policies, improving business environments, and incorporating web based training. This third and final deliverable analyzes and proposes Internet technology applications that (a) support economic policy programs in the Philippines and Sri Lanka, (b) strengthen economic policies that balance growth and global climate change, and (c) help deregulate infrastructure markets. Directions for this final report were provided by USAID's Center for Economic Growth.

IV METHODOLOGY

Work on this third deliverable began with one week field trips to the Philippines and Sri Lanka, the objective being to (a) obtain first-hand knowledge of how the Internet is utilized in a development context that seeks to strengthen economic policies, (b) develop “lessons learned” and “best practices”, and (c) search for creative ways in which the Internet can be an effective economic policy tool. During the field trips, meetings were held with USAID and other donors, Internet Service Providers, counterparts and institutions from public, non-profit and business sectors which utilize the Internet, USAID contractors, grantees, and other Internet users.

Countries were selected according to the following criteria (a) full international Internet connectivity and at least access to business, government and non profits for at least six months, (b) at least one Strategic Objective devoted to economic growth via policy reform, (c) at least some experience applying the Internet to strengthen economic policies, and (d) responded positively to the survey in the first deliverable.

The examination of how the Internet could strengthen economic policies associated with global climate change began with USAID’s Action Plan on global climate change. It then drew heavily on studies conducted by the Harvard Institute for International Development and the World Bank. Work on how the Internet could support efforts to deregulate infrastructure markets began with an analysis of the FY 1998 Congressional Presentation to determine what interest USAID Missions had in the subject. This study also relied on a number of studies conducted primarily by the World Bank Group on donor experience with private participation in infrastructure. Extensive interviews for the climate change and infrastructure sections were also carried out, primarily by phone, fax and emails.

V ECONOMIC GROWTH IN USAID MISSIONS

A Internet Applications to Strengthen Economic Policies in the Philippines

1 USAID/Philippines Economic Growth Program The Philippines seeks to become a newly industrialized country by the year 2000. Goals for that year include increasing per capita income from \$730 in 1990 to \$1,200, reducing poverty from 46% in 1991 to 30%, and slowing the population growth rate substantially. Importance is placed on the development of the considerable growth potential of Mindanao, an area where Muslim separatist demands and the high incidence of poverty are a priority challenge being addressed by the current administration.

The recent signing of the Mindanao Peace Agreement presents an opportunity for the United States to contribute to the strengthening of the fledgling peace initiative and, at the same time, boost the participation of American firms in the economic growth that is expected to result from the improved security situation. Economic policy reforms at the national level are designed to level the playing field, thereby encouraging the Philippines to follow its comparative advantage while opening up trade and investment opportunities for the United States.

USAID has put in place a program to assist in this transition and, at the same time, has set the stage for a mature bilateral relationship wherein expanded U.S. ties will supplant foreign assistance. This program includes two economic growth strategic objectives:

Strategic Objective 1 Accelerating the economic transformation of Mindanao

Strategic Objective 2 Improved national systems for trade and investment

The United States was the lead donor promoting development of the East ASEAN Growth Area, which highlights the growth potential of Mindanao in the southern Philippines. The United States financed the Mindanao 2000 Blueprint for Development which was adopted by the Government of the Philippines (GOP) as its plan for opening the Mindanao economy. The GOP accords high priority to the sustainable development of Mindanao. For instance, Mindanao's share of the government's infrastructure budget has risen from 12% to more than 30%. USAID-supported infrastructure continues to stimulate private sector investments and the production of high-value agricultural crops. USAID-financed agribusiness systems provide training and external markets that enable farmers to participate in Mindanao's economic growth. Planned assistance in micro-enterprise finance targets the rural cooperative banks in Mindanao. As a result, family income growth in Southern Mindanao now tops all areas in the country, more than double the national average.

At the national level, public policy groups supported by USAID continue to help break down many long-established trade and investment barriers. USAID provides grants for research and coalition-building, which lead to further improvements in trade, investment, and finance policies. USAID supported the adoption of a new policy of self-regulation

by the Philippine Stock Exchange, the creation of a new electronic central depository for securities, the deregulation and automation of the public bond auction process, and the commitment by the Philippines to broaden the role of private lenders to small businesses. In public finance, USAID continues to encourage the GOP to improve coordination among the tax planning, collection, administration and allocation elements of its public revenue structure. USAID is also assisting in deregulating the Philippines telecommunications sector. Through USAID's continued support to the Build-Operate-Transfer program, the Philippines is now recognized as a leader of Asia in paving the way for private investment in infrastructure programs.

USAID will pursue additional trade and investment liberalization and promotion programs including those beyond the World Trade Organization agreement and in the context of the Asia Pacific Economic Cooperation initiatives. USAID will implement activities to accelerate development of new markets and expand investment options for U.S. business to take advantage of opportunities in areas including environmental protection, BOT activities in power, transportation, water supply and solid waste management, telecommunications and information technology, and in the fishing, trucking and shipping, agribusiness and infrastructure sectors in Mindanao.

USAID's first strategic objective, accelerating the economic transformation of Mindanao, has two intermediate results packages: (a) expanded participation of Mindanao's lower income groups in more productive activities, and (b) an improved trade and investment environment in Mindanao. The second strategic objective, improved national systems for trade and investment, has three intermediate results packages: (a) fiscal resource mobilization and allocation improved, (b) trade and investment policies liberalized, and (c) financial markets improved.

2 The State of the Internet in the Philippines The GOP has committed itself to a major restructuring and liberalization of its telecommunications sector. The Philippine Long Distance and Telephone Company (PLDTC) used to have a complete monopoly on telephone services. Now at least one major private telephone company is allowed to compete with PLDTC in predetermined service areas. Each newly-licensed phone company must install a certain number of lines over a specified period of time, and must commit to covering both a lucrative area, as well as service to more remote, rural locations.

As a result of these policies, the teledensity (phone lines per 100 population) in the Philippines increased from less than 2 to almost 5 in the past four years. There are now ten major telephone companies in the Philippines today. The goal is to increase teledensity to 10 by the year 2000, but the goal may not be achieved in the next two years. A comparison of relative communication costs between the Philippines and the southeast Asian region indicates that international telephone charges are generally in line with those of its neighbors.

The market for Internet service is even more deregulated. According to the trade association of Internet Service Providers (ISPs), there are 130-140 Internet Service Providers in the Philippines today. Some observers believe there are as many as 200 ISPs in operation. There may be 45,000 subscribers and 400,000 users in the Philippines. Costs are reasonable. One such provider, MailStation Net has about 1,000 subscribers with charges of about \$ 5 for five hours use, which works out to 17 cents per minute. MailStation Net provides services to offices and homes, and has its own Internet business centers. Home clients are charged approximately \$15 for 15 hours of use. 85% of subscribers are in greater Manila, and the rest are in the provinces, reflecting the distribution of phone lines in the country.

Most subscribers and users are companies and organizations, perhaps 95% of the universe. The remaining users are households – 5%. Businesses are the major users, the government accounts for a small fraction of use. The biggest Internet application is email, perhaps accounting for 80% of Internet use. There are perhaps 10,000 web pages originating from the Philippines.

The GOP just announced its intention to create an “RPWEB” which will link by computers all state universities and colleges, public schools and over 12,000 government offices, public corporations as well as local government units. If implemented, this initiative will substantially increase the public sector profile and customer base on the Internet.

<p>“RPWEB Modernizing Philippine Education & Government for the Year 2000¹ <i>“Internet is the technology behind RPWEB. As the “great education equalizer”, it gives any student, particularly the disadvantaged, access to vast and almost unlimited world knowledge using only his school’s desktop computer. RPWEB will also be government’s powerful solution to a bureaucracy plagued by red tape. The Internet will enable government to respond more quickly to demand for its services because of interconnectivity, readier access to government information, electronic exchange documents and a dramatically shortened processing system”</i></p>

The competitive market for Internet service in the Philippines is due to the Internet being defined as a “Value Added Service”, so it is completely deregulated. A potential ISP must merely register with the National Telecommunications Committee (like the Federal Commerce Commission in the U S)

3 The Use of Internet Technologies in USAID/Philippines Programs

USAID/Manila was the first Mission to create a home page, in May of 1996². The Mission believes the Internet has proven to be an efficient means of disseminating public information. Public interest is moderately strong. The Mission’s web site was reviewed by 177 browsers per week during the month of June, 1997, with each “browser” examining an average of 8.5 sections of the USAID/Manila web site. About half the users were Americans and about 30-35% of reviewers were from the Philippines. Despite initial fears, there are only 1-2 queries a week to the “webmaster”. The

¹ Advertisement in Philippine Daily Inquirer, February 2, 1998

² [http //www.usaid-ph.gov](http://www.usaid-ph.gov)

Mission's home page links to partners, such as international donors, and to project home pages

While the Mission's web page did reduce the need for printed brochures and the need to respond to requests for written materials, there is a cost in the time involved to update information displayed. However, large segments of the Philippines public either lack access to the Internet or are uncomfortable with its use, so some printed materials are still necessary. One USAID office used its web page as promotional literature and just printed copies off the Internet when requests came from those lacking Internet access or mastery.

Most USAID partners in economic growth programs use email and have access to Internet technologies. A few have webpages or are beginning to put one together. The following examples were found where the Internet is currently being used, or planned to be used, for the following applications. These examples correspond to the six Internet applications established during the overall survey of Internet use.

Economic Research/Analysis Collection of current and reliable information is essential for sound economic policy analysis and formulation. The Internet has a wealth of information and analytical tools for sound economic research and analysis, an ability for professionals to dialogue and conduct joint research, and emerging technologies which allow for interactive database management. Training may be necessary to maximize use of the Internet as a research tool.

The Capital Markets Development Project seeks to enhance (a) the efficiency of the Philippines securities market by improving the quality and transparency of investor information available to capital market participants, and (b) the operational capacity of the capital markets so that an increase in the number and types of equity and debt securities becomes available to investors. The Investor Information Service (IIS) of the Capital Markets Development Project will be available for on-line business information and research services to investors, both domestic and foreign. IIS will provide a wide array of modules covering stocks, foreign exchange, the economy, expert views, corporate profiles, investment guides and news, and will contain information such as investments by industry, location, time and nationality. IIS should be on-line by the end of the year, and will cost Pesos 5000 (\$125) per month. Customers will likely be banks, investment houses and securities firms who are interested in researching investment opportunities in the Philippines.

Public Transparency and Advocacy Transparency is important for an informed public and advocacy is important to lobby for change. The Internet may be an effective tool for transparency and advocacy, depending on the audience given today's uneven Internet access. International financial, business and specialized non-governmental organizations have made very effective use of the Internet for transparency and advocacy. However, the Internet cannot reach large audiences in developing countries so other media may be more effective.

The Coordinating Council of the Philippines Assistance Program (CCPAP)³, under the Office of the Presidency, uses the Internet for two purposes, both associated with public transparency. The first supports the Philippines' Build-Operate-Transfer (BOT) program which develops infrastructure projects for private sector financing and operation and eventual transfer to the GOP.

The BOT Center uses the Internet for public transparency and business promotion. The BOT law of the Philippines is displayed, so that potential domestic and foreign investors know about the business environment that exists for investment in infrastructure and related services in the Philippines. The BOT Center also lists and profiles potential projects and publishes feasibility studies, adding to the transparency of transactions. This site has been up since 1995.

CCPAP also uses the Internet for tracking of official development assistance for the Philippines. Essentially, World Bank, Asian Development Bank and Japan OECF loan disbursements are tracked. This helps spot and address bottlenecks. The World Bank helped CCPAP set up the system. CCPAP claims that the loan disbursement system used to take three months or more to transfer funds from the Central Bank to implementing agency banks. Now the average disbursement time is about 17 days for 64% of the cases, due to the transparency of the Internet.

The Capital Markets Development Center is planning to get involved in public advocacy and public education on the benefits of capital markets. The Center may utilize the Internet for those ends. Interactive education programs for secondary and university students on how stock markets function, coupled with classroom training, could help build a new generation of informed capital market investors in the Philippines.

Professional Networking Economic policy analysts and program managers need to exchange news and views, collaborate on joint projects, and stay current in this dynamic global economy. The Internet by its very nature is ideally suited for professional networking. However, much of the professional networking today is among the donors. Broadening will occur as access and training expands. Virtual conferences and Internet newsgroups offer other opportunities for networking but work best when structured.

Professional networking among economic researchers and policy-makers undoubtedly takes place in the Philippines. However, no examples were found where USAID projects explicitly employed the Internet for this purpose. However, the Financial Executives Institute of the Philippines (FINEX), a major partner for the Capital Markets Development Project, is developing a web page. Created thirty years ago, FINEX is composed of chief executive officers and treasurers of companies throughout the Philippines. An Internet presence could afford opportunities for financial sector

³ <http://www3.admu.edu.ph/ccpap>

executives and professionals to network among themselves and with financial executives in the United States and elsewhere

Institutional Networking Institutions need to remain as current on global economic conditions and thinking as do individuals. Economic policy institutions, be they business associations, think-tanks or universities, can grow stronger by having international partnerships. Institutional networking works best when organizations have a common agenda and mutual interest. In such circumstances the Internet is a great tool. When mutual interest is not present, the Internet can be as ineffective a tool as any other.

USAID's Credit Policy Improvement Program seeks to rationalize micro-finance, small-and-medium business, and agricultural credit programs in the Philippines. Studies are being conducted to advocate for reform. The program is now using Lotus Notes to make these studies available to the National Credit Commission and to encourage discussion among the twenty members scattered in six agencies. Plans are to migrate to an Internet-based system in the future when members have adequate hardware and software.

The Micro-Finance Coalition of the Philippines is a group of NGOs managing micro-credit in the Philippines. They are establishing an Internet-based network for exchanging views and advocating for conditions favorable for micro-enterprise. Interestingly, this coalition and other NGO coalitions are provided subsidized Internet services through the Philippines Long Distance and Telephone Company, which has encouraged non-governmental organizations to establish Internet presences.

Distance Technical Assistance Economic policy reform programs often require expensive, short-term technical assistance for very defined periods of time. The Internet can be a tool to deliver these services, on-line and on-time. The Internet can also provide greater access to leading luminaries who might otherwise decline assignments which require several weeks of undivided attention. Laying the groundwork and having local support is important to ensuring the effectiveness of this approach.

Consultants use the Internet to supplement travel and visits. However, no examples were found of a project or activity which is based solely on distance consulting.

Distance Training Education and training are often elements of successful economic policy programs. Indeed approximately 28% of all USAID training supports business and free market economics. Distance education offers an alternative to traditional classrooms, and can be cost-effective, reach more students, and be less disruptive to host country institutions. While Internet-based education is growing quickly in the United States, little has been reflected back in USAID's training programs.

No examples were found whereby USAID training was provided via the Internet. However, the Open University of the Philippines is launching its first Internet-based distance learning course -- on Philippine culture. Over time, the Open University sees a big role for the Internet as a medium for instruction.

4 Internet Use Among Donors, Government and Non-Profits Multilaterals, such as the World Bank and the Asian Development Bank, use the Internet more extensively than other bilaterals and non-profit organizations. In most cases, the Internet applications are a direct part of technical assistance provided for programs supporting the development of information systems.

Bilaterally, the Canadians have been assisting the Philippines telecommunications sector for years. In earlier times, they financed infrastructure which broadened public access when the telecommunications network was more limited due to the PLDT monopoly. Later on, Canada started to work on policy studies associated with deregulation and liberalization. Now they are helping the Philippines create its vision for a global information age. However, they have not used the Internet as a tool to strengthen policies in the telecommunications and other economic growth sectors.

The Government of the Philippines is not making much use of the Internet as yet. Some government agencies have, however, been out front in utilizing the Internet for economic growth objectives. Aside from those associated with USAID projects, the following agencies deserve mention:

The National Economic and Development Authority (NEDA) itself has 150 Internet service accounts. Of NEDA's 1,200 nationwide employees, 80% have access to and use the Internet. NEDA has a robust home page⁴ where it provides information on the Philippine economy, on-line economic indicators, regional development, the National Information Technology Plan for the Philippines, press releases, NEDA publications, links to other web sites, government websites⁵, and even a directory of Philippine Internet Service Providers. The NEDA web page gets 500-1,000 hits per day. There have been 29,368 visitors since April, 1997.

Aside from using the Internet for public transparency and providing data for economic research, NEDA staff themselves use the Internet for research purposes and for networking.

⁴ <http://www.neda.gov.ph>

⁵ Among the organizations linked to NEDA are: Malacanang (Presidential) Palace, Philippine Senate, National Statistics Office, National Statistics Coordination Board, Philippine Institute of Development Studies, Bureau of Labor Statistics, Department of Agrarian Reform, Department of Budget and Management, Department of Energy, Department of Finance, Department of Labor and Employment, Department of Science and Technology, Department of Trade and Industry, Central Bank of the Philippines, Board of Investment, Bureau of Patents, Trademarks and Technology Transfer, Center for International Trade and Expositions, National Food Authority, National Telecommunications Commission, and National Mapping and Resource Information Authority. NEDA also links with the Asia Pacific Economic Cooperation, Asian Development Bank, ASEAN web, World Bank, University of the Philippines, and even the United States Information Service (USIS).

The Philippines Institute for Development Studies (PIDS), a non-profit government research institution engaged in long-term policy-oriented research, is another big user of the Internet. Its web site⁶ presents economic databases (both Philippine and international, including national accounts, public finance, external accounts, monetary aggregates, interest rates, and prices), publications, a description of programs and activities, and information gateways. Users can download and use the information. Aside from links found on the NEDA home site, the PIDS information gateway includes other international organizations (such as the International Monetary Fund and World Trade Organization) and virtual libraries (such as for agricultural economists and other social science groups). The PIDS home page has been in operation for two years. Many browsers, however, are from outside the Philippines, primarily from American universities. The home page is used to market research reports, and, again, mostly foreigners order those papers. Not much interest is shown in Asia, aside from Japan. Canadian aid helped set up and format the database system.

PIDS recently organized a conference of the Economic Development Management in Asia and the Pacific (EDAP) policy institutes throughout Asia. The subject was "Information Technology as a Tool for Regional Cooperation and Global Competitiveness". The thought was that since the Asian currency crisis has affected the entire region, it would be good if the databases which monitor individual country economies could be shared, electronically, by all. However, the proceedings aren't ready yet and it is unclear if action will be taken. (There is now a separate proposal by Malaysia to develop and share an economic surveillance and monitoring system to coordinate policy in the region.)

PIDS has found the Internet helpful in the following ways. It provides for (a) good statistical packages/software for analysis, (b) disseminating information widely, (c) communication, especially in research and advocacy, and (d) a review mechanism for policy formulation. The Internet improves the quality of research so that policy formulation is better and advocacy is stronger. Other country experience is particularly important for advocacy, and the Internet is a good place to do international research.

The University of the Philippines is a relative novice with respect to the Internet. Its Department of Economics faculty have made some inroads in terms of communicating with students using the Internet, but they don't routinely use the information resources available on-line to enrich instruction. Part of the problem relates to limitations within the University itself. While fiber optics have improved internal communications, limitations on external lines limit utility.

The University of Philippines, however, established an Open University two years ago. Presently having 1000 students, the goal is to reach one hundred times that number in the years ahead. While instruction is print-based today, the first on-line course (Philippine culture) is expected to be rolled out later in 1998. Assuming the Internet grows as a tool

⁶ <http://www.pids.gov.ph>

for communications, the expectation is that the Internet will become a more important medium of instruction in the years ahead. At the same time, the limitations on access and affordability add caution to expecting too much of the Internet.

The University of Asia and the Pacific has a good graduate business program but little use is made of the Internet. Faculty recognize the importance of information technology today, but the University has not yet incorporated the Internet into instruction thus far.

Despite these modest beginnings, the Government of the Philippines sees information technology as an essential tool to “pole-vault” into newly industrialized country status. The Philippines vision is to become the knowledge center in the region.⁷ The RPWEB, mentioned earlier, is one such initiative. The Government of the Philippines is putting in place an appropriate policy environment for information technology. It has established policies to promote greater investments in information technology. It has also sought to fulfill its commitments to associated international agreements, and to protect intellectual property rights laws. Efforts are also underway to produce a critical mass of knowledge industry workers. To prime the pump, the Government of the Philippines has a number of large computerization efforts underway, such as computerization of taxes and the civil registry. The GOP has also launched a Government Statistics Accessibility Program which aims to make statistical information and services accessible to all. Internationally, the GOP has also entered into public-private agreements with prominent American firms, such as Microsoft and Oracle.

The Asia Foundation (TAF), with USAID support, is implementing an information technology project, and will develop recommendations (a) to improve the policy and regulatory environment for competitive private sector activity in the information technology sector, and (b) for better domestic intellectual property rights protection and enforcement in the information technology sector.

The general conclusions one can draw from the above are that (a) the Philippines has established a telecommunications policy framework which has introduced competition and incentives for private investment in telephony, (b) teledensity rates should continue to grow from the level of 4-5 lines per hundred citizens, and (c) the use of the Internet should also continue to expand, as phone services improve and as computers become increasingly affordable. However, issues will remain concerning access to Internet services among the less affluent as well as those outside of greater Manila and major secondary cities. Furthermore, awareness of how to use the Internet to its fullest as a tool to accomplish development objectives is fairly low and needs attention, even among those who are fortunate enough to have access.

5 Proposed Internet Program In this section, opportunities for the Internet to play a useful, supplementary role in accomplishing USAID/Philippines Strategic Objective

⁷ “Information Technology as a Tool for Regional Cooperation and Global Competitiveness”, a keynote speech by Raphael Lotilla, Deputy Director General, NEDA, January 15, 1998 at EDAP Conference

Number 2, improved national systems for trade and investment, will be offered. A two-pronged approach is suggested. The first would seek to increase the awareness and mastery of Internet technologies among economic growth partners in the Philippines. The second prong would aim to make the Internet a more useful tool for improving national systems for trade and investment. The USAID Mission in Manila is better placed to achieve the first objective, while the Center for Economic Growth in Washington is more capable of carrying out the latter.

a Increased Internet Awareness and Mastery There is a growing but still limited awareness today in the Philippines as to the potential of Internet technologies to strengthen economic policy reform programs. At the same time, due to favorable telecommunications and information technology policies, the environment is very favorable to the growth of the Internet. Thus, it will be important to increase the knowledge of how the Internet can be a useful tool for strengthening economic policy reform programs, as well as increasing the mastery of these technologies in the Philippines.

1 Basic Workshops USAID/Manila might wish to conduct periodic Internet workshops for economic researchers and policy makers in a wide range of government agencies, non-profit organizations, banks and other financial institutions, universities and professional and industrial associations to explain the fundamentals of the Internet, and allow for supervised hands-on experience with computers in the classrooms. There are sufficient Philippine organizations to provide basic instruction. Exploration should also be made as to whether some ISPs would be willing to bear some or all of these costs, since increased awareness leads to a stronger customer base. Since Manila has a vibrant Internet Service Provider industry which itself is promoting Internet use, such basic workshops might have more benefit at provincial levels where general Internet knowledge is more limited.

2 Specialized Workshops In many but not all instances, USAID's economic growth partners will not need basic training, but could benefit from specialized Internet workshops. The following professional groups might be well served by specialized courses: (a) agricultural economists, (b) financial markets developers, and (c) trade and investment policy specialists. To make these workshops as effective as possible, it will be important to bring in professional colleagues from the United States and other Asian countries to work with the participants on how they use the Internet in their daily professional lives. For example, Michigan State University or other colleges which train agricultural economists on use of the Internet could be asked to participate in the first group. Professionals from banking, equity and debt markets, and regulatory bodies might all participate in the second grouping. The third grouping could include representatives from government agencies, business associations, policy and university research institutes, and other organizations involved in formulating trade and investment policies.

These specialized seminars could also be organized around a particular institution, such as a body regulating capital markets or banking institutions. In this case, there might be the added benefit of the participants and the instructors also agreeing to form virtual institutional relationships which might continue beyond the duration of specific training on how to effectively use the Internet to strengthen economic policies.

3 Encourage and Publicize Pilot Activities A third activity which USAID might consider would be to design, implement, evaluate and publicize pilot activities which utilize the Internet to strengthen economic policies. For example, USAID might invite proposals from a given group of organizations and individuals who have creative ideas on use of the Internet to strengthen economic policies. For example, a Philippine organization might suggest developing a web site organized around comparing the economic competitiveness of the Philippines against a set of competitor economies in the region and rest of the world. Another group, such as a University or research organization, might suggest the sharing of economic databases used to monitor the economy. A third group might want to establish a web-based advocacy group surrounding an issue, such as further deregulation of the telecommunications sector. A fourth group might experiment with distance learning associated with a particular policy, such as intellectual property rights or further capital markets development.

If these pilot activities were encouraged in conjunction with the specialized workshops, it might stimulate creative energies. USAID could announce its interest in entertaining proposals along these lines, which fit within the parameters of existing program agreements. Partners would be asked to cost share so that the budgetary burden on USAID could be kept to a minimum.

One important principle should be that USAID does not get involved in financing the costs of computer equipment and networks. The costs of computers keep falling in the world market, and the reduction of the Philippine's customs duties further reduces costs to the local buyer. One would also expect the costs for Internet services will remain modest while the quality of Internet services improves, as competition continues in the local ISP market. Thus, for the costs of buying and maintaining a new vehicle, an organization should now be able to acquire approximately ten personal computers and networks, and obtain full Internet connectivity. Thus, it is argued here that the issue is not finance, but one of awareness, and demonstrating that the value of the Internet is much greater to an organization than the acquisition of an additional vehicle to its motor pool.

All of these efforts would be aimed at making USAID's economic growth partners in the Philippines understand and master utilization of the Internet to achieve economic policy reform objectives. This would directly contribute to USAID's economic growth objectives in the Philippines and nicely fit in with the Government of the Philippines aspirations to become a knowledge gateway for Asia.

b Making the Internet a More Useful Tool The Center for Economic Growth could help organize the Internet to make it a more useful tool, just as USAID/Manila is increasing awareness and training economic policy makers on how to use Internet technologies

1 Trade and Investment Policy There are three approaches which the Center for Economic Growth could adopt to help strengthen trade and investment policies in the Philippines via use of the Internet

- a Organize an Internet presence to support trade/investment policy reform,
 - b encourage U S trade and investment policy institutions to become virtual, and
 - c support a specific policy reform -- private provision of infrastructure, employing all Internet applications
- These options are discussed below

a Organize an Internet presence The Center for Economic Growth could facilitate a more deliberate and coordinated use of the Internet to strengthen trade and investment policies in the Philippines by establishing a web presence dedicated to trade and investment policies. The site, open to all of USAID's partners in the Philippines, could contain the following characteristics

- 1 A description of all USAID global efforts supporting trade and investment, with linkages to web sites for those projects having a cyber presence,
- 2 A virtual library with important databases and literature on the subject. A virtual librarian could be accessed to help reviewers find other information of interest,
- 3 Linkages to the numerous web sites dedicated to trade and investment -- both those designed for business facilitation as well as those focused on trade and investment policies. The USAID site would guide viewers to the benefits of each of these links,
- 4 Moderated "chat rooms" which would allow for professional networking and serious discussions of topical trade and investment issues,
- 5 Listings of "listserves", virtual conferences and other opportunities to dialogue broadly on international trade and investment policies,
- 6 Linkages to other international donor organizations and non-governmental organizations associated with trade and investment liberalization,
- 7 Listings of trade and investment consultants and links to USAID requirements contractors willing to provide on-line advice,
- 8 Listings of, and linkages to, web-based training pertaining to trade and investment,
- 9 Public advocacy and transparency fora where groups could publish press releases and other items of interest, and
- 10 A creativity room which would allow innovative pilot projects to facilitate trade and investment. For example, virtual trade negotiations could be conducted to allow trade actors to gain experience. Another example would be to create a methodology and ranking of nations according to their global economic competitiveness which would be placed on the Internet and periodically monitored and modified to reflect changing policies and global economic conditions

This alternative might also permit collaboration with some of the trade and investment business facilitation services supported by donors, non-profit associations, and private firms. USAID could enter a dialogue with these services and attempt to enter partnerships whereby their information could be made available in a format useful to both trade and investment policy-makers and reform advocates in USAID countries. For example, Trade Compass might be willing to moderate cyber discussions on policy-oriented constraints faced by traders, to better educate those seeking ways to improve trade efficiency. On the investment side, USAID could enter discussions with the Multilateral Investment Guarantee Agency's IPANet to see if there were ways its service could be useful to those making investment policies in developing countries.

The benefit of this approach is that it would cost little, it would merely help organize the information on the web for use by USAID partners. This approach would merely organize what is already taking place, allowing for better linkages and exchanges. Existing USAID contracts (including IQC contracts) could be tapped to provide distance technical assistance. USAID would not be embarking on a new agenda, but merely supporting what has already been articulated and is under implementation.

b Encourage trade and investment policy institutions to become virtual

A second approach would build on the first but also help encourage other organizations which could contribute to trade and investment policy strengthening to become virtual. These could be the following types of partners:

- 1 American training groups with important content, such as a university's summer program for intellectual property rights,
- 2 American consultant groups, willing to offer on-line advice,
- 3 American think tanks not yet on-line but who are willing to share research findings,
- 4 U S universities to join in collaborate research sharing, provide distance learning, and to keep up with alumni of past USAID training programs,
- 5 U S professional and trade groups interested in liberalizing international trade and investment,
- 6 U S government agencies, such as the U S Department of Agriculture's office which deals with plant and quarantine regulations,
- 7 USAID registered private voluntary organizations and other non government organizations who share a common agenda, and
- 8 State and local governments with an interest in global trade and investment policies.

Because of the modest costs involved, it should be possible to persuade many of the above American groups to create a web presence. However, some might encounter additional costs, for example if they were to convert classroom instruction to a virtual education.

c Support a specific policy reform -- Private Provision of Infrastructure -
-employing all Internet applications The third approach would be to take a topic, say the

private provision of infrastructure/services, which is an important aspect of the Philippine's investment drive, and carry out Alternatives A and B, but more focused than on the broader subject of trade and investment. Virtual support might entail economic research via the Internet, distance technical assistance, distance education, networking among professionals and institutions, and supporting non-governmental organizations for international advocacy.

The Center could begin by establishing a web presence dedicated to this purpose. The site, open to all USAID projects, could contain the following characteristics:

a. A description of all USAID efforts supporting private investments in infrastructure development, with linkages to web sites for those projects having a cyber presence,

b. A virtual library with important databases and literature. A virtual librarian could be accessed to help reviewers find other information of interest,

c. Participating countries can be encouraged to present their private infrastructure and services investment policies and invite comparisons with those of other countries,

d. Linkages to web sites which touch on this subject. The USAID site would guide viewers to the benefits and shortcomings of each of these links,

d. Moderated "chat rooms" which would allow for professional networking and serious discussions of topical issues such as tax issues associated with private infrastructure investments,

e. Listings of "listserves", virtual conferences and other opportunities to dialogue broadly on private infrastructure topics. A virtual conference on experiences of countries seeking, for example, to solicit private participation in municipal water supply systems might be of interest to the Philippines,

f. Linkages to other international organizations and non-governmental organizations associated with these subjects,

g. Listings of private infrastructure policy consultants and links to USAID IQC requirements contractors willing to provide on-line advice,

h. Listings of, and linkages to, web-based training pertaining to private infrastructure policies,

i. Public advocacy and transparency fora where groups could publish press releases and other items of interest, and

j. A creativity room which would allow experimental pilot projects for improved private provision of infrastructure and services.

As this Internet-based system is developed, it might be found that certain key actors are not present in a virtual sense, such as certain non-governmental advocacy groups, training providers, and institutions with particular expertise and experience. USAID's Center for Economic Growth would help to identify such groups and encourage them to join the process.

ii Strengthened Financial Markets The same three approaches offered for trade and investment policy reform could also be adopted to help strengthen financial markets in the Philippines.

- a Organize an Internet presence to support financial market policy reform,
- b encourage U S financial market policy institutions to become virtual, and
- c support a specific policy reform -- employing all Internet applications

Instead of repeating the methodology again, specific examples are offered which the Center for Economic Growth could adopt to help strengthen the Philippines financial markets via use of the Internet

Debt market USAID/Manila has helped to expand and improve the functioning of bond markets The Internet can be a useful vehicle for maintaining those accomplishments Examples of Internet-based interventions could include

- a Creating a web presence to support emerging bond markets, which would allow users to quickly learn how these markets are developing in other countries, and allow for communications with counterparts in those countries,
- b A virtual library with important databases and literature A virtual librarian could be accessed to help reviewers find other information of interest,
- c Linkages to web sites which touch on this subject For example, Internet-based materials from the United States Government on how the U S Treasury debt instruments are traded might be useful,
- d Moderated "chat rooms" which would allow for professional networking and serious discussions of topical issues,
- e Listings of "listserves", virtual conferences and other opportunities to dialogue broadly on telecommunications policies A virtual conference on experiences of countries in allowing non-nationals to invest in local bond issues,
- f Linkages to other international organizations and non-governmental organizations associated with these subjects,
- g Listings of bond market consultants and links to USAID IQC requirements contractors willing to provide on-line advice Arrangements could also be made with the U S Treasury Department to provide on-line advice on bond market development and open market trading,
- h Listings of, and linkages to, web-based training pertaining to debt markets Given the numerous opportunities in the United States for professional development in the financial markets area, these training opportunities should be particularly relevant, and
 - 1 A creativity room which would allow experimental pilot projects to improved bond markets For example, an interactive program which explains how open bond markets work for the Philippines might be worth trying

As this Internet-based system is developed, it might be found that certain key actors are not present in a virtual sense, such as certain non-governmental advocacy groups, training providers, and institutions with particular expertise and experience USAID's Center for Economic Growth would help to identify such groups and encourage them to join the process

Equity Market Improvements While it appears that much of the work to develop the Manila Stock Exchange has been accomplished, there still might be ways in which the Internet can strengthen equity markets. Among these would be

a Virtual relationship between the Philippines and American regulatory agencies. The U.S. Securities and Exchange Commission could be encouraged to provide regular information and advice to strengthen the regulatory apparatus in the Philippines,

b Web-based Training. Given the continual evolution of financial markets around the world, it will be important for capital market leaders in the Philippines to remain current. The Center for Economic Growth can develop a catalogue of web-based training and make it available to the Philippines partners for their consideration and use, and

c Public Education. USAID may wish to increase the number of individuals holding shares of publicly traded companies on the Philippines Stock Exchange. One way would be to introduce Internet-based training at the university level for economics and business majors to learn how exchanges operate and the benefits and risks of participating. This could help train the next generation of would-be shareholders, not only on equity markets, but also on the value of the Internet in economic and business decision-making.

iii Web-based Training While opportunities for Internet-based distance learning have been discussed above, a distinct initiative is suggested here. There are hundreds of business and economics courses already available and delivered at a distance through American colleges, universities, professional associations and corporations. However, little use has been made of these training courses by USAID program managers in the Philippines and elsewhere. A major impediment has been the lack of knowledge among USAID managers regarding digital education. Thus, it is suggested that the Center for Economic Growth develop, maintain and disseminate a Directory of On-Line Economics and Business Training for USAID program managers from the Philippines, and elsewhere.

The database would include

Training opportunities within American institutions of higher learning. The most relevant on-line training opportunities for USAID/Philippine programs being offered by American colleges and universities should be culled and evaluated as to their relevance to the USAID/Philippines program. The Directory would also investigate how many foreign students are presently availing themselves of these programs, and how oriented the courses are towards international development,

Training opportunities within American professional and trade associations. The Center for Economic Growth could develop relationships with appropriate American professional and trade associations which would allow USAID participants, partners and counterparts to avail themselves of on-line education presently offered to the association's membership. The Directory would also describe these opportunities, and

Other on-line training. Private non-degreed but certified training is also available on-line, ranging from firms offering finance, banking, economics and business management learning opportunities. Quality assurance with respect to these training

offerings will be particularly important. The Center for Economic Growth would review these offerings and determine those most relevant and appropriate for the USAID/Philippines programs. These would be displayed in the Directory also.

The Directory should also describe the technological requirements for delivering all training and how well they fit the Philippines telecommunications infrastructure.

USAID program managers could also benefit from successful examples of how on-line distance education has been incorporated within USAID and other donor programs. Because distance learning is such a new concept for USAID, the Directory might also include some guidelines for program managers as to approaching, analyzing and establishing distance education within the context of USAID programs. Likewise, USAID program managers might wish to avail themselves of the same training.

iv Supporting a Knowledge-Based Society USAID/Manila might wish to take a more deliberate effort to support the Philippines as it enters the global information age. The building blocks are in place: (a) deregulation of the telecommunications industry, (b) the Government of the Philippines own expressed desire to become a knowledge gateway to Asia, (c) USAID's grant with The Asia Foundation to support telecommunications policy strengthening, and (d) private investments by American telecommunication companies, as well as the public-private agreements which the Philippines has reached with prominent American information technology companies such as MicroSoft and Oracle. If such an approach were followed, the Center for Economic Growth could organize a web presence around telecommunications and information technology itself, much as already articulated for trade and investment and financial markets.

Aside from continuing efforts to support improved telecommunications policies and intellectual property rights protection via Internet interventions, the Center for Economic Growth could enjoin other US government agencies to help the Government of the Philippines put its plan for an RPWEB in place, given the wealth of experience the United States has with the introduction of the Internet into governance.

B Internet Applications to Strengthen Economic Policies in Sri Lanka

1 USAID/Sri Lanka's Economic Growth Program The Government of Sri Lanka (GSL) has made significant progress in evolving from a socialist to a free-market economy Sri Lanka has grown steadily since liberalization commenced twenty years ago, with economic growth averaging five percent annually over the past decade Sri Lanka also has a high-level of literacy and impressive indicators of social progress At the same time, an unresolved ethnic conflict in the north and east diminish Sri Lanka's development prospects Politically, Sri Lanka is one of South Asia's oldest and most stable democracies

Sri Lanka carried out a medium-term structural adjustment program with the International Monetary Fund in the mid 1990s, aimed at moving onto a higher growth path through creation of a more open and competitive economy Progress was made in liberalizing the external payments regime, trade reform and rationalizing tariff and investment incentives Less progress occurred in the public expenditure arena A new International Monetary Fund program is being negotiated

The GSL policy reform objectives are to reduce the size and increase the efficiency of the public sector and to remove constraints to private sector production and investment The policy framework includes budget restructuring and public enterprise, regulatory, and financial sector reforms, as well as sector reforms pertaining to agriculture, infrastructure, transport, water supply and sanitation, energy and environment

The USAID program in Sri Lanka is undergoing a transition It's present goal is "broad based participation in sustainable economic growth and development" The economic growth strategic objective is "increased private sector employment and income", and its one special (humanitarian) objective is an "improved quality of life for disadvantaged people" The intermediate results expected from the economic growth objective are an (a) expansion of private enterprises, and (b) improved enabling environment The intermediate result anticipated from the humanitarian assistance special objective is strengthened citizen and community capacities USAID development resources provided to Sri Lanka have diminished substantially from a high of \$90 million in 1993 to approximately \$7 million in 1997

USAID/Sri Lanka is presently preparing a new country strategic framework, one that anticipates a further reduction in program size and staff, to approximately \$ 3 million and 2 U S direct-hires by next year While still in the drafting stage, it is anticipated that the new strategy will have one economic growth subgoal of "*strengthened global competitiveness in trade and investment*" The associated strategic objective may be an "improved framework for trade and investment" Two intermediate results may include (1) financial market practices strengthened and policies liberalized, and (2) liberalized trade and investment policies

Indicators of whether the financial markets intermediate results have been achieved might include the following (a) number of individuals holding publicly-traded shares, (b) value of government borrowings through open market operations, (c) capital raised through debt issues, and (d) progress on a policy agenda (e.g. addressing tax treatment of bonds, stamp duty impediments to mortgage-backed securities, restrictions on pension fund investments, restrictions on non-nationals investing in bond issues, and need for secondary trading of government securities) USAID/Colombo anticipates achieving these goals by (a) encouraging listings, (b) establishing a clearance/settlement guarantee fund, (c) assisting the Central Bank to liberalize its bond market, (d) establishing a core group of high-level policy makers to develop the market, and (e) establishing open market operations at the Central Bank

Indicators of whether the trade and investment policy intermediate results are being achieved might include (a) long-term trade and investment strategy developed, and (b) progress on policy agenda (e.g. addressing the air freight monopoly, restrictive plant and quarantine regulations, non-uniform customs rules, high tariffs for manufacturing and new technology inputs, and intellectual property rights) USAID/Colombo anticipates three approaches to achieve these goals (a) mobilize and support advocacy groups to present policy constraints to the GSL, (b) assist the Ministry of Commerce to develop long-term trade policy and strategy, and (c) assist the Ministry of Industrial Development to develop a productivity program and long term, diversified industrial development strategy

There may be one special (democracy) objective in the new strategy, which would seek "citizen's rights better protected in law and practice" Four indicators of whether this objective is being met might include (a) number of rights violations reported, (b) number of legal aid cases, (c) number of cases referred to alternate dispute resolution systems, and (d) number of backlog cases in selected district courts

2 The State of the Internet in Sri Lanka The Government of Sri Lanka has embarked on a deliberate restructuring and liberalization of its telecommunications sector In 1994, a new telecommunications policy was announced Two years later, two wireless local loop operators (Suntel and Lanka Bell) were licensed which introduced competition for local phone services That same year, the GSL sold 35% of Sri Lanka Telecom Limited, the government's previous phone monopoly, to NTT Corporation of Japan and contracted with NTT to manage Sri Lanka Telecom Sri Lanka now also has four cellular phone companies and five paging service operators Improvements were also made in the regulatory apparatus However, there remains a monopoly on international voice telephony until 2002, but international data transmission is competitive, with five providers

The benefits from this move towards deregulation have been an increase in teledensity rates (phone lines per 100 population) from 1.1 to 1.9 over the past few years The Government of Sri Lanka seeks to increase teledensity to 10 over the next decade Most

telephone services remain centered around greater Colombo (70%), although new licenses are being required to expand service to previously unreached locations

The market for Internet services is partially deregulated. The GSL's policy is one of setting broad guidelines and allowing market forces to establish the information infrastructure. However, a hefty licensing fee of Rs 3 million (approximately \$50,000) plus one percent of revenues has been levied on Internet Service Providers (ISPs) in Sri Lanka. There are presently eight such providers, with a total customer base roughly estimated at about 7,500 subscribers and some 20-30,000 users. Figures were hard to come by.

Two of the ISPs are donor supported, each with several hundred subscribers. The Industrial Technology and Market Information Network is supported by the United Nations Development Programme and the United Nations Industrial Development Organization. Panlanka is Canadian and Norwegian-donor supported, with management by Canada's International Development Research Center. Costs of Internet services are moderate, higher than the Philippines, yet not astronomical. The Industrial Technology and Market Information Network charges \$10 per month for one hour per day, off-peak, and \$100 per month for 14 hours of Internet services daily, both peak and off-peak. Panlanka charges between \$50-\$100 per month for its range of Internet services. One USAID project pays approximately \$160 per month for unlimited use of the Internet in an office setting. Use of the Internet follows the phone lines, and is therefore concentrated in greater Colombo. The largest local service provider may be Lanka Internet, which claims a subscriber base of almost 3,000.

Most subscribers are believed to be companies and other organizations, perhaps 90% of the universe. The remainder are households. Businesses are the major users, the government being a small fraction. The biggest Internet use is email, with web pages being relatively "flat", and used more for "vanity" purposes than real utilities. Interestingly, most newspapers in Sri Lanka have an Internet presence. Observers believe that the large Sri Lankan communities abroad wanted access to local news and were therefore instrumental in creating this web presence for local news. Within Sri Lanka, while demand for Internet services continues to grow, there is generally felt to be a lack of awareness of the power of this new medium.

The Government of Sri Lanka has proclaimed 1998 the Year of Information Technology. It has slashed customs duties on computers to near zero, and is promoting Sri Lanka as a software export platform. The Government also has awareness campaigns underway, despite the fact that only 50 government agencies have web sites.

3 The Use of Internet Technologies in USAID Programs The United States has a relatively long involvement in the evolution of the Internet in Sri Lanka. In late 1993, Vice President Gore signed a Memorandum of Understanding with then Prime Minister Wickremasinghe for both countries to cooperate in identifying "the technical and financial resources necessary for the establishment of initial INTERNET connectivity and

developing the supportive infrastructure necessary to sustain a national computer based network in Sri Lanka ”

Initially, the GSL wanted USAID support to partially fund a government-operated Internet system USAID argued that the public sector should not be involved with the development and operation of an Internet system for Sri Lanka, but that private ISPs should have this responsibility A workshop was sponsored by USAID in 1994 to establish an approach for the development of a private sector managed Internet system for Sri Lanka The conclusion of the workshop was that, indeed, the private sector should develop Internet services in this country

Another seminal workshop, organized by The Asia Foundation, supported by the U S Information Service, and financed by USAID, in 1996, led to the development of on-line newspapers in Sri Lanka At this workshop, journalists from both the United States and the Philippines who used the Internet professionally were brought to explain the importance of the Internet to their Sri Lankan colleagues Within six months of the workshop, virtually all major Sri Lankan newspapers had developed Internet-based news services

Today, the Internet is used as a tool in some USAID’s programs USAID’s economic growth partners use email and have some access to and utilize other Internet technologies USAID itself is developing a web page which will be part of a larger U S Mission cyberpresence organized by the U S Information Service The following examples were found where the Internet is currently being used, or planned to be used, to strengthen USAID/Colombo’s programs These examples correspond to the six Internet applications established during the overall survey of Internet use

Economic Research/Analysis Collection of current and reliable information is essential for sound economic policy analysis and formulation The Internet has a wealth of information and analytical tools for sound economic research and analysis, an ability for professionals to dialogue and conduct joint research, and emerging technologies which allow for interactive database management Training may be necessary to maximize use of the Internet as a research tool

The Colombo Stock Exchange has an extensive web page ⁸ Aside from describing the Exchange itself and its history, the home page provides information on the fifteen member firms, membership requirements, publications, the functioning of the trading system, market indices (e g value and volume of domestic and foreign equity purchases and sales), daily share prices of the 238 listed companies, market statistics (price and turnover indices by sector, such as manufacturing and plantations), news, and rules for foreign investment in Sri Lanka’s share markets This allows citizens and outsiders to research the Sri Lankan stock market conditions -- as well as a measure of transparency

⁸ [http //www.lanka.net/cse](http://www.lanka.net/cse)

The Colombo Stock Exchange also uses the Internet extensively to research how other emerging stock exchanges are functioning. Exchange officials regularly examine the functioning, activities and market conditions of other Asian stock markets, and pick up valuable information of use in their own operations. These activities have helped build investor confidence in the Exchange.

The Technology Initiative for the Private Sector Project has used the Internet to research intellectual property rights protections in other countries, as part of a study it is conducting in Sri Lanka.

Public Transparency and Advocacy Transparency is important for an informed public and advocacy is important to lobby for change. The Internet may be an effective tool for transparency and advocacy, depending on the audience given today's uneven Internet access. International financial, business and specialized non-governmental organizations have made very effective use of the Internet for transparency and advocacy. However, the Internet cannot reach large audiences in developing countries so other media may be more effective.

The AgroEnterprise Project's home page includes a section in which it posts policy studies it conducts. However, as noted below, the Project has concentrated thus far on business facilitation, and is just now starting to focus on improving the business environment for agribusiness in Sri Lanka.

The Asia Foundation, although working on non-economic growth objectives, does have examples of how they use Internet technologies to strengthen journalism, human rights and the judiciary in Sri Lanka, which are instructive. As noted above, two years ago, The Asia Foundation organized a workshop on use of the Internet for journalists, which was considered very successful. The Foundation now plans to link a number of human rights non-governmental organizations within Sri Lanka to share information and provide a "hotline" to refer human rights cases to one another. Aside from public advocacy, The Asia Foundation thinks there may be opportunities to increase legal transparency by using Internet technologies, such as posting law reports and actual legislative enactments via the web.

Professional Networking Economic policy analysts and program managers need to exchange news and views, collaborate on joint projects, and stay current in this dynamic global economy. The Internet by its very nature is ideally suited for professional networking. However, much of the professional networking today is among the donors. Broadening will occur as access and training expands. Virtual conferences and Internet newsgroups offer other opportunities for networking but work best when structured.

No examples were found of how economic policy-makers use the Internet for professional networking associated with policy reform.

Institutional Networking Institutions need to remain as current on global economic conditions and thinking as do individuals. Economic policy institutions, be they business associations, think-tanks or universities, can grow stronger by having international partnerships. Institutional networking works best when organizations have a common agenda and mutual interest. In such circumstances the Internet is a great tool. When mutual interest is not present, the Internet can be as ineffective a tool as any other.

The Colombo Stock Exchange uses the Internet to link with other emerging stock exchanges in Asia. Through support from The Asia Foundation, human rights non-governmental organizations may use the Internet to network both domestically and with international human rights networks.

Distance Technical Assistance Economic policy reform programs often require expensive, short-term technical assistance for very defined periods of time. The Internet can be a tool to deliver these services, on-line and on-time. The Internet can also provide greater access to leading luminaries who might otherwise decline assignments which require several weeks of undivided attention. Laying the groundwork and having local support is important to ensuring the effectiveness of this approach.

The Technology Initiative for the Private Sector Project seeks to increase the international competitiveness of, and employment in, Sri Lankan firms by improving performance in selecting, acquiring and mastering technologies. Among its services have been support to the telecommunications industry in Sri Lanka, including Internet services. The Project uses Volunteer Executives from the International Executive Service Corps to advise Sri Lankan firms on these matters. Interestingly, the Project is increasing its focus on policy formulation and believes that constraints facing the information technology industry, such as lack of proper protection of intellectual property, need to be addressed. Volunteer presence within Sri Lanka is complemented by use of the Internet and email to continue support to Sri Lankan enterprises over a longer period of time.

Distance Training Education and training are often elements of successful economic policy programs. Indeed approximately 28% of all USAID training supports business and free market economics. Distance education offers an alternative to traditional classrooms, and can be cost-effective, reach more students, and be less disruptive to host country institutions. While Internet-based education is growing quickly in the United States, little has been reflected back in USAID's training programs.

No examples were found where USAID projects used the Internet to provide distance learning opportunities.

Business Transactions As noted in the first deliverable, a major use of the Internet is to facilitate trade and investment, an important ingredient for economic growth - but not one directly related to economic policy strengthening. In this context, USAID's Agro-Enterprise Project is an interesting example. The Project makes extensive use of the Internet, but for promotion and marketing research efforts. The Project has just begun to

work on policy formulation so has no experience with how the Internet can be helpful in that fashion

The Technology Initiative for the Private Sector Project has an extensive home page⁹ and offers Internet services to clients, including (a) Internet searching (b) web site construction and web hosting for clients, and (c) advertising business opportunities over the Internet. The cost of a web site of two pages, designed and programmed, one year of hosting, registration with major search engines and one month email forwarding is approximately \$ 80. The cost of a more elaborate web site, including more extensive web pages, one year of hosting, registration with major search engines and one month of email forwarding for \$160

The AgroEnterprise Project home page includes (a) member sites with information on their agribusinesses, (b) a road map of Internet resources for Sri Lankan agribusinesses, (c) project documents such as production guidelines and business, (d) Sri Lanka agricultural information (statistics on trade, production and markets, joint ventures and investment profiles), and (e) business classifieds. The business classifieds have 26 business advertisements, from white refined cane sugar, to selling Spanish olive oil. Project documents include seven papers ranging from a consultancy report on vanilla to an overview of the ornamental aquatics sector in Sri Lanka. Sri Lanka agriculture information includes data and reports on exports, livestock, maize, market studies, seeds, and sunflowers, training and vanilla. There is even a section on policy (project policy studies and staffing of policy unit). One member has a display of an agribusiness/food processing firm with a tour of plant and display of goods (e.g. garlic and canned products)

With respect to policy, there are some reservations as to how powerful a tool the Internet will be. First of all, government which is usually involved in policy formulation, is largely not on line. The project donated four computers, but only one has been installed. The Government of Sri Lanka is very bureaucratic, and it is hard to get things implemented. Mercifully, the project works rather independently. The Project works with the Ministry of Agriculture but they don't have much Internet access or presence. The Sri Lanka Board of Investment is on line, however. Secondly, many non-governmental organizations do not have Internet access (say 95%). Some universities are on

4 Internet Use Among Donors, Government and Non Profits Visits were made directly to both the World Bank and Asian Development Bank, and to the United Nations Development Program/United Nations Industrial Development Organization and Canadian/Norwegian supported Internet projects

The multilateral banks do not have a specific focus on information and communication technologies, and in general were not knowledgeable about whether and how their

⁹ <http://www.agro-lanka.org>

organizations utilized the Internet to strengthen economic policies. Representatives of both organizations, in fact, were unaware of any Internet related activities underway. However, during visits with other institutions in Sri Lanka, examples were uncovered in which they received support from these same donors. In one case, the Asian Development Bank is financing the creation of an Internet backbone among public universities (dubbed "Learn"). In the case of the World Bank, an effort at industrial pollution abatement is heavily dependent on the Internet.

As noted above, the United Nations, Canada and Norway are all supporting the creation of local Internet Service Providers. Interestingly, both donor-supported ISPs see the need to develop a subscriber base to achieve the financial sustainability they require for their other donor objectives. For example, the Industrial Technology and Market Information Network seeks to promote industrial technology and markets in Sri Lanka, and will use Internet services to underwrite some of those objectives.

The Government of Sri Lanka is considered to be quite far behind in terms of adopting and utilizing the Internet. There are only 50 web pages for government ministries and departments, many of which are quite flat. The prime home page for Sri Lanka¹⁰ links to a number of government departments. However the majority merely list the name of the organization, its address, phone number, and name of its director.

The Government of Sri Lanka is aware of these shortcomings. Its Computer Information Technology Center was created to increase the awareness and use of computer technology in the public sector and society more generally. The Center has many outreach activities, including a popular radio talk show which describes the Internet, and a mobile center which demonstrates computer technologies to isolated rural citizens.

The Computer Information Technology Center also hosts the Sri Lankan web page mentioned in the previous paragraph. The Center is also very active in promoting 1998 as Sri Lanka's Year of Information Technology, which will intensify efforts at taking Sri Lanka into the global information age through seminars/workshops, a major international conference, and other programs. The Center, although a quasi governmental body under the Ministry of Science and Technology, has strong ties with the private sector. It is housed side by side with the Federation of Information Technology Industry in Sri Lanka, an umbrella industrial organization representing hardware, software and computer training vendors. The Computer Information Technology Center also has a law

"Although IT is a major tool for achieving efficiency and competitiveness it is hardly in use in an effective way in Sri Lanka, particularly in the Public Sector. Its use is often limited to financial and office automation activities and rarely used for decision making and for on-line transactions. Even the limited use of IT in the public sector has many examples of failures primarily due to the lack of proper planning, implementation and project management."¹¹

¹⁰ <http://www.lk>

¹¹ "Science and Technology To Meet the Challenges of the 21st Century", by the Ministry of Science and Technology, 1998

center, to bring about necessary legal and institutional changes for a robust information technology industry in Sri Lanka

Despite these limitations, there are some government agencies which have utilized the Internet to carry out their responsibilities. Among the more impressive web pages are those of the Central Bank and the Board of Investment. The Central Bank of Sri Lanka has an information-filled web page¹². Included is information about the Central Bank, Sri Lanka's finance and business sector, daily exchange rates, an annual report on the economy, publications, daily money market reports, economic surveys, economic indicators, and links to the Colombo Stock Exchange. Bank officials use the Internet itself to carry out economic research and find out current economic conditions around the world. They have a mirror web site in the United States to ease access for global financial markets.

The Board of Investment also has a comprehensive web page¹³. It provides information on the location, human resources and quality of life in Sri Lanka, as well as items of commercial interest such as the business environment, investment opportunities, contact information, sources of additional information, bureau of infrastructure investment, a news page, an opportunity to query and comment, and highlights of the 1998 budget.

"Learn" is a network for eight public Sri Lankan universities established in 1996 to communicate and share information. It is also used to connect with the global Internet, but suffers from congested lines. "Learn" is used primarily for email and research for those professors and instructors who are so inclined. Publishing university web pages is equally popular. In general, university administrators are unschooled and uncomfortable with this new technology and are therefore hesitant with allocating university funds for its expansion and improvement. By and large, the Internet is not used as an instructional tool, nor are there any examples known of distance learning via the Internet. However, the Sri Lankan Open University intends to use the Internet as a medium of instruction, with support from the United Nations Development Program. In general, awareness is low with regard to how to benefit from this new medium, in all faculties, including economics and business.

The general conclusions one can draw from the above are that (a) Sri Lanka has recently established a telecommunications policy framework with increasing amounts of competition and incentives for private investment in telephony, (b) teledensity rates should continue to grow from the very low level of just below two lines per hundred citizens, and (c) the use of the Internet should also continue to expand, as phone service improves and as computers become increasingly less expensive, in part due to slashing of customs duties. However, awareness of how to use the Internet as a tool to accomplish development objectives is fairly low.

¹² <http://www.lanka.net/centralbank/>

¹³ <http://www.boisrilanka.org/boihome/invest.htm>

5 Proposed USAID Internet Activities to Support New Strategy The Internet could play a useful, supplementary role in accomplishing the objectives of USAID/Sri Lanka's new economic growth strategy. Internet technologies can expand the capabilities of the USAID program as staff and budget cuts limit the capabilities of the more traditional approaches to foreign aid. A two-pronged approach would be necessary, however. The first would seek to increase the awareness and mastery of Internet technologies among economic growth partners in Sri Lanka. The second prong would aim to make the Internet a more useful tool for accomplishing strategic objectives. The USAID Mission in Colombo is better placed to achieve the first objective, while the Center for Economic Growth in Washington is more capable of carrying out the latter.

a Increased Internet Awareness and Mastery There is limited awareness today in Sri Lanka as to the potential of Internet technologies to strengthen economic policy reform programs. At the same time, due to favorable telecommunications and information technology policies, the environment is very favorable to the growth of the Internet. Thus, it will be important to increase the knowledge of how the Internet can be a useful tool for strengthening economic policy reform programs, as well as increasing the mastery of these technologies in Sri Lanka.

Among the activities which USAID/Sri Lanka might wish to consider would be the following:

1 Conduct a series of basic Internet workshops for economic policy makers The Internet is just now being introduced to a number of key economic organizations, such as the Directorate General of External Resources in the Ministry of Finance. Critical personnel in these organizations have had little exposure to computers and the Internet, including email. Thus, it is recommended that USAID support a series of basic courses for economic researchers and policy makers in a wide range of government agencies, non profit organizations, banks and other financial institutions, universities and professional and industrial associations to explain the fundamentals of the Internet, and allow for supervised hands-on experience with computers in the classrooms.

There are sufficient Sri Lankan organizations to conduct these basic seminars. The Computer Information Technology Center, the Industrial Technology and Market Information Network, and other Internet Service Providers all have experience with introductory classes on use of the Internet. Thus, costs should be relatively modest. Exploration should also be made as to whether some ISPs would be willing to bear some or all of these costs, since increased awareness leads to a stronger customer base.

2 Conduct specialized Internet workshops on special topics After participants in the earlier basic workshops have had an opportunity to work with the Internet on their jobs, then specialized Internet workshops could be conducted. These would follow the apparently successful model of Internet training for journalists two years back. The following professional groups might benefit from specialized courses: (a) agricultural economists, (b) financial markets developers, and (c) trade and investment policy makers.

To make these workshops as effective as possible, it will be important to bring in professional colleagues from the United States and other Asian countries to work with the participants on how they use the Internet in their daily professional lives. For example, Michigan State University or other colleges which train agricultural economists on use of the Internet could be asked to participate in the first group. Because financial markets are so diverse, professionals from banking, equity and debt markets, and regulatory bodies might all participate in the second grouping. The third grouping could include representatives from government agencies, business associations, policy and university research institutes, and other organizations involved in formulating trade and investment policies.

These specialized seminars could also be organized around a particular institution, such as a body regulating capital markets or banking institutions. In this case, there might be the added benefit of the participants and the instructors also agreeing to form virtual institutional relationships which might continue beyond the duration of specific training on how to effectively use the Internet to strengthen economic policies.

3 Encourage and Publicize Pilot Activities A third activity which USAID might consider would be to design, implement, evaluate and publicize pilot activities which utilize the Internet to strengthen economic policies. For example, USAID might invite proposals from a given group of organizations and individuals who have creative ideas on use of the Internet to strengthen economic policies. For example, a Sri Lankan organization might suggest developing a web site organized around comparing the economic competitiveness of Sri Lanka against a set of competitor economies in the region and rest of the world. Another group, such as a University or policy group, might suggest the sharing of economic databases used to monitor the local economy. A third group might want to establish a web based advocacy group surrounding a series of issues, such as further deregulation of the telecommunications sector. A fourth group might experiment with distance learning associated with a particular policy issue, such as intellectual property rights.

If these pilot activities were encouraged in conjunction with the specialized workshops, it might stimulate creative energies. USAID could announce its interest in entertaining proposals along these lines, which fit within the parameters of existing program agreements. Partners would be asked to cost share so that the budgetary burden on USAID could be kept to a minimum.

One important principle should be that USAID does not get involved in financing the costs of computer equipment and networks. The costs of computers keep coming down in the world market, and the elimination of Sri Lanka's customer duties further reduces costs to the local buyer. One would also expect the costs for Internet services will fall while the quality of Internet services improves, as competition grows in the local ISP market. Thus, for the costs of buying and maintaining a new vehicle, an organization should now be able to acquire approximately ten personal computers and network, and

obtain full Internet connectivity. Thus, it is argued here that the issue is not finance, but one of awareness, and demonstrating that the value of the Internet is much greater to an organization than the acquisition of an additional vehicle to its motor pool.

All of these efforts would be aimed at making USAID's economic growth partners in Sri Lanka understand and master utilization of the Internet to achieve economic policy reform objectives. This would directly contribute to USAID's new program goal in Sri Lanka: strengthened global competitiveness. Countries, such as Sri Lanka, which had suffered economically by geographic isolation, now have the opportunity to overcome this handicap by the deployment of modern information and telecommunications technologies to increase their competitiveness in the new global economy.

b Making the Internet a More Useful Tool The Center for Economic Growth could help organize the Internet to make it a more useful tool, just as USAID/Colombo is increasing awareness and training economic policy makers on how to use Internet technologies. USAID/Colombo will be organizing itself around the principle of strengthened global competitiveness in trade and investment, with intermediate results seeking to (i) liberalized trade and investment policy, and (ii) strengthen financial market practices and liberalize policies.

i Trade and Investment Policy There are three approaches which the Center for Economic Growth could adopt to help strengthen trade and investment policies in Sri Lanka via use of the Internet:

- a Organize an Internet presence to support trade/investment policy reform,
- b encourage U.S. trade and investment policy institutions to become virtual, and
- c support a specific policy reform -- employing all Internet applications.

These options are discussed below:

a Organize an Internet presence The Center for Economic Growth could facilitate a more deliberate and coordinated use of the Internet to strengthen trade and investment policies in Sri Lanka by establishing a web presence dedicated to trade and investment policies. The site, open to all of USAID's partners in Sri Lanka, could contain the following characteristics:

- a A description of all USAID efforts supporting trade and investment, with linkages to web sites for those projects having a cyber presence,
- b A virtual library with important databases and literature on the subject. A virtual librarian could be accessed to help reviewers find other information of interest,
- c Linkages to the numerous web sites dedicated to trade and investment -- both those designed for business facilitation as well as those focused on trade and investment policies. The USAID site would guide viewers to the benefits of each of these links,
- d Moderated "chat rooms" which would allow for professional networking and serious discussions of topical trade and investment issues,
- e Listings of "listserves", virtual conferences and other opportunities to dialogue broadly on international trade and investment policies,

- f Linkages to other international donor organizations and non-governmental organizations associated with trade and investment liberalization,
- g Listings of trade and investment consultants and links to USAID requirements contractors willing to provide on-line advice,
- h Listings of, and linkages to, web-based training pertaining to trade and investment,
- i Public advocacy and transparency fora where groups could publish press releases and other items of interest, and
- j A creativity room which would allow innovative pilot projects to facilitate trade and investment For example, virtual trade negotiations could be conducted to allow trade actors to gain experience Another example would be to create a methodology and ranking of nations according to their global economic competitiveness which would be placed on the Internet and periodically monitored and modified to reflect changing policies and global economic conditions

This alternative might also permit collaboration with some of the trade and investment business facilitation services supported by donors, non-profit associations, and private firms USAID could enter a dialogue with these services and attempt to enter partnerships whereby their information could be made available in a format useful to both trade and investment policy makers and reform advocates in USAID countries For example, Trade Compass might be willing to moderate cyber discussions on policy-oriented constraints faced by traders, to better educate those seeking ways to improve trade efficiency On the investment side, USAID could enter discussions with the Multilateral Investment Guarantee Agency's IPANet to see if there were ways its service could be useful to those making investment policies in developing countries

The benefit of this approach is that it would cost little, it would merely help organize the information on the web for use by USAID partners This approach would merely organize what is already taking place, allowing for better linkages and exchanges Existing USAID contracts (including IQC contracts) could be tapped to provide distance technical assistance USAID would not be embarking on a new agenda, but merely supporting what has already been articulated and is under implementation

b Encourage trade and investment policy institutions to become virtual

A second approach would build on the first but also help encourage other organizations which could contribute to trade and investment policy strengthening to become virtual These could be the following types of partners

- 1 American training groups with important content, such as a university's summer program for intellectual property rights,
- 2 American consultant groups, willing to offer on-line advice,
- 3 American think tanks not yet on-line but who are willing to share research findings,
- 4 U S universities to join in collaborate research sharing, provide distance learning, and to keep up with alumni of past USAID training programs,

5 U S professional and trade groups interested in liberalizing international trade and investment,

6 U S government agencies, such as the U S Department of Agriculture's office which deals with plant and quarantine regulations,

7 USAID registered private voluntary organizations and other non government organizations who share a common agenda, and

8 State and local governments with an interest in global trade and investment policies

Because of the modest costs involved, it should be possible to persuade many of the above American groups to create a web presence. However, some might encounter additional costs, for example if they were to convert classroom instruction to a virtual education.

c Support a specific policy reform -- employing all Internet applications

The third approach would be to take a topic, say diversification of exports which is an important aspect of Sri Lanka's export drive, and carry out Alternatives A and B, but more focused than on the broader subject of trade and investment. Another specific topic could be the private provision of physical infrastructure, where Sri Lanka could benefit from the experiences of the Philippines and elsewhere. Virtual support might entail economic research via the Internet, distance technical assistance, distance education, networking among professionals and institutions, and supporting non governmental organizations for international advocacy.

The Center could begin by establishing a web presence dedicated to this purpose. The site, open to all USAID projects, could contain the following characteristics:

a A description of all USAID efforts supporting more diversified exports, with linkages to web sites for those projects having a cyber presence,

b A virtual library with important databases and literature. A virtual librarian could be accessed to help reviewers find other information of interest,

c Participating countries can be encouraged to present their government export diversification policies and invite comparisons with those of other countries,

d Linkages to web sites which touch on this subject. For example, UNCTAD's Trade Points might be a useful link. The USAID site would guide viewers to the benefits and shortcomings of each of these links,

d Moderated "chat rooms" which would allow for professional networking and serious discussions of topical issues such as global and regional trading agreements,

e Listings of "listserves", virtual conferences and other opportunities to dialogue broadly on telecommunications policies. A virtual conference on experiences of countries seeking to diversify out of textile exports,

f Linkages to other international organizations and non-governmental organizations associated with these subjects. The World Trade Organization is one such linkage,

g Listings of trade and investment policy consultants and links to USAID IQC requirements contractors willing to provide on-line advice,

h Listings of, and linkages to, web-based training pertaining to telecommunications policies,

i Public advocacy and transparency fora where groups could publish press releases and other items of interest The Institute for Agriculture and Trade Policy could be approached to serve this advocacy role, and

j A creativity room which would allow experimental pilot projects to improved telecommunications services For example, dynamic interactive models could be developed, tested and disseminated to demonstrate the impact of various trade and investment policies on Sri Lanka's overall economy

As this Internet-based system is developed, it might be found that certain key actors are not present in a virtual sense, such as certain non governmental advocacy groups, training providers, and institutions with particular expertise and experience USAID's Center for Economic Growth would help to identify such groups and encourage them to join the process

ii Strengthened Financial Markets The same three approaches offered for trade and investment policy reform could also be adopted to help strengthen financial markets in Sri Lanka

- a Organize an Internet presence to support financial market policy reform,
- b encourage U S financial market policy institutions to become virtual, and
- c support a specific policy reform -- employing all Internet applications

Instead of repeating the methodology again, specific examples are offered which the Center for Economic Growth could adopt to help strengthen Sri Lankan financial markets via use of the Internet

Debt market It appears as if USAID/Sri Lanka will seek to expand and improve the functioning of bond markets The Internet can be a useful vehicle for supporting such objectives Examples of Internet-based interventions could include

a Creating a web presence to support the development of emerging bond markets, which would allow users to quickly learn how these markets are developing in other countries, and allow for communications with counterparts in those countries,

b A virtual library with important databases and literature A virtual librarian could be accessed to help reviewers find other information of interest,

c Linkages to web sites which touch on this subject For example, Internet-based materials from the United States Government on how the U S Treasury debt instruments are traded might be useful,

d Moderated "chat rooms" which would allow for professional networking and serious discussions of topical issues,

e Listings of "listserves", virtual conferences and other opportunities to dialogue broadly on debt market policies A virtual conference on experiences of countries in allowing non-nationals to invest in local bond issues,

f Linkages to other international organizations and non-governmental organizations associated with these subjects,

g Listings of bond market consultants and links to USAID IQC requirements contractors willing to provide on-line advice Arrangements could also be made with the U S Treasury Department to provide on-line advice on bond market development and open market trading,

h Listings of, and linkages to, web-based training pertaining to debt markets Given the numerous opportunities in the United States for professional development in the financial markets area, these training opportunities should be particularly relevant, and

i A creativity room which would allow experimental pilot projects to improve bond markets For example, an interactive program which explains how open bond markets work for Sri Lankans might be worth trying

As this Internet-based system is developed, it might be found that certain key actors are not present in a virtual sense, such as certain non governmental advocacy groups, training providers, and institutions with particular expertise and experience USAID's Center for Economic Growth would help to identify such groups and encourage them to join the process

Equity Market Improvements While it appears that much of the work to develop the Colombo Stock Exchange has been accomplished, there still might be ways in which the Internet can strengthen equity markets Among these would be

a Virtual relationship between Sri Lankan and American regulatory agencies The U S Securities and Exchange Commission could be encouraged to provide regular information and advice to strengthen the regulatory apparatus in Sri Lanka,

b Web-based Training Given the continual evolution of financial markets around the world, it will be important for capital market leaders in Sri Lanka to remain current The Center for Economic Growth can develop a catalogue of web-based training and make it available to Sri Lankan partners for their consideration and use, and

c Public Education USAID seeks to increase the number of individuals holding shares of publicly traded companies on the Colombo Stock Exchange One way would be to introduce Internet-based training at the university level for economics and business majors to learn how exchanges operate and the benefits and risks of participating This could help train the next generation of would-be shareholders, not only on equity markets, but also on the value of the Internet in economic and business decision-making

VI BALANCED GROWTH AND GLOBAL CLIMATE CHANGE

A Global Climate Change and USAID's Response Global warming is caused by an increase in greenhouse gas concentration in the atmosphere¹⁴ Carbon dioxide concentrations, the most predominant greenhouse gas, have increased 30 percent since 1860 Over the same period, average global temperature has risen by one degree centigrade Assuming a doubling of carbon dioxide in the atmosphere in the next century, average global temperature could rise by 1.5 to 3.5 degrees centigrade by the year 2100, exceeding observed climatic change over the past 10,000 years

Increases in temperature affect the earth's precipitation, accelerating the hydrologic cycle, increasing average precipitation, resulting in greater flooding and stronger winds, and seasonal changes As a result of global warming, the sea level is expected to rise by one-half meter in one hundred years Combined with storm surges and tides, this could result in seawater incursions into coastal and freshwaters, and more erosion One hundred million people could be at risk from flooding and storm surges, coastal areas and island nations could be devastated, diseases such as malaria and dengue fever could rise, and crop yields and forest products could decline If greenhouse gas emissions continue to grow unabated, all economic sectors, realms of the natural environment, and countries of the world will be affected Developing countries would be particularly hard hit

The growth in carbon dioxide concentrations is related directly to the emergence of carbon-based industries in the 1800s Coal, oil and gas used for power generation and transportation has both lead to increased living standards as well as growth of greenhouse gas concentrations Greenhouse gas emissions are the result of four factors population growth, economic growth, urbanization, and technology Today, industrialized countries contribute 53 percent, transition countries contribute 18 percent, and developing countries contribute 29 percent of the net carbon dioxide emissions into the atmosphere However, the *growth* in emissions in developing countries is accelerating as those from industrialized countries decline

The United States Agency for International Development issued an Action Plan to combat global climate change in December, 1997 The Plan recognizes the threats that global climate change pose to international economic and social development, as well as the growing contributions of developing countries to the problem of greenhouse gases Thus, the Plan suggests that USAID promote sustainable development that minimizes (a) the associated growth in greenhouse gas emissions, and (b) vulnerability to climate change

¹⁴ Much of this material is take from the "Climate Change Action Plan", December 1997, U S Agency for International Development

USAID will concentrate resources on a set of key climate change countries and regions because of their present and projected contribution to net global greenhouse gas emissions and their government's willingness to take action

The Action Plan concentrates on

- a Decreasing the rate of growth in net greenhouse gas emissions by decreasing greenhouse gas sources and maintaining or increasing sinks,
- b Increasing developing and transition country success in achieving the goals of the U N Framework Convention on Climate Change, and
- c Decreasing developing and transitional country vulnerability to threats posed by climate change

The following table describes the various activities proposed under each of these three initiatives

Nine Countries & Three Regions:	
Brazil	
Central Africa:	Cameroon, Central Africa Rep, Rep of Congo, Dem Rep of Congo, Equatorial Guinea, Gabon
Central America:	Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama
Central Asia:	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan
India	
Indonesia	
Mexico	
Philippines	
Poland	
Russia	
South Africa	
Ukraine	

Based on a commitment made by President Clinton at the United Nations in June, 1997, the United States will provide at least \$1 billion over the next five years to help developing countries/transitional societies reduce the climate change threat USAID has been given the lead in implementing this commitment Resources include \$750 million in grant assistance, up to \$250 million in "climate-friendly" investment using credit instruments, and a \$25 million inter-agency climate change program At least 40% of the grant, and at least 67% of the credit, assistance will be allocated to the countries and regions in the above box A significant additional percentage will be obligated to USAID's program in Egypt

B The Importance of Economic Policies

The USAID Action Plan recognizes the importance of economic policies to mitigating against global warming Four factors are identified above which contribute to greenhouse gas emissions, three of which are directly affected by a nation's economic policy framework economic growth, urbanization, and choice of technology The fourth, population growth, is influenced by income levels within societies

"While economic growth fuels emissions growth, it also is critical in building the adaptive capacity of nations and ultimately helps curb population growth. With economic development comes increased human and institutional skills, an ability to absorb and manage crises, and a larger pool of financial resources to devote to longer-term challenges and needs. Economic growth also brings with it a decrease in birth rates. The key is to promote less carbon-intensive economic growth and development that minimizes the associated emissions while equipping nations to manage change."¹⁵

¹⁵ USAID's Climate Change Action Plan", December 1997

Climate Change Action Plan Activity Matrix

Decreasing the rate of growth in net emissions

Energy Sector

Substitution of less carbon emitting fuel sources,
 Use of non-fossil renewable energy sources,
 Increased efficiency in power generation, transmission & distribution,
 Increased end-use energy efficiency,
 Decreased use, increased efficiency or substitution of less carbon-emitting fuels in transportation systems, and
 Reduced market barriers & increased incentives to less-carbon-intensive energy use

Land Use

Preservation, re-establishment or more sustainable management and use of forests, trees & denuded lands,
 Maintenance & preservation of wetlands and mangroves,
 Decreased burning of savanna, rangeland, forest & brushland,
 Reduced slash-and-burn (shifting) cultivation,
 Increased soil organic matter & decreased soil erosion,
 Increased use of biofuels, and Improved animal husbandry

Urban Areas

Decreased emissions of methane from urban sewage & solid waste,
 Increased industrial & municipal adoption of environmental management systems,
 Increased industrial & municipal investments in clean technology
 Creation of regulatory frameworks & credit mechanisms to facilitate environmental investments,
 More environmentally sound infrastructure, and
 Introduction of cleaner, more efficient urban transportation systems

Increasing developing/transition country success in achieving goals of FCCC

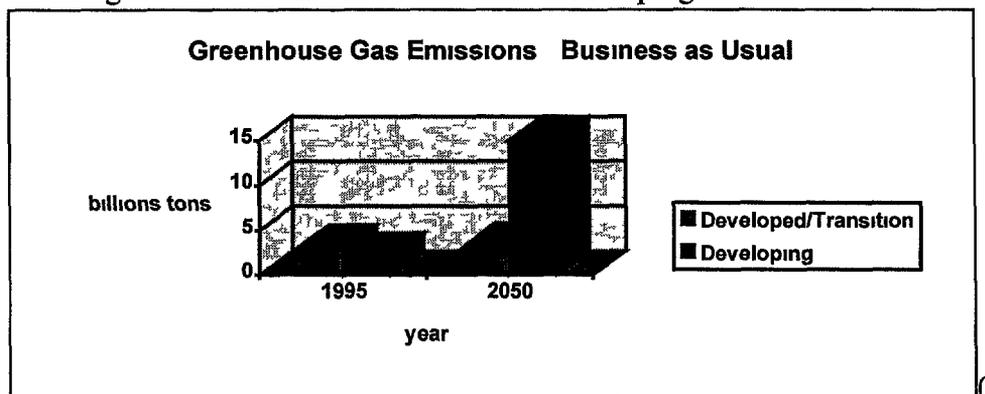
Creation of national emissions inventories, baselines & budgets, national action plans, & national communications,
 Enhanced capacity to track, monitor, report & verify greenhouse gas emissions,
 Enhanced capacity to monitor & project vulnerability to climate change,
 Agreements to cooperate in facilitating public-private partnership that transfer environmentally sound technology that mitigates climate change,
 Acceptance of greater developing country commitments under the FCCC,
 Stimulation of joint implementation projects & participation in JL regimes,
 Establishment of legislative, regulatory & market structures, & local capacity to participate in emissions trading regimes, and
 Integration of climate change concerns in national sustainable development strategies

Decreasing developing country vulnerability to threats posed by climate change

Increased preparedness for natural disasters,
 Increased adaptability & efficiency of agricultural systems, municipal management, water resources management & public health systems,
 Improved domestic & intl capacities for conflict-resolution regarding shared resources, e.g. water

USAID's Center for Economic Growth is supporting research by the Harvard Institute for International Development (HIID) on precisely this relationship -- the links between carbon emissions and economic growth¹⁶. Some of the main points of the research conducted thus far are as follows:

→ If present trends continue, in fifty years current industrialized and transition countries will increase their emissions from 2.8 to 3.1 billion tons, while developing countries will increase their emissions from 2 billion to 15 billion tons, almost five times the level of emissions of the former group. Therefore, it should be clear that global warming cannot be contained without the developing world's commitment.



→ Under the Kyoto Protocol, developing and transition countries agreed to reduce their emissions in 2010 by an average of 5.2 percent below their 1990 levels. If developed/transition countries are to achieve this commitment, they will have to reduce emissions by 18 percent below what they would have been at without the Protocol. Were the developing world to make a similar commitment, they would have to reduce greenhouse gas emissions by 60 percent compared to what they would have been without the Protocol. This would be devastating to economic growth, unless alternative energy paths can be identified and implemented.

→ There exist sets of economic and energy policies that would allow developing countries to significantly reduce greenhouse gas emissions which involve (a) market liberalization and elimination of state controls over economies, and (b) market or full-cost pricing of energy. Furthermore, adoption of new technologies and efforts to improve energy efficiency promise high pay off in terms of carbon emission standards, implying the need to also focus on financing and technology transfer to the developing countries.

→ These economic and energy policies require a careful balance of growth and concern for the environment. There is much additional research that needs to be conducted to determine exactly what works best and how.

¹⁶ Research in progress by Dr. Theodore Panayotou and Dr. Jeffrey Sachs, HIID, Harvard University. Work and thoughts are summarized in an information memorandum prepared by Juan Belt, C/EG, recording a January 8, 1998 meeting with the USAID Administrator.

These findings imply that it is critical for economic policy-makers from developing countries to become engaged in the debate and formulation of policies which result in their countries accelerating economic growth while they achieve an alternative energy path which emits less greenhouse gasses. Such an engagement will require networking, communications, and joint collaboration and research on an international scale, if mankind is to be successful in combating global warming. The Internet can play a useful role in facilitating such research and communication among policy-makers around the world.

C The Greening of Economic Policy Reform World Bank Perspective¹⁷ The World Bank has recently carried out a study examining the relationships between “economywide” policies, defined to include all economic policies of a pervasive nature, and environment. Such policies are targeted on macroeconomic problems (e.g. affecting international trade and government budgets), and broad sectoral issues (e.g. relating to agricultural productivity, industrial protection, and energy use). Typical prescriptions include altering exchange rates, reducing government budget deficits, promoting market liberalization, and increasing the role of the private sector. The study reviewed World Bank case studies, in particular air quality and industrial pollution in Poland, environmental aspects of energy use in Sri Lanka, deforestation and land degradation in Costa Rica, migration and deforestation in the Philippines, overgrazing in Tunisia, fertility losses due to extending cultivated lands in Ghana, water resource depletion in Morocco, and wildlife management in Zimbabwe.

The major findings and conclusions of this study are

→ Removing price distortions, promoting market incentives and relaxing other constraints generally contribute to both economic and environmental gains. This is a “win-win” situation. For example, reforms that improve industrial and energy efficiency can reduce both economic waste as well as pollution. Improving land rights and access to support services yields both economic gains but also better environmental stewardship.

→ However, unintended adverse environmental side effects occur when economywide policy reforms are conducted while other policy, market or institutional distortions remain. Remedies generally require implementation of additional policy and other reforms that typically not only improve the environment but also lead to more economic growth. For example, export promotion and trade liberalization that increases profitability of exporting a natural resource could encourage excessive extraction or harvesting of that resource if it were underpriced or subsidized.

→ Policy reforms that seek to restore macroeconomic stability will generally result in environmental benefits, because instability undermines sustainable resource use. For

¹⁷ Much of this section is taken from “The Greening of Economic Policy Reform, Volumes I and II, by Jeremy J. Warford, Mohan Munasinghe, and Wilfrido Cruz, for the World Bank Environmental Department and Economic Development Institute, 1997.

example, controlling price inflation leads to clearer price signals and better investment decisions

→ However, stabilization could have unforeseen adverse short-term impacts on the environment. For example, cutting back on government spending might lead to macroeconomic stabilization but could lead to adverse effects if environmental protection programs are disproportionately targeted for cuts. The short-term impact of macroeconomic adjustment on poverty and unemployment could aggravate existing pressures on fragile natural resources utilized by the poor.

→ Economywide policy reforms also have longer-term effects on the environment through jobs and income distribution changes. They generate new economic opportunities, thereby alleviating poverty and reducing pressures on the environment due to overexploitation of fragile resources by the unemployed. At the same time, this increases pressures on environmental resources. Increasing efficiency and reducing waste, as well as properly valuing resources, will help reshape the structure of growth and reduce undesirable environmental impacts.

The study concludes that while the relationships between economic policies and the environment are complex, there are a small number of identifiable linkages between specific economic policies and important environmental concerns. Thus the environmental analysis and implementation efforts related to economic policy programs can be focused, practical and effective. The authors identify the following immediate steps to be taken:

→ Problem identification. Environmental trends need to be monitored to anticipate problems when economic policy reform programs are being formulated and implemented. Review of available environmental information could help identify critical environmental problems and their sensitivity to particular policy measures.

→ Analysis. Serious environmental consequences of proposed policy reforms identified in the problem identification stage should be carefully assessed, using a number of techniques presented in the study.

→ Remedies. When potential environmental problems can be identified and analyzed, targeted complementary environmental policies or investments need to be implemented to mitigate against environmental damage.

→ Follow-up. A system for monitoring the impacts of economic reform programs on environmentally sensitive areas should be designed and carried out during policy reform implementation.

These findings support those of USAID's Center for Economic Growth and HIID. They point out the need to reach and educate economic policy-makers now so that appropriate

economic-environmental analyses are carried out to establish complementary policy and institutional measures to ensure win-win scenarios for economic gain and environmental protection. The Internet can play a very useful role in this endeavor.

D Use of the Internet Today The Internet is used extensively today in efforts to combat global warming, but from a technical, sectoral perspective. While the Internet has shown itself to be a useful tool for economic policy strengthening, there is not much evidence that the Internet has been applied to strengthening economic policies which are also aimed at mitigating against global warming.

1 The Internet as a Tool for Environmental Protection The Global Energy Marketplace (GEM) is a project of the Center for Renewable Energy and Sustainable Technology, and is supported by the U.S. Environmental Protection Agency. GEM is an on-line, searchable database¹⁸ of more than 2500 energy efficiency and renewable energy annotated Web links, created to promote a more sustainable energy future and mitigate global climate change that results from energy use. USAID has supported this network, from time-to-time. Searches are organized into the following options: Energy efficiency (e.g. lighting, agriculture, buildings), renewable energy (e.g. hydropower, solar, wind), sustainable living (e.g. climate change, planning and development), energy systems (e.g. cogeneration, village power), region (Africa, Asia, Central America/Caribbean), type of information (e.g. education, research, policy, economics), and a state-by-state resource guide.

A search was made of "economics" materials in the GEM database, and 297 citations were identified. A wide range of information surfaced through this search. A number of donor web sites were found. From an Asian Development Bank loan for renewable energy projects in India to the World Bank's EmPower Network which addresses the environmental impacts arising from energy projects, and the United Nations Development Program's Global Environment Facility's Small Grants program. A number of U.S. Government Agencies are also listed (some of which don't directly relate to GEM) such as the U.S. Commerce Business Daily, the Department of Energy's Clean Cities and Fresh Start Programs, U.S. Commerce Department Trade Leads, U.S. Export-Import Bank, U.S. Small Business Administration Guide-To-Exporting, Resources for Small Business Management, and other guides, National Institute of Standards and Technology Advanced Technology Program, Securities and Exchange Commission, and various USAID reports (e.g. country profiles, procurements, and telephone directory¹). Country studies and reports are also listed for Armenia, Azerbaijan, Brazil, Korea, Belarus, Chile, India, China, South Africa, Kazakhstan, Russia, Malaysia, Paraguay, Tajikistan, Kyrgyz Republic, Bulgaria, Egypt, Jordan, Romania, Thailand, Syria, the Philippines, as well as more developed countries. Industry and business associations include the American Wind Energy Association, American Chambers of Commerce Abroad, the Environmental Capital Network, Export Council for Energy Efficiency, the International Association for Energy-

¹⁸ <http://gem.crest.org>

Efficient Lighting and International Energy Association Various newsletters, published reports, information on U S , state and local government export programs, and a few private firms are also linked to GEM's economics web pages While interesting, none of these sites are designed for economic policy-makers nor explore the relationships between economic growth and greenhouse gas emissions

USAID itself has four activities that use information technology to address energy efficiency objectives These are as follows

a USAID is assisting the Philippines create a local area network to share energy efficiency information among six members of the Powernet group USAID also assisted Powernet with the design and implementation of a web site that will host information for access by the entire group Portions could be made available to the external community via the Internet

b The Indonesian Center for Energy and Environment Network is a network that connects Indonesian nongovernmental organizations, academic institutions, and Government of Indonesia ministries and provides information on sources of sustainable energy information, as well as increases public awareness of climate change issues

c Nusanet is a network of Indonesian non-governmental organizations that have formed an electronic network Nusanet seeks to facilitate communications among the group, within Indonesia, and to provide a lifeline to the outside world

d USAID supported development of a web page¹⁹ on the World Energy Efficiency Association server as a repository of USAID-funded energy efficiency documents USAID also funded two editions of the Association's Internet Energy and Environment Sampler, a document which identifies sources of information related to energy and the environment that can be accessed electronically The second edition of the Sampler, produced in December of 1995, presents information by U S government agency, U S national laboratory, other governments, international organizations, universities, corporations, electric and other utilities, non-profit organizations and professional associations, libraries, bibliographies, collections and search engines, electronic lists/conferences, and news groups The Sampler has been periodically updated since then A search was made of "economics" and "economic policies" for which a number of sites were presented However, these sites primarily represent energy and environmental organizations, such as the Natural Resources Defense Council, Edison Electric Institute, Energy Conservation Center of Japan, World Resources Institute, Polish Foundation for Energy Efficiency, the United Nation's Environment Programme's International Environmental Technology Center, the Egyptian Organization for Energy Conservation and Planning, and many other energy/environmental-centric institutions Again, none of these activities target or address economic policies or policy-makers directly

Five other USAID environmental projects have used the Internet GreenCom, the Environmental Education and Communication Project, seeks to address the education and communication needs of environmental projects GreenCom has provided environmental

¹⁹ [http //www weea org](http://www.weea.org)

education and communication expertise to USAID projects dealing with solid waste management and recycling, biodiversity conservation, water resource management, policy and public participation. GreenCom works with developing country community groups, schools and government agencies on strategies that produce changes in behavior as it affects the environment. GreenCom has employed the Internet in the Global Learning to Benefit the Environment (GLOBE) program in Jordan where primary and secondary school students measure and enter environmental data on the Internet which is then processed, analyzed, and disseminated by U.S. government agencies (NOAA and NASA). However, GreenCom is not focused on global climate change, targeted for economic policy-makers, nor is the Internet the primary medium of communication.

ENRIC, the Environment and Natural Resources Information Center, is another USAID project which has utilized the Internet to display information about the environment, such as detailed summaries of more than 160 USAID activities with environmental objectives, special reports on a range of USAID-supported environmental research activities, a technical information service, and environmental links. Now terminated, ENRIC has been rolled up into the Environmental Information Clearinghouse. The Clearinghouse will publish USAID's Climate Change Action Plan on the Internet. The Clearinghouse has no plans to become engaged in economic policy interactions with global warming.

USAID also plans to support its Environmental Partnerships for Eastern Europe and the New Independent States by employing the Internet. From a recent solicitation: "USAID plans to arrange separate support for Internet-based interactive electronic data bases on environmental projects, policies, laws, financing sources, technologies and services relevant to the needs of the ENI region. These systems will provide users

- information on existing private sector projects and public-private partnerships and
- source and market information on environmental goods and services

A number of data bases, trade-matching systems and environmental technology networks exist, but none are oriented specifically to the ENI region. USAID is in the process of determining the most cost-effective means of bringing these data bases and networks into the EPP to help achieve its objectives."

The United States-Asian Environmental Partnership (US-AEP) facilitates long-term partnerships between governments, industry and non-governmental organizations in Asia and the United States to help create incentives, build private and public capabilities, and transfer technology that will improve Asian environmental conditions in the urban and industrial sectors. While more environmental and business-oriented than targeted on strengthening economic policies, the US-AEP does have an extensive Internet presence with information on US-AEP Partners, clean technology and environmental management, environmental standards, pulp and paper, food processing, electroplating, petrochemical, textiles, environmental laws, environmental discussion groups (listserves) and links to other U.S. Federal Government agencies. Included is an Internet Guide, a collection of environmental web sites related to clean technology and environmental management. Not

meant to be comprehensive, the Internet Guide seeks to give users a starting place for self searches

The US-AEP has recently created the Greening of Industry Network²⁰, an international network of 1,100 leaders from 50 countries working in academia, business, public interest, labor and government. This Network seeks to build actionable policies and strategies toward creating a sustainable future through international conferences and workshops, research and policy teams, co-authored publications and a communications network, that will likely be Internet-based. Tufts University (U S) and Chulalakorn University (Thailand) manage this network.

Another interesting regional approach is Environmental Law On-Line (E-Line)²¹ which will be an Internet-accessible electronic database of key environmental laws for countries in the Inter-American region. The overall objective is to make environmental legal information and training available to governments, private sector investors, financial institutions and civil society members through the Internet as a means to support environmentally-sustainable investment and development in the region.

E-Line is modeled after a North American prototype created for the North American Free Trade Agreement Commission on Environmental Cooperation. The main element of E-Line will be an environmental law handbook for each participating country, summarizing key features of that nation's environmental norms following a common approach which will allow hypertext links and comparability across nations. USAID is financing this pilot of E-Line in eight South and Central American countries. It will seek self-sustainability through membership fees, paid advertising and teaming agreements. USAID's Environmental Law Program at the Center for International Environmental Law in Washington will joint venture with two Latin institutions to execute this Internet-based environmental law program.

2 The Internet as a Tool for Economic Policy Strengthening Moving into the area of economic growth, this Study's first deliverable conducted an in-depth survey of USAID, other donors, other U S Government agencies, and non-profit organizations use of the Internet to strengthen economic policies in developing countries. The study concluded that the Internet is beginning to demonstrate its utility in contributing to economic policy reform. Six Internet development applications were found to help strengthen economic policy reform programs.

a Economic Research and Analysis Collection of current and reliable information is essential for sound economic policy analysis and formulation. The Internet has a wealth of information and analytical tools for sound economic research and analysis, an ability for

²⁰ <http://www.tufts.edu/as/polsci/Greening>

²¹ While E-Line is yet to be created, its genesis is NAFTA's environmental law program, found on the Internet at <http://www.cec.org>

professionals to dialogue and conduct joint research, and emerging technologies which allow for interactive database management. Training may be necessary to maximize use of the Internet as a research tool.

The ability of the Internet to strengthen economic research and analysis will be important for efforts by researchers and policy-makers considering the influence that differing sets of economic policies have on global climate change. The Internet affords the sharing of databases, observations, and research findings among organizations and professionals investigating similar subjects. The Internet also affords an ability to ensure that research conducted in one country follows methodologies and conventions useful for comparison with other countries. This is particularly important in the field of greenhouse gas emissions where methodological problems and controversies often arise. The World Bank study also suggests the importance of sound economic-environment analyses to formulate correct policy packages.

b Public Transparency and Advocacy Transparency is important for an informed public and advocacy is important to lobby for change. The Internet may be an effective tool for transparency and advocacy, depending on the audience given today's uneven Internet access. International financial, business and specialized non-governmental organizations have made very effective use of the Internet for transparency and advocacy. However, the Internet cannot reach large audiences in developing countries so other media may be more effective.

This is an important attribute of the Internet, especially when there is a divergence between the "north" and "south" on the importance of addressing greenhouse gas emissions and the impending threat of global climate change. Transparency is important to ensuring that different societies understand why and how other nations are balancing economic growth and concern for the environment. This helps dispel gross characterizations, misunderstandings and misperceptions. Advocacy, long a trademark of environmental groups in lobbying for cleaner water and cleaner air, is strengthened by the communications available over the Internet. Advocacy groups can also be formed around sound economic policy packages that both accelerate economic growth and slow greenhouse gas emissions. While the Internet will not take the place of mass media, it can reach influential elites with advocacy messages.

c Professional Networking Economic policy analysts and program managers need to exchange news and views, collaborate on joint projects, and stay current in this dynamic global economy. The Internet by its very nature is ideally suited for professional networking. However, much of the professional networking today is among the donors. Broadening will occur as access and training expands. Virtual conferences and Internet newsgroups offer other opportunities for networking but work best when structured.

Economists and other policy analysts and policy-makers can utilize the Internet to engage each other in searching for and formulating sets of economic growth policies which also

take concern for global warming into account. Finding the alternate energy paths that make most sense for their respective countries is made easier by being able to engage others in what works and what doesn't. Given the diverging views on the precise nature of the problems and how to overcome them, it is important to be able to draw upon respected colleagues in the same profession, dealing with similar problems. Virtual conferences and meetings can be arranged on current topics of interest, such as views on international treaties and agreements dealing with greenhouse gas emissions, or new emerging technologies and their implications for economic growth and greenhouse gas concentrations. Implementing the World Bank's suggested approach toward formulating "green" economic policies would also seem to benefit from opportunities to collaborate and exchange views with professional colleagues. Thus, the networking capabilities of the Internet are important and substantial.

d Institutional Networking Institutions need to remain as current on global economic conditions and thinking as do individuals. Economic policy institutions, be they business associations, think-tanks or universities, can grow stronger by having international partnerships. Institutional networking works best when organizations have a common agenda and mutual interest. In such circumstances the Internet is a great tool. When mutual interest is not present, the Internet can be as ineffective a tool as any other.

National finance ministries, planning agencies, investment promotion agencies, central banks, university economics departments, and economic research and public policy think tanks need to better understand the relationships between sets of economic policies and environmental degradation. The Internet can be a useful tool in reaching these economic policy organizations and engaging them in a dialogue on the environmental consequences of various actions as well as the status quo. Reformers in all societies are strengthened when they can cite what and how neighbors and respected nations are dealing with the balance between economic growth and global climate change. The Internet can be used in this way. As noted in the preceding paragraph, the Internet works best when there is a mutual interest present. Thus it will be important to help build concern for and interest in global climate change and its relationship with sets of economic policies.

e Distance Technical Assistance Economic policy reform programs often require expensive, short-term technical assistance for very defined periods of time. The Internet can be a tool to deliver these services, on-line and on-time. The Internet can also provide greater access to leading luminaries who might otherwise decline assignments which require several weeks of undivided attention. Laying the groundwork and having local support is important to ensuring the effectiveness of this approach.

Carrying out and interpreting economic/environmental research, formulating environmentally sound economic policies, and monitoring results often requires outside technical assistance. Some of this assistance can be provided over the Internet, thereby delivering needed advice in a more timely and cost effective basis. Questions such as how to value and distinguish between alternative uses of timber products can often be answered

by use of email, passing files and reports, and interacting between concerned parties. The Internet can also allow these transactions to take place more spontaneously, not requiring the normal long lead times associated with scheduling of various assignments and airline travel.

f Distance Education Education and training are often elements of successful economic policy programs. Indeed approximately 28% of all USAID training supports business and free market economics. Distance education offers an alternative to traditional classrooms, and can be cost-effective, reach more students, and be less disruptive to host country institutions. While Internet-based education is growing quickly in the United States, little has been reflected back in USAID's training programs.

Training programs which educate economists and policy-makers about the interplay between economic growth and global climate change can be delivered via the Internet. Short courses on various associated topics can be developed and delivered through this medium, thereby allowing one to reach much larger groups in much shorter periods of time. While not suggesting this as a strict replacement for seminars, workshops and other learning opportunities, the Internet does afford one to strengthen the learning process.

Beyond these six development applications, the first deliverable examined four other case studies which are relevant to use of the Internet to strengthen sustainable economic policies.

g Access to and Mastery of the Internet Benefits from Internet applications can't be realized if counterparts lack access or are unschooled in its use. In any case, the Internet remains a bumpy electronic frontier, even for proficient counterparts. There are three views towards Internet connectivity within the donor community. The true believers who spare no efforts to connect counterparts, those who try to marry development objectives with Internet connectivity, and those who basically ignore the Internet. Long-term economic policy objectives may be jeopardized without on-line connectivity.

An analysis was made of Internet connectivity in Action Plan priority countries. This is elaborated upon later, but, in general, priority countries have Internet technical connectivity (aside from the Central Africa region). However, there are issues of access and mastery in these countries. For example, the Philippines is a priority country, and there is a vibrant Internet Service Provider industry. However, use of the Internet in the Philippines is mixed. As a generalization, many senior policy-makers do not use the Internet, but younger researchers in planning departments, universities and think tanks do. These advisors are often just removed from decision-makers. Over time, one would expect the next generation of policy-makers to be more comfortable with this medium. Training may be considered for economists on how to use the Internet for policy formulation.

h Experimentation and Pilot Projects As we enter a fundamentally new global information economy, traditional approaches to economic and social development need rethinking. Thus, a case can be made for pilot projects to test new approaches out. Several

donors have launched programs which provide venture capital/pilot project funds to innovate on application of Internet technologies to development. Methodological problems arise, however, in measuring the impact of the Internet on development.

Given the subject matter, experimentation and pilot projects on how the Internet can advance the cause of accelerating economic growth and slowing the rate of growth of greenhouse gas concentrations makes a lot of sense. One can experiment with ways in which the Internet can demonstrate relationships between both growth and greenhouse gases, how the Internet can develop learning modules to educate policy-makers and influence makers, and how the Internet can allow for comparable research across countries and regions.

1 Regional Approaches Several Internet programs examined follow regional approaches to economic growth. One focuses on extending Internet connectivity to the greatest degree possible, anywhere in the region. A second analyzes economic growth constraints, such as poor financial services, and devises Internet and other solutions, such as improved regional banking services. A third direction maximizes electronic linkages between regional economic institutions, from business groups to universities.

Regional approaches have already been built into USAID's action plan, with three regions (Central Africa, Central Asia and Central America) being targeted. The commonality of

problems argues that the Internet can be a useful tool for networking and reaching common solutions. Language, cultural similarities, and historical backgrounds can be used to strengthen research and findings. For example, Central Africa has vast forest reserves which makes it important for the purpose of storing carbon and mitigating against

Regional Environmental Center for Central/Eastern Europe.
This Regional Center is a non-profit organization with a mission to assist in solving environmental problems in Central and Eastern Europe. It encourages cooperation among NGOs, governments, businesses and other environmental stakeholders, by supporting the free exchange of information and by promoting public participation in environmental decision-making. Fifteen Central-Eastern European countries have signed agreements to participate in the Regional Environmental Center. The REC uses the Internet extensively to carry out its mission. Its home page describes its mission, grant programs, fellowships and internships to promote networking, important publications, regional information to address crucial environmental issues, several environmental databases, and various announcements to its 2,000 daily readers. While regional and focused on environmental concerns, there is little for economic policy-makers.

greenhouse gas emissions. Central Asia, on the other hand, has a highly dependent energy sector, where decisions in one country (such as to use excessive hydropower) affect the emission of greenhouse gases in another country (then forced to use more coal). All Central Asian republics also share a common historical dominion by Russia and communist rule.

2 Internet Business Services as a Tool for Policy Reform The number of independent attempts to use the Internet to facilitate international trade and investment is ample evidence of the importance of information in the emerging global economy. Business groups are among the Internet's most enthusiastic supporters for this reason.

These business-oriented Internet programs also offer opportunities to influence economic policies, albeit indirectly. By permitting users to compare economic policies across national boundaries, the Internet's transparency can work as an agent of policy change.

There are a number of business facilitation services that promote investing and trading in environmental and energy goods and services. While not having a policy orientation, these services will benefit when the right set of economic policies exist to provide a fertile marketplace for private investments and trade. Some business facilitation services might be approached to help identify economic policies that hinder or promote accelerating economic growth and reducing greenhouse gases.

3 General Conclusions Based on this survey, one can reach the following three basic conclusions with respect to use of the Internet as a tool to improve economic policies which reduce greenhouse gas emissions:

a. There are a number of Internet applications which seek to facilitate an exchange of information and increase the general public awareness with respect to environment/energy technologies, businesses, and public policies and programs. These applications, however, tend to be passive approaches to making information available, not active networks of international collaboration,

b. No instances were found of an Internet-based network supporting the work of economic policy-makers in a way to make them more aware and knowledgeable about greenhouse gas emission, and

c. At the same time, the Internet can be a useful tool for economic policy-maker collaboration, with a number of relevant applications. The ability to conduct collaborative research, promote transparency of policies, advocate for policy reforms, network both individually and institutionally, advise on-line, learn through distance education, experiment with pilot projects, and work regionally are important dimensions for fulfilling goals of the Action Plan through improved economic policies.

E Proposed Economic Policy Strengthening Program The objective of this program will be research, formulate and implement economic policies which simultaneously accelerate economic growth and decrease the rate of greenhouse gas emissions in developing countries. The key will be to reach, engage and persuade economic policy-makers to pursue accelerated economic growth, but in a sustainable, less carbon-intensive manner. The program would have an Internet foundation because of that medium's economic research, public transparency and advocacy, professional and institutional networking, distance technical assistance and distance learning applications noted earlier. While this description outlines an Internet program, it needs to be clear that such an initiative also needs a physical form, that is it would need an organizational home and committed staff dedicated to its success.

There are five related virtual actions that USAID's Center for Economic Growth could undertake to help strengthen economic policies in developing countries that mitigate against greenhouse gas emissions via use of the Internet.

- ⇒ Organize the Internet for the study, formulation and implementation of environmentally-friendly economic policies
- ⇒ Link and train economic policy institutions in developing countries and transitional societies on effective use of the Internet
- ⇒ Encourage policy institutions to become virtual
- ⇒ Identify and conduct work on specific economic-environment policies
- ⇒ Carry out pilot and regional Internet activities
- ⇒ Establish a small grants program to spur Internet usage, economic policy initiatives, and regional programs and innovations

1 Organize the Internet for the Study, Formulation and Implementation of Environmentally-Friendly Economic Policies The Internet has been shown to be a very useful tool, capable of addressing environmental problems as well as strengthening economic policy programs, but in separate and uncoordinated fashions. The Center for Economic Growth could facilitate a more deliberate and coordinated use of the Internet to link the strengthening of both economic policy and environmental management.

The target audience for such a web site would include (a) economic researchers and policy-makers in developing countries and transitional societies, (b) national economic development planners, (c) investment, banking, and other financial planners and managers, (d) environmental researchers and policy-makers concerned with greenhouse gas emissions, (e) planners and managers involved in the energy, transport, urban, agriculture and other sectors where sectoral policies and practices directly impact on greenhouse gasses (such as utility managers and regulators), and (f) leaders of non-profit organizations who advocate for economic, environment and energy policy reforms.

The web site would be dedicated to balanced economic growth and global climate change
The site, open to all, could contain the following characteristics:

- a Copies of and commentaries on international treaties and agreements to reduce greenhouse gasses,
- b Plans, policies and programs of individual industrial, transitional and developing countries to reduce greenhouse gases, as well as progress and lessons learned,
- c A virtual library with important databases and literature. A virtual librarian could be accessed to help reviewers find other information of interest,
- d A technology database that is useful for economists and financing specialists (as opposed to technologists) that permits users to examine the costs and benefits of various technology tradeoffs,
- e A financiers database that lists sources of private and public funds available for investments that mitigate against greenhouse gas emissions,
- f Linkages to web sites that address the economics of global climate change,

g Moderated “chat rooms” which would allow for professional networking and serious discussions of topical issues (such as upcoming international conferences and debates on key issues),

h Listings of “listserves”, virtual conferences and other opportunities to dialogue broadly on economic-environmental policies,

i Linkages to bilateral and multilateral donor organizations and non-governmental organizations associated with economics and global warming,

j Listings of environmental-economists, environmental law and management specialists, and associated consultants, and links to USAID contractors willing to provide on-line advice,

k Listings of, and linkages to, web-based training pertaining to the economics of the environment,

l Public advocacy and transparency fora where groups could publish press releases and other items of interest, and

m A creativity room which would allow innovative pilot projects to balance economic growth and the mitigation of greenhouse gasses. For example, virtual emissions trading negotiations could be conducted to allow international agreement negotiators to gain experience

This web site would also permit collaboration with environmental trade and investment business facilitation services supported by governments, donors, non-profit associations, and private firms. USAID could enter a dialogue with these services and attempt to enter partnerships whereby their information could be made available in a format useful to both trade and investment policy-makers and reform advocates in USAID countries. For example, Trade Compass might be willing to moderate cyber discussions on policy-oriented constraints faced by environmental and energy traders, to better educate those seeking ways to improve trade regimes in these goods and services. On the investment side, USAID could enter discussions with the Multilateral Investment Guarantee Agency’s IPANet to see if there were ways its service could be useful to those making environmental and energy investment policies in developing countries

2 Link and Train Economic Policy Institutions in Developing Countries and Transitional Societies on Effective Use of the Internet There is limited and uneven access and awareness today in the developing world as to the potential of Internet technologies to strengthen economic policy reform programs. At the same time, due to favorable telecommunications and information technology policies, conditions are very favorable to the growth of the Internet. Thus, it will be important to increase (i) Internet access for targeted professionals and institutions, (b) knowledge of how the Internet can be a useful tool for strengthening economic policy reform programs that mitigate against greenhouse gasses, as well as (iii) mastery of these technologies so that those on-line can collaborate on research, network, advocate, provide and receive consulting services, and benefit from distance learning

Eighty two percent of USAID countries have international connectivity to the Internet. In a recent survey of USAID missions, 77% of those responding use Internet applications, and 88% see growth of Internet development uses in their host countries in the years ahead. Many USAID missions, however, responded that poor quality and high costs limit the utility of the Internet today.

Attachment A takes a closer look at only those developing countries/ transitional societies which are targeted as priority Climate Change Action Plan countries. For each country, indicators of technical connectivity and economist usage are found. The former indicators of technical connectivity are provided by the Internet Society and attempt to measure international connectivity and domestic spread of the Internet. The economics indicator is collected from a database maintained by the Center for Research on Economic Fluctuations and Employment at the University of Quebec at Montreal. The indicator presents the number of home pages for prominent economics organizations in each country, and thus is a measure of Internet use in that profession. Some of the USAID missions in these countries responded to the Internet survey and their responses are also included.

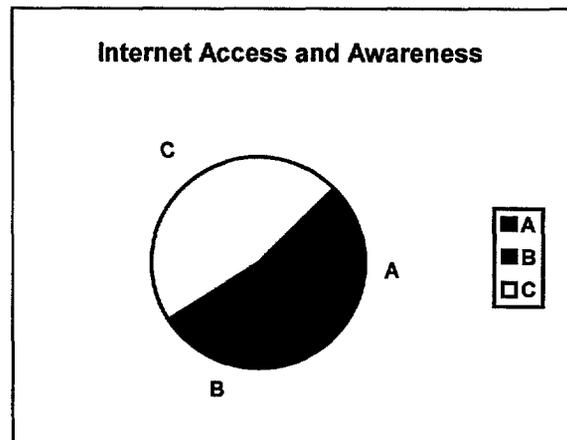
Based on this table, one can draw the following conclusions:

- In all Action Plan priority countries (Brazil, India, Indonesia, Mexico, Poland, Russia, South Africa, and Ukraine), there is a relatively robust Internet service industry and economic institutions are starting to take advantage of this growing computer network,
- The three Regions (Central Africa, Central America and Central Asia) have more modest Internet services and fewer economic institutions which are taking advantage of these networks. Of the three, Central America seems most advanced and Central Africa most backwards. The usefulness of the Internet as a development tool is clearly most limiting in Central Africa.

As a generalization, we can characterize target developing countries as those where

- (a) unfavorable government policies limit the access and quality and increase the cost of using the Internet - 29% of countries,
- (b) the Internet is somewhat available but there is very limited knowledge of how it can be used - 25% of countries, and
- (c) there is somewhat greater Internet availability and awareness but little knowledge of how it can be applied in specialized cases - 46% of countries.

The accompanying chart shows the distribution among the 28 Action Plan priority countries, according to these three classifications.



In order to increase access, awareness, and mastery of Internet technologies, the Center for Economic Growth might wish to consider would be the following

1 Press Statist Developing Countries to Liberalize Telecommunications Markets

This approach would be appropriate for the first category of Climate Change Action Plan country. Here, efforts might be taken to convince host governments to deregulate the telecommunications/Internet Service Provider industries. If discussions with government policy-makers demonstrate a reluctance to deregulate these markets, USAID need take but one step. Simply insist that new program agreements with host governments include a clause that development partners should have access to the global information highway. This would quickly create a "development information corridor" where private Internet Service Providers could enter and serve. Other donors should be encouraged to join in this exercise to open telecommunications markets. Over time, this information corridor would widen as other groups quickly learn and then demand the benefits of the Internet.

2 Conduct a series of basic Internet workshops for economic policy-makers

The Internet is just now being introduced into a number of key economic and environmental organizations in the developing world. Personnel in these organizations have had little exposure to computers and the Internet, including email. Thus, it is recommended that USAID support a series of basic courses for economic and environmental researchers and policy-makers in a wide range of government agencies, non-profit organizations, banks and other financial institutions, universities and professional and industrial associations to explain the fundamentals of the Internet, and allow for supervised hands-on experience with computers in the classrooms.

In some countries, there will be local organizations able to deliver this training. In others, outsiders will need to be called in. In the former, costs should be relatively modest. Exploration should also be made as to whether Internet Service Providers would be willing to bear some or all of these costs, since increased awareness leads to a stronger customer base.

3 Conduct specialized Internet workshops on special topics

After participants in the earlier basic workshops have had an opportunity to work with the Internet on their jobs, then specialized Internet workshops could be conducted. The target audience for such training would include (a) economic researchers and policy-makers in developing countries and transitional societies, (b) investment, banking, and other financial planners and managers, (c) national economic development planners, (d) environmental researchers and policy-makers concerned with greenhouse gas emissions, (e) planners and managers involved in the energy, transport, urban, agriculture and other sectors where development policies directly impact on greenhouse gasses, and (f) leaders of non-profit organizations who advocate for economic, environment and energy policy reforms.

To make these workshops as effective as possible, it will be important to bring in professional colleagues from the United States and other developing countries to work with

the participants on how they use the Internet in their daily professional lives. These workshops could be organized around professional groups (e.g. economists and national development planners). These specialized seminars could also be organized around a particular institution, such as a body charged with national planning. In this case, there might be the added benefit of the participants and the instructors also agreeing to form virtual institutional relationships which might continue beyond the duration of specific training on how to effectively use the Internet to strengthen economic policies in an environmentally sound fashion.

3 Encourage Institutions to Become Virtual A third approach would build on the first but also help encourage other organizations which could contribute to policy strengthening to become virtual. These could be the following types of partners:

- 1 American training groups with important content,
- 2 American consultant groups, willing to offer on-line advice,
- 3 American think tanks not yet on-line but who are willing to share research findings,
- 4 U.S. universities to join in collaborate research sharing, provide distance learning, and to keep up with alumni of past USAID training programs,
- 5 U.S. professional and trade groups interested in economic solutions to reducing greenhouse gas emissions,
- 6 U.S. government agencies,
- 7 USAID registered private voluntary organizations and other non government organizations who share a common agenda, and
- 8 State and local governments with an interest in global economic and environmental policies.

Because of the modest costs involved, it should be possible to persuade many of the above American groups to establish their own web presence. However, some organizations might encounter additional costs, for example if they were to convert classroom instruction into a virtual education. The grant-making process, discussed below, could be partially used for this purpose.

The above approach would increase the supply of relevant American content, expertise and learning opportunities available on the world wide web to support USAID economic policy solutions to greenhouse gas emissions. However, due to unreliable and costly Internet service in many USAID countries, discussed above, there would still be limitations on the supply of relevant content, expertise and learning opportunities from other developing countries. Thus, efforts should also be made to have developing country organizations to develop virtual presences for the objective of increasing important content. This is covered in the previous section 4(B).

4 Work on Specific Economic-Environment Policies The fourth approach would be to prioritize economic policies and carry out the first three approaches, but more focused than on the broad subject of economics and the environment. A very narrow topic,

such as energy pricing, could be selected. Alternatively, an innovative policy mechanism such as emissions trading and joint implementation could also be targeted. Virtual support might entail economic research via the Internet, distance technical assistance, distance education, networking among professionals and institutions, and supporting non-governmental organizations for international advocacy.

The Center for Economic Growth could begin by establishing a web presence dedicated to this purpose. The site, open to all USAID projects, could contain the following characteristics:

- a. A description of all efforts underway regarding emissions trading and joint implementation, with linkages to web sites for those projects having a cyber presence,
- b. A virtual library with important databases and literature. A virtual librarian could be accessed to help reviewers find other information of interest,
- c. Participating countries can be encouraged to present their experiences with this approach to greenhouse gas emission mitigation,
- d. Linkages to web sites dedicated to this subject. The project's home page would guide viewers to the benefits and shortcomings of each of these links,
- e. Moderated "chat rooms" which would allow for professional networking and serious discussions of topical issues,
- f. Listings of "listserves", virtual conferences and other opportunities to dialogue broadly on emissions trading and joint implementation. A virtual conference on the benefits of private and competitive markets for greenhouse gas emissions, in which both government officials and the questioning public could be engaged in safe, virtual discussions,
- g. Linkages to other international donor organizations and non-governmental organizations associated with these subjects,
- h. Listings of policy consultants and links to USAID requirements contractors willing to provide on-line advice,
- i. Listings of, and linkages to, web-based training pertaining to this subject matter,
- j. Public advocacy and transparency fora where groups could issue press releases and other items of interest, and
- k. A creativity room which would allow experimental pilot projects. For example, dynamic interactive models could be developed, tested and disseminated to demonstrate the impact of emissions trading and joint implementation on economic growth and greenhouse gas emission mitigation.

As this Internet-based system is developed, it might be found that certain key actors are not present in a virtual sense, such as certain non-governmental advocacy groups, training providers, and institutions with particular expertise and experience. USAID's Center for Economic Growth would help to identify such groups and encourage them to join the process.

5 Carry Out Pilot and Regional Internet Activities Three regions (Central Africa, Central Asia and Central America) are being targeted in USAID's Action Plan. The commonality of problems argues for such an approach.

Central Africa has vast forest reserves which make the region important for storing carbon and mitigating against greenhouse gas emissions. USAID's major effort in this region is the Central African Regional Program for the Environment (CARPE) which seeks to identify and establish conditions and practices which will reduce deforestation and biodiversity loss in the Congo Basin. Activities include remote sensing and geographic information system analysis to improve forest cover data, coordination with scientists studying biomass and developing carbon inventories, and coordination with scientists monitoring atmospheric chemistry, testing predictive models of forest deforestation, and identifying policies that improve forest management. Pilot activities that seek to reduce negative environmental consequences while maximizing social and economic benefits will be tested and evaluated.

Given the scientific nature of the activities being conducted under CARPE, there should be opportunities to employ Internet technologies. CARPE has its own home page²². However, the limitations of the Internet in this region cannot be overlooked. The World Bank has recently approved a Regional Environmental Information Management Project which seeks to enhance information sharing in the region, which might offer opportunities to overcome some of the regional telecommunication limitations, if Bank project management is amenable to such suggestions.

Central Asia has a highly dependent energy sector, where decisions in one country affect the emission of greenhouse gases in another country. USAID will contribute to global climate change mitigation in Central Asia by supporting power sector restructuring and environmentally-sound development of oil and gas. USAID may also support urban and industrial pollution control activities of Kazakhstan. Limited agriculture sector interventions may also be pursued. One example of a pilot, regional activity would be to build an Internet-based energy model for Central Asia which would allow policy-makers and the general public to understand how the particular economic and energy policies of one country impact on the others, and how both influence greenhouse gas emissions.

USAID's primary approach to addressing climate change issues in Central America is to ensure the conservation of critical carbon sinks which also protect biological diversity. Other approaches include improving Central America's legal and regulatory frameworks to reduce greenhouse gas emissions (from urban landfills) and to encourage rural electrification using renewable energy and private investments in clean energy through joint implementation. In contrast to the other regions, Central America affords more of an opportunity to utilize the Internet to strengthen economic policies that mitigate against greenhouse gas emissions and which conserve carbon sinks. There is also a regional

²² <http://carpe.gecp.virginia.edu>

framework agreement, the “Declaration Conjunto Centromerica-USA”, a joint declaration and action plan to protect the region’s biodiversity, and strengthen environmental protection, legislation and expand renewable energy use and promote more open trade, which provides an institutional base for Internet interventions. This institutional base could itself be strengthened by creating a virtual workspace for collaborating among participating nations.

Beyond regional approaches, the proposed program can pioneer new ways for the Internet to strengthen economic policies to reduce greenhouse gas emissions. For example, an innovative web site could publish international environmental agreements and demonstrate their relationship to economic growth, inform the public about their importance and economic impact, monitor implementation from both an environmental and economics perspective, and advocate for full enforcement. As another example, an organization might develop a web site organized to compare the economic and environmental competitiveness of one country against sets of competitor economies in the region and the rest of the world. Another group, such as a university or policy institution, might use the Internet to share economic/environmental databases used to monitor national economies and environments. A third group might want to establish a web based advocacy forum surrounding a series of issues, such as further deregulation of power industries and its impact on both economic growth and environmental improvements. A fourth group might experiment with distance learning associated with a particular policy issue.

6 Establish a Small Grants Program USAID might consider establishing a small grants fund to carry out activities that increase the mastery of the Internet for environmentally-sound economic policies, that focus and launch positive movement on particular global economic policies that accelerate growth and reduce greenhouse gasses, that support Action Plan priority regional programs, and that lead to innovative uses of the Internet for the general purposes of this program.

As noted earlier, it will be important to increase access, basic training and mastery of the Internet to reach and support economic policy-makers and researchers in many priority Climate Change Action Plan countries. Small grants can be useful for these ends. Training programs developed in one country can be transferable to other countries. Costs can be minimized by using local Internet Service Providers and similar entities if they so exist. Criteria can be established to use the small grants program for these purposes.

The proposed program might decide to concentrate on particular policies such as emissions trading and joint implementation. Small grants can spur actions ranging from collaborative research among countries experimenting with these policy mechanisms to reduce greenhouse gasses, creating an internet-based distance learning program to develop skills related to these policies, and/or developing regional approaches for this policy mechanism. Small grants can also be used to spur innovation, allowing for unsolicited proposals from organizations around the world who have creative ideas on using the Internet for the purposes of the program.

Invariably, one issue which would arise is whether USAID should use small grant funds to purchase computer and network equipment. One important principle should be that USAID does not get involved in financing the costs of computer equipment and networks. The costs of computers keep coming down in the world market, and customs duties are being eliminated in progressive governments, further reducing costs to the local buyer. One would also expect the costs for Internet services will fall while the quality of Internet services improves, as competition grows in the local Internet Service Provider market. Thus, for the costs of buying and maintaining a new vehicle, an organization should now be able to acquire approximately ten personal computers and network, and obtain full Internet connectivity. Thus, it is argued here that the issue is not finance, but one of awareness, and demonstrating that the value of the Internet is much greater to an organization than the acquisition of an additional vehicle to its motor pool. When costs are undeniably high, the solution is to convince host governments to liberalize telecommunications markets, not to help organizations absorb those costs with granted equipment and on-line charges.

F Organization, Management and Implementation, and Sustainability

1 Potential Partners For this virtual program to be successful, it must have an institutional home. There are a range of potential partners for such an activity, with foundations in either the economics or environmental communities. The following table illustrates the types of institutions which might have an interest and capacity to carry out this program. A description of each of these organizations is found in Attachment B. It should be emphasized that this is merely an illustrative list, demonstrating that there are numerous organizations which could serve as partners with USAID. This list, however, is not all-inclusive, there are many other groups with similar characteristics.

POTENTIAL ECONOMIC-ENVIRONMENTAL POLICY PARTNERS

Potential Partner	Economic Institution	Environment Institution
International Partner	World Bank World Trade Organization Asian Development Bank	United Nations Devel Program United Nations Environ Program International Standards Organ
U S Government	Intl Trade Administration US Export-Import Bank Overseas Private Invest Corp	Pres Council Sustain Develop US Environ Protect Agency U S Department of Energy U S Government Laboratories
Non Govt Organization	Center for Intl Private Enterprise Center Env Policy, Econ & Sci Pacific Institute Heinz Center Sci, Econ, & Env	World Resources Institute World Environment Center US Export Coun Renew Energy Cons Intl Earth Sci Info Network Renewable Energy Policy Project

Potential Partner	Economic Institution	Environment Institution
Indus/Prof Association	Association Envir/Resource Econ Intl Soc Ecological Economists	World Energy Efficiency Assn Assoc of Energy Service Profes United States Energy Association National BioEnergy Indus Assoc
Universities	Harvard University Yale University Duke University MIT	University of Delaware Princeton University University of Maryland Iowa State University

These organizations have been divided into those which are primarily economic in orientation and those with a distinct environmental foundation. Since the main objective of this Internet program will be to attract institutions that are directly responsible for economic policies that are environmentally friendly, a prime criteria for selection should be an organization which has credibility in the international economics community. Other criteria should include (a) interest in carrying out such a program, and cost sharing to demonstrate such an interest, (b) an ability to bridge and be respected in both economics and environmental communities, (c) a demonstrated capacity to mount an Internet-based program, (d) capability of reaching and attracting interest among governments, non-government organizations and professional/trade/industrial associations, and (d) global reach.

2 Management and Implementation The responsibilities of the selected partner would include the following:

- a Provide intellectual content and direction to international efforts to engage the economic policy community on issues associated with global warming,
- b Establish an international network of professionals and institutions who have direct responsibility for and influence over the direction of environmentally-sound economic policies,
- c Create a virtual presence for this international network, and provide leadership in its evolution,
- d Assist developing country institutions to gain access, basic understanding and mastery of the Internet,
- e Provide virtual support to queries as they arise from users, ranging from technical to policy to administrative matters,
- f Facilitate the virtual transformation of other organizations to join the network through activities to increase their access and mastery of Internet technologies,
- g Manage a small grants-making process which would encourage joint research, discovery, policy formulation and implementation through pilot and regional projects, and
- h Help shape and carry out specific economic policy activities, in such areas as pollution trading and joint implementation.

Once an institution were selected by the Center for Economic Growth, it would be important to establish a plan of operation. As mentioned earlier, it is not considered feasible to strictly carry out a virtual operation, the program must also be grounded in physical meetings/seminars/workshops. Opportunities for groups to meet and form personal relationships and shared agendas through workshops, training sessions, joint research seminars, would help cement the program. To repeat, the virtual network would go hand-in-hand with a more traditional physical network of like-minded institutions, which meet periodically for discussions, training, comparing, presenting and critiquing professional studies, and other activities associated with professional and institutional development and networking.

The virtual networks might be grown organically, beginning with a few organizations with a common agenda. The network would begin with those organizations that have access and mastery of the Internet as well as an interest and responsibility for formulating economic policies which impact on the environment. This group would help shape the early development of the web site.

The web presence and Internet technology applications should follow the perceived needs of viewers. It should evolve over time, becoming more sophisticated as time goes by. For example, physical meetings and conferences should allocate time to discuss the requirements of a web presence. Chat rooms and opportunities for feedback on the Internet itself can help raise the expectations and improve the performance of the Internet web site. A deliberate effort should be scheduled at least annually to improve the services and capabilities available from the Internet web site.

Efforts would be made to expand Internet access and mastery in developing countries, as discussed earlier. Increased awareness and mastery over the Internet can be achieved through basic and specialized training. These training workshops could be completed in a period of 18 months. USAID, the United States Government more broadly, and other donors should address telecommunication policy constraints where they exist. Negotiations for more open information and communications policies will likely persist for a number of years.

Another important step will be to facilitate a virtual entrance for organizations which can make substantive contributions towards strengthening economic policies that reduce greenhouse gasses, but which presently do not have an Internet presence or capability. These organizations and programs will be identified over time, and attempts should be made to convince them to develop a virtual capability. Small grants might be useful in some instances to gain an Internet presence, say in developing on-line training from an educational institution.

Pilot and regional projects would benefit from the small grants program which would likely begin in year two. The small grants program would need to begin by formulating the objectives and criteria by which grants would be selected. Financial and other

administrative guidelines would also have to be developed. Periodic cycles of grant solicitations would follow, with the need to review and evaluate the strengths of the submissions. Grants would then be made and monitored.

Attachment C presents a broad implementation plan for this program.

3 Sustainability It is assumed in this proposed program that donor support would be available for a period of five years, the developmental stage when costs are incurred in creating and energizing the virtual network and setting the direction for policy discussions. However, economic policy and greenhouse gas emission issues will continue well beyond five years. Thus attempts must be made to ensure sustainability from the very inception of the program.

The Environmental Law On-Line program mentioned earlier has an interesting approach towards sustainability. It intends to charge membership fees to users who receive access to a more comprehensive, timely and commercially-oriented portion of the database. E-Line also intends to accept paid advertising for environmental goods and services of interest to database users. Finally, E-law intends to enter into teaming agreements with partners (e.g. national legislatures) who can provide data at minimal or no cost.

A program which targets economic and environmental policy-makers in developing countries and transitional societies could consider a similar approach. Membership fees might be possible for corporate users who seek information available on this database. Corporations involved in international trade and investment associated with greenhouse gas issues (e.g. power companies and heavy air-polluting industries) might have the greatest interest in following the evolution of economic policies that impact on their businesses. Paid advertisers could include U.S. technical, economic and environmental consultants and lawyers who would like their capabilities known to important decision-makers around the world. Environmental technology providers and manufacturers with solutions for reducing greenhouse gases are another likely group of paid advertisers. Teaming agreements might be possible with countries seeking to project a leadership role on the global stage. Other sources of income could include (a) Commissions from web-based trainers who gain clients from economic-environmental courses highlighted on this web site, (b) partnerships with Internet Service Providers who seek to perform public services, and be known for this, and (c) subscriber fees for Internet services provided by the project in underserved areas.

VII DEREGULATED INFRASTRUCTURE MARKETS

A Background on the Deregulation of Infrastructure Markets²³ Developing country governments invest more than \$200 billion annually in new infrastructure (transport, power, water, sanitation, telecommunications and irrigation), about 4 percent of their national output and a fifth of their total investment. While this has increased the physical base significantly, demand has outpaced supply and the quality of service has often been lacking. However, the globalization of the world economy, increasing efficiencies of global financial markets, and new technologies have all led to a more dominant role for the private provision of infrastructure in developing countries, in an area which had largely been reserved for the public sector. In fact, infrastructure is now one of the fastest growing sectors in the world in terms of private participation and financing.

Total estimated financing of new private infrastructure projects in developing countries doubled between 1993 to 1995, from \$17 billion to over \$35 billion. At the same time, in 1994, governments sold \$10 billion worth of existing infrastructure assets. New sources of finance are coming forward. Insurance companies, donors, commercial banks and other financial institutions are supporting the private provision of infrastructure in creative ways.

Despite these promising signs, progress is uneven. Most private provision of infrastructure is concentrated in the power and telecommunications sectors, (but transportation is gaining rapidly), and is limited to just a few countries. For example, in 1995, eleven countries accounted for 97 percent of the total private investment in infrastructure. According to the International Finance Corporation, the World Bank affiliate that promotes private investment in developing countries, only ten to fifteen countries have so far made significant progress in privatizing and restructuring infrastructure markets. Other countries have started to liberalize infrastructure services, but have made limited progress thus far. The reasons cited are myriad but come down to the fundamental that private entry into infrastructure is a complex, politically-charged process, where political costs are short-term and the economic payout is longer term.

B Review of USAID's Deregulated Infrastructure Programs Despite these obstacles, twenty-six USAID countries or regional programs seek to deregulate infrastructure markets, including telecommunications, transportation, power, and urban infrastructure.²⁴ Table I displays the distribution of USAID infrastructure deregulation programs by region and the importance of these policies within overall programs. Those countries which are underlined, are considered to be major infrastructure privatization markets by the International Finance Corporation.

²³"Financing Private Infrastructure: Lessons of Experience", International Finance Corporation, 1996

²⁴ Based on FY 1998 Congressional Presentations

Table I Infrastructure Deregulation Policy Chart -- by Region & Importance

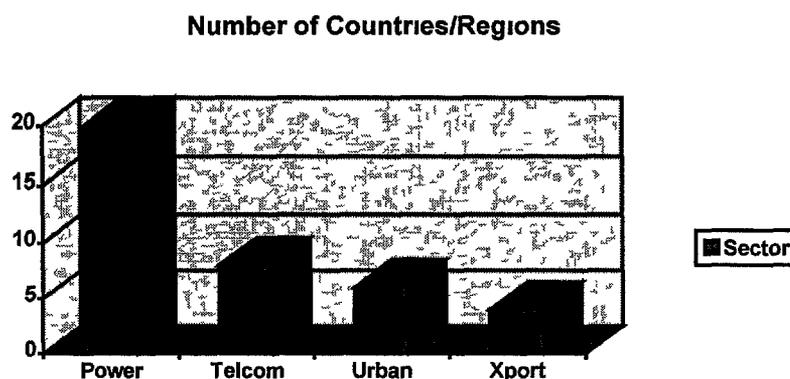
Region	Major Policy Programs	Minor Policy Programs
Africa	South Africa Mali Malawi Tanzania Zambia South Africa Regional	Senegal
Asia/Near East	<u>Indonesia</u> <u>India</u> <u>Philippines</u> Egypt	Mongolia Nepal
Europe/NIS	Kazakstan Ukraine Central Europe Armenia Georgia Kyrgyzstan Romania	<u>Hungary</u> Lithuania Poland Russia
LatinAmerica/Caribbean	Central America Regional	El Salvador

USAID's infrastructure programs can also be divided into those which seek to deregulate telecommunications, power, transportation, and urban infrastructure/services. Attachment A briefly describes the policy reform agenda and assigns a weight of "2" to those country and regional programs which assign a major priority to infrastructure deregulation, and assigns a weight of "1" to those where USAID has a minor interest in such policies. The rankings were then summed up to establish three composite figures: (a) total raw scores, (b) number of countries with at least some interest in deregulating markets, and (c) an average score, dividing total raw scores by number of countries. The following table presents the results.

Table II Infrastructure Deregulation Policy Chart -- by Type of Infrastructure

Policies → Rankings ↓	Telecom	Power	Transport	Urban
Total Score	14	32	8	11
No Countries	8	20	4	6
Average Score	1.8	1.6	2.0	1.8

Based on this result, we can see that USAID countries and regions are most concerned about deregulating power markets, which is then followed by telecommunication, urban services and transportation sectors. These priorities largely parallel worldwide experience, as indicated in the preceding section. The accompanying insert displays this finding graphically.



C Donor Experience with Deregulating Infrastructure Markets USAID and other donors have designed and constructed capital projects since the Marshall Plan. In the 1950s and 1960s, USAID financed a wide variety of infrastructure projects around the world. This abated in the 1970s and 1980s, when programs addressed economic policies and institutional development. By the 1990s, USAID funding of capital projects was very limited, to countries such as Egypt with strong U.S. political and economic interests. A review of USAID's capital project experience was conducted in 1994.²⁵ Among its findings are that infrastructure is critical to economic growth, is a prerequisite to development, and has a fair-to-good economic rate of return (low rates due to poor institutions and policies). Capital projects also provide an important benefit to a developing country's private sector and also benefit the poor by improving basic human needs.

²⁵ "Capital Projects: A Synthesis of Findings", USAID Programs and Operations Assessment Report No. 8, Center for Development Information and Evaluation, USAID, September 1994.

However, experience with deregulation and privatization of infrastructure is more recent, over the past decade or so. Thus, lessons learned are evolving. This study can gain a perspective of how the Internet can be useful in strengthening such policies, if we first examine more recent efforts by donors to facilitate infrastructure deregulation.

The Bank's 1994 World Development Report²⁶ focused on infrastructure and found

- Infrastructure benefits economic growth, poverty alleviation and the environment -- when it provides efficient services that respond to effective demand,
- Past poor performance, and the source of improvements, lie in the incentives facing providers,
- Infrastructure should be managed like a business, not like a bureaucracy,
- Market forces and competition improve the production and delivery of infrastructure services,
- Users and other stakeholders need a strong voice and responsibility,
- Public-private partnerships in financing are promising, and
- Governments will have a continuing, but changed role. Governments are responsible for creating policy and regulatory frameworks that safeguard the interests of the poor, improve environmental conditions, and coordinate cross-sectoral interests.

Two years later, the World Bank examined the financing of private infrastructure²⁷. Looking at national level economic policy frameworks, the following conclusions were reached:

- Developing countries need national strategies for private infrastructure,
- Such strategies need public support by politicians and may require legislation,
- Implementation may require special purpose institutions,
- Government financing should be used to leverage private investments,
- Restructuring, corporatizing and privatizing public agencies are essential,
- Foreign management expertise and financing are critical to a transition,
- Sovereign guarantees are essential, but must be actively managed,
- Market imperfections often result from elements of the regulatory environment or nonviable public agencies, which need attending to,
 - Local capital markets development should be given a top priority, with clear targets to shifting from foreign to local financing, and
 - Donors could support the private financing of infrastructure by working to (a) devise and execute strategies for transition to private financing, (b) design and carry out specialized seminars and training courses which provide the rationale for private infrastructure, the experience to date, and the consequence of slow action, and (c) develop and use flexible and adaptable financing instruments that leverage markets.

²⁶ "World Development Report 1994: Infrastructure for Development" by the World Bank "Infrastructure Delivery: Private Initiative and the Public Good", edited by Ashoka Mody, EDI Development Studies, World Bank, 1996

²⁷ "Financing Private Infrastructure in Developing Countries" by David Ferreira and Kamran Khatami, World Bank Discussion Paper No. 343, 1996

The International Finance Corporation is a major financier of private infrastructure projects and has summarized lessons learned from the business transaction perspective²⁸

- Private infrastructure projects on average are more likely to be constructed underbudget and with fewer time delays than public infrastructure projects,
- Financial closure is important because it allows construction to proceed. More projects are closing but closure times fluctuate, depending on size and visibility of project, political commitment of government, experience of sponsors, and resolving risk allocation,
- Successful transactions help policies to evolve. Well-structured, transparent private infrastructure projects create local constituencies for more deregulation,
- For sustainable projects to take place, the policy framework must meet the interests of the government, sponsors and lenders,
- Private participation is more likely to succeed if governments use advisors and if transactions are transparent. Transparency involves clear procedures for awarding and operating concessions, predictability of government fulfilling commitments, and competitiveness of project fundamentals to withstand public scrutiny yet ensure a fair return, and
- Risk allocation and mitigation is essential to reaching financial closure for private infrastructure projects. Project financing needs to be better understood by governments, investors and lenders, especially as it pertains to risk management

²⁸ "Financing Private Infrastructure: Lessons of Experience", International Finance Corporation, 1996

In September 1997, the cumulative experience of donors and developing country ministers were reviewed at the Development Committee meeting in Hong Kong³⁰. Five main barriers that constrain effective private involvement in infrastructure were identified: poor policies and inadequate regulations that increase the risk to private investors and the costs of doing business, high contracting and bidding costs that can exceed ten percent of project costs in pioneering projects, expensive financing terms, due to high project risks and poorly defined project parameters, weak domestic capital markets, unable to provide long-term financing for infrastructure projects that have long pay-back times and earn little or no foreign exchange, and few subsovereign governments are credit-worthy, yet decentralization has increased the share of provincial and municipal infrastructure.

While the lessons from successful efforts at privatization of infrastructure are instructive, so are lessons from failures. The Foreign Investment Advisory Service examined the difficulties of foreign investment in infrastructure in southern and eastern Africa.²⁹ This region has participated very little thus far in the movement towards private infrastructure, despite stated intentions. Reasons cited include: foreign investors still consider most countries as high-risk, these same investors question the political commitment to allow private infrastructure, there are inadequate legal frameworks, inadequate sectoral reforms, and weak or unclear rules/regulations for implementation.

This same paper reviews policy obstacles to foreign direct investment in infrastructure around the world:

- *A clear legal basis for approval and award for private (and foreign) participation either in the form of ownership or fixed-term contracting arrangement,*
- *Foreign exchange convertibility to exchange local earnings into foreign exchange for project investors,*
- *Ownership requirements which permit investors controls needed to finance and manage projects,*
- *Pricing of infrastructure services adequately to insure the financial viability of the project,*
- *Enforceability of contract provisions under law and adequate and timely mechanisms to settle disputes,*
- *Meeting lenders' requirements under country risk factors and impediments to mobilizing term debt, and*
- *The soundness whereby projects are selected, the transparency of negotiation, and the speed of approvals*

An Action Program was agreed upon, which included the following elements:

- Developing country frameworks and status reports regarding individual country intentions regarding private sector involvement in each infrastructure sector,
- Providing advisory services to facilitate policy and regulatory reform and assist project development in conjunction with lending,
- Strengthening and expanding guarantees from multilateral institutions,
- Supporting subsovereign infrastructure, devising investment financing strategies, improving creditworthiness, and meeting requirements to access domestic and foreign markets, as well as technical and financial support, and
- Attending to knowledge management and information on best practices, including exemplary practices for each infrastructure sector, improved sectoral

²⁹ "Foreign Direct Investment in Infrastructure: The Challenge of Southern and Eastern Africa", by David Donaldson, Frank Sader and Dileep Wagle, Foreign Investment Advisory Service Occasional Paper 9, 1997

³⁰ "Facilitating Private Involvement in Infrastructure: An Action Program", found on the Internet at <http://www.worldbank.org/html/fpd/infraact/infraact.htm>

performance indicators and project databases to facilitate diagnosis and monitor projects, *Internet facilities for information exchange and communication among infrastructure market participants*, and training in regulation, finance, and operation of infrastructure

It is instructive that this Development Committee realized that the Internet could serve as a tool for helping developing nations better deregulate and privatize infrastructure markets. We will now review donor experience using the Internet for these purposes

D Use of the Internet Today A number of USAID and World Bank Group projects have used the Internet to promote the private provision of infrastructure

Power and Telecommunications in Central America USAID promotes private sector participation in the electricity and telecommunications sectors in Central America. USAID is directly supporting Central American readiness for participation in hemispheric free trade agreements in five major areas, one being energy and telecommunications regulatory frameworks. USAID is aiding Central American governments in the design and development of more open and competitive telecommunication and energy regimes which encourage private sector participation. Recent success in these areas include passage in Guatemala in 1996 of laws regulating electricity and telecommunications. These two laws, considered among the most advanced and liberal in the world, have already resulted in strong expressions of interest by U.S. investors. The Internet could be a useful tool to strengthen these programs, but limited use has been made to date.

Latin America Hemispheric Free Trade Expansion This USAID program is designed to support participation by smaller economies in Latin America and the Caribbean in the proposed Free Trade Area of the Americas. Activities target reform of trade policies necessary for participating in this regional trading block, labor issues for regional competitiveness, expanding access for small-medium sized producers in export markets, and developing trade-supportive environmental policies and practices. The U.S. National Telecommunications and Information Administration is helping with trade and market participation by carrying out a number of policy studies, technical assistance and training in Latin America in support of the telecommunications liberalization objectives of the Summit of the Americas. Hemisphere-wide dissemination of results and information from these activities is an important key to achieving broad impact. To facilitate far reaching information dissemination and ensure that all programmatic information will remain available, USAID is linking development partners through a Lotus Notes information system which contains all relevant program documentation. This information will also be accessible to all partners, customers and stakeholders through the World Wide Web. USAID disseminates the information directly through Trade Forum, an electronic clearinghouse of information on USAID's Intranet.³¹

³¹ LAC, Regional Sustainable Development web site, entitled "Trade Forum"

Leland Initiative The Leland Initiative (Africa Global Information Infrastructure Gateway Project) was started in 1995 as an interagency, US government program (led by USAID) to introduce or expand the use of the Internet in 20 African countries. Three principles are incorporated into the Initiative: affordable pricing, open access to information on the Internet, and private sector distribution of Internet service at the retail level. While the Leland Initiative encourages participating countries to reform telecommunication policies to ensure that these principles are satisfied, Leland itself does not specifically use the newly-acquired Internet access to liberalize telecommunications policies. However, the program is considering creating a network of African telecommunications leaders who would use the Internet for much of their collaboration.

Southern Africa Regional Telecommunications Restructuring Project The objective of this project is to increase and broaden access to more effective systems of information transfer within Southern Africa. The Project focuses on policy and regulatory reform to encourage private sector participation in the rehabilitation of the regional telecommunications network. The Project utilizes the Internet to link US telecommunications firms to the regional network, publishes a quarterly electronic newsletter sent to 1,500 readers, and manages a world wide web site³² with 16,000 "hits" monthly. The web site provides a summary of the Regional Telecommunications Restructuring Project, country profiles, tender notices and other information of interest to businesses seeking to enter or expand their presence in southern Africa, a bulletin board discussion group to facilitate the sharing of information and ideas on telecommunications in southern Africa, and links to telecommunications related web sites to provide southern African professionals access to information on international telecommunications service providers, equipment manufacturers and vendors, and international organizations. Despite the extensive use of the Internet, Project managers have not attempted to deliver project assistance via the Internet because their counterparts are not yet accustomed to using this new medium.

National Telephone Cooperative Association Program This Association's international program helps rural areas, towns, and small cities in developing countries obtain telecommunications service. Current efforts focus on Poland, Bulgaria and southern Africa, previous assistance was provided in Hungary, the Philippines, South Pacific, Bolivia, Tanzania and South Africa. Aside from community organization, the Association provides training and technical assistance for local phone company staff and assists with national-level regulatory and legal reform. The National Telephone Cooperative Association has an Internet presence³³ where they describe their international programs. This has resulted in many inquiries from abroad regarding their organization and its mission. The Association, however, has used the Internet only for communications purposes in Eastern Europe due to generally poor accessibility and reliability. At the same time, the Association has recently issued a virtual call for papers

³² <http://rtr.worldweb.net/>

³³ <http://www.ntca.org>

for an international conference on rural telephony, utilizing the professional networking capabilities of the Internet

USAID's Energy Partnerships Programs The United States Energy Association manages cooperative exchanges between electrical utilities in Central and Eastern Europe and the United States to share experiences of operating in a free market economy under a democratic government. There are now over three dozen partnerships in twenty-one countries. Initially focused on electrical utilities, the program has broadened to include petroleum, natural gas, coal and regulatory organizations as well. This program has a web presence and individual energy partnerships may set up their own communications systems via the Internet. These partnerships engage in a wide range of issues, including the privatization of infrastructure. For example, a Romanian entity is working with the Mississippi Power Company and regulators from that State Public Utilities Commission to support plans to restructure and privatize the Romanian electric power sector.

USAID's Resource Cities Program with ICMA The International City/County Management Association, a professional and educational association of local governments, administers the "Resource Cities Programs" which pairs American and foreign cities to examine various approaches to solving local government problems, among which includes the privatization of urban infrastructure and services. The Resource Cities Program is partially supported by USAID, and relies on the Internet for much of the communications and exchanges between American and foreign urban centers. There are presently twelve resource cities in Bulgaria, Guatemala, Ecuador, South Africa, and India.

USAID's Local Government Center The Local Government Center³⁴ is an Internet-based clearinghouse of information related to United States Government technical assistance programs through USAID in Eastern Europe and the former Soviet Union. This clearinghouse includes an Innovative Practices Guide, a compilation of case studies which disseminate information on the more successful local government programs across the region. Aside from the successful case studies, technical reports and documents, training materials, conference proceedings, manuals and descriptions of study tours are published over the Internet. USAID program managers are considering establishing a virtual network within Eastern Europe itself for municipal managers to collaborate and exchange information more directly with one another.

Among the digital papers are "Fostering Development Through Public-Private Cooperation", "Using a Decision Matrix to Analyze Privatization Options", "Improving the Management of Municipally-Controlled Infrastructure Systems", "Privatizing Maintenance of Municipally-Owned Housing", "Privatizing Municipally-Owned Housing", "Developing Housing Through Public-Private Partnerships", and "Encouraging Private Markets and Increasing Autonomy"

³⁴ http://www.info.usaid.gov/regions/enr/local_gov

Municipal Associations in Poland USAID/Poland is supporting five municipal associations to develop electronic access to each other, to their members, and to newly developed data bases covering such items like recently-enacted legislation, best practices in local government, municipal finance statistics, etc. As advocates for local government, these associations will use this virtual system to lobby for policy changes in municipal service regulation and in exchanges of best practices, including private sector participation in urban infrastructure and services.

USAID's BOT Center in the Philippines The Philippines' Build-Operate-Transfer (BOT) program develops infrastructure projects for private sector financing and operation and eventual transfer to the Government of the Philippines. It is considered one of the most successful programs of its kind in Asia. The BOT Center uses the Internet for public transparency and business promotion.³⁵ The BOT law of the Philippines is displayed, so that potential domestic and foreign investors know about the business environment that exists for investment in infrastructure and related services in the Philippines. The BOT Center also lists and profiles potential projects and publishes feasibility studies, adding to the transparency of transactions. This site has been up since 1995.

World Bank Group The World Bank Group wants to share information and knowledge to reduce costs and allow newer entrants to develop expertise with private infrastructure. They are distilling lessons learned from successful examples into toolkits on private sector participation, intended to guide governments and consultants through the issues to designing a process and private sector arrangement. One toolkit has been developed for water and sanitation services, focusing on how to choose a private sector participation option, how to design the process for refining and implementing that option, and how to ensure that contracts cover relevant issues. Further toolkits will be prepared, transport and solid waste being the most likely ones to follow. This information will be available via the Internet.³⁶

The **Multilateral Investment Guarantee Agency** launched the Investment Promotion Agency Network (IPANet) three years ago, as a global information clearinghouse and communications network on foreign direct investment. IPANet presently has over 5000 registered users from more than 165 countries. Sources of information are drawn from over 300 investment-related organizations, including numerous investment promotion and privatization agencies. In a random review of IPANet, the following privatization reports were found. Sri Lanka

Financial Times "Website of Week"³⁷
The electronic edition of this newspaper recently named IPANet its Website of the Week. The authors characterized IPANet as "well on the way to success, growing in scope, reach and influence among banks, investment agencies, and companies around the world."

³⁵ <http://www3.admu.edu.ph/ccpap>

³⁶ World Bank Finance and Private Sector Development web site is <http://www.worldbank.org/html/fpd>

³⁷ **Financial Times**, April 3, electronic edition of newspaper

Infrastructure Investment describes opportunities, incentives, projects, and policies in support of new investment in infrastructure, Philippines' Harbor Reclamation and Port Facilities presents an investment project profile (developed and screened by the United Nations Industrial Development Organization), and Tunisia Law of Infrastructure and Equipment describes eligible incentives, grants, activities, and collective infrastructure and equipment projects. The Multilateral Investment Guarantee Agency is also developing Privatization Link, an on-line information service initially focusing on Africa, that will allow governments to present their privatization programs.

The Bank Group also invested in developing a pilot Latin American information exchange for the private provision of infrastructure. The concept was to develop a self-supporting network of infrastructure project developers, financiers, national and municipal regulators, decision-makers and others concerned with the private provision of infrastructure throughout Latin America. The information would be updated on a timely basis by those generating that information. Push technology would be employed. A subscription fee would be charged, beginning with basic service at approximately \$1,000 annually with higher rates for those requiring higher quality information. The pilot has gotten as far as a prototype stage, but there is a question of whether the World Bank will commit to the next stage of project implementation. While there is felt to be considerable demand for this type of virtual service, it may take several years before the system pays for itself.

The **International Finance Corporation** is heavily engaged in the privatization of infrastructure, with over 115 projects to date. They have launched an Internet-based investment tool for Africa, entitled the Africa Business Network. Privatization opportunities are also included within this Network.

The Bank Group is also facilitating an International Forum for Utility Regulation to expand opportunities for cooperation and exchange across sectors and regions. The Forum has sponsored expert meetings, training courses, directories, and partnerships. The Forum also has a virtual presence.³⁸

E The Internet as a Tool for Economic Policy Strengthening This Study's first deliverable conducted an in-depth survey of USAID, other donors, other U.S. Government agencies, and non-profit organizations use of the Internet to strengthen economic policies in developing countries. The study concluded that the Internet is beginning to demonstrate its utility in contributing to economic policy reform. Six Internet applications were found to help strengthen economic policy reform programs.

1 Economic Research and Analysis Collection of current and reliable information is essential for sound economic policy analysis and formulation. The Internet has a wealth of information and analytical tools for sound economic research and

³⁸ <http://www.worldbank.org/fpd/psd/ifur/>

analysis, an ability for professionals to dialogue and conduct joint research, and emerging technologies which allow for interactive database management. Training may be necessary to maximize use of the Internet as a research tool.

The ability of the Internet to strengthen economic research and analysis is important to support the deregulation of infrastructure markets. In part, this is due to the relative newness of this approach to infrastructure development, and the need to constantly learn lessons in the face of continuing constraints to the success of private infrastructure development in all but a few countries. In particular, the Internet can help facilitate the development and dissemination of best practices in a wide range of infrastructure sectors for use by policy-makers and practitioners alike. For example, as greater decentralization of infrastructure development transfers responsibilities from national to local governments, there are new challenges and lessons to be learned. The Internet affords the sharing of databases, observations, and research findings among organizations and professionals investigating similar subjects, such as private infrastructure development at the municipal level.

2 Public Transparency and Advocacy Transparency is important for an informed public and advocacy is important to lobby for change. The Internet may be an effective tool for transparency and advocacy, depending on the audience given today's uneven Internet access. International financial, business and specialized non-governmental organizations have made very effective use of the Internet for transparency and advocacy. However, the Internet cannot reach large audiences in developing countries so other media may be more effective.

The importance of public transparency in articulating government policies and detailed procedures and regulations with respect to the deregulation of infrastructure has been highlighted in reports by both the World Bank and International Finance Corporation, as cited above. The Internet can and indeed has been used as a tool to ensure that the needed transparency is in place. For example, the BOT Center in the Philippines uses the Internet to ensure that interested parties both within the Philippines and outside of that nation are aware of the policies surrounding the private provision of infrastructure services. Advocacy by industrial and professional associations interested in the deregulation of infrastructure markets can also be furthered using the Internet. While the Internet will not take the place of mass media, it can reach influential elites with advocacy messages.

3 Professional Networking Economic policy analysts and program managers need to exchange news and views, collaborate on joint projects, and stay current in this dynamic global economy. The Internet by its very nature is ideally suited for professional networking. However, much of the professional networking today is among the donors. Broadening will occur as access and training expands. Virtual conferences and Internet newsgroups offer other opportunities for networking but work best when structured.

Economists and other policy analysts and policy-makers can utilize the Internet to engage each other in searching for and formulating sets of policies which facilitate the deregulation of infrastructure markets. The Action Program devised at the World Bank Development Committee meeting in Hong Kong in 1997, in fact, included knowledge management and information on best practices (by sector), using the Internet for information exchange and communication among infrastructure market participants. Virtual conferences and meetings can also be arranged on current topics of interest, such as challenges faced in deregulating municipal water supply systems. Thus, the networking capabilities of the Internet are important and substantial.

The virtual International Forum for Utility Regulation, established and managed by the World Bank Private Participation in Infrastructure Group, is another attempt for cross-country information on infrastructure reforms, options for private participation, and experience for utility regulation among policymakers, regulators, private sector operators, investors and the public at large. This Forum emphasizes the importance of information exchange among professionals and the value of the Internet in this regard.

4 Institutional Networking Institutions need to remain as current on global economic conditions and thinking as do individuals. Economic policy institutions, be they business associations, think-tanks or universities, can grow stronger by having international partnerships. Institutional networking works best when organizations have a common agenda and mutual interest. In such circumstances the Internet is a great tool. When mutual interest is not present, the Internet can be as ineffective a tool as any other.

Investment promotion agencies and privatization organizations need to stay abreast of changes and lessons learned in the field of privatization of infrastructure. This is important in order to set meaningful policies for their own nations, policies that will be competitive with those of neighboring and other emerging markets. The Internet can be a useful tool in reaching these organizations and allowing them to learn from their institutional colleagues around the world. The International Finance Corporation's Internet-based IPANet creates such opportunities among investment promotion and privatization agencies. The World Bank's International Forum for Utility Regulation includes directories of utility regulatory institutions and regulatory strategy departments in private infrastructure companies to help facilitate this networking. USAID's Local Government Center is considering a similar capability using the Internet in Eastern Europe.

Two examples of utilizing the Internet for institutional networking can be found with USAID's Energy Partnerships Program between electrical utilities in Central and Eastern Europe and the United States, and the International City/County Management Association's Resource Cities Program which matches American cities with counterparts in Eastern Europe, Latin America, Africa and Asia. The Internet facilitates communications and joint collaboration. It allows organizations in developing countries and transitional societies to learn from American counterparts.

Economic reformers outside of official agencies can also be strengthened when they can cite what and how neighbors and competitors are doing with respect to the

private provision of infrastructure. The Internet can be used by independent economic research institutions, academic think tanks, and private professional and industrial associations to study prevailing practice with respect to the private provision of infrastructure and lobby for reform in their own countries. As noted above, the Internet works best when there is a mutual interest present.

5 Distance Technical Assistance Economic policy reform programs often require expensive, short-term technical assistance for very defined periods of time. The Internet can be a tool to deliver these services, on-line and on-time. The Internet can also provide greater access to leading luminaries who might otherwise decline assignments which require several weeks of undivided attention. Laying the groundwork and having local support is important to ensuring the effectiveness of this approach.

Several of the studies carried out on the private provision of infrastructure raised the need for advisory services to facilitate policy and regulatory reform and assist with project development and review. The Internet permits the delivery of these advisory services to be both physical and virtual. In particular, the process of establishing an appropriate policy framework, identifying suitable projects and then bringing such projects to fruition normally requires an extended period of time. The Internet can permit impartial and experienced consultants to help with all aspects of this process, at times by being physically present and at times by taking advantage of the collaboration possible via the Internet. This permits continuity, access to the best minds, and timely advice. The Internet can also allow these transactions to take place more spontaneously, not requiring the normal long lead times associated with scheduling of various assignments and airline travel.

6 Distance Education Education and training are often elements of successful economic policy programs. Indeed approximately 28% of all USAID training supports business and free market economics. Distance education offers an alternative to traditional classrooms, and can be cost-effective, reach more students, and be less disruptive to host country institutions. While Internet-based education is growing quickly in the United States, little has been reflected back in USAID's training programs.

The importance of training in private infrastructure regulation, finance and operation was highlighted in World Bank reviews presented earlier. Some of this training could be delivered over the Internet. Short courses covering an array of subjects involved in the private provision of infrastructure could be developed and provided to policy-makers and practitioners around the world, thereby allowing for a much larger base of educated players in this complicated arena. While not suggesting virtual education as a total replacement for seminars, workshops and other

On-Line Graduate Diploma Local Government Management
Deakin University and the Institute of Municipal Management jointly offer this Graduate Diploma via the United Nations Trade Points Development Center. It has been designed for the purposes of delivering distance education globally via the Internet.

physical learning opportunities, the Internet does afford one to strengthen the learning process

Beyond these six development applications, the first deliverable examined four other case studies which are relevant to use of the Internet to strengthen sustainable economic policies

7 Access to and Mastery of the Internet Benefits from Internet applications can't be realized if counterparts lack access or are unschooled in its use. In any case, the Internet remains a bumpy electronic frontier, even for proficient counterparts. There are three views towards Internet connectivity within the donor community: The true believers who spare no efforts to connect counterparts, those who try to marry development objectives with Internet connectivity, and those who basically ignore the Internet. Long-term economic policy objectives may be jeopardized without on-line connectivity.

An analysis was made of Internet connectivity in USAID countries and regions working on the deregulation of infrastructure. This is elaborated upon later, but, in general, these countries/regions have Internet technical connectivity. However, there are issues of access and mastery in these countries. For example, the Philippines is a priority country, and there is a vibrant Internet Service Provider industry. However, use of the Internet in the Philippines is mixed. As a generalization, many senior policy-makers do not use the Internet, but younger researchers in planning departments, universities and think tanks do. These advisors are often just removed from decision-makers. Over time, one would expect the next generation of policy-makers to be more comfortable with this medium. Training may be considered for economists on how to use the Internet for policy formulation.

8 Experimentation and Pilot Projects As we enter a fundamentally new global information economy, traditional approaches to economic and social development need rethinking. Thus, a case can be made for pilot projects to test new approaches out. Several donors have launched programs which provide venture capital/pilot project funds to innovate on application of Internet technologies to development. Methodological problems arise, however, in measuring the impact of the Internet on development.

Experimentation and pilot projects on how the Internet can advance the private provision of infrastructure might revolve around the concepts of (a) how best to accomplish professional and institutional networking over the Internet for utility regulators, investment promotion and privatization agency personnel, and economic policy makers who become involved with private infrastructure, and (b) how best to provide consulting services and distance learning opportunities via this medium. These seem to be areas which could accelerate the process by which countries embark successfully on private infrastructure projects.

9 Regional Approaches Several Internet programs examined follow regional approaches to economic growth. One focuses on extending Internet connectivity to the greatest degree possible, anywhere in Eastern Europe. A second analyzes economic growth constraints, such as poor financial services, and devises Internet and other solutions, such as improved regional banking services. A third direction maximizes electronic linkages between regional economic institutions, from business groups to universities.

Regional approaches to the private provision of infrastructure are already taking place. Examples were cited earlier of telecommunications reform in Central America, privatization of power and urban infrastructure in Central and Eastern Europe, and efforts at transportation and telecommunications deregulation in southern Africa. The Internet is being relied on in each of these situations, to varying degrees, and with varying success. Other opportunities might present themselves where a regional approach makes sense.

10 Internet Business Services as a Tool for Policy Reform The number of independent attempts to use the Internet to facilitate international trade and investment is ample evidence of the importance of information in the emerging global economy. Business groups are among the Internet's most enthusiastic supporters for this reason. These business-oriented Internet programs also offer opportunities to influence economic policies, albeit indirectly. By permitting users to compare economic policies across national boundaries, the Internet's transparency can work as an agent of policy change.

There are a number of business facilitation services that promote the private provision of infrastructure, such as the IPANet managed by the Multilateral Investment Guarantee Agency. While not having a policy orientation, these services will benefit when the right set of economic policies exist to provide a fertile marketplace for private investments in infrastructure. Some business facilitation services might be approached to help identify economic policies that hinder or promote the deregulation of infrastructure markets.

Based on this survey, one can reach the following three basic conclusions with respect to use of the Internet as a tool to deregulate infrastructure markets:

a. The Internet can be a useful tool for those involved in formulating policies and carrying out actions to deregulate infrastructure markets. Of particular relevance are the research, networking, and virtual support functions of the Internet,

b. There already are donor-supported attempts to utilize the Internet to further the process of deregulation of infrastructure. All, however, are in their incipient stage of development, none are comprehensive in approach, and it is unclear how successful they will be individually or collectively, and

c. The Internet has development applications which have yet to be utilized by these initiatives, such as distance consulting and distance learning.

F Proposed Economic Policy Strengthening Program The objective of this program will be create and sustain networks of professionals and institutions with the common

objective of deregulating various infrastructure markets, and supporting these networks virtually by (1) conducting research which results in case studies and best practices, (2) providing distance consulting services, and (3) web-based training opportunities. The program would have an Internet foundation because of that medium's economic research, public transparency and advocacy, professional and institutional networking, distance technical assistance and distance learning applications noted earlier. While this description outlines an Internet program, it needs to be clear that such an initiative also needs a physical form, that is, it would need an organizational home and committed staff dedicated to its success. At the same time, given the incipient efforts by other donors and non-governmental organizations to create these virtual networks, it would be important for USAID to look for as much donor collaboration as is feasible.

There are five related virtual actions that USAID's Center for Economic Growth could undertake to help strengthen economic policies in developing countries that lead to increased private participation in infrastructure markets:

- Organize the Internet for the study, formulation and implementation of policies that lead to the deregulation of infrastructure markets
- Link and train economic policy institutions in developing countries and transitional societies on effective use of the Internet
- Encourage appropriate policy institutions to become virtual
- Identify and conduct work on specific deregulation of infrastructure policies
- Carry out pilot and regional Internet activities

1 Organize the Internet for the Study, Formulation and Implementation of Policies that Lead to the Deregulation of Infrastructure Markets The Center for Economic Growth could facilitate the organization of a virtual space which would allow networks of policy makers and practitioners in private infrastructure markets around the world to learn and support one another in an effort to further deregulate infrastructure markets. These networks can be organized by sector (e.g. power, telecommunications, transport and urban infrastructure), region (where common languages, culture, history and development problems suggest common solutions), and/or institutions which already exist to support these economic policies and practices. Coordination with other donor initiatives would be important.

The target audience for such a virtual workplace would include (a) economic researchers and policy-makers in developing countries and transitional societies, (b) national economic development planners, (c) investment, banking, and other financial planners and managers, (d) investment promotion and privatization agency managers charged with increasing the participation of the private sector in infrastructure development, (e) planners and managers involved in the power, telecommunications, transport and urban infrastructure sectors (including utility managers and regulators), and (f) leaders of non-profit organizations and academia who advocate for economic policy reforms.

The web site would be dedicated to the deregulation and increased participation of the private sector in the provision of infrastructure The site, open to all, could contain the following characteristics

a A description of all USAID efforts supporting private investments in infrastructure development, with linkages to web sites for those projects having a cyber presence,

b A virtual library with important databases and literature A virtual librarian could be accessed to help reviewers find other information of interest,

c Participating countries can be encouraged to present their private infrastructure and services investment policies and invite comparisons with those of other countries,

d Linkages to web sites which touch on this subject The USAID site would guide viewers to the benefits and shortcomings of each of these links,

d Moderated "chat rooms" which would allow for professional networking and serious discussions of topical issues such as tax issues associated with private infrastructure investments,

e Listings of "listserves", virtual conferences and other opportunities to dialogue broadly on private infrastructure topics A virtual conference on experiences of countries seeking, for example, to solicit private participation in municipal water supply systems might be of interest to the Philippines,

f Linkages to other international organizations and non-governmental organizations associated with these subjects,

g Listings of private infrastructure policy consultants and links to USAID contractors willing to provide on-line advice,

h Listings of, and linkages to, web-based training pertaining to private infrastructure policies,

i Public advocacy and transparency fora where groups could publish press releases and other items of interest, and

j A creativity room which would allow experimental pilot projects for improved private provision of infrastructure and services

As mentioned earlier, the site could be organized by sector (power, telecommunications, transport and urban infrastructure, e.g. water supply), region, and/or institution It is recommended that this virtual program be permitted to grow, organically, beginning with those sectors, regions, and/or institutions most willing to participate Once proven, for example, for the private provision of power, the program could be expanded into a related infrastructure service, such as telecommunications Institutional selection would naturally follow the identification of sector New institutions can be drawn in as the scope of the infrastructure covered expands Likewise, one could approach this program regionally, which is discussed further below

This web site would also permit collaboration with trade and investment business facilitation services supported by governments, donors, non-profit associations, and private firms USAID could enter a dialogue with these services and attempt to enter

partnerships whereby their information could be made available in a format useful to both privatization policy-makers and reform advocates in USAID countries. For example, USAID could enter discussions with the Multilateral Investment Guarantee Agency's IPANet to see if there were ways its service could be useful to those establishing privatization policies in developing countries.

2 Link and Train Economic Policy Institutions in Developing Countries and Transitional Societies on Effective Use of the Internet There is limited and uneven access and awareness today in the developing world as to the potential of Internet technologies to strengthen economic policy reform programs. At the same time, due to new information and telecommunications technologies and favorable global agreements, conditions are very favorable to the growth of the Internet. Thus, it will be important to increase (i) Internet access for targeted professionals and institutions, (ii) knowledge of how the Internet can be a useful tool for strengthening economic policies that privatize infrastructure services, and (iii) mastery of these technologies so that those on-line can collaborate on research, network, advocate, provide and receive consulting services, and benefit from distance learning.

Eighty two percent of USAID countries have international connectivity to the Internet. In a recent survey of USAID missions, 77% of those responding use Internet applications, and 88% see growth of Internet development uses in their host countries in the years ahead. Many USAID missions, however, responded that poor quality and high costs limit the utility of the Internet today.

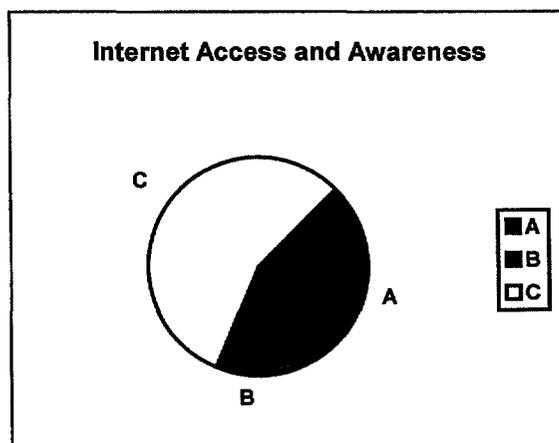
Attachment B takes a closer look at only those developing countries/ transitional societies which are seeking to deregulate infrastructure markets. For each country, indicators of technical connectivity and economist usage are found. The former indicators of technical connectivity are provided by the Internet Society and attempt to measure international connectivity and domestic spread of the Internet. The economics indicator is collected from a database maintained by the Center for Research on Economic Fluctuations and Employment at the University of Quebec at Montreal. The indicator presents the number of home pages for prominent economics organizations in each country, and thus is a measure of Internet use in that profession. Some of the USAID missions in these countries responded to the Internet survey and their responses are also included.

Based on this table, one can draw the following conclusions:

- In a little more than two-thirds of all USAID countries and regions which have programs to deregulate infrastructure markets, there is a relatively robust Internet service industry and economic institutions are starting to take advantage of this growing computer network, and
- In a little less than one-third of all USAID countries and regions which have programs to strengthen policies that deregulate infrastructure markets, there are more modest Internet services and fewer economic institutions which are taking advantage of

these networks. The usefulness of the Internet as a development tool is clearly most limiting in these countries.

As a generalization, we can characterize target developing countries as those where (a) unfavorable government policies limit the access and quality and increase the cost of using the Internet - 25% of countries, (b) the Internet is somewhat available but there is very limited knowledge of how it can be used - 6% of countries, and (c) there is somewhat greater Internet availability and awareness but little knowledge of how it can be applied in specialized cases - 69% of countries.



The accompanying pie chart shows the distribution

among the countries and regions where USAID seeks to deregulate infrastructure markets, according to these three classifications.

In order to increase access, awareness, and mastery of Internet technologies, the Center for Economic Growth might wish to consider the following:

1. Press Statist Developing Countries to Liberalize Telecommunications Markets

This approach would be appropriate for the first category of countries/regions. Here, efforts might be taken to convince host governments to deregulate the telecommunications/Internet Service Provider industries. If discussions with government policy-makers demonstrate a reluctance to deregulate these markets, USAID need take but one step. Simply insist that new program agreements with host governments include a clause that development partners should have access to the global information highway. This would quickly create a "development information corridor" where private Internet Service Providers could enter and serve. Other donors should be encouraged to join in this exercise to open telecommunications markets. Over time, this information corridor would widen as other groups quickly learn and then demand the benefits of the Internet.

2 Conduct a series of basic Internet workshops for economic policy-makers The Internet is just now being introduced into a number of key economic organizations in the developing world. Personnel in these organizations have had little exposure to computers and the Internet, including email. Thus, it is recommended that USAID support a series of basic courses for economic and deregulation/privatization of infrastructure researchers and policy-makers in a wide range of government agencies, non-profit organizations, banks and other financial institutions, universities and professional and industrial associations to explain the fundamentals of the Internet, and allow for supervised hands-on experience with computers in the classroom.

In some countries, there will be local organizations able to deliver this training. In others, outsiders will need to be called in. In the former, costs should be relatively modest. Exploration should also be made as to whether Internet Service Providers would be willing to bear some or all of these costs, since increased awareness leads to a stronger customer base.

3 Conduct specialized Internet workshops on special topics After participants in the earlier basic workshops have had an opportunity to work with the Internet on their jobs, then specialized Internet workshops could be conducted. The target audience for such training would include (a) economic researchers and policy-makers in developing countries and transitional societies, (b) national economic development planners, (c) investment, banking, and other financial planners and managers, (d) investment promotion and privatization agency managers charged with increasing the participation of the private sector in infrastructure development, (e) planners and managers involved in the power, telecommunications, transport and urban infrastructure sectors (including utility managers and regulators), and (f) leaders of non-profits and academia who argue for economic policy reforms.

Invariably, one issue which will arise is whether USAID should purchase computer and network equipment. One important principle should be that USAID does not get involved in financing the costs of computer equipment and networks. The costs of computers keep coming down in the world market, and customs duties are being eliminated in progressive governments, further reducing costs to the local buyer. One would also expect the costs for Internet services will fall while the quality of Internet services improves, as competition grows in the local Internet Service Provider market. Thus, for the costs of buying and maintaining a new vehicle, an organization should now be able to acquire approximately ten personal computers and network, and obtain full Internet connectivity. Thus, it is argued here that the issue is not finance, but one of awareness, and demonstrating that the value of the Internet is much greater to an organization than the acquisition of an additional vehicle to its motor pool. When costs are undeniably high, the solution is to convince host governments to liberalize telecommunications markets, not to help organizations absorb those costs with granted equipment and on-line charges.

To make these workshops as effective as possible, it will be important to bring in professional colleagues from the United States and other developing countries to work with the participants on how they use the Internet in their daily professional lives. These workshops could be organized around professional groups (e.g. economists and national development planners). These specialized seminars could also be organized around a particular institution, such as a privatization agency. In this case, there might be the

added benefit of the participants and the instructors also agreeing to form virtual institutional relationships which might continue beyond the duration of specific training on how to effectively use the Internet to deregulate and private infrastructure markets

3 Encourage Policy Institutions to Become Virtual A third approach would build on the first but also help encourage other organizations which could contribute to policy strengthening to become virtual These could be the following types of partners

- 1 American training groups with important content,
- 2 American consultant groups, willing to offer on-line advice,
- 3 American think tanks not yet on-line but who are willing to share research findings,
- 4 American utility regulators, utility associations and other organizations involved in the regulation and provision of infrastructure services,
- 5 U S universities to join in collaborate research sharing, provide distance learning, and to keep up with alumni of past USAID training programs,
- 6 U S professional and trade groups interested in the privatization of infrastructure,
- 7 U S government agencies,
- 8 USAID registered private voluntary organizations and other non government organizations who share a common agenda, and
- 9 States, cities and local governments with an interest in the privatization of infrastructure

Because of the modest costs involved, it should be possible to persuade many of the above groups to establish their own web presence However, some organizations might encounter additional costs, for example if they were to convert classroom instruction into a virtual education Small grants might be considered, to encourage the creation of more distance learning content for the private provision of infrastructure

The International Development Law Institute in Rome holds high quality training for the legal profession on economic and commercial law, an important issue for privatization of infrastructure Courses are either underway or recent concluded in Indonesia and Macedonia, on the legal aspects of private infrastructure None are offered virtually USAID might be able to work with this Institute to see if they would be willing to offer some training virtually, thereby being able to reach larger audiences at more cost competitive prices

The above approach would increase the supply of relevant American content, expertise and learning opportunities available on the world wide web to support USAID economic policy solutions to the private provision of infrastructure However, due to unreliable and costly Internet service in many USAID countries, discussed above, there would still be limitations on the supply of relevant content, expertise and learning opportunities from other developing countries Thus, efforts should also be made to have developing country organizations to develop virtual presences for the objective of increasing important content This was discussed above

4 Identify and Conduct Work on Specific Economic-Infrastructure Policies The fourth approach would be to prioritize economic policies and carry out the first three approaches, but more focused than on the broad subject of privatization and deregulation of infrastructure markets. A narrow topic, such as corporatizing and privatizing state power companies, and creating competitive power markets, could be selected. Virtual support might entail economic research via the Internet, distance technical assistance, distance education, networking among professionals and institutions, and supporting non-governmental organizations for international advocacy.

The Center for Economic Growth could begin by establishing a web presence dedicated to this purpose. The site, open to all USAID projects, could contain the following characteristics:

- a. A description of all efforts underway regarding corporatizing/privatizing government power companies and establishing competitive markets, with linkages to web sites for those projects having a cyber presence,
- b. A virtual library with important databases and literature. A virtual librarian could be accessed to help reviewers find other information of interest,
- c. Participating countries can be encouraged to present their experiences with this approach to private provision of energy,
- d. Linkages to web sites dedicated to this subject. The project's home page would guide viewers to the benefits and shortcomings of each of these links,
- e. Moderated "chat rooms" which would allow for professional networking and serious discussions of topical issues,
- f. Listings of "listserves", virtual conferences and other opportunities to dialogue broadly on corporatizing/privatizing power companies. A virtual conference on the benefits of private and competitive markets for energy service, in which both government officials and the questioning public could be engaged in safe, virtual discussions,
- g. Linkages to other international donor organizations and non-governmental organizations associated with these subjects,
- h. Listings of policy consultants and links to USAID requirements contractors willing to provide on-line advice,
- i. Listings of, and linkages to, web-based training pertaining to this subject matter,
- j. Public advocacy and transparency fora where groups could issue press releases and other items of interest, and
- k. A creativity room which would allow experimental pilot projects. For example, dynamic interactive models could be developed, tested and disseminated to demonstrate the impact of a competitive private power market on a particular economy.

As this Internet-based system is developed, it might be found that certain key actors are not present in a virtual sense, such as certain non-governmental advocacy groups, training providers, and institutions with particular expertise and experience. USAID's

Center for Economic Growth would help to identify such groups and encourage them to join the process

5 Carry out Pilot and Regional Internet Activities Three regions (Central and Eastern Europe, Southern Africa and Central America) have indicated an interest in the deregulation of infrastructure markets. The commonality of problems argues for such an approach. All regional programs already use the Internet to some extent. Beyond these ongoing regional programs, there are other countries in each USAID region which indicate an interest in this subject. As mentioned earlier, for example, consideration is being given to creating a telecommunications leadership network for sub-Saharan Africa, which would go beyond the network established already in southern Africa. Regional approaches could be all encompassing, or focus on particular infrastructure sectors and institutions, be they transport and/or privatization agencies.

Beyond regional approaches, the proposed program can pioneer new ways for the Internet to strengthen economic policies to promote the deregulation of infrastructure. For example, an innovative web site could compare the economic and telecommunications competitiveness of one country against sets of competitor economies in the region and the rest of the world for the new global information age. A second group might want to establish a web based advocacy forum surrounding a series of issues, such as further deregulation of power industries and its impact on both economic growth and environmental improvements. A third group might experiment with distance learning associated with managing private municipal water supply systems.

G Organization, Management and Implementation, and Sustainability

1 Potential Partners For this virtual program to be successful, it must have an institutional home. There are a range of potential partners for such an activity. The following table illustrates the types of institutions which might have an interest and capacity to carry out this program. A description of each of these organizations is found in Attachment C. It should be emphasized that this is merely an illustrative list, demonstrating that there are numerous organizations which could serve as partners with USAID. This list, however, is not all-inclusive, there are many other groups with similar characteristics.

POTENTIAL PRIVATIZATION OF INFRASTRUCTURE PARTNERS

Potential Partner	Economic Institution
International Partner	World Bank International Finance Corporation Multilateral Investment Guarantee Agency World Trade Organization

Potential Partner

Economic Institution

U S Government

International Trade Administration
U S Department of Energy
Overseas Private Investment Corp
National Telecommunications and Information Agency

Industrial and Prof Associations and Non Profits

U S Energy Association
International City/County Managers Association
Information Technology Association of America
National Telephone Cooperative Association
International Development Law Institute

Universities, Training Institutes and Networks

University of Florida
University of Michigan
Ohio State University
U S Telecommunication Training Institute
Center for Intl Business Education and Research

Criteria for selection of institutional partners should include the following criteria (a) Professional respect in both infrastructure and economic policy communities, (b) interest in carrying out such a program, and cost sharing to demonstrate such an interest, (c) an ability to bridge both economics and infrastructure communities, (d) a demonstrated capacity to mount an Internet-based program, (e) capability of reaching and attracting interest among governments, non-government organizations and professional, trade, and industrial associations, and (f) global reach

2 Management and Implementation The responsibilities of the selected partner would include the following

- a Provide intellectual content and direction to international efforts to engage the economic policy community on issues associated with deregulation and privatization of infrastructure,
- b Establish and sustain an international network of professionals and institutions who have direct responsibility for and influence over the direction of necessary economic policies,
- c Create a virtual presence for this international network, and provide leadership in its evolution,
- d Assist developing country institutions to gain access, basic understanding, and mastery of the Internet,
- e Provide virtual support to queries as they arise from users, ranging from technical to policy to administrative matters,
- f Facilitate the virtual transformation of other organizations to join the network through activities to increase their access and mastery of Internet technologies, and
- g Help shape and carry out specific economic policy activities, in such areas as the corporatization and privatization of power companies

Once an institution were selected by the Center for Economic Growth, it would be important to establish a plan of operation. The virtual networks might be grown organically, beginning with a few organizations with a common agenda. The network would begin with those organizations that have access and mastery of the Internet as well as an interest and responsibility for formulating economic policies which impact on the private provision of infrastructure. This group would help shape the early development of the web site.

The web presence and Internet technology applications should follow the perceived needs of viewers. It should evolve over time, becoming more sophisticated as time goes by. Chat rooms and opportunities for feedback on the Internet itself can help raise the expectations and improve the performance of the Internet web site. A deliberate effort should be scheduled at least annually to improve the services and capabilities available from the Internet web site.

Efforts would be made to expand Internet access and mastery in developing countries, as discussed earlier. Increased awareness and mastery over the Internet can be achieved through basic and specialized training. These training workshops could be completed in a period of 18 months. USAID, the United States Government more broadly, and other donors should address telecommunication policy constraints where they exist. Negotiations for more open information and communications policies will likely persist for a number of years.

Another important step will be to facilitate a virtual entrance for organizations which can make substantive contributions towards strengthening economic policies that deregulate infrastructure markets, but which presently do not have an Internet presence or capability. These organizations and programs will be identified over time, and attempts should be made to convince them to develop a virtual capability. Small grants might be useful in some instances to gain an Internet presence, say in developing on-line training from an educational institution.

Pilot and regional projects would likely begin in year two. A process to encourage innovation would need to be worked out. A small grants activity might be considered to begin some of these efforts.

Attachment D presents a broad implementation plan for this program.

3 Sustainability It is assumed in this proposed program that donor support would be available for a period of five years, the developmental stage when costs are incurred in creating and energizing the virtual network and setting the direction for policy discussions. However, as past experience has shown, the actual deregulation of infrastructure services takes a very long time, and policy strengthening requirements will likely continue well beyond five years. Thus attempts must be made to ensure sustainability from the very inception of the program.

The previous section outlines an approach towards sustaining efforts to strengthen economic policies that are environmentally sound. In that section, plans are outlined for the Environmental Law On-Line program to charge membership fees to users who receive access to a more comprehensive, timely and commercially-oriented portion of the database. E-Line also intends to accept paid advertising for environmental goods and services of interest to database users. Finally, E-law intends to enter into teaming agreements with partners (e.g. national legislatures) who can provide data at minimal or no cost.

At the same time, in this section we have learnt about a sobering experience by the World Bank in an attempt to create a self-supporting Latin American infrastructure network. A fairly major investment was made by the Bank to prototype a virtual network, but it is now felt that it would take a number of years (if ever) before that network would be self-sustaining. This argues that one should grow such a network organically, start small with modest outreach and goals, and build on successes, adding new services as clients are willing to pay.

A program which targets those who set policies and carry out programs to deregulate infrastructure markets in developing countries and transitional societies could consider a similar approach. Membership fees might be possible for corporate users who seek information available on this database. Corporations involved in international investment (e.g. power companies) might have the greatest interest in following the evolution of economic policies that impact on their businesses. Paid advertisers could include U.S. technical, economic and financial consultants and lawyers who would like their capabilities known to important decision-makers around the world. Infrastructure technology providers and manufacturers are another likely group of paid advertisers. Teaming agreements might be possible with countries seeking to project a leadership role on the global stage. Other sources of income could include (a) Commissions from web-based trainers who gain clients from economic/private infrastructure courses highlighted on this web site, (b) partnerships with Internet Service Providers who seek to perform public services, and be known for this, and (c) subscriber fees for Internet services provided by the project in underserved areas.

Attachments

Survey Climate Change Mission Uses of Internet for Economic Reform Attachment A

<u>Mission</u>	<u>Internet Connectivity</u> ³⁹	<u>Economic Departments, Institutes, and Research Centers on the Web</u> ⁴⁰	<u>Mission Survey Response</u>
Brazil	IUF	32 institutions	Not much going on with Mission, although Brazil has wide use of the Internet
Central Africa			
Cameroon	IUF	0 institutions	
Cen Afr Republic	I--	0 institutions	
Rep of Congo	---	0 institutions	
Dem Rep of Congo	I--	0 institutions	
Equatorial Guinea	---	0 institutions	
Gabon	---	0 institutions	
Central America			
Belize	IU-		
Costa Rica	IUF	5 institutions	
El Salvador	IU-	1 institution	
Guatemala	IUF	5 institutions	Internet usage has gotten into full swing this past year Most economic leaders

³⁹ <http://www.isoc.org/infosvc/>, Internet Society statistics regarding international Internet connectivity

⁴⁰ <http://www.edirc2.edu>, Economics Departments, Institutes and Research Centers in the World (EDIRC), a database maintained by the Center for Research on Economic Fluctuations and Employment (CREFE) at the University of Quebec at Montreal. A total of 3002 institutions from 132 countries were listed, as of 1/20/98. This column lists those in designated countries

have access either at office or at home. In next 5 years, use of Internet will be commonplace in small-medium sized businesses. Guatemala is a regional mission. Internet used for email communications. Setting up home pages for different regional SOs (will be accessed by clients to provide information and receive feedback) for research and for long distance learning for USAID staff. Trade and Economic Analysis Office supported home page by an autonomous regional economic organization to improve information management.

Honduras	Iu-	2 institutions	Overall use of Internet among leaders is relatively low but is gaining momentum. Business community readily sees value of Internet and it is taking off. Basic education project has a home page for information exchange. Number of projects have agricultural market information. Two policy institutions are working with USAID to develop home pages.
Nicaragua	Iu-	4 institutions	
Panama	IuF	2 institutions	Now 7 ISP providers, Internet email more widely used since 1997. Most government officials use it, and more business leaders are seeing how useful it can be. Mission and several projects are going to develop home pages.
Central Asia Kazakstan	IUF	0 institutions	Internet used by USAID/CAR in Almaty, being installed in Tashkent soon. Others do not have access yet. USAID now developing its own home page and intranet. Mass Privatization Project (MPP) has a home page. Provides access to company information on privatization and securities market to anyone. Also Global Training for Development has a home page with WWW access. Legal Resource Centers have email.
Kyrgyzstan	IU-	3 institutions	
Tajikistan	-uf	0 institutions	
Turkmenistan	Iuf	0 institutions	
Uzbekistan	IUF	1 institution	
India	IUF	4 institutions	Country use of Internet very limited. Only one provider, VSNL, which is government owned and controlled. No private ISP providers. VSNL covers four metros and a few cities. Costs are expensive and depends on public telephone for service. Three projects use the Internet. Two are business transactional in nature. The Trade in Environmental Services and Technologies and the Agricultural

Commercialization and Enterprise Projects One project uses Internet technologies for environmental NGO networking Another USAID partner proposes to offer distance learning systems for secondary schoolers Finally a technology development project uses the Internet as a clearinghouse for the food processing industry

Indonesia	IUF	23 institutions	Despite lots of web pages use of Internet among economic leaders limited to few academics and technocrats in major cities of Java But use of Internet likely to grow rapidly over the next five years Growing phenomena with lots of potential in Indonesia Economic Law and Improved Procurement Systems Project is using electronic bulletin boards at the Ministry of Justice's National Law Development Center Users mainly the government issue is the demand for legal information in Indonesia right now Could be used under the Partnership for Economic Growth program
Mexico	IuF	21 institutions	
The Philippines	IuF	12 institutions	Internet is extensively used in the Philippines All major public and private institutions have email address Mission had Agency's first website Internet used by mission in email, research webpages, public education, and research applications Not yet in long distance education or long distance TA Economic growth portfolio uses Internet extensively Examples are in capital markets development trade and investment information systems, dissemination of public information statistics, linking revenue information systems, government credit policy reform, taxpayer information systems, telecommunications and government securities trading Philippines can put fancy web pages together but takes too much time to download, and question of sustainability World Bank and ADB use Internet extensively, ahead of other bilaterals and PVOs Several suggestions for creative use of Internet cost effective ways of making market information available to small businesses, improving public awareness of major policy issues, providing background information and key data to policy-makers, increasing computer literacy among youth and in rural areas, and promoting economic literacy
Poland	IUF	11 institutions	
Russia	IUF	29 institutions	Thousands of email addresses Hundreds of web pages Most thoughtful and comprehensive response Internet used extensively by

economic leaders in Russia Should also explode in next five years as telephone infrastructure improves Lots and lots going on in Russia Many web sites to explore as follow-up Economic growth helped by Internet in following projects Business Collaboration Center Junior Achievement International Eurasia Foundation Russian Longitudinal Monitoring Survey

South Africa	IUF	24 institutions	South Africa is among the leading users of the Internet in sub-Saharan Africa Lots of users and web sites dealing with host of different topics and relevant issues Political parties use Internet to distribute policy papers and discussion pieces Research community both private and public use the Internet to exchange ideas The South African Network for Economic Research is establishing a website to support its economic research Mission uses email has its own webpage, projects have webpages listservers and discussion groups Discussion re using Internet for distance education AFR's EAGER Project is active in South Africa and uses the Internet for communication and sharing research NGOs do same SangoNet is a South African NGO network
Ukraine Mission	IUF	3 institutions	
Egypt	IU-	4 institutions	

I ECONOMIC INSTITUTIONS

World Bank This multilateral development bank has a host of environmental programs Two are worth mentioning here The first is the Global Environmental Facility⁴¹, which provides grants and concessional financing to developing countries for projects that protect the global environment and promote sustainable economic growth Established in 1991, it was restructured in 1994 with over \$2 billion to cover the agreed costs of activities that benefit the global environment in four areas climate change, biological diversity, international waters and stratospheric ozone Both the Framework Convention on Climate Change and the Convention on Biological Diversity have designated this Fund as their financing mechanism, on an interim basis The second pertinent World Bank project is EmPower, or the Environmental Management for Power Development program⁴² EmPower supports developing countries in integrating environmental assessment into power sector planning The website includes links to the EM Network, a conferencing system, EMPower information (such as an overview of environmental standards and guidelines used in the power sector, details of energy sources and energy conversion technologies, statistics and requirements for energy sources, conversions, and environmental factors in environmentally-sound power development), EM model software a database and energy analysis program

World Trade Organization⁴³ The World Trade Organization is responsible for the rules of trade between nations It uses its web site for electronic outreach, presenting information to interested viewers in English, French and Spanish Among the information provided is "Trading into the Future", a new electronic guide to the World Trade Organization and its agreements A special icon allows the viewer to examine environmental trade matters Topics covered include background to WTO work on trade and environment, the Marrakesh Ministerial Decision on Trade and Environment, the relationship between the provisions of the multilateral trading system and measures for environmental purposes, dispute settlement, eco-labelling, transparency provisions, the issue of the export of domestically prohibited goods, trade liberalization and sustainable development, trade in services and further work

Asian Development Bank⁴⁴ This regional development bank web site makes available information brochures, project profiles, news releases and an electronic edition of the ADB Business Opportunities publication A page on Environmental Impact Assessments of ADB supported projects for the Asia-Pacific region is under construction

⁴¹ [http //www worldbank org/html/gef/](http://www.worldbank.org/html/gef/)

⁴² [http //www worldbank org/thml/fpd/em/](http://www.worldbank.org/html/fpd/em/)

⁴³ [http //www wto org](http://www.wto.org)

⁴⁴ [http //www asiandevbank org](http://www.asiandevbank.org)

U S International Trade Administration The U S Department of Commerce's International Trade Administration presents a number of environmental technology market reports on the Internet⁴⁵, covering such countries as Argentina, Chile, China, Hong Kong India, Indonesia, Poland, South Africa, South Korea, Taiwan and Turkey ITA's Environmental Technologies Exports Office is the principal resource and key contact point within the U S Department of Commerce for American environmental technology companies The goal is to facilitate and increase exports of such technologies, goods and services by supporting and guiding U S exporters

U S Export-Import Bank⁴⁶ The U S Export-Import Bank promotes American exports through loans and guarantees, working capital, and export credit insurance Ex-Im has established an "Environmental Exports Program" which increases the level of support provided to exporters of environmentally beneficial goods and services, as well as to exporters participating in foreign environmentally beneficial projects This affords exporters a special level of support in conjunction with either Ex-Im's insurance program or with its loan and guarantee programs While business-transaction oriented, the U S Export-Import Bank would like American exporters to face environmentally-friendly markets abroad, and thus there may be opportunities to collaborate in countries and issues of a policy-nature

U S Overseas Private Investment Corporation⁴⁷ This federal government corporation supports U S direct investment in developing countries The web page includes an OPIC Environmental Handbook intended to provide guidance to clients, as well as the interested public, with respect to the environmental standards, assessment and monitoring procedures that OPIC applies to prospective and ongoing investment projects What is particularly interesting is that OPIC seeks to facilitate communication with interested and affected parties regarding the environmental impacts of major projects under consideration by OPIC insurance, finance or for investment by guaranteed funds OPIC now lists projects that will require Environmental Impact Assessments or Audits As of mid April OPIC invited public comment on gas- and coal-fired power plants in Thailand, rehabilitation of a coal-fired power plant in Turkey, salt production in Venezuela, and a hydroelectric facility for Guatemala

Center for International Private Enterprise⁴⁸ The Mission of this nongovernmental organization associated with the U S Chamber of Commerce, is to promote free market economics and strengthen business associations Because of its strong business association networks in developing countries and transitional societies, and its creative and successful use of Internet technologies, CIPE offers lots of potential to work on policy issues associated with balancing economic growth and the environment Economic Reform Today, the Center's journal, had a special edition on market solutions

⁴⁵ <http://infoserv2.ita.doc.gov/ete>

⁴⁶ <http://www.exim.gov>

⁴⁷ <http://www.opic.gov>

⁴⁸ <http://www.cipe.org>

to social issues two years ago. Among the articles published was one entitled "Economics versus Environment: Striving for Equilibrium"

Center for Environmental Policy, Economics and Science⁴⁹ This Center is a non-profit corporation, whose mission is to develop sustainable solutions to local, national, and global environmental, natural resource, and energy problems through the integration of economic, scientific, and technical information and the provision of information and analysis concerning laws, regulations, policies and programs. Goals include developing analyses and providing technical assistance for decision-makers, interest groups and stakeholders on the economic, technical and scientific aspects of environmental and energy issues, and providing access to and interpretation of information on environmental, energy and economic policy and science using global information networking capabilities (i.e. the Internet). Programs fall into three major areas: The Environmental Economics and Policy Program, to analyze proposed actions related to specific environmental or natural resources problems, the Environmental Capital Network to increase the success rate of companies developing environmentally-beneficial technologies by reducing barriers to private investment capital, and a Great Lakes Institute for Recycling Markets to facilitate growth and sustainability of recycling entrepreneurs, manufacturing and markets.

Pacific Institute⁵⁰ The Pacific Institute for Studies in Development, Environment and Security is an independent, non-profit center created in 1987 to conduct research and policy analysis in the areas of the environment, sustainable development, and international security. Major programs focus on water and sustainability, environment and security, community strategies for sustainability and environmental justice, natural resources and economic development, and trade, economic globalization and environment. The latter program examines the connections among current patterns of trade and investment, the international institutions that govern trade, and the effects of the expanding global economy on the environment. This research program aims to define the environmental impact of liberalized trade and the new global economic order and develop trade policies that prioritize health and vitality of natural systems and contribute to social well-being.

H. John Heinz III Center for Science, Economics and the Environment⁵¹ This is an independent, non-profit corporation devoted to environmental policy analysis. Its mission is to improve the scientific and economic basis for environmental policy and develop innovative solutions to environmental problems. The Center presently has five programs: global change, sustainable coasts, managing US marine fisheries, environmental report cards and industrial ecology.

⁴⁹ [http://bizserve.com/Environmental Capital Network/cepes.html](http://bizserve.com/Environmental%20Capital%20Network/cepes.html)

⁵⁰ <http://www.pacinst.org>

⁵¹ <http://www.heinzctr.org>

Association of Environmental and Resource Economists⁵² This professional association was established in 1979 as a means of exchanging ideas, stimulating research, and promoting graduate training in resource and environmental economics. Membership covers 30 nations. The association has its own Journal of Environmental Economics and Management, which is available on line. The home page also lists upcoming meetings, conferences and workshops, electronic mailing lists of interest to its membership, and links to other web sites concentrating on environment and resource economics.

International Society for Ecological Economics⁵³ This is a nonprofit organization that encourages the integration of economics and ecology into a transdiscipline aimed at developing a sustainable world. Specific research areas include ecological modeling, ecological limits to growth, climate change, biodiversity, valuation of natural capital, and ecotax reform. It is an international society, with 1300 members in 60 countries, but housed at the University of Maryland's Solomons campus. The web page includes on-line forums covering the value of the world's ecosystem services and natural capital, beyond growth, eco-taxation, moderating criteria, Syllabi Project, and academic programs.

Harvard Institute for International Development at Harvard University⁵⁴ This is the primary center for international development consultancies and training at Harvard University. The Institute has worked on economic policy matters for four decades in over 80 countries. HIID has and continues to work with USAID on a number of policy-based programs around the world. HIID has researched and taught the relationships between environment (including greenhouse gas emissions) and economic growth, and is conducting research for USAID on this subject. Harvard is planning a major conference for policy-makers from around the world on the subject of Climate Change and Development in July, 1998. HIID uses the Internet to present both administrative and program information, and to communicate with consultants and development partners.

Yale University Economic Growth Center⁵⁵ Yale University's Economic Growth Center was founded in 1961 with the objective of studying and promoting understanding of the economic development process within low-income countries and how development is affected by trade and financial relations. The Center facilitates and coordinates the research and training of a diverse range of scholars. Joint programs with Yale's School of Forestry and Environmental Studies allows graduate study and investigation of both economics and the environment. Their web page provides a very extensive library of economic policy research papers that have both been published and that are circulated for discussion and critical comment.

⁵² <http://www1.ecu.edu/~ecwhiteh?AERE/aere.htm>

⁵³ <http://kabir.umd.edu/ISEE/ISEEhome.html>

⁵⁴ <http://www.hiid.harvard.edu>

⁵⁵ <http://www.egc.yale.edu> ???

Duke University Center for Environmental and Resource Economics⁵⁶ This Center was established in 1994 to provide a mechanism for faculty and graduate students at Duke University to undertake collaborative research on the economic dimensions of problems involving environmental resources. Policy issues at the national and international levels are an important motivational factor for research. Such research is supported by the U.S. National Oceanic and Atmospheric Administration, the UNC Sea Grant Program, the NCSU Center for Transportation and the Environment, the U.S. Environmental Protection Agency and other government agencies. Among its projects include Trade and the Environment, and Regulatory Reform -- Benefit Cost Analysis.

Massachusetts Institute of Technology⁵⁷ The Center for Energy and Environmental Policy Research has been the locus for research activity in energy economics at MIT since its founding in the mid 1970s, and in environmental economics since the early 1990s. Research projects are organized into the following areas: environmental economics, management and policy, investment, contracting and finance, energy industry organization and regulation, energy markets, energy demand, productivity and economic growth, and technology policy. Since 1991, the Center has sponsored the Joint Program on the Science and Policy of Global Change, which brings together MIT's scientific and economic expertise to address the policy implications of new developments and uncertainties surrounding global warming. Also of relevance is work on the effects of energy taxes such as carbon taxes, on macroeconomic performance. MIT also produces a Technology Review, abstracts of which are available on line, which often deal with global environmental issues.

II ENVIRONMENTAL INSTITUTIONS

United Nations Development Program The Sustainable Development Networking Programme (SDNP)⁵⁸ is a UNDP initiative that seeks to help developing countries take advantage of the rapid development of information technologies. It links users and suppliers of information in developing countries via computer mediated communications (now mostly Internet) on a participatory basis. Thirty-three countries have participated in this program which is an outgrowth of the 1992 UN Conference on Environment and Development. One of SDNP's main targets is to create a national body of expertise to implement, support and sustain the process of information dissemination and exchange for sustainable development. Training is provided on where and how to look for specialized information on the Internet. One example can be found in Pakistan where the SDNP has been providing email services to over 3,500 computers in four cities. A wide range of assistance was provided, such as helping Pakistan's National Tariff Commission find toxicity and environmental impact information about specialty chemicals.

⁵⁶ <http://www.econ.duke.edu/~kerrys/>

⁵⁷ <http://web.mit.edu/afs/athena/org/c/ceepr/www/ceepr.htm>

⁵⁸ <http://www.undp.org/sdnp/sdnmet.htm#sdn>

United Nations Environmental Program⁵⁹ This United Nations agency is charged with leading and encouraging partnership in caring for the environment by inspiring, informing and enabling nations and peoples to improve the quality of life without compromising that of future generations. The web page publishes a description of the organization and the issues it addresses, conventions, products (such as publications, databases, speeches), services (such as Governing Council Decisions, Agenda 21, etc), events and activities, coordination and partnerships (such as with the Global Environmental Fund), information on current environmental concerns (under construction, but will contain information on climate change as well as more than 25 other environmental topics, such as ozone, and pollution and toxins), and frequently asked questions. The Conventions web page includes ten environmental conventions, including the United Nations Framework Convention on Climate Change, or Kyoto Protocol⁶⁰. Aside from the final version of the Kyoto Protocol in several languages, this site contains information about the Secretariat, what is climate change, information products, official documents, country information, emissions and other data, meetings/workshops, and links with other services.

Besides being policy-oriented, UNEP also manages the UNEP International Environmental Technology Center which seeks to facilitate the transfer of environmentally sound technologies to developing and transitional countries in order to address urban environmental problems and the management of lake/reservoir basins. Their web site⁶¹ contains information about these technologies and the Center's projects and partnerships.

UNEP is also working with the UNIDO National Cleaner Production Centres Program⁶² to promote the application of the concept of cleaner industrial production in developing countries and transitional societies. These Centers exist in Brazil, China, India, Central Europe, Mexico, Tanzania, Tunisia and Zimbabwe.

International Organization for Standardization (ISO)⁶³ This is a nongovernmental organization created more than 50 years ago as a worldwide federation of national standards bodies. ISO promotes the development of standards and related activities to facilitate international trade in goods and services and to develop intellectual, scientific, technological and economic cooperation. The ISO 14000 series covers environmental management, and a number of Internet services have been created to address this subject. For example, ISO 14000 InfoCenter⁶⁴ has a web site containing articles, business opportunities and discussion lists, education and training, lists of certified companies and organizations and publications pertaining to this subject. IIS OnLine⁶⁵ is a network

⁵⁹ <http://www.unep.org/>

⁶⁰ <http://www.unfccc.de/homep.htm>

⁶¹ <http://www.unep.or.jp/ietc/index.html#Guide>

⁶² <http://www.unido.org/services/environment/envncpc/envncpc2.html>

⁶³ <http://www.iso.ch/welcome.html>

⁶⁴ <http://www.iso14000.com/>

⁶⁵ <http://www.iso14000.org>

formed to educate, train, and inform American industry, government and nongovernmental organizations about international environmental standards. The S M Stoller Corporation⁶⁶ has a web page containing information about the emerging set of ISO 14000 standards.

President's Council on Sustainable Development⁶⁷ This Council was established in 1993 to advise the President on sustainable development and to develop new approaches to integrate economic, environmental and equity issues. It includes leaders from business, various levels of government, communities, environmental, labor and civil rights organizations. Among its charters are advising the President on the domestic implementation of policy options to reduce greenhouse gas emissions, and policies that foster U S leadership in sustainable development internationally. Two pertinent task forces are the International and Climate Task Forces. The latter reached a statement of principles agreeing that climate change risks warrant early action. Prior to the Kyoto Conference, the Council called for incentives for early action, international commitments, accountability, flexibility, strong measures to encourage technology, and fairness.

United States Environmental Protection Agency⁶⁸ The U S Environmental Protection Agency is charged with protecting the American environment. This federal agency has a number of programs which utilize the Internet, including the Energy Star Buildings and Green Lights Programs which seek to improve energy efficiency in U S commercial buildings and encourage the installation of energy-efficient lighting respectively. These programs are credited with helping American businesses save between 30 to 50 percents on energy costs. The Global Energy Marketplace⁶⁹, a gateway of more than 2,500 energy efficiency and renewable energy annotated web sites, for quickly locating documents, contacts and resources about sustainable energy development as a tool for preventing and reducing greenhouse gas emissions, is supported by the U S Environmental Protection Agency, as noted earlier.

The U S Environmental Protection Agency has an "Economy and Environment" program which is on the Internet.⁷⁰ This program carried out research and analyses of the interactions and relationships between the economy and the environment. The web page includes an inventory of resources, report, and other databases, news events and current research, useful Internet links and a search capability.

The EPA Global Warming Web Site⁷¹ discusses the science of global warming, latest developments, projected impacts of global warming, international and U S government policies and programs, opportunities for individuals, states and localities, and businesses to reduce the impacts of global warming, and ways to obtain more information.

⁶⁶ <http://www.stoller.com/iso.htm>

⁶⁷ <http://www.whitehouse.gov/PCSD>

⁶⁸ <http://www.epa.gov>

⁶⁹ <http://gem.crest.org>

⁷⁰ <http://www.epa.gov/docs/oppe/eaed/eedhmpg.htm>

⁷¹ <http://www.epa.gov/globalwarming>

U S Department of Energy⁷² This federal department provides scientific and technical information and education required for energy efficiency, a more competitive economy, and improved environmental quality. The Department of Energy maintains a number of electronic databases and general information related to this mandate. Among them are an energy efficiency and renewable energy network (<http://www.eren.doe.gov>), a biofuels information network (<http://www.esd.ornl.gov>), a bimonthly newsletter on energy research (<http://www.er.doe.gov>), a pollution prevention information clearinghouse (<http://146.138.5.107/epic.htm>), and a national technology program to increase natural gas and petroleum supplies and more efficient ways to use coal and natural gas to produce electricity (<http://www.fe.doe.gov>)

U S Government Laboratories The U S Government has a host of national laboratories engaged in research and dissemination related to energy and the environment, most of which are supported by the U S Department of Energy. Among them are the Ames Laboratory (<http://www.ameslab.gov>), Argonne National Laboratory (<http://www.anl.gov>), Brookhaven National Laboratory (<http://suntid.bnl.gov>), Lawrence Berkeley National Laboratory (<http://www.lbl.gov>), Idaho National Engineering Laboratory (<http://www.inel.gov>), Lawrence Livermore National Laboratory (<http://www.llnl.gov>), National Renewable Energy Laboratory (<http://www.nrel.gov>), Oak Ridge National Laboratory (<http://www.ornl.gov>), and Sandia National Laboratory (<http://www.sandia.gov>). These laboratories have a number of Internet-based programs which address international environmental issues. For example, Lawrence Berkeley Labs has created the VirtualPresidio Journal⁷³, which seeks to provide brief, critical reviews of topical and historical material related to sustainability, with a focus on issues critical to the Pacific Rim, the target audience being research and policy communities.

World Resources Institute⁷⁴ The World Resources Institute is an independent center for policy research and technical assistance on global environmental and development issues. Among its programs are biological resources, international development and environment, climate, energy and pollution, economics and population, environmental education resource and environmental information and technology and the environment. On line the Institute has documents pertaining to global climate change, emissions, financing global warming, joint implementation, oil resources and urban programs. Its on-line primer on global warming discusses the greenhouse effect, greenhouse gases, global temperature rise, and related links.

World Environment Center⁷⁵ The World Environment Center is an independent, non-profit, non-advocacy organization, which serves as a bridge for the exchange of information and expertise among industry, government, non-governmental organizations,

⁷² <http://www.doe.gov/>

⁷³ <http://eandc.lbl.gov/VirtualPresidio/vpjournal/vpjournal.html>

⁷⁴ <http://www.wri.org/>

⁷⁵ <http://www.wec.org>

academia, and the public. The Center contributes to sustainable development worldwide by strengthening industrial and urban environment, health, and safety policies and practices. It receives funding, expertise and materials from governments, national and international agencies, industry, foundations, and private citizens. Through two complementary programs, the International Environment and Development Service and the International Environment Forum, the Center offers opportunities for the exchange of technical expertise and information to benefit both business and government. The Gold Medal for International Corporate Environmental Achievement recognizes corporate leadership beyond regulatory requirements or common practices. The Center is just beginning to develop its Internet presence and incorporate it within other activities.

U S Export Council for Renewable Energy⁷⁶ The U S Export Council for Renewable Energy is a non-profit organization supporting the U S renewable energy and energy efficiency industries in efforts to accelerate international use of their technologies. Through seven member trade associations (American Wind Energy Association, National Geothermal Association, National Association of Energy Service Companies, National Hydropower Association, National Bioenergy Industries Association, Renewable Fuels Association and Solar Energy Industries Association), the Council represents over 1,000 major companies in the U S that provide geothermal, hydropower, passive solar, photovoltaics solar thermal and wind energy. Council activities include outreach, trade promotion technical assistance and training, policy support, project facilitation and regional specific initiatives. With respect to policy, the Council advocates public policies that encourage the use of renewable energy technologies. Internationally, the Council provides policy models and case studies of successful projects that have helped develop sustainable energy industries.

Consortium for International Earth Science Information Network⁷⁷ This Network is a private non-profit corporation representing leading universities and nongovernment research organizations dedicated to furthering the interdisciplinary study of global environmental change. It distributes data and information electronically to address the information needs of users to understand global environmental change and sustainable development. It links datasets and other information resources by country and theme.

Renewable Energy Policy Project⁷⁸ The Renewable Energy Policy Project support the advancement of renewable energy technology via policy research. It seeks to define growth strategies for renewables that respond to competitive energy markets and environmental needs. While its agenda is largely domestic, the Project does include materials and studies related to global markets for American companies in the renewable energy field. On going studies encompass such topics as renewable energy and power sector reform in developing countries, government procurement policies to open new renewable energy markets, the government role in technology development, transforming

⁷⁶ <http://solstice.crest.org/renewables/usecre/>

⁷⁷ <http://www.ciesin.org>

⁷⁸ <http://w.repp.org/home/home.html>

markets for solar water heaters, and climate negotiations and business opportunities for renewables after the Kyoto Conference

World Energy Efficiency Association⁷⁹ The World Energy Efficiency Association, founded in 1993, is a private, non-profit organization composed of developed and developing country institutions and individuals who seek to increase energy efficiency. It seeks to assist developing countries to access information on energy efficiency, serve as a clearinghouse for information on energy efficiency programs, technologies and measures, disseminate information worldwide, and publicize international energy efficiency efforts. USAID partially supported efforts for this Association to create an Internet Energy and environment Sampler which is available on line and provides linkages to many valuable environmental and energy web sites. The Association also publishes an on-line technical library, also initially supported by USAID.

Association of Energy Service Professionals⁸⁰ This professional association's membership includes almost 2,000 managers of public utilities, manufacturers, researchers, policymakers, and other involved in stimulating energy conservation and the application of energy efficient options. The Association organizes courses, conferences and workshops. Its homepage describes courses in procurement, demand side management, utility planning and other utility issues. The home page also has information on its publications, theme committees, events calendar, board of directors, advertisements and some web links.

United States Energy Association⁸¹ The United States Energy Association is an association of 180 public and private energy-related organizations, corporations, and government agencies. The association sponsors policy studies and conferences on global and domestic energy issues, and trade and education exchange visits with other countries. The USEA manages three USAID cooperative agreements providing an opportunity to transfer U.S. expertise and to expose U.S. companies to emerging markets. Among its activities are Energy Partnership Programs to match U.S. electric utilities with counterparts in Central and Eastern Europe. The U.S. Energy Association is also the U.S. Member Committee of the World Energy Council.

National BioEnergy Industries Association⁸² The National BioEnergy Industries Association promotes broad public and private participation in the development of clean, renewable bioenergy resources, encourages responsible agriculture/forest management practices, unites those who want to promote the sustainable use of America's biomass resources, and focuses public and legislative attention on these matters, and emphasizes biomass's contribution toward economic development and energy independence locally, nationally and globally.

⁷⁹ <http://www.weea.org/>

⁸⁰ <http://www.dnai.com/>

⁸¹ <http://www.wec98congress.org/usea.htm>

⁸² <http://solstice.crest.org/renewables/nbia/index.html> or <http://www.crest.org/renewables/nbia/index.html>

University of Delaware⁸³ The Center for Energy and Environmental Policy (CEEP) at the University of Delaware is the principle research unit for doctoral study. CEEP provides graduate instruction and conducts interdisciplinary and collaborative research in the areas of energy, technology and environmental, and sustainable development policy. Research is drawn from the fields of political economy, political ecology, and science, technology and society.

Princeton University⁸⁴ The Center for Energy and Environmental Studies at Princeton University has a web site containing references to published papers and reports which can be obtained from the Center. It also has listings of faculty information, seminar descriptions, graduate program information and undergraduate research opportunities.

University of Maryland⁸⁵ The University of Maryland has two pertinent Centers. The Center for Global Change and the Center for Environmental Energy Engineering. The former seeks innovative solutions to global environmental problems and studies their relationships to energy use, economic development, and equity. It evaluates and recommends policies, technologies and institutional reforms to promote sustainable development and reduce risks of environmental degradation, especially risks posed by climate change and ozone depletion. The latter Center for Environmental Energy Engineering conducts research and education on advanced energy conversion technologies that meet environmental and economic concerns.

Iowa State University⁸⁶ Iowa State University has two relevant centers. Iowa Energy Center and Iowa State University IPRT Biomass Energy Program. The former Iowa Energy Center aims to reduce dependence on imported fuels by increasing the use of energy-efficient technologies and renewable resources. It established a series of energy programs and research projects that address economic, environmental and educational issues. The latter Biomass Energy Program serves to develop and promote new ways to produce, process and utilize biomass as a sustainable energy resource. Its web site offers information about support for solving production and energy conversion problems, describes educational opportunities, introduces prominent scientists, and presents pilot projects in gasification technologies and feedstock evaluation.

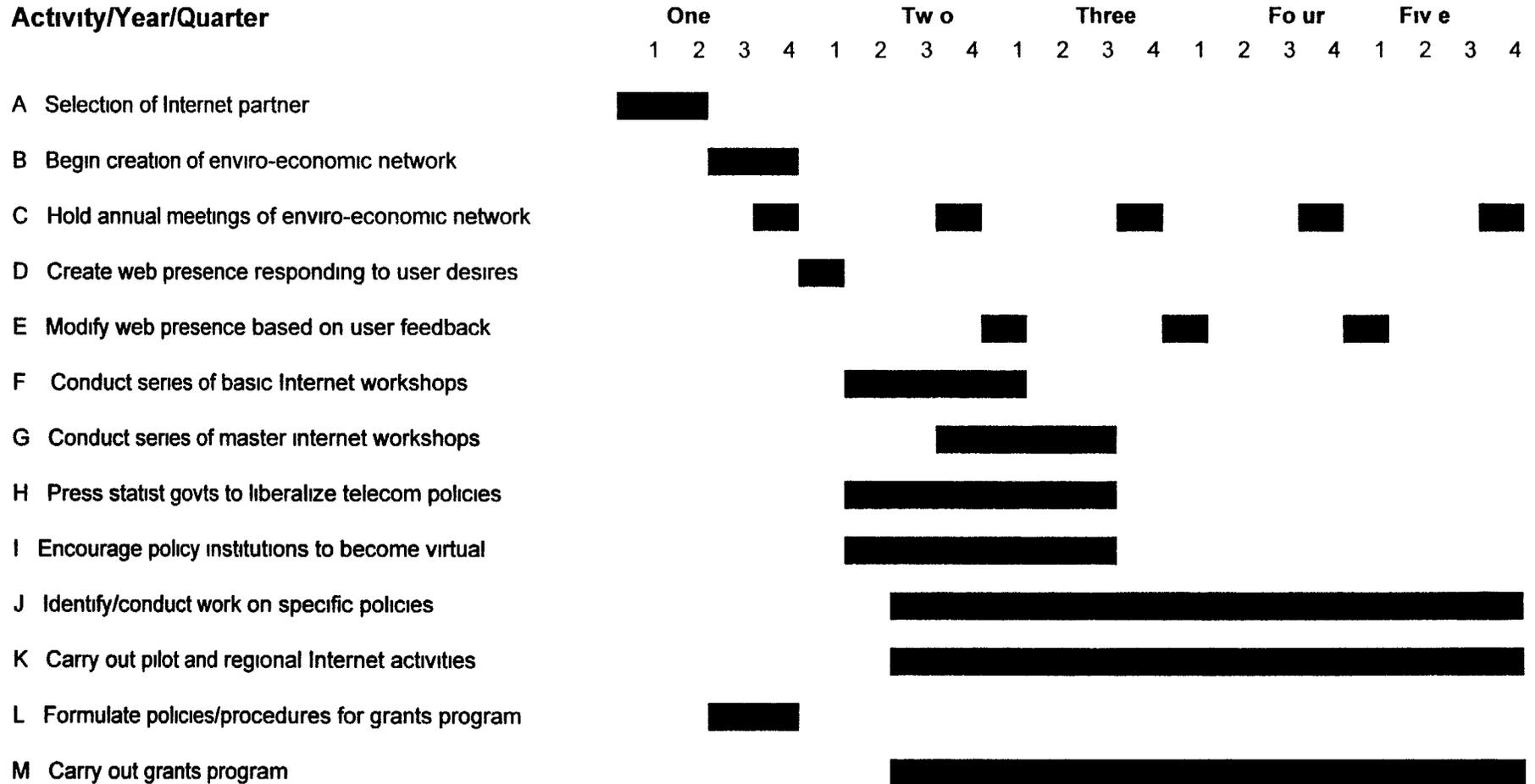
⁸³ <http://www.cuapp.udel.edu/cuapp/centers/ceep/ceepnew.htm>

⁸⁴ <http://www.princeton.edu/80/~cees/>

⁸⁵ <http://www.bsos.umd.edu/cgc> and <http://www.glue.umd.edu/~rader/ceee.html>

⁸⁶ <http://www.energy.iastate.edu/> and http://www.public.iastate.edu/~iprt_info/biomass/

Internet Program to Strengthen Enviro-Economic Policies Att C



USAID Deregulation of Infrastructure Reform Agenda⁸⁷ -- Attachment D

Region/Country	Sector and Priority⁸⁸	Description of Policy Program
Africa		
South Africa	urban - 2	private delivery of water, waste water, and solid waste services
Mali	telecom - 2	enhance biz environment for information and communication technology
Malawi	transport -2	privatization and restructuring of Malawi Railways Private concession to operate line
Senegal	telecom-1 power-1	interest in considering ways of increasing private & high tech applications in power & telecom
Tanzania	transport - 2	increased private participation in rural road rehabilitation and maintenance
Zambia	telecom -2 power - 2	Zambia Telecom Company being privatized and private firms provide value added services Power utility being privatized through support for Zambia Privatization Agency
South Africa Reg	telecom -2 transport -2	Helping deregulate and privatize in Zambia, Swaziland, Namibia and Botswana Improving regulatory environment/capacities for competition/efficiency in regional railways
Asia/Near East		
Indonesia	urban - 2 power - 1	privatization of urban environmental services support for small energy producers to sell power
India	urban - 2 power -2	privatization of urban environmental services (e g water, sewerage, waste water) privatization of investment in clean power generation
Mongolia	power - 1	primarily focused on short term emergency assistance, but interest in longer term privatization
Nepal	power - 1	assisting with procedures for attracting private investment to develop Nepal's hydropower
Philippines	power -2 transport -2	assisting the establishment and operation of a Build Own Transfer (BOT) Center for the Philippines, which is active in attracting investments in several infrastructure/service sectors

⁸⁷ Taken from FY 1998 Congressional Presentations

⁸⁸ Priorities 2 indicates a high priority, and 1 indicates a lower program priority

Region/Country	Sector and Priority ⁸⁸	Description of Policy Program
Egypt	urban -2	assisting in formulation of policies for deregulating the telecommunications sector
	telecom - 2	
	power -2	privatization of power generation through BOOT projects
	telecom -2	increasing the role of the private sector in telecommunications, including BOOT projects
Europe/NIS		
Kazakstan	power - 2	privatization and foreign investment in power generation, transmission and distribution
Ukraine	power -2	major program to deregulate and restructure electric power utilities, and eventual privatization
Cen/East Europe	power - 2	program to assist Baltic States & Central Europe to restructure power production/distribution,
	urban - 2	as well as establish/operate Local Government Center
Armenia	power - 2	deregulation of power utility into generation/distribution companies, to be privatized
Georgia	power - 2	create climate to attract private investment/ownership and improved mgt of power companies
Hungary	power - 1	restructure an inefficient energy sector
Kyrgyzstan	power - 2	restructure, breakup and privatization of the electrical utility
Lithuania	power -1	restructuring of power sector for the Baltic States
Poland	urban-1	public private partnerships for urban environment/services
Romania	power - 2	power sector restructuring, demonopolization of activities and create competitive markets
Russia	power - 1	restructuring of energy sector
LatinAmericaCarib		
El Salvador	power -1	negotiating sale of state telephone company and plans for privatization of electric power
	telecom -1	distribution
Cen America Reg	power -2	USAID is seeking to support Central American readiness to participate in hemispheric free
	telecom - 2	trade agreements in five areas, one being energy and telecom regulatory frameworks

Survey Privatization Infrastructure Missions Uses of Internet for Economic Reform Attachment E

<u>Mission</u>	<u>Internet Connectivity</u> ⁸⁹	<u>Economic Departments, Institutes, and Research Centers on the Web</u> ⁹⁰	<u>Mission Survey Response</u>
Africa			
South Africa	IUF	26 institutions	South Africa is among the leading users of the Internet in sub-Saharan Africa. Lots of users and web sites dealing with host of different topics and relevant issues. Political parties use Internet to distribute policy papers and discussion pieces. Research community, both private and public, use the Internet to exchange ideas. The South African Network for Economic Research is establishing a website to support its economic research. Mission uses email, has its own webpage, projects have webpages, listservers and discussion groups. Discussion re using Internet for distance education. AFR's EAGER Project is active in South Africa and uses the Internet for communication.

⁸⁹ <http://www.isoc.org/infosvc/>, Internet Society statistics regarding international Internet connectivity

⁹⁰ <http://www.edirc2.edu>, Economics Departments, Institutes and Research Centers in the World (EDIRC), a database maintained by the Center for Research on Economic Fluctuations and Employment (CREFE) at the University of Quebec at Montreal. A total of 3,296 institutions from 150 countries were listed, as of 5/2/98. This column lists those in designated countries.

<u>Mission</u>	<u>Internet Connectivity</u> ⁸⁹	<u>Economic Departments, Institutes, and Research Centers on the Web</u> ⁹⁰	<u>Mission Survey Response</u>
	I entire open IP Internet U widespread domestic sites connected to open IP u minimal F widespread Fidonet connected to open IP, f minimal		
			and sharing research NGOs do same SangoNet is a South African NGO network
Mali	- U f	1 institution	Internet arrived in July, 1997 Four Internet Service Providers to be connected Several thousand active users predicted, especially by government and business Belief that Internet can help boost Mali horticulture exports This is a Leland country and six organizations are targeted for end-user applications, including an economic research institute and a business network for West Africa
Malawi	- - f	1 institution	Government-controlled Internet Service Provider established in July 1997 Belief is that government control will be broken over time Mission uses Internet for communication and accessing USAID's home page No known use of Internet for projects Internet will prove very important to economy, but will take time
Senegal	I u f	4 institutions	
Tanzania	I - f	0 institutions	
Zambia	I - f	2 institutions	Zambia appears promising USAID's Regional Telecom Restructuring Project has helped the Government of Zambia establish a good policy environment Several interesting suggestions for use of Internet, including legal information institute and business chamber of commerce

<u>Mission</u>	<u>Internet Connectivity</u> ⁸⁹	<u>Economic Departments, Institutes, and Research Centers on the Web</u> ⁹⁰	<u>Mission Survey Response</u>
South Africa Reg	n/a	43 institutions	Full internet service came to Botswana in 1997, two Internet Service Providers are private Rates are reasonable but limited service in Gaborone Mostly used by universities and business people not the government Internet used by USAID primarily for communications, not much distance consulting or learning Botswana is a Leland country
Asia/Near East			
Indonesia	IUF	12 institutions	Despite lots of web pages, use of Internet among economic leaders limited to few academics and technocrats in major cities of Java But use of Internet likely to grow rapidly over the next five years Growing phenomena with lots of potential in Indonesia Economic Law and Improved Procurement Systems Project is using electronic bulletin boards at the Ministry of Justice s National Law Development Center Users mainly the government, issue is the demand for legal information in Indonesia right now Could be used under the Partnership for Economic Growth program
India	IUF	5 institutions	Country use of Internet very limited Only one provider, VSNL, which is government owned and controlled No private ISP providers VSNL covers four metros and a few cities Costs are expensive and depends on public telephone for service Three projects use the Internet Two are business transactional in nature The Trade in Environmental Services and Technologies and the Agricultural

<u>Mission</u>	<u>Internet Connectivity</u> ⁸⁹	<u>Economic Departments, Institutes, and Research Centers on the Web</u> ⁹⁰	<u>Mission Survey Response</u>
	I - entire open IP Internet U - widespread domestic sites connected to open IP, u - minimal F - widespread Fidonet connected to open IP, f - minimal		Commercialization and Enterprise Projects One project uses Internet technologies for environmental NGO networking Another USAID partner proposes to offer distance learning systems for secondary schoolers Finally a technology development project uses the Internet as a clearinghouse for the food processing industry
Mongolia	I - -	1 institution	
Nepal	I u -	1 institution	Internet not widely used Three Internet Service Providers but they use leased lines from Singapore or Bombay Costs are expensive USAID uses Internet for email, home page, retrieve relevant information and for long distance consulting (from USAID/Washington)
The Philippines	IuF	16 institutions	Internet is extensively used in the Philippines All major public and private institutions have email address Mission had Agency's first website Internet used by mission in email, research webpages, public education, and research applications Not yet in long distance education or long distance TA Economic growth portfolio uses Internet extensively Examples are in capital markets development, trade and investment information systems, dissemination of public information statistics, linking revenue information systems, government credit policy reform, taxpayer information systems, telecommunications and government securities trading Philippines can put fancy web pages together but

<u>Mission</u>	<u>Internet Connectivity</u> ⁸¹	<u>Economic Departments, Institutes, and Research Centers on the Web</u> ⁹⁰	<u>Mission Survey Response</u>
	I entire open IP Internet U widespread domestic sites connected to open IP u minimal F widespread Fidonet connected to open IP, f minimal		takes too much time to download, and question of sustainability World Bank and ADB use Internet extensively ahead of other bilaterals and PVOs Several suggestions for creative use of Internet cost effective ways of making market information available to small businesses, improving public awareness of major policy issues, providing background information and key data to policy-makers, increasing computer literacy among youth and in rural areas, and promoting economic literacy
Egypt	IU-	6 institutions	
Europe/NIS			
Kazakstan	IUF	3 institutions	Internet used by USAID/CAR in Almaty, Being installed in Tashkent soon Others do not have access yet USAID now developing its own home page and intranet Mass Privatization Project (MPP) has a home page Provides access to company information on privatization and securities market to anyone Also Global Training for Development has a home page with WWW access Legal Resource Centers have email
Ukraine Mission	IUF	3 institutions	
Central/East Europe	n/a	70 institutions	

<u>Mission</u>	<u>Internet Connectivity</u> ⁸⁹ I entire open IP Internet U widespread domestic sites connected to open IP u minimal F widespread FidoNet connected to open IP f minimal	<u>Economic Departments, Institutes, and Research Centers on the Web</u> ⁹⁰	<u>Mission Survey Response</u>
Armenia	I U -	5 institutions	The Internet is not widespread in Armenia, the main constraint being the weak communications infrastructure. However, investments are being made to upgrade the local phone backbone, but the government still controls services. USAID uses the Internet for internal USAID management, such as downloading bid proposals. Projects don't use the Internet yet. Mission sees investments in telecommunications as vital for Armenia's long-term development.
Georgia	IUF	4 institutions	
Hungary	IUF	12 institutions	Widespread use of Internet in Hungary. Mission uses Internet for email communication, long distance technical assistance and web page information sharing.
Kyrgyzstan	IU-	3 institutions	
Lithuania	IUF	8 institutions	Several hundred web sites in Lithuania, including Parliament, firms, and banks. This started over past year. Mission has own web page, all advisors use email. One project has a web site. Intermittent distance consulting but no web training.
Poland	IUF	12 institutions	
Romania	IUF	7 institutions	

<u>Mission</u>	<u>Internet Connectivity</u> ⁸⁹	<u>Economic Departments, Institutes, and Research Centers on the Web</u> ⁹⁰	<u>Mission Survey Response</u>
Russia	IUF	29 institutions	Thousands of email addresses Hundreds of web pages Most thoughtful and comprehensive response Internet used extensively by economic leaders in Russia Should also explode in next five years as telephone infrastructure improves <u>Lots and lots</u> going on in Russia Many web sites to explore as follow-up Economic growth helped by Internet in following projects Business Collaboration Center, Junior Achievement International, Eurasia Foundation Russian Longitudinal Monitoring Survey
Central America	n/a	27 institutions	
Belize	IU-	0 institutions	
Costa Rica	Iuf	7 institutions	
El Salvador	Iu-	4 institution	
Guatemala	Iuf	5 institutions	Internet usage has gotten into full swing this past year Most economic leaders have access either at office or at home In next 5 years, use of Internet will be commonplace in small-medium sized businesses Guatemala is a regional mission Internet used for email communications, Setting up home pages for different regional SOs (will be accessed by clients to provide information and receive

<u>Mission</u>	<u>Internet Connectivity</u> ⁸⁷	<u>Economic Departments, Institutes, and Research Centers on the Web</u> ⁹⁰	<u>Mission Survey Response</u>
Honduras	Iu-	2 institutions	Overall use of Internet among leaders is relatively low, but is gaining momentum. Business community readily sees value of Internet, and it is taking off. Basic education project has a home page for information exchange. Number of projects have agricultural market information. Two policy institutions are working with USAID to develop home pages.
Nicaragua	Iu-	4 institutions	
Panama	IuF	5 institutions	Now 7 ISP providers, Internet email more widely used since 1997, most government officials use it, and more business leaders are seeing how useful it can be. Mission and several projects are going to develop home pages.

Potential Deregulation of Infrastructure Partners -- Annex F

World Bank⁹¹ The World Bank is heavily engaged in helping to establish policy frameworks and supporting the financing for private infrastructure projects. Their Action Programme for Facilitating Private Involvement in Infrastructure includes provision for use of Internet technologies to strengthen knowledge and disseminate information around the world on this subject. They have prototyped a virtual Latin American infrastructure information exchange network, and have lots of relevant materials published on their home page. The Bank is also hosting an Internet-based International Forum for Utility Regulation.

International Finance Corporation⁹² This World Bank Group affiliate is a major financier of private infrastructure projects. They have also launched an Internet-based investment tool, called Africa Business Network. Oriented towards the needs of foreign investors and African businesspersons, it is designed to increase information access for the private sector. Privatization opportunities are also included within this Network.

The Multilateral Investment Guarantee Agency⁹³ This World Bank affiliate has an Internet-based investment promotion network, IPANet, which offers information ranging from profiles of business environments to joint venture opportunities and privatization initiatives. IPANet links national investment boards and privatization agencies, thereby adding transparency and competition among national investment policies. MIGA is also developing Privatization Link, an on-line information service initially focusing on Africa, that will allow governments to present their privatization programs.

World Trade Organization⁹⁴ The World Trade Organization is responsible for the rules of trade between nations. It uses its web site for electronic outreach, presenting information to interested viewers in English, French and Spanish. Among the information provided is "Trading into the Future", a new electronic guide to the World Trade Organization and its agreements. Recent international agreements on trading in services, including telecommunications investments, are provided for the interested reader.

International Trade Administration⁹⁵ This Department of Commerce agency produces and distributes business, economic and trade information to the American business community, much of which is generated by U.S. commercial officers abroad. Materials include trade and investment policies of most American trading partners. Their National Trade Data Base is available on a subscription basis and has many customers, including foreigners. The International Trade Administration's Office of Telecommunications supports the growth and competitiveness of the U.S. telecommunications industry by

⁹¹ <http://www.worldbank.org/html/fpd>

⁹² <http://www.ifc.org>

⁹³ <http://www.ipanet.net>

⁹⁴ <http://www.wto.org>

⁹⁵ <http://www.ita.doc.org>

promoting international trade and investment opportunities abroad. The Office conducts market research and statistical analyses of the global telecommunications industry which is available through STAT-USA⁹⁶. Similarly, the Office of Energy, Infrastructure and Machinery supports American firms engaged in power and infrastructure internationally. Their web page describes programs and trade association partners⁹⁷. This Office monitors overseas trade and investment opportunities for U.S. industry, advocates on their behalf, monitors trade policy issues, develops strategies to remove trade barriers, offers trade promotion services and provides policy support for other parts of the U.S. Government. Similar support is provided for general infrastructure which includes transportation, water, commercial and industrial infrastructure sectors.

U.S. Department of Energy⁹⁸ This federal department provides scientific and technical information and education required for energy efficiency, a more competitive economy, and improved environmental quality. The Department of Energy maintains a number of electronic databases and general information related to this mandate. Among them are an energy efficiency and renewable energy network (<http://www.eren.doe.gov>), a biofuels information network (<http://www.esd.ornl.gov>), a bimonthly newsletter on energy research (<http://www.er.doe.gov>), a pollution prevention information clearinghouse (<http://146.138.5.107/epic.htm>), and a national technology program to increase natural gas and petroleum supplies and more efficient ways to use coal and natural gas to produce electricity (<http://www.fe.doe.gov>).

Overseas Private Investment Corporation⁹⁹ While transaction oriented, the Overseas Private Investment Corporation does support U.S. direct investment in developing countries. There may be opportunities for USAID to collaborate via the Internet on private infrastructure investment policy reform for particular countries or regions.

National Telecommunications and Information Agency¹⁰⁰ Given its role in international telecommunications issues as well as the extensive use it makes of the Internet, this U.S. Department of Commerce agency is a natural collaborator with USAID on Internet-based policy reform in the area of telecommunications privatization. The National Telecommunications and Information Agency represents the U.S. in the Asian Pacific Economic Community where it effectively utilizes the Internet to display and compare telecommunications policies across nations, for private investors, concerned Asia Pacific Economic Community citizens and policy-makers. This approach can be applied to other regions.

United States Energy Association¹⁰¹ The United States Energy Association is an association of 180 public and private energy-related organizations, corporations, and

⁹⁶ <http://www.stat-usa.gov>

⁹⁷ <http://www.ita.doe.gov/oem/>

⁹⁸ <http://www.doe.gov/>

⁹⁹ <http://www.opic.gov>

¹⁰⁰ <http://www.ntia.doe.gov>

¹⁰¹ <http://www.wec98congress.org/usea.htm>

government agencies. The association sponsors policy studies and conferences on global and domestic energy issues, and trade and education exchange visits with other countries. The U.S. Energy Association manages three USAID cooperative agreements providing an opportunity to transfer U.S. expertise and to expose U.S. companies to emerging markets. Among its activities are the Energy Partnership Programs to match U.S. electric utilities with counterparts in Central and Eastern Europe. The U.S. Energy Association is also the U.S. Member Committee of the World Energy Council.

International City/County Management Association¹⁰² This is a professional and educational association for more than 8,000 administrators serving cities, counties, other local governments, and regional entities around the world. Its mission is to strengthen the quality of local government through professional management. ICMA is also a USAID-registered private voluntary organization.

The Association uses the Internet extensively. For example, "Access Local Government" is a private on-line service sponsored by ICMA, and the National League of Cities Access Local Government includes message boards where you can post questions, share ideas and get feedback from other local officials with similar interests, a searchable library with information on policy, legislation, management, technology and leadership, and chat rooms. The Association's web site has a special section which keeps members informed about utilities deregulation and competition issues in the United States. "ICMA University" provides an extensive listing of professional continuing education opportunities available to local government officials.

ICMA is also very active internationally, having completed more than 300 projects around the world. They are presently collaborating with USAID in Eastern Europe and South Africa. One of their programs which utilizes the Internet is "Resource Cities Programs" which pairs American and foreign cities to examine various approaches to solving local government problems, among which includes the privatization of urban infrastructure and services.

Information Technology Association of America and World Information Technology And Services Alliance¹⁰³ These industrial trade groups seek to liberalize global trading and investment in information technologies. The Information Technology Association of America leads the World Information and Technology Services Alliance (WITSA), which brings together 25 software and service associations around the world, include those in India and Thailand. Through this network of national associations, WITSA serves as a forum for identifying common issues and views, formulates positions on information technology issues (including the World Trade Organization Agreement on Basic Telecommunications services), voices concerns of the international information technology community at multilateral fora, and promotes information sharing on policy developments around the world. Increasingly, WITSA is

¹⁰² <http://www.icma.org/home.htm>

¹⁰³ <http://www.ita.org>

taking an active advocacy role in international public policy issues, affecting the creation of a Global Information Infrastructure. WITSA is committed to increasing competition through open markets and regulatory reform.

National Telephone Cooperative Association Program This Association's international program helps rural areas, towns, and small cities in developing countries obtain telecommunications service. In addition to working at community levels, the organization trains local telephone company staff and assists with national-level regulatory and legal reform. The National Telephone Cooperative Association has an Internet presence¹⁰⁴ where they describe their international programs. This has resulted in many inquiries from abroad regarding their organization and its mission. The Association has recently issued a virtual call for papers for an international conference on rural telephony, utilizing the professional networking capabilities of the Internet.

International Development Law Institute¹⁰⁵ This non-governmental organization offers practical training for lawyers, legal advisors and judges from developing countries and transitional societies. Their mission is to help legal professionals conclude beneficial agreements for their nations and to build a legal framework for investment and trade. The Institute primarily provides training, both at the headquarters in Rome and in participating countries. Training addresses legal skills, international commercial law, economic law reform, governance and the role of the judiciary. One recent course covered private infrastructure in Indonesia. Another upcoming course will address legal aspects of project financing in Macedonia. As far as could be determined, all their courses are traditional in nature. There might be opportunities to engage this Institute to offer some virtual training.

University of Florida The Public Utility Research Center¹⁰⁶, based at the University of Florida's Warrington College of Business Administration, strives to enhance knowledge of issues confronting public utilities and regulatory agencies through sponsoring conferences, seminars and training programs, engaging in research that addresses topics in the energy, telecommunications and water industries, and preparing students for careers in infrastructure industries. Funded by energy and telecommunications groups and the Public Service Commission in the State of Florida, PURC carries out international training on utility regulation and strategy, in collaboration with the World Bank. Its two-week course covers market structure reform, financial techniques, methods of incentive regulation, quality and environment regulation, competition in network industries, strategic negotiation and regulatory decision-making. Again, there may be opportunities for virtual instruction.

University of Michigan The University of Michigan's School of Public Policy Studies and School of Information jointly manage one of the richest Internet sites for information

¹⁰⁴ <http://www.ntca.org>

¹⁰⁵ <http://www.idli.org/>

¹⁰⁶ <http://www.cba.ufl.edu/eco/purc/>

sources relating to the technical, economic, public policy and social aspects of telecommunications in the entire world¹⁰⁷ All forms of telecommunication, including voice, data, video, wired, wireless, cable TV and satellite are included Site contents include information, announcements/events, broadcasters, content providers, telecom news and headlines, associations/nonprofits/foundations/professional/trade/interest groups, global information infrastructure, government, internet economics, internet service providers, internet telephone, intranets, mailing lists and on-line publications, national information infrastructure, network commerce and intelligent agents, network security and cryptography, companies, other lists and directories, research labs, research testbeds and projects, standards bodies, technical information and FAQs, telecom operating companies, telecom policy and regulation, university research centers/programs/education, Usenet newsgroups and other starting points In all, there are over 6,500 links!

Ohio State University The National Regulatory Research Institute was established by the National Association of Regulatory Utility Commissioners at the Ohio State University to provide research, educational services, and technical services to the state regulatory commissions The Institute has capabilities in economics, engineering accounting law, political science, policy analysis and public administration with experience in conducting research and support for the regulatory community The Institute's primary products are research and policy reports on state regulation of the electric gas, telecommunications and water utilities The Institute has provided assistance to international regulators, its publications are often purchased by foreign nations short-term assistance is frequently provided to foreign nations, and international regulators visit the Ohio State University campus The web site contains the most comprehensive source of research on U S state regulatory policies

The United States Telecommunications Training Institute This educational institute is a joint venture between the U S Government and the U S telecommunications industry and is partially funded by USAID Its goal is to encourage communications and technological advances on a global basis by providing a comprehensive array of telecommunications and broadcast training courses to counterparts in developing countries A number of courses relate to policies associated with liberalized telecommunications markets Unfortunately, no courses are provided on-line at this time

Center for International Business Education and Research¹⁰⁸ This Center was established by the U S Department of Education to promote the competitiveness of U S businesses by equipping business leaders with the skills they need to succeed in the global economy, including the knowledge of foreign business environments and an understanding of the fundamentals of global business, management, marketing and strategy Activities include teaching, overseas study, internships, research and outreach They maintain an active web presence that serves the 26 educational institutions

¹⁰⁷ <http://china.s1.umich.edu/telecom/telecom-info.html>

¹⁰⁸ <http://www.cba.uiuc.edu/ciber>

belonging to the Center. Given the outreach, networking nature, and mission of this institution, there may be opportunities to engage the Center in the promotion of deregulated private infrastructure markets abroad.

