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FROM THE AMERICAN PEOPLE

ENERGY UPDATE

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

IN THIS ISSUE

ENERGY UPDATE

Is the bimonthly newsletter of the Energy Team, Office of Infrastructure and Engineering, Bureau for Economic Growth, Agriculture and Trade.

IN THE NEXT ISSUE

"Is the World of Regulation Flat? Highlights from the World Forum on Energy Regulation III"

SUBMIT ARTICLES

Please submit articles on other topics for the Feature Article section, and your project updates for the Notes from the Field section.

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

The **submission deadline** is **September 26, 2006.** Please e-mail your articles to the Editor, Davida Wood (dwood@usaid.gov).

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

LETTER FROM THE GUEST EDITOR

Given the United States' current engagement in a growing number of conflict and post-conflict situations, it seemed appropriate to dedicate this issue of the Energy Update newsletter to the role that energy can play in enabling peace and security in conflict-affected countries. As the case studies illustrate, a reliable and affordable energy supply is a key input for improving security, supporting fledgling democracies, and promoting socio-economic development. However, conflict or post-conflict conditions can create formidable challenges to the design and implementation of USAID energy strategies and programs. In many cases, warfare can completely destroy infrastructure and the human capacity required to manage and operate it. In countries that are still prone to outbursts of violence, security issues can overshadow development efforts and hamper progress. In post-conflict situations, energy programs must be highly sensitized to remaining tensions between ethnic groups.

This issue leads with an interview with Gordon Weynand, the Energy Team Leader who has been engaged in the rehabilitation strategies and programs in Afghanistan and Liberia. He speaks to a number of over-arching issues and lessons learned in crafting an energy strategy and program that reflects the priorities of nascent democratic governments, is well-coordinated with the efforts of other donors, and strikes a careful balance between the immediate emergency measures to "get the lights back on" and longer term efforts to reform the sector and strengthen institutions. Mr. Weynand warns against neglecting these longer-term initiatives, which are vital for the development of a financially viable sector that can meet current and future energy needs.

Case studies of rural electrification projects in the conflict-affected regions of Southern Sudan and the Philippines reflect the importance of taking a bottom-up approach and engaging community leaders and members in the planning, management and operations of energy systems, particularly where there are strained relationships between community groups. Mr. Dan Waddle and Ms. Stella Kenyi of the National Rural Electric Cooperative (NRECA) recount how existing tensions between the traditional, Bari-speaking residents of Yei and the large number of Internally Displaced Persons (IDPs) of Dinka origin, which have fled from neighboring countries, are being overcome to create the first user-owned utility in Sudan. In some cases, civil war has marginalized large segments of countries' populations and citizens have become unaccustomed to participating in decision-making. In Angola, empowering citizens and promoting their engagement in public sector planning will be an integral part of a USAID project to restore electricity service to communities in Luanda.

Given the scarcity of independent evaluations of USAID projects, this issue of the Energy Update is fortunate in being able to highlight the findings of studies conducted on the effectiveness of the Fuel-Efficient Stoves (FES) program, being implemented by OFDA and its partners. FES programs are critical for improving the well being of women and children in IDP camps and reducing their vulnerability to gender-based violence during trips outside the camps to collect fuelwood. This case study describes some unexpected program outcomes, uncovered by the evaluation, which are being addressed in subsequent phases of the program.

This issue ends with an article describing an often overlooked conflict between Georgia and its breakaway region of Abkhazia, in which a dam and power plant straddling their border has forced technical cooperation amidst on-going political disputes in order to keep electricity wheeling to meet the demands of both sides. This unique situation is testimony to how shared concerns over a critical energy supply can transcend an on-going political conflict.

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SPECIAL REPORT:

Energy: Enabling Peace and Security in Conflict-Affected Countries

INTERVIEW WITH GORDON WEYNAND

The following is text from an interview with Gordon Weynand, Team Leader of the Energy Team within USAID/ EGAT's Office of Infrastructure and Engineering. Since 2003, Gordon has undertaken a number of TDYs to Afghanistan and, more recently, Liberia to work with the Missions to develop their energy strategies and programs. These aimed to build local capacity for effective management of the sector and help repair the extensive physical damage to the energy infrastructure, caused by many years of civil strife. He shared with the guest editor some of his experiences and insights from this work.

"Tell us about your experience in helping develop the energy program in Liberia. What was the situation when you landed? How did you work with the other donors to develop a coherent plan?

When I hit the ground, there were basically no electricity services across the country. The entire grid was broken. All the power supplies were gone except for diesel generators that people, the hotels or the embassies have.

But, the President was committed to providing some electricity services in Monrovia. So, there was a lot of debate about what an emergency power program would look like. The question was how our funds could be used to catalyze or complement the efforts of others, like the World Bank or the European Commission or the Government so that we can put together a comprehensive program. How can all the pieces fit together? So, my job was basically to work with the Embassy, the European Commission, the Government of Liberia and the Government of Ghana to weave our respective activities together to make a coherent package. We used our funds in two ways. One was to support the emergency power program to provide critical electricity services, because the President said she wanted this done in 150 days from the inauguration in January, this year. We also looked at working a lot of small, distributed energy infrastructure into rural programs focused on improving schools, clinics, and the like.

Was the situation similar in Afghanistan as in Liberia? The infrastructure there must have also been in a poor state.

When I first arrived in Afghanistan in the fall of 2003, we were faced pretty quickly with two crises. First, the major hydro facility in the southwestern part of the country died while we were there. It was providing power to two of the provincial capitals so, we ended up having to get about 12 megawatts of diesel power into those two cities and then get started on the laborious process of overhauling the hydro facility, that being about 33 more megawatts. This shows why it's important to build into the energy program, beginning as soon as possible, the costs of fuel and consumables, which can be a huge part of the initial costs of the program.

It must have been a challenge in both Afghanistan and Liberia to develop an energy strategy that meets the emergency power needs as well as addresses longer term institutional, regulatory, and policy issues.

Well, there are two balances that have to be struck, I think, which we struggle with in all of these conflict-affected countries. One is the need for a short-term impact so that the Governments appear to be making some progress in improving the quality of life for people. But, you must also lay the long-term foundation for maintaining the physical assets by building up the institutions and the human capacity to operate them. Obviously, the second one is a much slower process. Many of the organizations we are dealing with are extremely weak – technically, especially if there has been a long period of civil war, like 15 or 20 years, or there has been a natural disaster where many people have been killed. We have seen in Iraq and Afghanistan and other places that if you don't give attention to the institutional side, you are putting your entire investment in the physical side of things at risk. You are not going to be able to collect the funds to keep them maintained.

Also, there is a political dynamic that we face in many reconstruction countries and even in some of our developed ones. The Government is in the capital and the needs of the capital will be a high priority. In Liberia, this had been the pattern; all the goodies went to the capital. So, this time, the AID mission deliberately spread their programs out. They had some key ones within Monrovia, but they did a number of their activities outside.

What is an important lesson you've learned in integrating energy into larger programs and strategies for conflict-affected countries?

I've seen two or three post-conflict cases now where we get in and our first concern is getting people access to clean water, food, medicines, shelter, and those types of things. Then we transition into a phase where we try to restore some of the basic infrastructure services such as energy. But, energy is fundamental to providing health, water and other services. Given the long lag times in delivering these (energy) services, the sooner the donors can focus on this the better. Then, the sooner you can use energy services to create economic growth opportunities to help get benefits to broader parts of the population and remove some of the reasons for the conflict and lessen the tensions and divisions in the society."

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USAID is supporting the repair and expansion of the Kajakai Hydropower Plant to increase power supply to Kandahar and Lashkar Gah.

Restoring Electricity Service in Afghanistan

A secure and self-sustaining electricity supply is a major goal of USAID's strategy in Afghanistan, where 22 years of war has largely destroyed the fundamental infrastructure and human capital required for economic growth. As part of this strategy, USAID has been implementing the Afghan Energy Assistance Project (AEAP) since 2004.

USAID's approach addresses three key aspects of post-conflict development: (1) reconstructing, maintaining, and developing energy assets, (2) fostering adoption of social norms and civil institutions that will enable a market economy and sustainable economic growth, and (3) developing the human capital and capacity required to manage and develop both the physical and institutional infrastructure. These efforts are also tied directly to social reconstruction in the health and education sectors, and it is only through the concurrent and coordinated development of all these elements that a stable civil society and a functional nation state will be built in Afghanistan.

USAID, working with other donors, has undertaken immediate short-term, medium-term (2-3 year), and long-term programs to provide energy security to Afghanistan. Short-term measures include providing fuel to keep the lights on in Kabul and in the southern cities of Kandahar, Lashkar Gah, and Qalat. Intermediate-term actions include providing technical assistance to the Ministry of Energy and Water (MEW) and the national utility (DABM), rehabilitating hydro facilities to provide lower cost alternatives to diesel power, and providing operations and maintenance training, tools, and spare parts to maintain aged existing thermal facilities.

Long-term efforts include the development of the North East Power System (NEPS) and the South East Power System (SEPS). The NEPS will import power from the Central Asian Republics and will support the under-served load in the north and Kabul. The SEPS will serve the southern provinces of Kandahar and Helmand. Also, USAID is working to rehabilitate and expand distribution systems along the NEPS and SEPS transmission corridors.

(Continued)

Along the NEPS route, USAID built a distribution system for 4,000 households in Aybak, established a framework for a rural electrical cooperative, and turned it over to DABM. As a result, nearly 40,000 more people have access to electricity, which is currently being provided by diesel generators installed by the World Bank. For longer-term development of the southern region, USAID is about to start construction of distribution network in Qalat that will provide power to some 4,000 households.

USAID is also supporting the repair, renovation and expansion of the Kajakai Hydro Power Plant (HPP), which can provide 33 MW of power to the region and 51 MW after expansion when a third turbine is completed. Unfortunately, insurgents recently disrupted the transmission lines from the Kajakai HPP, so the diesel generators that USAID operates are still the only reliable source of electricity in the southern region.

Operations in southern Afghanistan are the most fraught with security concerns. However, even there, USAID is providing support to both meet immediate energy needs and to develop long-term energy infrastructure. To support immediate-term needs, USAID operates and supplies the fuel for 13 MW of diesel generators in the city of Kandahar and the towns of Lashkar Gah and Qalat.

Despite the challenges of poor infrastructure, harsh winter weather, unreliable fuel supplies, and the continuing insurgent violence, USAID has managed to keep the lights on. This has been achieved through close coordination and collaboration with their implementing partners managing the generator stations and the fuel suppliers in Pakistan and Afghanistan. Since the beginning of the year, of the approximately 375 tankers delivered to the southern generators, only about half a dozen have been attacked or disappeared.

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REPOWERING SOUTHERN SUDAN: PEACE DIVIDENDS BEGIN TO PAY OFF

Yei, a town in Southern Sudan nearly 50 miles north of the border with Uganda, has a population of approximately 40,000 people of mainly Bari-speaking descent, and up to 20,000 internally displaced persons (IDPs) mainly of Dinka origin. In colonial times, Yei was a vibrant trading center with an infrastructure of well-built roads, a water and sanitation system in the town center, and a small but functional electric generation and distribution system. Yei inhabitants cultivated grain, vegetables and fruit, and herded cattle, goats, and raised poultry. According to its residents, Yei was such a peaceful, prosperous community, that it was known as “Little London.”

Twenty-five years of conflict not only put a halt to expansion and development but also destroyed almost all infrastructure. So complete was the destruction of the electricity system that only one or two poles are left in the town, together with a damaged old powerhouse and the remnants of a water tower. Thus as a visible and tangible monument to the Comprehensive Peace Agreement that was signed in 2005, USAID is financing a program to rebuild the electric infrastructure in Yei through a cooperative agreement signed with NRECA International. While rebuilding the physical infrastructure is in itself a tremendous challenge - all inputs must be imported - perhaps a much greater challenge is to form a local institution that will own and manage the utility in the years to come.

Yei residents raise a pole in the construction of their electricity system

As Yei's population continues to grow with the influx of refugees and returnees from Northern Uganda, Kenya, Democratic Republic of Congo, and other parts of Southern Sudan, the increase in the ethnic diversity of the town's population has resulted in tensions between the traditional Yei residents and Dinka IDPs over property rights and land tenure. Additionally, divergent value systems, suspicions over distribution of community resources, and lack of income generating activities further create a tension that is not easily diffused. In an effort to control the tension and insecurities within the town, the Government of South Sudan (GOSS) increased its military presence in Yei River County; which has had the effect of increasing the overall insecurity in Yei with incidents of corruption, robberies, and shootings being reported.

In the midst of these cultural, economic, and security challenges, the electrification commission named by the Yei River County Council has taken the bold decision to form a consumer-owned and -operated utility and unite its community. The primary factor behind this decision was the desire of the community to take responsibility for its own destiny, and not to depend completely on the nascent GOSS rural electrification program to direct and oversee provision of public services in Yei. This will be the first user-owned utility in Sudan, responding to the need for a truly democratic institution that represents the interest of the consumers it serves.

To support the spirit of this initiative, utility staff is composed entirely of Yei inhabitants. Administrators will be trained to perform all management functions. Meter readers, billing clerks, and collection clerks will manage all commercial functions. Linemen will be trained to connect new consumers and to operate and repair the distribution system. Power plant operators will manage power generation. NRECA will oversee operations and utility management for the first eighteen months of operation while personnel are trained and gradually assume additional responsibilities.

Construction of the public lighting system in the central part of Yei was completed in September 2005, marked by a major celebration during which local dignitaries and stakeholders expressed their enthusiasm and support for the project. Construction of an expanded distribution and generation system will commence in September 2006 in order to energize 700 residential, commercial, and small industrial consumers. Yei residents have expressed hope that the electrification project will further increase security and livelihood opportunities. The system will be expanded gradually as resources permit and as demand grows.

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ENERGY, PROTECTION, CONFLICT AND THE ENVIRONMENT IN DARFUR, SUDAN

The conflict in Darfur, Sudan that has raged between the government forces and its militias and several rebel groups since 2003 has resulted in one of the worst humanitarian crises in the world. According to UN reports, widespread attacks on civilians have caused the death of approximately 200,000 people and the displacement of 2 million more. Tragically, as is the case in many civil wars around the world, gender-based violence and atrocities have become a common characteristic of the conflict. Rape and other forms of gender-based violence have been pervasive throughout the region.

Mitigating Risks using Fuel Efficient Stoves

Firewood collection is perhaps the single largest risk factor exposing women and children to violent attack. When they are obligated to leave the relative safety of internally displaced person (IDP) camps to collect wood in an increasingly desolate environment, they are vulnerable to harassment and attack. Wood is collected for cooking, for generating warmth during the rainy season, and as a means of income generation through sales to other IDPs or local populations. Inefficient use of fire wood in Darfur, most of which is a semi-arid ecological zone, is also leading to deforestation, erosion, reduction in the water-absorbing capacities of local soils, and additional conflicts over access and use of trees and shrubs for fuel and construction materials.

One of the many ways USAID has responded to sexual and gender-based violence is through the promotion and support of the use of fuel-efficient stoves (FES) to reduce firewood needs, and thus the number of trips women and children make into insecure areas.

FES programs are conducted by a dozen or more implementing partners, including the UN Food and Agriculture Organization, International Rescue Committee, Mercy Corps, CARE, Cooperative Housing Foundation (CHF), Norwegian Refugee

Council, Relief International, the Red Cross societies, and a variety of local organizations (SUDO and SIHA), which are funded by USAID and/or other donors. The FES programs utilize a wide variety of stove types and designs, from clay to metal and solar styles. Many training initiatives associated with these programs not only instruct participants in the mechanics of stove fabrication, but also deliver hygiene messages and food preparation methods.

Lesson Learned from the Early FES Programs

As of July 2005, USAID had supported the training of an estimated 41,000 women in Darfur in the design, construction, and use of fuel-efficient stoves. USAID also supports local organizations through its regular humanitarian partners and contractors. After more than a year of FES implementation, some USAID/ Office of Foreign Disaster Assistance (OFDA) partner evaluations and independent studies have begun to identify and disseminate early findings and lessons learned. Several studies released this year from the Women's Commission for Refugee Women and Children, Relief International, and CHF have evaluated stove design, performance, and fuel alternatives in Darfur.

The use of FES has resulted in targeted beneficiaries using between 40 to 80 percent less fuel for cooking food. This translates into many fewer trips needed to gather wood for cooking, but has not necessarily resulted in less time devoted to fuel collection, because women will make extra trips to collect wood to make money for household and personal needs. Because of this unexpected outcome, several OFDA partners plan to engage FES beneficiaries/participants in additional income-generation activities to reduce reliance on fuel wood for income and increase the protection impact of such programs. Camp-based income generation projects, including poultry farming, grass mat weaving, and craft production, reduce the need for women to seek employment outside the security of the camp or community. Women's community centers, such associations as women's and youth clubs, "child friendly spaces," as well as literacy classes, provide access to social networks for discussion, problem solving, and information dissemination.

The CHF evaluation engaged the Lawrence Berkeley National Laboratory (LBNL) in California to test stove efficiency and replication. Preliminary findings showed that while the clay stoves were popular, during the training and replication processes, the design of the stoves was changed, sometime to such a degree that they were no longer very fuel efficient. Certain metal types seemed to perform better and are lighter and thus easier to transport when people move. OFDA is guiding its partners toward the use of the metal stoves and encouraging more careful construction of the clay types. The introduction of metal stoves from a standardized facility is anticipated to reduce the decrease in quality resulting from trainers training trainers and so on, resulting in stoves of inferior quality.

Sudanese women making clay stoves

The United Nations Population Fund reported that in 2006, FES programs were available in 52 percent of sites (communities and camps) throughout Darfur, up from 31 percent in 2005. The humanitarian community sponsors trainings and distribution campaigns of FES to IDPs living in camps and host communities.

While some partners still promote solar cookers, USAID has found that these types of stoves are not well-suited to Darfur because they will not stand up to the rugged Sahelian wind and dust, require much more time for cooking than conventional stoves, and cook food in a way that often results in a different, and often unacceptable, taste that has led to domestic violence in some cases. USAID is planning a formal evaluation of stove initiatives to collect and evaluate lessons learned for future responses.

Next Steps

Currently, OFDA is conducting a new round of proposal reviews for Darfur. As many of the proposals include a FES activity, the OFDA Technical Assistance Group and EGAT/ Energy Team drafted guidance for program design and

implementation based on the above findings for implementing partners.

OFDA and EGAT/ Energy Team are also collaborating on a technical field study of the efficiency of various stoves types in both Darfur and northern Uganda that is a logical follow-on to the CHF/LBNL evaluation mentioned above. The results will be disseminated both at the local and national levels in Uganda and Sudan, as well as the global level at conferences and through published papers to guide all future users of fuel-efficient stoves.

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ELECTRICITY SUPPORT PROGRAM AIMS TO RESTORE INFRASTRUCTURE AND INCREASE CITIZEN INVOLVEMENT IN ANGOLA

Angola gained independence in 1975, following 14 years of armed conflict between Portuguese colonizers and a splintered Angolan nationalist movement that ended 500 years of Portuguese rule. Upon independence, the nationalist groups – unable to reconcilable their respective aspirations for national power – plunged the country into a brutal 27-year civil war fueled initially by the largesse of opposing Cold War sponsors, and later by exploiting the country's abundant mineral wealth. One of the largest groups to emerge was the Movimento Popular de Libertação de Angola (MPLA), which by virtue of its control of the capital, Luanda, gained – and ultimately retained – formal control of the existing state apparatus. As many as 1 million Angolans were killed, 4.5 million became internally displaced, and another 450,000 fled the country as refugees. The combined effect of the legacies left behind by colonialism and civil war is a decline in social and economic development, placing Angola near the bottom of most global measures of socio-economic development, ranking 160 out of 177 countries on the 2005 UNDP Human Development Index.

Angolans are now eager to re-establish the physical and moral infrastructure necessary for peace, security and economic growth. Rebuilding the electricity network for residential, commercial and industrial uses is a critical component to restoring normal life. In some parts of Luanda's periphery, only 1% of residents have access to electricity from the distribution grid. Even for those with electricity, power outages and supply interruptions are frequent. Many small and medium-sized businesses rely on expensive diesel generators as their only source of reliable power.

To address this crisis, USAID recently began the Angola Electricity Support Program (AESP), which aims to support the restoration of electricity service to communities in Angola and, at the same time, empower individual citizens and promote collective engagement in public sector planning. The community will be engaged in the design of the electricity access program through development forums to open a dialogue and promote accountability from both EDEL (the electricity distribution company) and the municipality. Technical assistance will be provided to EDEL to establish a business model based on cost recovery, management information systems and better customer relations to improve financial viability. The municipal government will also be involved in the role of planning and facilitating an improved infrastructure and a safer environment for residents. Technical assistance will be provided to the municipal government to increase its planning and implementation capacity to meet community needs.

Reintegration and reconstruction are the major challenges facing the post-conflict Angola. Despite a wealth of natural resources, including oil, diamonds, rich arable land and plentiful water for agriculture and hydropower, revenues from these riches have failed to benefit all but the powerful elite. Angola's political history has contributed to the development of a weak culture of public accountability and fiscal discipline. AESP will promote greater accountability, transparency and responsiveness to community priorities by engaging local communities in a dialogue with EDEL and local governments around electricity access and service. The urban district of Kilamba Kiaxi on the periphery of Luanda will be the first pilot project site to test connection, metering, billing and collections strategies. In the first phase, over 15,000 of the 900,000 people in Kilamba Kiaxi will be connected to electricity. Citizens will also have the opportunity to be reintegrated into the political planning process and experience the changes that can result through their active involvement.

While still in the planning stages, the AESP has already gained high interest from residents, the government, EDEL and others, and there are high

hopes for the program and its anticipated outcomes. Banco Fomento de Angola recently announced its support for AESP with a contribution of $1.2 million over three years. A partnership has been formed between EDEL and COELBA, a Brazilian distribution company, to share experiences in providing electricity to low-income customers. AESP is expected to contribute significantly to post-conflict reconstruction and serve as a model for other localities in Angola.

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INTERVIEW WITH KRISTA DONALDSON: THE STRUGGLE FOR POWER AND LIGHT IN IRAQ

[The following page holds an excerpt from an interview with Krista Donaldson, a former American Association for Advancement of Science (AAAS) Diplomacy Fellow, who was assigned to the Iraq Reconstruction Management Office at the U.S. State Department. Ms. Donaldson made three extended trips to Baghdad between December 2004 and November 2005, with much of her work focused on Iraq's critical electric power generation system. The original interview was conducted by email by AAAS senior writer Edward W. Lempinen and published in the March 2005 edition of AAAS News. Ms. Donaldson updated her response for this edition of the Energy Update. As she describes, despite the many difficulties on the ground, the country's power supply is being increased. The text box on page 10 outlines the notable progress made by USAID in repairing generation, transmission and distribution assets, bringing new generation on-line and strengthening institutions.]

"Since the invasion of Iraq, analysts have frequently cited a shortage of electrical power as one of the chief sources of Iraqi frustration with the American and allied occupation. And in reading the news on a daily basis, one comes away with the sense that this problem really has been stubborn. So let's talk about the basics: How serious is the lack of electricity? Why is it proving so stubborn? To what extent have things improved?

The problem has been and is stubborn. There are several things going on that complicate the situation, not the least of which are the security conditions. Iraq's rated capacity is approximately 13,000 megawatts (MW); a typical country runs at 80 to 85 percent of capacity. Iraq is currently running at closer to 40% capacity. Much of the power plant equipment is old, worn out and, in the 1990s under Saddam, was not at all well maintained. For example, generating units were often run under frequency (< 50 Hz) deliberately to try to increase their MW output. We know this operation outside specification causes wear and tear, but how much is unknown. Much of the equipment comes from different manufacturers in different countries, so knowledge from one plant is not entirely transferable to another.

Saddam gave very little money to the Ministry of Electricity, so spare parts were difficult or impossible to procure. Iraqi engineers did an unbelievably good job under the circumstances keeping MW on the grid at all. After Saddam's ouster, add to this situation an influx of electrical appliances with freer markets and continued negligible tariffs on electricity. Iraqis familiar with the power sector told me over and over that because electricity is basically free there is an absence of a culture of conservation. Demand has been rising rapidly—for example, the summer with its sweltering temperatures tends to be the demand peak for the year, but we actually see winter peak demands surpass the previous summer. Since 2004, estimated demand has increased 36%. Whereas two years ago our electricity reconstruction efforts were focused on bringing on and consistently supplying as much generation as possible, now we are trying to ensure that local capacity exists to operate and maintain the plants and infrastructure.

A final constraint has been the security situation—insurgents have continually attacked fuel supplies and infrastructure, downed transmission towers, kidnapped officials and intimated workers. In addition to making working conditions very difficult, it has driven up the cost of doing reconstructions significantly.

Despite these difficulties, the generation capacity is being added and Ministry of Electricity workers are starting to take over operations previously run by Coalition-funded contractors. To the average Iraqi, however, things may seem the same or worse because of this skyrocketing demand. Now the average Iraqi may receive between 6-12 hours of electricity per day, if lucky— which according to an

Iraqi friend, this is about the same as he received under Saddam. Baghdad, however, has fared worse in the last year (sometimes as little as 2-3 hours of power per day) because of the poor conditions of area power plants and frequent attacks on the high voltage lines coming into the city. There is also frustration among Iraqis outside the capital that some of the electricity produced in their region is exported to Baghdad. The expectation was that the Coalition would be able to provide more electricity quickly. And now with talk of implementing tariffs, it's easy to imagine why many Iraqis are very frustrated."

A downed transmission tower near the Thar Thar Canal

AMORE PROGRAM: LIGHTING THE WAY TO PEACE AND DEVELOPMENT IN MINDANAO, PHILIPPINES

Mindanao has long suffered from conflict, with secessionist groups fighting the Government, widespread inter-clan conflict and most recently, terrorist activities. Mindanao is also one of the least developed regions in the Philippines, and the longstanding peace and order problems have contributed to the limited delivery of public services such as education, health services, water supply and electrification. In 1996, peace was advanced through an agreement between the Philippine Government and the Moro National Liberation Front (MNLF) establishing the Autonomous Region in Muslim Mindanao (ARMM). USAID has supported the peace process in Mindanao, delivering concrete benefits from the peace agreement and demonstrating to remaining secessionists the benefits that are attainable through peace.

USAID's Reconstruction Efforts in Iraq's Power Sector

USAID work in Iraq's energy sector has focused on rehabilitating key elements of the generation, transmission and distribution systems, and constructing new generation to help meet demand for electricity. In addition, USAID is working to strengthen institutions to improve sector management and operations and support the long-term service life of the physical assets. Key accomplishments include:

- Addition of 1,292 MW of electrical generation capacity through new generation, maintenance and rehabilitation work. This figure grows to about 2,700 MW when the work of other US agencies is included.

- In addition to the new and rehabilitation power projects, USAID provided over $100 million of extra equipment and spares to the Ministry of Electricity (ME) to support the maintenance and expansion of the power system.

- Technical support to ME operations personnel who maintain and operate facilities.

- About 90,000 hours of training were provided to ME employees, including out-of-country training on the operation and maintenance of power plants for 240 ME officials, managers and engineers.

- Rehabilitation of critical sections of the transmission line from Shor Az Zubair to Nasiriyah, connecting, for the first time in many years, residents in southern Iraq with the rest of the country's electric grid.

- Creation of 5200 jobs for skilled and unskilled Iraqi workers.

According to the USAID Iraq Reconstruction Office, Baghdad receives about 8 hours of power per day, versus 12 hours for all of Iraq. By the end of the year, Baghdad should receive more than 50 percent of its pre-war level of service, if power is equitably distributed across the country. Total megawatt-hours supplied per day to Baghdad is about 24,000, which is greater than 50 percent of the pre-war level but probably will not reach the pre-war level without a return to the pre-war policy of favoring Baghdad in the distribution of power.

Sources: USAID Iraq Reconstruction Office; http://www.bechtel.com/PDF/Iraq_Power.pdf

Under the Alliance for Mindanao Off-Grid Renewable Energy (AMORE) Program, USAID is working in partnership with Mirant Philippines, the Philippine Department of Energy, the ARMM and Winrock International to use energy as an enabling tool in the service of peace and development, by improving the quality of life in rural communities through sustainable renewable energy projects and community organizing. The AMORE Program supports use of renewable energy systems for household electrification, power for social infrastructure such as schools for distance education, communications, water supply, and economically productive uses. The program employs off-grid renewable energy systems such as solar and micro-hydropower systems. Working mainly in the ARMM, including many communities comprising former MNLF combatants, the program has electrified 227 communities and over 6800 households, and provided power for distance education to over 60 schools.

In the initial stages of the program, AMORE staff visiting candidate communities encountered skepticism from many community members including former rebels who felt they had received few of the promised benefits from the peace agreement. In order to overcome this initial skepticism, AMORE employed a participatory community-based approach to program implementation. (Community-based approaches were also used since the conflict-affected nature of the region made it difficult to rely on private sector initiative, due to the high-risk investment climate.) By employing local staff from the project region and local NGO partners, AMORE was able to establish a working relationship with the communities and jointly define each community's electrification and social development goals. AMORE organized grassroots-based Renewable Energy and Community Development Associations (BRECDAs) in every community to manage the energy systems, collect user fees, and implement social development and income generating projects. Payment collection systems were established to pool funds for new system acquisition and ensure continued technical maintenance.

Once the program delivered concrete benefits through electrification, additional livelihoods and social projects, many former skeptics indicated they were becoming more hopeful for future progress in their communities, and many additional communities requested participation in AMORE.

Over the next three years the program is expected to electrify at least 175 additional communities, supporting distance education, telecommunications service, and improved water supply in many of these communities, thereby continuing USAID support for peace in the region.

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INTERNALLY DISPLACED PERSONS EMPLOYED THROUGH NEPAL'S HYDROPOWER DEVELOPMENT PROGRAM

Mention Nepal to anyone involved with international energy development and two thoughts will likely come to mind: vast hydropower potential and a decade-long Maoist insurgency. The direct effects of this insurgency on hydropower development – such as sabotage and destruction of hydropower infrastructure – have been well documented and closely parallel insurgency tactics employed in other hotspots around the globe. Secondary issues relating to the conflict are more difficult to quantify but equally important. A recent study by Winrock International has investigated one such topic: Internally Displaced Persons (IDP) employment opportunities at hydropower development sites. This study captures one of the unexpected benefits of Nepal's hydropower development program, in which USAID has invested over $8 million over the last 5 years, catalyzing over $145 million in private sector hydropower investment. A total of 30.5 MW of additional power has been brought on board, with an additional 38.1 MW under construction or with construction about to start. These investments have allowed electricity supply to meet growing demand and permitted national economic growth of 2-3% per year. In 1999/2000, electricity shortages contributed to negative economic growth.

Unofficial estimates suggest upwards of 350,000 people have been displaced as a result of the conflict – although many experts believe this number to be much higher. The Government of Nepal has designated 33 of the 75 districts in Nepal as "severely affected" by the conflict. Of this group, six have been identified as category A (most severe), nine are category B, and the remaining 18 districts have been classified as category C.

It is estimated that approximately 21% of the total population in category A districts and about 5% of the population in Category B districts have been displaced as a result of the insurgency.

Seeking employment in India has been a long time practice of many Nepalis, especially from the rural areas. This trend had dramatically increased as a result of the Maoist insurgency. Research has suggested that most male Nepali migrant workers go alone in search of work to India leaving their families behind in Nepal. In the case of IDPs, families are most likely to seek refuge in larger population centers and be separated from their traditional social support networks.

Alternatively, labor-intensive infrastructure projects such as hydropower plant construction offer in-country employment opportunities to Nepal's rural IDP population. While people in the vicinity of hydropower plants have the first opportunity to work on the construction site, the large numbers of people needed (in the order of 500 -1000 per site) requires workers from other parts of the country. As a mobile population, IDPs are attracted to these opportunities.

Winrock conducted a study of the workforce at the 0.75 MW Sisne Khola hydropower construction site in Palpa district of Nepal in order to further investigate IDP employment issues. Extensive interviews with the workforce revealed that most of the workers were unwilling to state their reason for leaving their home – a strong indication that they had been forced to leave as a result of the Maoists. This assumption is supported by an analysis of the workforce as shown in Table 1 below.

Of the 300 workers from outside the Palpa district, 265 were from districts classified as severely affected by the conflict.

Fifty-three percent of these were from the Category A districts, and 12 % were from the Category B districts, all of which do not border Palpa. Interviews with the workers indicated that many had brought their families with them, and often multiple members of the family were employed at the construction sites.

Another significant benefit of hydropower development is the opportunity for skill enhancement of the internally displaced persons as well as the local population who work on these projects. The Sisne study revealed that several people who had been previously employed as unskilled workers were currently employed as semiskilled or skilled workers because of the "on-the-job" training they had acquired in the former project.

Hydropower projects like Sisne are a source of much needed employment for IDPs as well as for local people living in the vicinity of the project. The Sisne study shows that IDPs are attracted to construction projects in country where they can travel as entire families and find work for more than one member while simultaneously acquiring skills, which can result in workforce advancement. The study estimates that hydropower projects have provided an estimated 6,685 local people with some 2,500,000 person-days of work. Today, as negotiations are taking place between the insurgents and the Government, hydropower development projects can offer gainful employment for ex-combatants as well as IDPs, which will be critical for securing lasting peace.

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Table 1: Labor Involved in Sisne Hydropower Project

District	Category	Unskilled	Semi-skilled	Skilled	Total
Palpa	-	197	4	2	203
Pyuthan	A	82	6	2	90
Rolpa	A	61	7	2	70
Dailekh	C	11	3	1	15
Dang	B	30	6	1	37
Kapilbastu	C	47	2	1	50
Ardhakachhi	-	34	1	0	35
Total		**462**	**29**	**9**	**500**

ENGURI HYDROPOWER PLANT REHABILITATION IN THE ABKHAZIAN CONFLICT ZONE, REPUBLIC OF GEORGIA

Enguri Hydropower Plant

The conflict between Georgia and its breakaway region of Abkahazia began in the early 1990s when, with the collapse of the Soviet Union, Abkhaz rebels rose in rebellion, seeking independence from Georgia. During two years of fighting, an estimated 200,000 Georgian refugees fled from Abkhazia and 10,000 people died. In 1993, Abkhazi guerrillas captured the key city of Sukhumi and declared their independence. A ceasefire agreement was arranged, a Quadripartite Commission was set up to discuss repatriation, and Russian troops, acting as Commonwealth of Independent States peacekeepers, were deployed along the Enguri River dividing Abkhazia from the rest of Georgia. Despite these efforts, political disputes remained unresolved and the international community has not recognized Abkhazi independence.

During the war and after the 1993 cease-fire, technical cooperation continued between the Georgians and Abkhazians to manage and operate the Enguri power plant, which straddles both sides of the conflict zone of the Administrative border of Abkhazia and the Republic of Georgia. Though the dam is on the Georgian side and the powerhouse is on the Abkhazian side, and most of the employees on both sides are poor ethnic Georgians, this cooperation continued due to the importance of Enguri to both parties. Enguri meets the power demand of Abkhazia and provides for over 40% of Georgia's generating capacity.

In the late 1990's, cooperation strengthened further with the development of a high-level political agreement on a multi-donor, multi-million dollar rehabilitation of the Enguri power plant and arch dam, which is among the world's highest at 271.5 meters. Though there has been no direct impact of this technical cooperation on the political situation, it has been observed that refugees originally from the area near the powerhouse in Abkhazia are returning, possibly due to this area being viewed as an area without conflict (despite the fact that it is still politically controlled by Abkhazia).

A milestone in the rehabilitation of this over 20 year old facility was the lowering of a new 200 ton stop lock last fall, which will stop the leakage of water and improve electricity generation. This major engineering and reconstruction work was filmed by USAID and distributed to the media throughout Georgia as part of its public participation and outreach program to inform the public of energy sector investments and improvements. Additional planned activities, at an estimated cost of over $40 million financed by the European Union, European Bank for Reconstruction and Development (EBRD), and the Government of Georgia, include the repair of the 15 km diversion tunnel which spans the two territories, and the repair of the generators located in Abkhazia. With these rehabilitation works, three out of five Enguri units will be operating at full capacity. Additional funds to rehabilitate the other two units, the internal electricity network at the dam, and other needed work to bring the plant up to full capacity, are currently being sought.

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CORE contact for media coverage of Enguri rehabilitation: Lois Varrick, lvarrick@coreintl.com

NOTES FROM THE FIELD

The Southern African Power Pool: Milestones to Private Sector Investment in Southern Africa

The Southern African Power Pool (SAPP) brings a modern organizational tool of the energy sector to a region of the world in need of improved energy security and enhanced international cooperation. With world energy prices increasing rapidly, it is important that resources are used wisely.

SAPP helps all member countries efficiently use precious power resources. That is due to the ability to transfer energy over larger land areas so that different levels of needs can more immediately be addressed. Through USAID funding, CORE International supported the process of SAPP reform through the review of four principal documents and the provision of specific recommendations for their enhancement. These documents include the (i) Inter-governmental Memorandum of Understanding (IGMOU), (ii) Inter-utility Memorandum of Understanding (IUMOU), (iii) Agreement Between Operating Members (ABOM), and (iv) Operating Guidelines (OG). CORE International, Inc. worked closely with all southern African nations within SAPP and with the SAPP Coordination Center to help bridge gaps so that SAPP can operate more efficiently. Some of the achievements reached by SAPP through this assistance include the following:

Improved understanding of the importance of regional power sharing by professionals in all areas, including political leaders, financial experts, policy makers, regulators, and lawyers.

The reporting structure for SAPP changed to make SAPP a more efficient organization with smoother operating procedures and more rapid decision-making practices. This is an important step as SAPP moves toward a competitive market.

Article 2c of the Revised IGMOU now opens the way for the operation of a regional electricity market based on the requirements of the SADC member states. This is a brand new article proposed by CORE and accepted by the SAPP.

As a result of revisions to the IGMOU, electricity supply enterprises other than the national utilities in the SADC countries, can participate as full members subject to approval from the SAPP Executive Committee.

This opening to private sector investment sends a strong signal to worldwide private investors that the Southern Africa region is open to private sector participation and seeks to level the playing field between national utilities and independent power producers.

Dispute resolution procedures are under development, further improving the enabling environment for private sector investment.

These reforms in SAPP are resulting in (i) improved information flow within SAPP, which helps the institution effectively address various concerns of the member states, (ii) a more open and expansive membership, which strengthens the enabling environment for private sector investment; (iii) more regional harmony and opportunity to enhance regional security, and (iv) greater regional integration. The increased stability within SAPP, and the possibility that it can expand membership, will serve as a role model for other African states and for budding integration initiatives throughout the world.

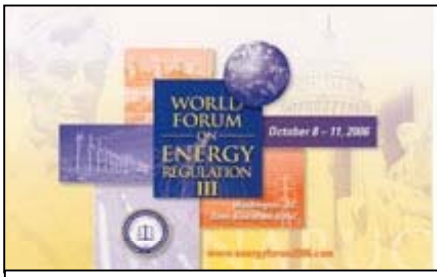
USAID Contact: Kevin Warr, kwarr@usaid.gov; SAPP contact: Dr. Lawrence Musaba, musaba@sapp.co.zw; The SAPP website is: http://www.sapp.co.zw/; CORE International Contact: Vinod Shrivastava, vshrivastava@coreintl.com

NEWS & EVENTS

Sharon Hsu Joins USAID/EGAT/Energy Team

Sharon Hsu began her career in the federal government in 2004 as a Presidential Management Fellow (PMF) at the State Department's Bureau of Oceans and International Environmental and Scientific Affairs. In June 2005, Sharon started on a PMF rotation to USAID's Energy Team in EGAT. Since then, Sharon has supported the South Asia Regional Initiative for Energy (SARI/E), USAID participation in the UN Commission on Sustainable Development (CSD), the South and Central Asia Energy Corridor Initiative, and Energy Travel, among other activities. We have enjoyed working with Sharon as a PMF and enthusiastically welcome her as she transitions to a full-time position with the Energy Team in September 2006. Sharon has earned a B.A. in Environmental Studies, a B.A. in Psychology, and a B.A.S. in Computer Science from the University of Pennsylvania. She holds a Masters of Public Administration (MPA) degree in Environmental Science and Policy from Columbia University.

MARK YOUR CALENDAR!



World Forum on Energy Regulation III
October 8 – 11, 2006
Washington, DC USA

The National Association of Regulatory Utility Commissioners (NARUC) will be hosting the World Forum on Energy Regulation III on October 8-11, 2006, at the Omni Shoreham Hotel in Washington, D.C., USA. The World Forum on Energy Regulation III will build upon the themes and key findings discussed during the World Forum I in 2000 and World Forum II in 2003. The World Forum III will deal with recent developments in the energy industry, new trends in energy regulation, and selected regional issues.

Agenda Program
The agenda is now posted to the website www.worldforum2006.org!
The World Forum will be divided into three main tracks:
TRACK A - Investment in Energy Infrastructure
TRACK B - Regional Energy Markets
TRACK C - Energy Access and Affordability

Each session will feature high-level speakers from energy regulators, government ministries, utilities, and other energy stakeholders representing Africa, Asia, the Caribbean, Central America, Europe, Latin America, and North America. The World Forum III has increased emphasis on the particular issues facing developing and transition countries as they seek to improve infrastructure and enhance regulation.

Why You Should Attend
- To gain knowledge from other countries' best experiences & lessons learned
- To further educate yourself in international energy regulation
- To relay your knowledge and experience to other countries
- To increase regulatory capacity development
- To learn what the policy makers are doing to encourage investment in energy

Registration
The Forum registration form is available on www.worldforum2006.org

Special USAID Add-On Activities!

The USAID Regulatory Partnership Summit, October 8, 2006, 10am -4pm
This summit will bring together NARUC/USAID Partnerships including regulators from Albania, Bulgaria, Croatia, Ghana, Kyrgyz Republic, Macedonia, Moldova, Zambia, and others regulatory partnerships.

The Roundtable on Consumer Affairs, October 8, 2006, 4pm -7pm
This roundtable session will focus on the key findings from the NARUC International Consumer Report. Participants will be asked to share their experiences and perspectives on three critical issues: funding/sustainability, legal/technical/analytical resources, and public outreach and education.

For more information: worldforum@naruc.org; dwood@usaid.gov;
Visit www.worldforum2006.org