



PROJECT COMPLETION REPORT: BRAZIL ENERGY TRAINING AND OUTREACH PROGRAM (BETOP)

Under USAID/Brazil sponsorship, The Institute of International Education (IIE) recently concluded the Brazil Energy Training and Outreach Program (Task Order 008/99) as part of contract LAG-I-00-98-0012-00. The work was carried out between June 30, 1999 and October 15, 2003. The program was originally expected to last two year's ending June 29, 2001, but was extended to September 30, 2002 and then continued until the present completion date of October 2003. During that time thirty-five (35) workshops, courses and seminars were conducted in various cities in Brazil, 12 invitational travel requests were awarded, a BETOP web site was established and the Brazil Energy Training Alumni Association was established. 1,686 participants (1,538 men and 148 women) were trained in the areas of energy efficiency, renewable energy, and global climate change. This training helped Brazil to weather the energy crisis that occurred in 2002. A description of the program follows

Training Needs Analysis

The Task Order for the Brazil Training and Outreach Program (BETOP) was received in July and planning was started for the Training Needs Analysis (TNA). The TNA was originally scheduled for August, however, at the request of the Mission, and in order to coordinate a joint visit with the Hagler Bailly (H-B) team it was re-scheduled for September. At the request of the Mission, the training needs analysis conducted in Brazil was shortened from the proposed two weeks to one week and the personnel from three to one in order to save funds for more training workshops. Detailed interview schedules were developed jointly with HB and Mission personnel in order to contact as many key actors as possible. The Training Needs Analysis study was conducted the week of September 12, 1999. Augusto Juca and Eduardo Freitas, from the Mission, accompanied the contractor team.

After the completion of the joint TNA, the BETOP training needs analysis report and training plan was drafted and submitted. A preliminary target of twenty (20) workshops and outreach programs over the two-year period was proposed along with heavy involvement and cost sharing by Brazilian host organizations. Discussions were held with HB to discuss ETIP activities and how the training could support ETIP. The preliminary training plan was also presented at the USAID Contractors Conference in October 1999. In December 1999 the work plan was revised to include training for climate change mitigation. In addition, a matrix showing the workshops, host organizations and how they complied with and facilitated the achievement of the SO₂ Intermediate Results (IRs) was developed and submitted. These considerations were factored into the plan and the final version of the TNA and Training Plan was submitted and approved by

the Mission in March 2000. Since the training program depended greatly on the use of Brazilian instructors and the cost sharing sponsorship of Brazilian organizations, the IIE/EG hired Ms. Simoni S. Lara to be IIE/EG's In-Country Coordinator.

Training Activities

During the year 2000 eleven (11) workshops were held from February through November. Approximately 500 participants representing almost 250 companies, governmental agencies, universities and non-governmental organizations received training in regulatory practices, renewable energy, energy efficiency and the economics of climate change. All the training contributed directly or indirectly to achieving Strategic Objective 2 results, specifically Intermediate Results 2.1, 2.2, and 2.3. In the following year nine (9) workshops were held from February through November. Approximately 500 participants representing over 250 companies, governmental agencies, universities and non-governmental organizations received training in regulatory practices and energy efficiency. In November the first climate change related course was presented and was very successful as a result, several climate change related courses were planned for the following year. In 2002, eight (8) courses were presented of which five were climate change related and the rest were energy efficiency related. In September 2002, the first phase of BETOP came to an end and a twelve month second phase was started. Eight (8) courses were presented during the second phase of BETOP between November 2002 and October 2003. A summary of all courses, workshops, and seminars can be found in Appendix A.

People from all twenty-five (25) states and the Federal District of Brazil have benefited from BETOP energy training activities. The greatest number of participants has come from Minas Gerais, Rio de Janeiro, Ceara states and the Federal District. Both the private and public sectors have participated with the greatest participation coming from the public sector (63%)

Forty-one cost sharing co-sponsors participated in BETOP training courses and workshops. In most cases, the co-sponsors hosted only one course or workshop. ANEEL sponsored the most workshops, 20% either partially or fully. Banco do Nordeste hosted 5% of the workshops and

Results

The nature of training is such that immediate results are normally not evident. Although the number of courses, workshops and seminars, participants, etc. can be tabulated, the fulfillment of the SOs and IRs are dependent on other programs that training supports. There were significant results that were experienced during the program. Results were experienced in the areas of energy efficiency regulation, energy efficiency projects and renewable energy. A description of these successes are as follows:

Energy Efficiency Regulation

One of the most significant results occurred in energy efficiency regulation. On September 3, 1999 Resolution 261 was passed by the Brazilian government. This resolution required the electric distribution concessionaires (distribution utilities) spend at least 1% of their annual operating revenues on increasing energy efficiency. Of this amount, at least 25% was to be spent on demand side efficiency (DSM) measures while the balance was to be spent on supply side efficiency measures. The utilities were required to report their plans to the Agência Nacional de Energia Elétrica (ANEEL), the Brazilian federal electric regulatory agency, ANEEL, developed guidelines for these programs for the utilities to follow. However, the guidelines were not very

well defined and the results were not measurable. To quote one ANEEL official, “Since 1999, the first year of energy efficiency programs performed by the utilities under the 1% mandate, we at ANEEL were concerned about the evaluation of those programs mainly in finding a methodology that could check if the goals set by the utilities were achieved by the end of the projects”. This problem was also expressed by the state regulatory commissions in Brazil that were conducting these evaluations for ANEEL.

This problem came up in the interviews during the TNA. As a result, training for ANEEL on how to evaluate DSM programs was made a top priority and was scheduled as one of the first training workshops under this program. As small number of ANEEL and state utility regulatory personnel were given two intense weeks of training in how to objectively evaluate DSM programs. This training was based on the long experience available in the U.S. The instructors were bilingual U.S. engineers that had designed and evaluated DSM programs for utilities in the U.S. They were assisted by Brazilian instructors who were familiar with the 1% rule and the energy efficiency projects that were both feasible and would have the best results in Brazil. Training consisted of lectures, case studies and computer time to actually try out the techniques that had been taught in class. Instruction was provided at ANEEL’s headquarters in Brasilia. The lead U.S. instructor, who had provided DSM training in Brazil in 1996 and 1997, developed a spreadsheet and gave the participants the software to use in the future. The U.S. instructors also explained U.S. program requirements and how state regulatory agencies evaluated the effectiveness of DSM programs. Later, an additional week of training was supplied to show how these same techniques could be applied to supply side projects as well.

As a result, ANEEL decided to change the rules for the selection and evaluation of DSM projects and require that utilities follow these rules for the year 2000/2001 programs. In addition, USAID/Brazil was asked to provide additional training to introduce the utilities to these new rules and evaluation techniques. In the words of an ANEEL official “The demand and supply side project evaluation workshops, performed by IIE under USAID/Brazil’s BETOP, gave us substantial material and guidelines to accelerate ANEEL’s decision in demanding from the utilities more attention to their project evaluations. It also has given us knowledge to suggest evaluation models for ANEEL’s 2000/2001 Energy Efficiency Manual and, with IIE’s help, train the utilities in evaluation methodologies.” Two training sessions were held for the concessionaires (utilities) to learn about the new requirements and a total of 53 utilities attended. The timeliness of this training was especially important since Brazil was experiencing an energy crisis brought about in part by insufficient rainfall and a reduction in hydroelectric generation.

Energy Efficiency Service Company (ESCO) Training

Since 1996, IIE has worked with USAID, both Global and the Brazil Mission, to provide training for emerging energy service companies (ESCOs) in Brazil. Since these ESCOs were key to improving energy efficiency and reducing the demand for new power plant construction in Brazil, support is critical. Most of these companies are small businesses and the proprietors and principals are often engineers with excellent technical backgrounds, but with limited business and financial skills so much of the training was directed toward improving the business skills of these entrepreneurs.

Financing for ESCOs in Brazil has been difficult due to the history of inflation and very low electrical rates. As a result banks often will only provide relatively short-term loans at high interest rates. ESCOs and their clients often need long term loans at low interest rates to cost

justify their energy saving projects. As a result, Brazilian ESCOs have had to rely on quick payback projects with high rates of return. BETOP training provided this knowledge.

The focus of the ESCO training was continually adjusted to meet the needs of the Brazilian ESCOs and the Brazilian ESCO trade organization, ABESCO, was often consulted to make the training more effective. Their recommendations were often implemented. For example, shorter seminars were arranged and training sessions were split to attract more small business people that could not attend the longer training programs. Both the lecture and training materials have been in Portuguese to make the training available to a more ESCO entrepreneurs and Brazilian instructors have been utilized to ensure the relevancy of the training. ABESCO partnered with IIE to present some training seminars.

The economic and energy situation has been changing in Brazil since the training started in 1996. During this time, the Brazilian electric companies were privatized, electric rates increased and the Brazilian currency devalued and allowed to float. Some of these things helped and some hurt the ESCOs, however, USAID and IIE continued to provide the training support to keep the Brazilian ESCOs viable.

The payoff for the Brazilian ESCOs came in 2001 when rainfall was less than expected and Brazil's largely hydroelectric based generation was unable to meet the countries electrical demand. Although this had been predicted for many years, the efforts to prepare for this shortage were too little and too late. As a result, the federal government mandated a 20% reduction in electrical use and the demand for energy efficiency services and ESCOs soared. The ESCO's were ready and business increased several fold. The ESCOs, as a result of the many years of training, were ready and knew what to do. Energy restrictions in Brazil have now being eased, but the benefits of the energy efficiency projects will last for many years. Many more ESCOs are being started, some by utility companies, and the future for ESCO's in Brazil looks very bright.

Renewable Energy Support

Banco do Nordeste (BN) has worked very closely with IIE in carrying out BETOP energy training workshops in Brazil's arid northeast. This regional development bank has been a leader in lending to small businessmen who are trying to grow their companies. BN signed on early as a cost-sharing partner with IIE to promote renewable energy training for both its employees and renewable energy and energy efficiency entrepreneurs in the region. BN was especially interested in heightening awareness and technical understanding of renewable energy, particularly in rural areas. BN worked with IIE to sponsor three renewable energy workshops in the Fortaleza area to stimulate economic activity and loans for renewable energy and energy efficiency projects. Three workshops were presented in 2000 and while it is still to early to see much loan activity from these workshops, BN has taken information that was presented during the workshops and developed a colorful, illustrated, easy to read and understand booklet that shows how conservation an renewable energy are important to the economy and well being of Brazil. This booklet is widely disseminated through out the region. It is especially attractive to children and is expected to result in more energy efficient use of electricity in many homes and businesses in the northeast.

Climate Change Mitigation

As a result of the climate change course in Belo Horizonte, Efficientia, CEMIG's ESCO, developed a formal partnership with Plantar S A. Since Plantar attended the BETOP course in Belo Horizonte representatives of both organizations had the opportunity to talk a lot. Later the president of Plantar met with Efficientia officials and closed a deal to go after environmental development business together. This resulted in a business deal with an Efficientia client in the Triangulo Mineiro area. Efficientia and Plantar were able to develop a broader business model that not only resulted in greater energy efficiency, but also the development of a large scale tree planting project in client's large but until then, unused land holdings. As a result of to this project, Efficientia signed a partnership agreement with Plantar for the continuation of business development involving eco-businesses and energy efficiency. Efficientia has also planned a large energy exchange program with another client. This client consumes approximately 300,000 liters of diesel oil per day with the associated emissions of carbon dioxide and other GHG's. The project will substitute hydroelectricity for the diesel. They were in the calculation phase of the study, but the numbers were very promising. Once the analysis of the carbon and financial matrix is formatted, they are going to present the project to the Prototype Carbon Fund (PCF) for financial support. Efficientia has been contacted by other companies that want to form partnerships for the development of CDM and the eco-business concepts that we learned in the BETOP courses. This training has enabled Efficientia to become promoters of the concepts to interest other companies in these activities. Mr. Anderson Alancar Pinto of Efficientia said in a letter to BETOP that the training was very valuable to Efficientia "Not only because of the knowledge acquired which qualified me to thrive in prospecting for carbon credit businesses and eco-businesses fields that we only saw as energy efficiency, but also for the networking possibility in the area."

Alumni Association

IIE has helped initiate and develop a number of alumni organizations to build sustainability into USAID energy training programs. Alumni manage and operate these organizations so that their members and continue to communicate and become agents of change for sustainable energy development. The Brazil Energy Training Alumni Association was inaugurated and interim director Roberto Devienne was appointed in August 2002 at the ABRADDEE meeting in Recife. Since then the Association has held organizational meeting, elected officers and grown to 372 members. It legalized its status as a Brazilian NGO in 2003 and recently developed a strategic business plan to become fully self-sustainable over the next 5 years and officers has been elected.

BETOP Web Site

The BETOP web site was established in 2001 to provide news and information about past workshops and courses as well as news about upcoming training. This popular web site soon added links to other energy and environmental web sites as well as electric utility web sites in Brazil and the U.S. When the Alumni Association was formed an Alumni page was added to provide members a forum to communicate with each other and discuss energy related issues as well as an opportunity to join the Association on-line. Another page was developed to make USAID resources such as Best Practice Guides and instructional material available on-line. The site offers visitors the option of viewing the web site in Portuguese or English.

Invitational Travel

Approximately one year after BETOP was started, USAID/Brazil realized that the effectiveness of the program could be enhanced by inviting foreign speakers to Brazilian energy seminars and conferences and sponsoring the attendance of prominent Brazilian energy efficiency and renewable energy practitioners at conferences and seminars both in-country and abroad. Money was set aside for this purpose each year and since that time approximately twelve people have participated in this program. The foreign speakers have all been from the United States and with only one exception, received no speaking fee. This practice has enhanced several Brazilian seminars and allowed several Brazilian experts to attend educational conferences in the U.S. and Europe. Invitational travel has been a very successful program with a relatively modest cost that will be continued in future programs.

Achieving Strategic Objectives

All the training contributed directly or indirectly to achieving Strategic Objective 2 results, specifically Intermediate results 2.1, 2.2, and 2.3. Details of the results achieved are as follows:

Intermediate Result 2.1

The **Financial and Economic Evaluation of Demand Side Energy Efficiency Projects, Financial and Economic Evaluation of Supply Side Energy Efficiency Projects, Regulatory Options for Cogeneration, Energy Efficiency and Distributed Technologies, Regulatory Options for Consumer Protection and Customer Services Improvement** workshops impacted IR 2.1: targeted policies promoted that foster clean and efficient energy production and use. The targeted policy for the first of these training workshops was the requirement for electrical utility concessionaires to spend 1% of their revenues on energy efficiency measures. Indicator 2.1.1: advancement of policies and regulations by key actors that contribute to the adoption of concepts, methods, and technologies for clean and efficient energy production and use was the focus of these training workshops. The first workshops directly impacted the effect of this regulation and helped bring about more effective efficiency programs in Brazil. The key actors directly impacted by this workshop include ANEEL, four State regulatory agencies, PROCEL, and CEPTEL and indirectly the concessionaires that were required to perform under this regulation.

Economics of Climate Change and Global Climate Change-An Amazon Perspective

workshops also impacted IR 2.1. The indicator for this training is also Indicator 2.1.1: advancement of policies and regulations by key actors that contribute to the adoption of concepts, methods, and technologies for clean and efficient energy production and use and the unit of measure is the number of steps accomplished in policy formation. One of the key steps in the policy formulation is training and several of the participants were already involved with the Inter-ministerial Committee on Climate Change and other CDM issues such as project development, baselines, and inclusion of sink projects. These training workshops will directly impact the results of policy recommendations that will come from the Inter-ministerial Committee and will help bring about more effective climate change mitigation and clean development mechanism (CDM) programs in the future. The key actors directly impacted by this workshop include MCeT, MMA, FEMA, CLIMAV, and CONPET.

Intermediate Result 2.2

The Energy Efficiency Applications for Industrial Consumers, Energy Efficiency Applications for Federal Government Buildings, Water and Sewage Lift Station Efficiency, Energy Efficiency Applications for Municipalities, Performance Based Contracting, Methodology to Develop Clean Technology Projects, Business Planning, Business Plan Development Energy for Journalists workshops impacted IR 2.2: Increased access of key actors to information on market based mechanisms for operating and financing clean and efficient energy production and use. These training workshops certainly met this objective and hopefully will result in the use of market-based mechanisms to operate and finance clean and efficient energy production and use as stated in Indicator 2.2.1. The measure is the number of key actors using these mechanisms. Key actors in this case were the businesses, industry organizations, and universities that participated. This training workshop should result in the increased use of market-based mechanisms to finance clean and efficient energy projects use in Brazil.

Intermediate Result 2.3

The **Renewable Energy Technology, Renewable Energy Loan Appraisal, Renewable Energy Distribution Business, Wind Energy Regulation and Commercialization, CO₂ Emissions Mitigation Project Development, Introduction to the Economic Aspects of Climate Change, Business Perspective Of Climate Change** workshops impacted is IR 2.3, increased availability and use of financing for clean and efficient energy production and use, in this case, renewable energy projects. The indicators for this intermediate result are Indicator 2.3.1: Clean and efficient energy projects under development that are funded by mechanisms created, leveraged or supported by USAID and Indicator 2.3.2: Non-USAID funds influenced or leveraged to develop renewable energy, energy efficiency or other clean energy projects, as a result of USAID activities. The unit of measure in both cases is dollars. These two workshops are part of a series of three that are designed to enable entrepreneurs and other non-government organizations to develop and finance renewable energy projects in the northeast. Banco do Nordeste, a development bank in the northeast, is interested in providing loans to the renewable energy sector and therefore has sponsored these workshops with the clear intention of building the capacity of both bank and businesses, as well as educational institutions to promote, develop, and finance renewable energy projects. Although several projects have been formulated as a result of these workshops, it is too early to tell when and if they will be consummated.

Lessons Learned

Over the four-year duration of the project many lessons have been learned. Most of the lessons learned early in the project have been used to improve the program. Some of the lessons that were learned still remain to be implemented. These are the organizational and programmatic lessons that often are hard to implement due to the nature of the organizations and the many levels and organizations that need to work together to implement them. Hopefully, all the lessons learned will be implemented in time. Lesson learned fall into two categories; planning/coordination and execution. They are as follows:

Planning and Coordination

1. The greatest lesson learned from BETOP and its predecessor the Brazil Energy Training program is the value of having cost sharing co-sponsors. This allowed almost double the

number of courses and workshops to be presented in Brazil with the available budget and led to BETOP becoming one of the most cost efficient training USAID programs.

2. Planning for much longer than six months results in many changes and disruptions postponed and cancelled workshops and consequently higher costs. For example, it was clear that ANEEL was not really ready for the all the training that was scheduled for them in the original work plan and did not have the people available to attend the training. In addition, they were facing a major personnel shift. This was not known until seven months after the training needs analysis was conducted. After the initial work plan was developed, shorter, six-month (or less) work plans were prepared based on the results of the past training provided and recent input from in-country hosts.
3. Coordination and communication of past experiences and lessons learned are critical to future success. For example, the cost sharing effectiveness of cost sharing co-sponsors in the Brazil Energy Training Program and close working relationship between USAID and the co-sponsors was widely recognized and communicated to all and became the planning foundation for BETOP.
4. More specific training objectives, coordinated with other USAID contractors and programs results in more effective training. Developing effective training objectives is a difficult problem that still needs to be solved. Unfortunately the various contractors see themselves as competitors and pursue their programs as independently as possible. For instance, attempts to coordinate training with ETIP were fruitless. Meetings and report exchanges produced only vague suggestions and plans.
5. Effective communication of USAID's strategy to all contractors to show how each program supports the overall USAID objectives is critical. USAID personnel often know what the overall plan and objective is and how each program supports it but this is not effectively communicated. The annual USAID Contractor's Meeting in Brazil is a critical communication activity, but very little is done in between these meetings. For example, energy efficiency training for water and waste water utilities was identified as a need in the BEP TNA in 1995. It was never communicated by USAID as a priority until a joint meeting in FY 2001 and that was after a presentation by a contractor that was working in the water sector.
6. Specific, relevant training objectives are key to effective measurement of results. Several of the IR's and units of measure don't relate well to the programs and measurable results based on them will not be seen for several years due the lengthy development and financing cycles of energy efficiency and renewable energy projects. Making the strategic objectives, IR's and units of measure more realistic would result in more effective training. This is a difficult problem. One possible solution is to have training and technical assistance provided one contractor and one contract so that responsibility is not split.

Execution

1. The focus of the training needs to hone down to the essentials and the training given in short, intense periods on ad hoc topics and skills that can be used in the next few months. It is clear

that the better participants cannot afford to spend long periods of time away from their jobs. This was done early on in Brazil with good results. No training exceeded one week and some awareness building seminars have been as short as one day. Unfortunately skills training do not work well with short training sessions unless they are presented in a series of workshops but there is difficulty in getting all participants to attend the full series.

2. The use of Brazilian instructors has been very effective in keeping costs down and allowing more training workshops to be presented within the approved budget. The use of Brazilian instructors greatly reduces travel costs and allows more specialization since more instructors can be used to present case studies and other topics of local interest. Time is also saved since Brazilian instructors do not have to spend time becoming knowledgeable about Brazilian conditions such as interest rates, exchange rates and recently enacted legislation and decrees.
3. Use of Brazilian instructors builds sustainable energy and environmental training capability in Brazil. Several of the Brazilian instructors have been college professors that used the materials from the workshops for their college courses. Exposure to foreign instructors and their materials have also allowed them to update their materials and to provide more exposure to what other countries are doing in eth fields of energy efficiency and renewable energy. In one case, a BETOP alumnus was an instructor for other BETOP courses.
4. Using instructors that speak Portuguese or Spanish reduces or eliminates expensive interpretation fees. It allows participation by non-English speaking participants making the workshops available to a broader and more diverse audience. Workshop ratings for workshops where the instructors speak Portuguese have been generally higher.
5. The use of participant working groups to develop sample projects based on what they have learned during the lectures has done much to create and maintain interest in the subject matter and has given the participants valuable skills that they can use in their every day tasks. It also provides the instructors feedback on how well the concepts and skills have been learned and what areas need reinforcement. It places the instructors in the role of consultants that can advise the work groups on specific details that need to be worked out in a practical way to make a project successful. The instructors' knowledge and experience can be tapped in a more meaningful way as these participants, who are often business people, interact on a one-to-one basis with the instructors.

Summary

The Brazil Energy training and Outreach Program (BETOP) started in July 1999 and ended in October 2003. During that time almost 1700 participants were trained during the presentation of thirty-five (35) workshops and seminars. Brazilian organizations, companies and universities supported the program by cost sharing the presentation of these workshops and making BETOP an extremely cost effective training program. USAID/Brazil introduced a number of innovations during BETOP including invitational travel, extensive use of Brazilian instructors, and support of the BETOP web site. These innovations will contribute to the sustainability of energy training in the years to come. Several results have occurred and more are expected. The improvement of ANEEL's energy efficiency program the strengthening of Energy Service companies (ESCOs) and the advancement of climate change mitigation in Brazil are just a few of these. BETOP has been a very successful program.

Appendix A

	Course /Workshop	Date	Parts.	Orgs.
1.	Financial and Economic Evaluation of Demand Side Energy Efficiency Projects-I	2/14/00	14	4
2.	Financial and Economic Evaluation of Demand Side Energy Efficiency Projects-II	4/24/00	14	4
3.	Economics of Climate Change	6/12/00	50	32
4.	Renewable Energy Technology	7/24/00	34	22
5.	Financial and Economic Evaluation of Supply Side Energy Efficiency Projects	7/31/00	18	8
6.	Energy Efficiency Applications for Industrial Consumers	8/7/00	137	75
7.	Economics of Climate Change	8/28/00	65	39
8.	Renewable Energy Loan Appraisal	9/18/00	37	18
9.	Renewable Energy Distribution Business	10/16/00	30	19
10.	Regulatory Options for Cogeneration, Energy Efficiency and Distributed Technologies	10/23/00	18	11
11.	Energy Efficiency Applications for Federal Government Buildings in Brazil	11/27/00	49	20
12.	Financial and Economic Evaluation of Demand Side Energy Efficiency Projects-III	2/12/01	48	40
13.	Water and Sewage Lift Station Efficiency	4/2/01	81	18
14.	Regulatory Options for Consumer Protection and Customer Services Improvement	5/7/01	42	33
15.	Energy Efficiency Applications for Municipalities	6/12/01	116	30
16.	Financial and Economic Evaluation of Demand Side Energy Efficiency Projects	7/9/01	23	14
17.	Performance Based Contracting	8/21/01	90	48
18.	Wind Energy: Regulation and Commercialization	10/15/01	49	29
19.	Methodologies to Develop Clean Technology Projects	10/29/01	54	29
20.	Business Planning	11/26/01	24	14
21.	Introduction to the Economic Aspects of Climate Change	4/1/02	50	34
22.	Climate Change-Clean Development Mechanism Project Development	4/22/02	50	35
23.	Introduction to the Economic Aspects of Climate Change	5/13/02	51	27
24.	Global Climate Change-An Amazon Perspective	6/3/02	17	12
25.	Business Plan Development	9/16/02	40	25
26.	Energy for Journalists	9/10/02	55	32
27.	Business Perspectives Of Climate Change	9/22/02	20	9
28.	Energy Efficiency For Administrators Of Public Buildings	11/26/02	20	9
29.	Distributed Generation for Large and Small Consumers of Energy	3/17/03	29	16
30.	Conservation and Energy Efficiency for Water and	4/1/2003	168	44

	Wastewater Utilities			
31	Reduction of Technical Losses in Electric Distribution Systems	5/12/03	21	7
32	Project Finance for ESCOs	7/14/03	60	26
33	Business Plans for Energy Efficiency and Renewable Energy Projects	8/12/03	31	18
34	Energy Efficiency and Renewable Energy Business Opportunities	9/22/03	39	17
35	Energy Efficiency and Rational Use of Water for Sanitation Companies	9/29/03	107	33

Appendix B

Co-Sponsors of BETOP Training

ABRADEE - Brazilian Association of Distributors of Electricity
AGEPAN-State Agency of regulation of public services of Mato Grosso do Sul State
ANEEL - Brazilian Electricity Regulatory Agency
ASE - Alliance to Save Energy
BID - Inter-American Development Bank
BN - Banco do Nordeste
BNDES - Brazilian Development Bank
CAGEPA - Water and Sewage Utility of Paraíba State
CAGECE - Water and Sewage Utility of Ceará State
CEB - Energy Company of Brasilia
CEMIG - Energy Company of Minas Gerais State
CNI - National Industrial Federation
COELCE - Energy Company of Ceará State
COPASA-Water Utility of Minas Gerais State
COPEL - South Petrochemical Company
CREA/MS-Regional Council of Engineering, Architecture and Agriculture of Mato Grosso do Sul State
CSPE - Public Service Energy Committee
ELETRÓBRÁS - Brazilian Electric Center
FADESP - Supporting Foundation for Research Development
FIEC - Ceará State Industries' Federation
FIEMG -Federation of Industries of Minas Gerais State
FIEP - Federation of Industries of Paraná State
FIERSGS -The Federation and the Center of Industries for the State of Rio Grande do Sul
FINEP - Study and Project Financer
FIRJAN - Federation of Industries of Rio de Janeiro State
GEDAE - Group of Studies and Development of Energy alternatives
IBMEC Business Schools
IPAM - Institute of Environmental Research of Amazon
LACTEC - Institute of Technology for Development
MCT - Science and Technology Ministry
Minas Gerais PLANTAR Project
MMA - Environment Ministry
PETROBRÁS - Brazilian Petroleum Company
PROCEL - National Energy Saving Program
PUC/Petrópolis - Pontifical Catholic University of Petrópolis
PUC-RS -Pontifical Catholic University of Rio Grande do Sul State
SAMARCO Mineração S.A.
SEINFRA - Infra-structure Secretariat of Ceará State
UFMS-Federal University of Mato Grosso do Sul
UFPA - Federal University of Para State
UFPE - Federal University of Pernambuco State
UNDP - United Nations Development Program
WB - The World Bank