



ENERGY UPDATE

ISSUE 4

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Powering Economic and Social Development through Expanded Access to Modern Energy Services

SPECIAL REPORT: “Teaching and Learning with EGAT: Resources for Energy, Water, and ICT”

1. Energy

Toolkit for Evaluating Electricity Sector Good Governance	3
Handbook for Evaluating Infrastructure Regulatory Systems	5
Covering Oil: A Reporter’s Guide to Energy and Development.....	6

2. Water

USAID Toolkits to Improve Field Support.....	7
Approaches to Private Participation in Water Services.....	8

3. Information Communication Technology

A Guide to Building ICT Community Centers	9
---	---

4. Energy for the Health Sector

Powering Health: An Online Tool for Electrifying Rural Health Clinics	12
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5. Infrastructure in Post-Conflict Countries

“First Word” on Economic Growth in Post-Conflict Countries	13
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NOTES FROM THE FIELD

USAID/Mexico: Success Stories in the Energy Sector.....	14
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ANNOUNCEMENTS

Infrastructure Workshop in Washington DC.....	17
Farewell to Davida Wood	18

ENERGY UPDATE

Is the bimonthly newsletter of the Energy Team, Office of Infrastructure and Engineering, Bureau for Economic Growth, Agriculture and Trade (USAID/EGAT/I&E/Energy Team).

IN THE NEXT ISSUE

Making Cities Work: How USAID Meets the Urbanization Challenge

SUBMIT ARTICLES

Initial submissions must be 500 words or less in length and include contact information.

The submission deadline is November 30, 2007.

Please e-mail your articles to the new **Editor of Energy Update, Pamela Baldinger** (pbaldinger@usaid.gov).

Articles are accepted for publication from employees of USAID, associated organizations, contractors, and other partners in development.

LETTER FROM THE EDITOR

USAID's Bureau for Economic Growth, Agriculture and Trade (EGAT) provides support to the field in many ways, including what Assistant Administrator Jackee Schafer has termed our "learning and teaching" role. Infrastructure issues have increased significantly in prominence over the last few years. However, while infrastructure projects can now make up a substantial share of a mission's overall program budget, they are often administered by USAID staff who do not have sufficient technical background for designing and managing large infrastructure programs.

This Special Report surveys a variety of tools and resources produced by EGAT and others to address infrastructure development. These resources respond to circumstances that have arisen in the field and provide guidance for addressing them. In several instances, EGAT can provide support for implementation of these tools either from its own staff members or by access to experts in the field.

The Report is organized by sector, but the selection of resources also represents a taxonomy of pedagogical approaches. They range from tools for post-facto evaluation (World Resources Institute and the World Bank toolkits for evaluating electricity sector governance), to ex ante planning tools (PPIAF guide to private participation in water services) to interactive modeling tools that are available online (EGAT's online tool for electrifying rural health clinics.) They range from making recognized analytic frameworks accessible to non-experts (Open Society Institute's reporters' guide to covering oil) to opening a discussion about new approaches under development (EGAT's guide to economic growth in post-conflict countries.) Some stress explanation of underlying issues while others prefer to make primary documents available: bylaws, business plans, and regulatory filing formats and examples of actual regulatory rulings.

In keeping with its mandate for learning and teaching, EGAT's Office of Infrastructure and Engineering will be offering a training workshop in December 2007. The course is designed for USAID personnel with infrastructure development responsibilities, with a focus on rebuilding and developing countries. The announcement at the end of this issue of Energy Update provides instructions on how to register.

And now we come to the second announcement in this newsletter: the announcement of my departure from USAID. It has been an incredible six years for me at the Agency, a time in which I have grown both personally and professionally. A large part of that growth has been in the context of serving as Editor of Energy Update, in the course of which I have come to know many more of you and your work than I would have otherwise. It has been a pleasure. I hand over the position of Editor to the extremely capable hands of my colleague Pamela Baldinger. Pam has an undeniable knack for identifying needs and crafting products to match them. I look forward to watching from afar as she hones Energy Update ever more closely to the needs of its readership (like it or not, I am informed that my new email address has already been added to the mailing list...).

And finally, a huge thanks to Taj Sheriff Lee, the producer of Energy Update, for her sharp insight, calming wisdom, and computer wizardry. None of it would have been possible without her, nor as much fun.

Best wishes,

Davida Wood

(Outgoing) Editor, Energy Update

Teaching & Learning with EGAT: Resources for Energy, Water, & ICT

1. ENERGY

Electricity Sector: Tools for Evaluating Good Governance

In the 1990's efforts to increase access to electricity targeted fundamental issues in the way the subsector was structured. In a move away from supporting state-owned entities, donors sought to attract private investment, an approach which required – for each country -- the overhaul of the legal framework that governed the sector, the setting up of independent regulatory bodies, and the orienting of sector governance toward commercial practices. By 2000, after more than a decade of experience, mixed results led to a period of reflection, followed by efforts to develop a more nuanced approach that was more attuned to the political and social complexity of reform.

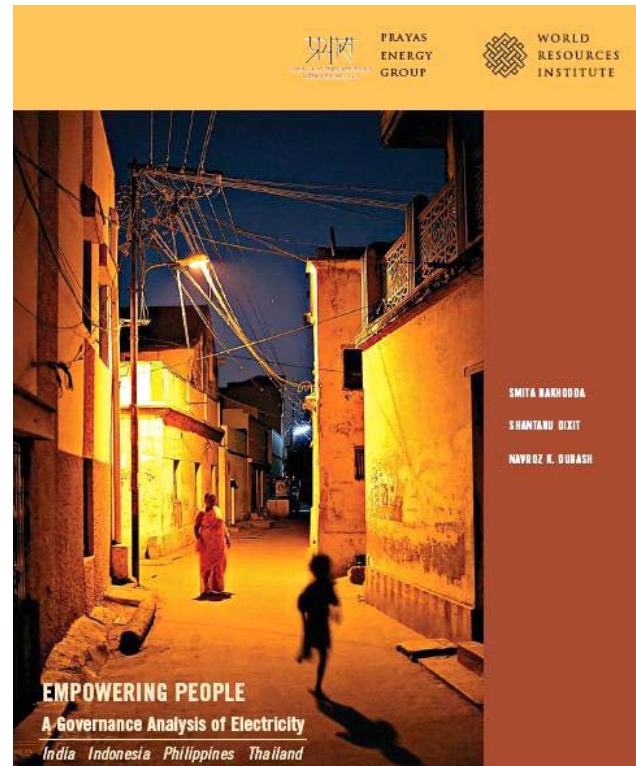
Practical tools for evaluating electricity sector governance have emerged in this context. This overview focuses on two of these: “The Electricity Governance Indicator Toolkit,” initiated through a cooperative agreement between USAID and the World Resources Institute (WRI)¹, and the “Handbook for Evaluating Infrastructure Regulatory Systems,” produced by staff of the International Bank for Reconstruction and Development/World Bank.

1.1 The Electricity Governance Indicator Toolkit (World Resources Institute and Prayas-Pune, 2007)

The Electricity Governance Indicator Toolkit (EGI Toolkit) focuses on policy and regulatory decision-making processes, including legislative, executive and regulatory functions.

The toolkit includes 63 indicators to assess transparency, accountability, public participation, and capacity in the electricity sector.

¹ The World Resources Institute serves as Secretariat for the Electricity Governance Initiative (EGI), which is a partnership between WRI and Prayas Pune, a policy research institute based in Pune, India. The USAID/EGAT/Energy Team has supported the EGI since 2002.



Empowering People is an analytic piece capturing the findings of the four country assessments carried out using the EGI methodology.

Each indicator consists of elements of quality that, provide a range of values across which good governance can be quantified and benchmarked. For example, the indicator on Independent Power Producer (IPP) Policy has five elements of quality: competitive bidding, disclosure, adequate demand analysis, analysis of financial impact, and adequate public consultation. Selecting a representative case to examine in detail, an assessment team can rate this indicator from low to high, depending on how many elements of quality are met.

EGI has a special emphasis on environmental and social considerations, and care has been taken to develop distinct indicators that attend to them. For example, the capacity of the legislative committee with responsibility for the electricity sector is assessed in terms of its access to knowledge, its financial resources and its authority.

A separate indicator then looks specifically at the committee's capacity to assess environmental

issues: relevant environmental expertise, a designated point person, dedicated financial resources, and training on environmental issues. Interestingly, in the EGI assessments conducted thus far (in India, Indonesia, Thailand and the Philippines) an emerging competency in this sphere was detected.

Finally, it is worth noting that, while EGI gives serious attention to the importance of public input and oversight, it also has criteria for assessing the capacity of civil society organizations to make effective contributions. First among these is the ability to undertake techno-economic analyses and the capacity for proactive engagement with sector stakeholders. At the same time, the ability to network and credibly represent weaker groups is an important element of quality.

Implementation

The EGI toolkit is designed as a capacity building tool, with training workshops and guidance provided by expert staff from EGI partner organizations. The toolkit may be used by a variety of stakeholders. However, EGI is specifically designed to facilitate engagement between civil society and sector actors. It convenes coalitions of civil society organizations (including NGOs and research institutes) with complementary skills in law, economics, engineering, environment and advocacy and provides training in the assessment methodology. The assessment team is guided by an Advisory Board, made up of senior sector experts and practitioners. These may include academics, government officials, regulators and utility executives, either current or retired. Once the assessment is completed, the Advisory Board also serves as a conduit for the findings and recommendations of the assessment team.

Scope:	In-depth
Duration:	6-12 months
Cost:	\$40- \$55,000

The cost includes support for convening assessment teams and advisory board, training, and dissemination workshop.

The EGI toolkit may be downloaded from http://electricitygovernance.wri.org/files/EGI%20Toolkit%202007_0.pdf

Generating New Dialog among Stakeholders

The process of conducting an assessment of electricity governance has created an important forum to bring disparate stakeholders - who often talk past each other - together for a coherent conversation about how to advance positive change in the electricity sector. Participants have observed that the EGI pilot assessments have helped NGO representatives to build relationships of trust with people in the government and within the utilities.

Many of the NGOs involved in the EGI assessment have very different perspectives on power sector issues, but the assessments have presented an opportunity to pool their experience and expertise. Similarly, by having representatives of both Energy and Environment Ministries as participants on the national advisory panel, the Thai EGI assessment process sparked an inter-ministerial dialog about the need for better governance that was previously absent.

EGI has supported efforts to build civil society capacity to occupy formal space for the public to be involved in electricity sector decision-making. It has also helped sensitize sector officials and actors to the requirements of good governance. Civil society participants in the India assessment team, for example, have noted that the fact that the electricity governance toolkit prompts them to rigorously document and justify their assertions in the assessment report and produce a comprehensive review of electricity governance considerations has build their credibility.

Source: Empowering People, A Governance Analysis of Electricity, 2007.

For more information, contact Smita Nakhoda, World Resources Institute, snakhoda@wri.org and Pamela Baldinger, USAID/EGAT/I&E/Energy, email: pbaldinger@usaid.gov.

1.2 Handbook for Evaluating Infrastructure Regulatory Systems (World Bank/ International Bank for Reconstruction and Development, 2006)

The Handbook is concerned with many of the same governance principles as the EGI Toolkit, but focuses exclusively on regulatory systems. This focus allows it to consider different regulatory models: although it posits the independent regulator model as optimal, it recognizes that transitional systems may be necessary under certain circumstances and provides criteria for evaluating them. It also has a more explicit discussion about common impediments to effective regulation and possible strategies for overcoming them. Thus while EGI's approach leans toward benchmarking, the Handbook (while certainly using benchmarks as an integral part of its evaluation methodology) delves further into the dynamics of imperfect arrangements.

The Handbook examines both regulatory governance (the how of regulation, or the processes by which regulatory decisions are made) and regulatory substance (the "what" of regulation – the content of the decisions that are made). For example, regulatory substance would include decisions about actual tariff levels and structures, while regulatory governance would include decisions about transparency of the tariff methodology. Or, regulatory substance might refer to the service standards that are set while regulatory governance might refer to the role of the regulator in monitoring those standards.

Evaluations may be conducted on three levels: the Handbook provides detailed guidance on how to conduct quick, mid-level, and in-depth regulatory evaluations of regulatory systems through structured case-studies.

The quick evaluation is designed to provide an initial overview of the formal characteristics of a regulatory body using a structured questionnaire. Open-ended questions are provided to detect significant gaps between what is written in the law and what is actually practiced. Beyond these exploratory probes, the question of how the regulatory system actually operates requires a more in-depth evaluation. The Handbook provides both the questionnaires and guidance for open-ended interviews for each level of evaluation.

The evaluation framework posited by the Handbook is particularly useful in situating the role of regulation within the larger context of sector outcomes. Because regulation cannot solve all sector problems, evaluation is targeted at analyzing the ways in which regulation supported or failed to support a particular outcome. The following example illustrates the point: suppose an important outcome is whether sufficient investment is attracted to the regulated sector. Clearly the regulatory environment has a role to play here. But the Handbook cautions us that a failure to attract sufficient investment cannot automatically be attributed to weak regulatory performance. For example, in the case of an economic meltdown, regulation may have had virtually no role. On the other end of the spectrum, bad market design or misunderstanding of the cost structure of the industry by the regulator may result in significant underinvestment. The question is what, if any deficiencies in regulation contributed to the outcome. In the middle of the spectrum, an evaluator need not determine that regulation played a dominant role in the outcome of underinvestment to find that the regulation was flawed and in need of remediation. Although it may not be the primary determinant in all sector outcomes, it always has an influence and a role to play. How it plays that role is what is critical for evaluators to analyze.

Implementation

Scope: Basic, no specialist staff required.

Duration: up to 5 days

Cost: Up to \$15,000

Scope: Mid-level, specialist staff required (e.g. World Bank staff or specialist consultants)

Duration: Up to 4 weeks

Cost: Up to \$65,000

Scope: In-Depth, specialist research teams required (e.g. Specialist academic or policy research institute).

For more information, contact Bernard Tenenbaum, World Bank, email: btenenbaum@worldbank.org.

1.3 Covering Oil: A Reporter's Guide to Energy and Development (Open Society Institute, 2005)²

"The guidebook comes out of a series of organized workshops for journalists in the oil-exporting countries of Azerbaijan, Kazakhstan, and Nigeria, during which participants expressed a need for more information to help them understand the issues surrounding resource exploitation. In response to these consultative workshops, *Covering Oil* outlines the fundamentals of petroleum contracts, provides a glossary of relevant economic theory, and presents case studies of major public policy issues."

- *Revenue Watch Institute*

"Covering Oil" begins with an argument for why civil society has a special role to play in combating "the resource curse": because of their resource wealth, oil rich countries do not need to borrow money from multilateral lending agencies that might insist on fiscal transparency and good budget practices. The world's leading democracies, dependent on importing oil, gas, or minerals, often have little appetite to use diplomatic pressure to demand better fiscal practices from resource rich countries. And multinational energy companies, which depend on good relationships with host governments to allow them to continue extracting natural resources, are also unlikely to press for good economic management. As a result, the citizens of resource rich countries bear a special responsibility to push their governments toward transparency and spending that responds to public needs.

"Covering Oil" is intended to give the media a tool to participate in the push for transparency around oil transactions. While the broad principles of the "Publish What You Pay" campaign (launched by OSI Chairman, George Soros) are well known, the guide drills down from the broad principles of transparency to the more pointed questions that need to be asked in order to gain information about the impact of petroleum in a producing country. It is designed to provide reporters with a level of understanding about

the political economy of oil that will enable them to ask sophisticated questions and write analytic media stories.

Topics range from specific contractual arrangements and the significance of various contractual provisions, to how oil revenues are spent by governments and provisions to minimize environmental impacts. The guide is organized into seven chapters, each of which presents the nuances of a particular issue and provides sets of critical questions to pose.

For example, Terry Lyn Karl's chapter on "Understanding the Resource Curse" clarifies that not every oil producing country suffers from this syndrome; rather is particular to producers that are overwhelmingly dependent on oil revenues. Similarly, it is not the size of the endowment that is diagnostic, but how the wealth it generates is shared and utilized. Reporters are therefore guided to ask questions that will help them to analyze the extent to which the resource is being integrated into the national economy (or not) and to increase alertness to the early warning signs of "the curse."

Jenik Radon's chapter on "The ABCs of Petroleum Contracts" focuses on the different types of contracts that are standard in the industry, while also addressing public interest concerns that are often neglected in contract negotiations. A useful overview of the evolution of concessions from colonial to contemporary times allows Radon to demonstrate the shifting power dynamics implied in different contractual arrangements, and how it is that the once lop-sided concessions have come to resemble the more equitable production sharing agreements (PSAs) of the modern era. However, the devil is in the details, and reporters are oriented to the basic issues which influence the revenues the government will be able to accrue. The chapter examines some common provisions that require careful scrutiny. These include the choice of parties to an agreement and the liabilities to which each may be exposed; how to tax production; how the market price of oil is determined, with particular attention to transfer pricing, and so on.

The issue of responsibility for environmental impact is given particularly nuanced treatment. From the perspective of contractual arrangements, the profit sharing principle of the PSA can in effect put the government in conflict with itself when it comes to enforcement of environmental regulations.

² Open Society Institute, in partnership with Revenue Watch and the Initiative for Policy Dialogue.

The cost of environmental compliance not only cuts into government profits but also decreases the taxes a private investor will pay as its own profits decrease. Interesting questions thus arise as to which environmental standards will be adhered to and how compliance will be policed. Another set of interesting questions are posed with respect to how the costs of environmental damage will be treated: are these costs a deductible expense? Are they deductible even when due to negligent conduct? Will the oil companies alone be responsible for such costs?

While this guide clearly does not aim to transform reporters into legal analysts, it does equip them with a set of well-informed issues to probe, and at the very least to test the parameters of transparency and extent of information which is available to the public.

“Covering Oil” may be downloaded from http://www.soros.org/initiatives/cep/articles_publications/publications/covering_20050803/osicoveringoil_20050803.pdf

2. WATER

2.1 USAID Toolkits to Improve Field Support

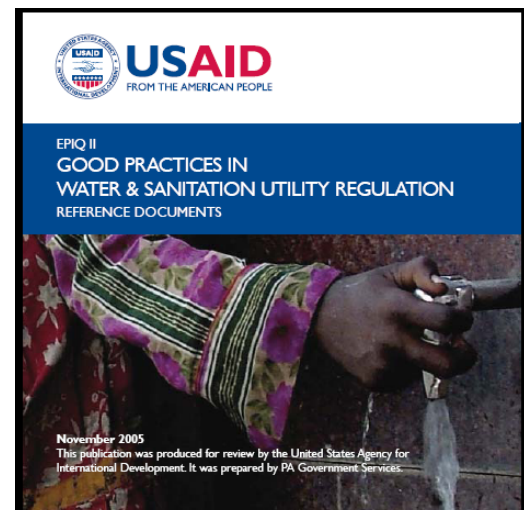
Over the past two years, the USAID/EGAT/ Infrastructure & Engineering Office has produced a number of new toolkits. The choice of topics reflects the importance of corporatization, regulation and operating contracts in global infrastructure development programs.

Three recent additions include:

- **Good Practices in Water and Sanitation Utility Regulation:** This tool kit presents the findings of a review of the regulatory methods and practices of 9 water regulators that are known for their excellent performance. The regulators were selected based on (1) the quality of their regulatory program, and (2) demonstrated effectiveness of regulation in improving the performance of water utilities. Regulators included Abu Dhabi, Chile, Colombia, Laos, Lithuania, Mozambique, Senegal, Ukraine, and Zambia.
- **Water Utility Corporatization CD-ROM Library:** This toolkit provides examples of the corporate governance and

corporatization best practices for water and sewerage utilities. Using material from seven high performing water and sewerage utilities around the world, the toolkit summarizes the key elements of successful corporatization programs. It also provides the primary documents that have worked to establish effective corporate governance in these utilities, including sector laws, corporate bylaws, and other key materials. The purpose of this toolkit is to help USAID initiatives that support water and sewerage utility corporatization to easily access materials on best practices in this important development area. Utilities included in the study were: Aqaba Water Company, Jordan; Aqua, Poland; COPASA, Brazil; Johannesburg Water Company, South Africa; National Water & Sewerage Corporation, Uganda; Public Utilities Board, Singapore; and Sydney Water, Australia.

- **Incentive-based Operating Contracts for Infrastructure Services in Post Conflict Settings:** This toolkit presents a review of 10 operating contracts that have been carried out for water, sanitation and electricity services in difficult operating environments. In addition, the CD-ROM includes a variety of other studies on operating contracts, as well as some examples of the actual contracts that have been used. The purpose is to help USAID and other US Government staff working with infrastructure services to understand this effective mechanism, and to access information about successful contracts.



A New Approach to Toolkits for Field Support

Each of these three toolkits follows a common format and approach. Features of this approach include:

All of these were low cost, requiring only 20 to 30 days of contractor support. Work was done jointly by USAID and contractor staff.

The Corporatization and Regulation Toolkits both had a peer review process to review findings about best practices. This helps ensure that the content reflects current thinking among global experts in these areas.

Each toolkit had a core study based on a systematic review of 8 to 10 “best practice” examples. Best practice examples were selected through consultation with experts in the respective fields (corporatization, regulation and operating contracts) and review of existing materials on the cases.

Each toolkit consists of a summary PowerPoint presentation plus numerous documents on practitioners’ methods. For example, in the Corporatization Toolkit, we include examples of the actual laws that were used to establish the water companies, as well as bylaws, business plans and examples of incentive schemes. In the Best Practices in Water Regulation Toolkit, we include the actual regulatory methods, regulatory filing formats, and examples of actual regulatory rulings.

Using this approach, USAID staff and our partners working in these areas have easy access to a summary of current best practices.

To date, the Toolkits have been used by staff developing projects in a number of countries, including Armenia, Afghanistan, India, Georgia, Montenegro, Uganda, as well as for regional program support related to water and electricity in Africa, Asia, and Europe and Eurasia.

For more information, contact Allen Eisendrath, USAID/EGAT/I&E, email aeisendrath@usaid.gov.

2.2 Approaches to Private Participation in Water Services (World Bank/Public-Private Infrastructure Advisory Facility, 2006)

The PPIAF Toolkit approaches the issue of private sector investment by focusing on the specific choices governments face when designing arrangements for private sector participation. Rather than focus on the models that result from particular sets of choices, the toolkit examines the considerations that should guide the choices that are made.

It begins with a general discussion of upstream policy making processes and ends with the selection of an operator. In between the reader is taken through a series of choice points that need to be considered when designing public-private arrangements.

For example, when considering how to design the division of responsibilities, it is useful to think of the allocation of risks at the same time. This is because each aspect of responsibility for delivering water services entails a corresponding set of risks. Demand for water services may be higher or lower than forecast. Construction costs may be higher or lower than forecast. Exchange rates may change. The question is, who should bear these risks? Each of the standard models of private participation – management contracts, affermage-leases and concessions – is associated with and to some extent defined by a particular allocation of responsibilities and risks. The toolkit discusses how each these models shapes the allocation of risk, as well as other mechanisms – such as tariff adjustment rules – for transferring risk.

In another example, the toolkit discusses the legal instruments that can be selected to embody the arrangement with the private entity, and the options for maintaining power of enforcement. Here the issues are ease of adoption and flexibility (the ease with which the instrument can be adjusted), as well as a country’s background laws. Statutes or laws, while the most binding, also are the most time-consuming to enact. Executive orders – possible in some legal systems – allow the executive to by pass the legislature, but can be changed without the operator’s consent and thus provide less certainty. Licenses are flexible and quick to implement, but there is more doubt about enforcement. Different instruments are appropriate for different tasks, depending on whether governments have inherent powers to enter into contracts and enforce them.

The toolkit text is accompanied by a CD-ROM containing a policy simulation model. The core of the model is a simplified standard financial model of a water utility. Some of the inputs are facts about the utility and the world, while other inputs are policy choices. Thus, again using the example of risk allocation, the model allows demand, inflation and the exchange rate to fluctuate randomly. In this way, it can illustrate the analysis of risk relating to these variables, including the analysis of the different allocations of these risks. For example, the model can estimate the extent to which the operator's cash flow varies with fluctuations in these variables and the probability of those fluctuations leading to the operator defaulting on its debt. Using the same techniques, the model also illustrates the risks of tariff changes faced by customers.

Using this combination of textual explanation and interactive modeling, the toolkit allows for increased understanding of the impacts of decisions and choices made.

For more information, contact Allen Eisendrath, USAID/EGAT/I&E, email aeisendrath@usaid.gov.

3. INFORMATION COMMUNICATION TECHNOLOGY (ICT)

A Guide to Building ICT Community Centers

The ICT Team within the USAID/EGAT/Office of Engineering and Infrastructure is collaborating with Intel's World Ahead Program to develop a starter kit for building sustainable, cost effective ICT community centers. The starter kit known more formally as the "Digital Community Switch On" offers extensive information and resources communities can depend on before, during, and after development of ICT community center programs.

ICT is an economic and social necessity for participation in today's global, knowledge-based economy. However many citizens of the global economy are unable to access information and communication services. Some populations remain underserved or unserved either due to the high cost of bringing connectivity to their villages or town, or because of low income and the inability to afford service. This had led to a digital divide between those with and without access to information and communication technology.

ICT community centers can play a critical role in bridging this digital divide. An ICT community center is a public place where people in a community have shared access to computers, the Internet, and other digital technologies to gather information, create, learn, and communicate while they develop essential 21st-century digital skills.

Best-practices research suggests significant community involvement is an essential ingredient in any sustainable ICT community center environment. In addition, successful centers rely on these six interconnected requirements:

1. The *right environment*, including center location and facilities, availability of telecommunications services for connectivity to the Internet or area networks, availability of reliable power, etc.
2. A *viable business model* that can be adapted to different communities and can demonstrate long-term financial sustainability to benefit the community center and the surrounding community.
3. Sufficient *localized content* and services to create steady, ongoing usage and commitment by the local community.
4. *Funding/financing*, including startup funding from public and/or private investment, plus ongoing income from funding organizations and from sales of value-added services.
5. *Industry-standard technology* to fit community needs and provide cost-effective services, both in terms of initial capital investment and ongoing operating costs.
6. Ongoing *promotion and oversight* by sponsoring government *organizations* and/or NGOs.

Implementation

Rather than prescribing a single method for deploying an ICT community center, the starter kit developed by USAID and Intel offers best practices grounded in five specific steps:

1. *Assess Objectives, Requirements, and Constraints*: The first step is to define vision and objectives of the ICT center, followed by the development of an organizational plan and a funding model. This step also includes defining the following: technology needs, assessing costs, benefits, and sustainability, success metrics and an evaluation process.

2. Specify an ICT Community Center Program: The second step involves selecting the right computers, an operating system, applications and content for the computers, external devices for the computers (printers, scanners), and a server for the center. Also included in this step are actions to be taken for connecting the ICT community center computers, and connecting the ICT community center itself to the Internet, securing the center, providing user training, and providing ongoing maintenance and support.

3. Validate the Solution with a Pilot Program: The pilot program deployment is a validation and training exercise conducted before the deployment of a full-scale ICT community center program. Benefits of a pilot program include: validation of the solution's benefits; ability to identify potential problems and address them before large-scale deployment; initial engagement of the partners who will ultimately be building, delivering, and supporting the solution.

4. Finalize Solution Based on Pilot Results: Once you have completed your initial pilot program, make refinements based on measurements conducted and issues identified during the pilot program. Ideally, the pilot will provide significant information to address common challenges and concerns such as these: community impact; hardware; applications; network; support; user performance and training.

5. Scale, Deliver, and Support Solution: This last step involves issues to consider while exploring scaling the ICT community center solution to many communities or an entire region or country. Issues under consideration can include technology, hardware and software requirements, staffing, user training, cost reduction through volume licensing or purchasing, and continuing monitoring the progress of the pilot program to create greater efficiency in future deployments and identify needs for upgrades and adjustments.

While each ICT community center is different, their common focus is on the use of digital technologies to support job growth and community, economic, educational, and social development. Through a powerful combination of technology and training, ICT community centers can offer a cost-effective means to educate and empower local citizens; by increasing ICT skills and participation in the information based global economy, the centers help communities around the world bridge the digital divide.

Energy Constraints and Concerns

In many communities, energy constraints must be taken into account. For example, in areas where power interruptions are common it may be advisable to purchase laptop computers because of their lower energy usage and the availability of battery backup. Potential energy sources such as solar panels or a generator might also be considered to augment existing energy sources. To create sustainable ICT community centers, energy conservation should also be a focus, to reduce energy usage when possible by using alternative energy sources, purchasing energy-efficient equipment, and avoiding unnecessary energy usage.

For more information contact: Bernard Mazer, EGAT/I&E/ICT, email bmazer@usaid.gov.

Case Study: Providing Internet Access in Rural Vietnam

Beginning in 2006, Intel, USAID and the Vietnam Data Communication Company (VDC) formed a public-private partnership in a joint effort to introduce broadband access into Vietnam.

A pilot project was implemented in Ta Van, a remote village in northwest Vietnam, two hours away from Lào Cai city and near the mountain town of Sapa.

Ta Van had only two fixed-line phones, limited mobile phone coverage and no Internet access. The pilot project utilized the IPSTAR satellite network for linking the village to the Internet. Distribution throughout the village was accomplished via the deployment of a single base station and several remote subscriber stations located across Ta Van. In addition to Internet access, the project included voice services through Voice over Internet Protocol (VoIP), which allows for calls throughout the Lao Cai province. This solution set succeeded in providing broadband Internet access and telephony service to the whole village. Telephony encompasses the general use of equipment to provide voice communication over distances, specifically by connecting telephones to each other.

Lessons learned from the Ta Van project illustrate the educational and economic benefits that broadband Internet access and affordable VoIP communications can bring to remote rural underserved areas:

- Internet and VoIP Usage: Initial feedback on the positive impact of modern communications technology has been encouraging. Though situated in a remote region, Ta Van residents took to the Internet quickly. There is usually at least one person in a household who knows how to use computers and the Internet. That person usually is a son or daughter who used PCs at school or university, and then teaches other members of the family. Thus, knowledge of using a PC and the Internet is not an issue. For many users in Ta Van, the Internet quickly became one of the primary sources of news because other sources of news such newspapers are limited due to the remoteness of the village. The residents use Internet chat and VoIP to communicate with friends and families in other parts of Vietnam. Entertainment usages include on-line music and even video as well as games.
- The nurses at the local health station use the Internet to search for medical and pharmaceutical information. A national agricultural institute conducted an informal workshop in one farmer's house to show other farmers on how to use the Internet to find crop disease information.
- Tourists are also surprised to find Internet access at this remote location. While staying at the guest house, they use the Internet to send e-mail, update their travel blogs, and upload photos.
- Tourist guides use e-mail to communicate with their clients and to get referrals, hence increasing their business.
- The owner of one of the local guesthouse plans to deploy additional PCs, effectively setting up a small cyber café. He expects to increase his revenue through the sale of drinks and handicrafts. Overall we found that the village residents use of the Internet and VoIP is higher than we expected. Daily usage for the existing 12 locations often exceeds 500MB.
- In addition, our observations indicate that Internet access is more important to rural areas such as Ta Van. This is due to the fact that alternatives for news, communications and entertainment are limited, and thus the Internet provides a lifeline otherwise not available elsewhere."

Source: Cost-effective Rural Broadband: A Vietnam Case Study, A White Paper on Rural Connectivity, Intel, 2007.

4. ENERGY FOR THE HEALTH SECTOR

Powering Health: USAID's Online Tool for Electrifying Rural Health Clinics

PoweringHealth.org is a web based resource designed by USAID's Energy Team with the objective of improving the success rate of health facility electrification efforts. It is targeted at a wide range of users – from local health workers to international donors and ministry officials - with multiple layers of increasingly technical information. Information is provided to help the user weigh the pros and cons of various energy systems with a focus on ensuring the sustainability of solutions and disseminating international best practices.

Lack of reliable energy services directly impacts health programming through:

- Loss of cold-chain dependent blood, testing reagents, vaccines, ARV drugs, and rapid test kits.
- Damage to sensitive laboratory equipment, air-conditioners, electronics, and x-ray machines.
- Limited reach of prevention, treatment, and care services to rural and peri-urban areas.

Electricity is an increasingly essential commodity in developing country healthcare facilities. Recent improvements in the distribution of vaccines and other cold chain-dependent supplies, as well as the global push to deliver antiretroviral drugs and services to HIV-positive patients worldwide, have introduced new demands for electricity in sites with little or no access to reliable power. Over the years, significant effort and funds have been dedicated to providing energy services to rural health facilities – with a particular focus on expanding the vaccination cold chain. Unfortunately, many of these efforts have proven not to be sustainable over the long term. A combination of poor system design and installation, lack of operation and maintenance funds, and limited training of local users and technicians has resulted in inoperable distributed energy systems in a significant number of health facilities in developing countries.

Approach

The website is designed around a step-wise approach to understanding a health facility's energy needs and designing an energy system to meet those needs in a cost effective way. The steps include the following:

1. Identify your health center's current energy demands;
2. Determine whether your energy demands will change in the near-term;
3. Establish energy target in terms of kilowatt hours per day (kWh/day);
4. Assess, evaluate, and select the most appropriate technology needed to meet the target;
5. Design system, procure, and install technology with the help of an expert; and
6. Institute financing mechanism(s) to account for operating and maintenance needs and costs.

The first three steps will be supported by quantitative modeling tools currently being developed by the National Renewable Energy Laboratory. The modeling tools basically consist of interactive data tables where users can input information on health center energy needs and determine energy targets. The modeling tools will also enable users to select the appropriate energy system based on a life-cycle cost analysis.

Off Grid Facilities

For off-grid or very poorly grid connected facilities, the Powering Health website helps calculate energy demand and enables users to select an appropriate energy system to meet the demand. The site also provides information on procurement, maintenance, and financing to ensure energy system sustainability and reliability.

Grid Connected Facilities

In addition to the information on off-grid facilities, Powering Health also addresses options for improving energy services at health facilities that are connected to a national grid. Such facilities often face daily energy challenges based on the quality, reliability, and cost of the power received from the utility. Poor quality power can result in service disruption and often damages expensive laboratory and HVC equipment. The Powering Health website provides several options for improving the quality and reliability of electricity to grid-connected facilities including:

- Facility energy systems analysis
- Utility implemented solutions
- On-site solutions

Case Studies and Publications

One of the primary objectives of the web based tool will be to collect and disseminate international best practices. Several case studies are highlighted on the site, and users will be able to submit additional case studies and comments.

Implementation

To date, the methodology outlined on Powering Health.org has been implemented in collaboration with the USG PEPFAR program in Guyana, Haiti, and Rwanda. The full assessment reports can be found at http://www.usaid.gov/our_work/economic_growth_and_trade/energy/publications.

Scope: health posts and health clinics³
Duration: 2-3 weeks for initial assessment of options
Cost: \$40-50K

For more information contact: Jeff Haeni, EGAT/I&E/Energy, email: jhaeni@usaid.gov

For more information, visit www.poweringhealth.org (link will go live December 15, 2007).

³ Health Posts: Health posts are the smallest, most basic health facility and typically do not have a permanent doctor or nurse on staff. The health post may have a full- or part-time primary healthcare provider. Services available at health posts include the treatment of minor illnesses, the tending of minor injuries and, where possible, the provision of basic immunization services.

Health Clinics: Health clinics are generally larger than health posts and employ one or more full-time nurses. Clinics may also employ a part-time physician, depending on the size and location. A health clinic offers a wider array of services than a health post and will possess equipment allowing for more sophisticated diagnoses.

5. GUIDE TO ECONOMIC GROWTH IN POST-CONFLICT COUNTRIES

This guide is different from others reviewed in this report, in that it is a first step in breaking ground for new strategic thinking. Unlike the topical guides for the water and electricity subsectors, where the focus is on implementation of already recognized approaches, the core of this document is an argument for doing things differently. Driving this effort is the increasing operation of USAID in post-conflict countries, and the need to rethink certain assumptions about development in these highly sensitive contexts. Accordingly, the focus is more on drawing out the implications of the post-conflict environment than on presentation of a toolkit or checklist. It is a "first word" rather than a "last word."

The new approach suggested by the guide is to alter the familiar donor approach to post-conflict situations: rather than focusing first on humanitarian assistance and democracy-building, with economic issues deferred to a later stage, the argument here is that economic interventions need to be an integral part of a restructuring and stabilization program. Early attention to the fundamentals of economic growth, it is argued, increases the likelihood of successfully preventing a return to conflict. At the same time, it is critical to understand that paying immediate attention to economic growth does not mean doing the same thing that is ordinarily done in stable developing countries.

Post-conflict economic growth programs must address as directly as possible the factors that led to the conflict. Planning has to be based on much more than narrow technical consideration of economic efficiency and growth stimulation. Programs must also be effective at opening up opportunities and increasing inclusiveness -- they should be judged in part on the basis of whether or not they help mitigate political factors that increase the risk of a return to hostilities.

With respect to infrastructure, post-conflict countries are typically characterized by significant damage, looting, or neglect of basic maintenance. In deciding which infrastructure to rebuild, donors and governments need to take into account not only the infrastructure's contribution to the resumption of economic activity, but also the distribution of benefits among parties to the conflict. In the short term, the guide advises promoting local private sector participation -- both formal and informal. Devoting resources to attracting foreign investors -- who in any case tend to be unwilling to risk their capital in

post-conflict situations – would divert attention from the most likely providers of early investment and jobs: local investors and employers (and possibly south-south investors). In the short term, the government needs to take pragmatic steps to stimulate demand and create jobs, rather than focusing on a long-term payoff from foreign investment.

While small state-owned enterprises (SOEs) can be sold to private investors, the complexity of preparing large SOEs for sale is likely to exceed host-country capabilities. This should be addressed at a later stage. In the interim, temporary measures such as corporatization, management contracts or hard budget constraints can be introduced. Management contracts can be especially useful as a compromise between a national government's desire to retain sovereignty over physical infrastructure and the existence of a governance deficit and/or lack of institutional capacity.

The guide also provides suggestions for later phase requirements. These include strengthening the major institutions of economic governance, including building public institutions' capacity to analyze investment proposals, conduct the procurement process, and manage and maintain major infrastructure. The guidance here stresses building national consensus. One suggested approach is by establishing accepted measures of performance which can be used as benchmarks for progress. This brings us back to the handbooks for evaluating electricity governance presented at the beginning of this report.

For more information, contact Robert Aten, Team Leader, Economic Policy and Governance, Office of Economic Growth, email RAten@usaid.gov and David Dod, Senior Fiscal Advisor, Office of Economic Growth, email: DDod@usaid.gov

Notes from the Field

USAID/Mexico: Success Stories in the Energy Sector

Over the past 15 years, the energy portfolio of USAID/Mexico has been leading a technology transfer and development effort in Mexico, a program recognized and appreciated by both US and Mexican energy/environment related institutions. This program has led to the creation of implementation models with concrete and direct results that have been replicated to a larger scale by other Mexican institutions and taken as examples by other international organizations.

This article summarizes some of USAID/Mexico's success stories in the energy sector. Activities were developed with and supported by the USAID/EGAT/Energy Team and the USAID/EGAT/ Global Climate Change Team.

Wind Atlas for the State of Oaxaca

Working with officials from Mexico's energy sector and the state of Oaxaca, USAID helped to improve information about the potential for wind farm development in southern Mexico. Through a combination of research, local measurements and data compilation, USAID assistance brought the latest techniques from the U.S. to map the wind potential throughout the state and compile the data in useful form. The wind atlas showed that over 30,000 megawatts of installed capacity to generate electricity from wind energy are available for large scale renewable energy development. The Mexican government has already issued permits to begin developing the first 8 wind farms in the area that will capture 820 megawatts. This program has been the catalyst for investments from the U.S., Europe and Mexico totaling over US \$800 million, while the potential for investments in the upcoming three years is for US \$5 billion dollars. Also, in cooperation with Comisión Federal de Electricidad (CFE), USAID helped to prepare a feasibility study for La Venta II, CFE's 85 MW wind farm inaugurated in March 2007 by President Calderon. The Mexican Government is committed to developing renewable energy sources as one of the main components of its strategy to reduce global warming.



Collaboration with the Mexican Government to Reduce Methane Emissions

USAID has been providing support to the Ministry of Environment and Natural Resources (SEMARNAT) to support Mexican efforts under the US Presidential Initiative Methane to Markets (M2M), working closely with USEPA. Under this initiative, work has focused on three methane emission reduction areas:

- 1) Support for landfill gas recovery projects, working with SEMARNAT;
- 2) Assistance to Petróleos Mexicanos (PEMEX) in reducing fugitive emissions in the oil and gas sector; and
- 3) Development of pilot projects for methane capture at a number of medium-sized pig farms.



USAID has presented SEMARNAT and PEMEX with an estimated savings potential of over US\$1 billion in energy and methane emissions savings.

In 2007, PEMEX has already undertaken millions of dollars of investments in new technology for reducing emissions and recovering methane. Models to improve technology and investments in methane recovery in municipal landfills near the U.S.-Mexico border, and pig farm biodigesters in the center of the country have been proven, and investments to develop these two sectors are expected to materialize in late 2007 and early 2008. Development banks are taking the program's feasibility studies to finance its implementation.

Water and Energy Efficiency: Watergy Program in Mexico

Inefficient operation of water systems and high levels of energy consumption represent 3.75 billion m³/year in water losses in Mexico, significantly affecting the availability of potable water in urban and rural areas. Since 2003, the Watergy program (focusing on the water-energy nexus to help water utilities become more efficient), has supported 9 water utilities in Mexico and leveraged US\$2.4 million in cost-sharing from these organizations. These partnerships have resulted in a total of 55.3 GWh in energy savings, US\$ 7.1 million in monetary savings, and improving the water management of 44 million m³/year, and benefiting 3.2 million people.



Watergy has been creating sustainable capacity among technical personnel of the water utilities by conducting over 70 training events including 4 national seminars, a US-Mexico border seminar, and 50 workshops. It has established strong public-private partnerships with more than 12 private companies, and attracted interest of the federal agencies, such as CONAGUA, which has funded five workshop programs in 5 states including border and other regions. Successful development of Watergy facilitated the decision of NadBank to invest US\$6 million in the implementation of the recommended projects in Monclova, Coahuila. The Mexican Government is adopting the Watergy concept as a new philosophy to support current and future federal water programs throughout Mexico. Water savings potential in Mexican urban areas count for 1,600 million m³/year -- enough to provide water to 17 million people. The energy savings potential from the massive application of the comprehensive Watergy method is 2.3 million MWh annually, equivalent to US\$220 million and representing 3.6 million tons of carbon dioxide emissions avoided.

Improving Energy Efficiency in Mexican Industry

Since the early 1990's, USAID has sponsored pilot projects for the use of clean energy technologies in targeted industries and municipalities. Policies that support the use of these non-polluting, energy efficient technologies are being developed, and efforts to identify sources of financing for their implementation are underway. USAID has cooperated with FIDE (Electric Savings Trust Fund) on programs to promote energy efficiency. FIDE successfully carried out a program to substitute high efficiency electric motors (HEM) for standard motors in 20 industries, and then implemented a national incentive program to promote the manufacture and use of HEMs and compact fluorescent lamps (CFL) in Mexico that succeeded in transforming the Mexican market for energy efficient devices.



By 2006, all HEMs and 85% of CFLs sold in Mexico were produced in Mexico. Furthermore, all new motors sold in Mexico are now HEMs, and Mexican motor efficiency standards are on track to approach US standards by 2010. Energy savings have reached hundreds of millions of dollars as FIDE has applied the same lessons to other industrial equipment, such as air compressors and chillers, and residential equipment such as refrigerators. USAID has invested over \$25 million to support Mexico's efforts to reduce carbon dioxide emissions and pollution by identifying ways to adopt technologies (a) for large-scale energy conservation and clean production, and (b) for renewable energy production.

Renewable Energy Provides a Better Quality of Life in Rural Areas of Mexico

Since 1994, USAID has promoted a variety of small-scale renewable energy applications, such as solar and wind water pumps for off-grid farm use. Private companies have been trained to design and install better systems and to provide better maintenance services. Over 400 renewable energy systems - producing over 14 million kilowatts of electrical power - have been installed to date to meet off-grid agricultural, economic growth and conservation needs. More than ninety percent of these new technologies have proven to be sustainable by the enterprises and local governments that employ them without additional USAID support.



Replication of these activities has been financed by federal (FIRCO, Shared-Risk Trust Fund) and state governments (Chihuahua, Sonora and Quintana Roo) and approximately 10,000 new photovoltaic systems have been installed since year 2000. Also, since 2003, with assistance from USAID and the Global Village Energy Partnership (GVEP) - a US Presidential Initiative, Mexico has developed a large-scale renewable energy program to bring electricity to Mexico's most remote and indigenous areas in four states (Guerrero, Oaxaca, Chiapas, and Veracruz). USAID played a crucial role in the design of this US\$90 million project, which will start in 2007 with financing from Mexican federal, state and municipal governments and the World Bank.

For more information, contact Jorge Landa, Energy Advisor, USAID/Mexico, email; JLanda@usaid.gov, and Dan Evans, Environment and Economic Growth Team Leader, USAID/Mexico, email: DanEvans@usaid.gov.

Mark Your Calendar!

Infrastructure Workshop in Washington, DC!

What: “Infrastructure for Rebuilding and Developing Countries Workshop”
Where: Washington, DC
When: December 17 – 20, 2007
To Register: Send a completed SF 171 form to Ellen Dragotto, USAID/EGAT/I&E/Energy Team, email: edragotto@usaid.gov

Target Audience:

USAID personnel with infrastructure development responsibilities.

Training Opportunity:

Infrastructure issues have significantly increased in prominence over the past few years. Infrastructure projects often make up a substantial share of a mission’s overall program budget and many infrastructure programs are developed and managed by USAID staff who do not have a technical background in all areas required for designing/managing a large infrastructure program. Lack of experienced human capital in infrastructure in the field inhibits Missions’ development of creative solutions to infrastructure problems as well as their inclination to coordinate with other donors in addressing these issues. To respond to these needs, the EGAT Office of Infrastructure and Engineering is sponsoring a course on Infrastructure for Rebuilding and Developing Countries and strategically recruiting participants for the course.

Workshop Objectives:

- Increase understanding and knowledge of the role of infrastructure (water, power, communications, transport) in economic growth in Rebuilding and Developing countries;
- Understand key trends in infrastructure in rebuilding and developing countries;
- Understand the role of regulation, finance, governance and public participation in infrastructure;
- Understand successful models for infrastructure development used by development agencies, including USAID;
- Successfully learn how to contract for infrastructure projects; and
- Increase understanding and knowledge of ways to integrate infrastructure components into existing programs in other sectors and strategic objectives (SOs), such as economic growth, democracy/governance, or agriculture.

Farewell to Davida Wood

After six years of service Davida is leaving USAID for a position with a non governmental organization. Davida has been a valued member of the USAID/EGAT/Energy Team, developing and managing energy sector governance and market development programs. A keen advocate of public participation in energy sector decision making, Davida was responsible for mainstreaming civil society initiatives into the Energy Team's portfolio. Her work has included developing tools to advocate for transparency, accountability, and public participation in electricity policy and regulation. Capacity building for civil society to engage government officials and other energy sector actors has been an integral part of her work. For the past three years, Davida has provided editorial direction for the Energy Update newsletter and grown its readership beyond the USAID community to include multilateral agencies, academia, private sector, and civil society organizations. Davida will be missed greatly by her colleagues at USAID/Washington and the Missions. The EGAT/Energy Team wishes Davida the very best in her future endeavors.