



United States Government Support for Climate Technology Cooperation

Projects and Activities: 2000

November 2000



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This document is intended to provide a list of United States Government activities supporting climate technology cooperation. Seven hundred fifty copies were printed at a total cost of \$3,000 to the U.S. taxpayer.

LIST OF ACRONYMS

AEAI	Advanced Engineering Associates International
AEC	Ahmedabad Electricity Company (India)
AESCO	Association for Energy Service Companies (Ukraine)
ANEC	Affiliated Non-Conventional Energy Center (Philippines)
ATPAE	Association of Energy Conservation Technicians and Professionals (Mexico)
BPA	Barangay Power Association (Philippines)
CECP	Center for the Certification of Energy Conservation Products
CENEF	Center for Energy Efficiency (Russia)
CFE	Comisión Federal de Electricidad (Mexico)
CII	Confederation of Indian Industry (India)
CLEAN	Coordinated Local Environmental Action Networks
CONAMA	Comisión Nacional del Medio Ambiente (Mexico)
CSP	Country Studies Program
DENR	Department of Environment and Natural Resources (Philippines)
DSM	Demand-Side Management
EC	Electric Cooperative
EEAA	Egyptian Environmental Affairs Agency (Egypt)
EEC	Energy Efficiency Council (Egypt)
EEHC	Egyptian Electricity Holding Company (Egypt)
EEPP	Egyptian Environmental Policy Program (Egypt)
EEPP	Egyptian Environmental Policy Project (Egypt)
EMU	Environmental Markets University
ERB	Energy Regulatory Board (Philippines)
ESCO	Energy service company
ETIP	Energy Technology Innovation Program
FEMP	Federal Energy Management Program
FIRCO	Shared Risk Trust Fund (Mexico)
GEF	Global Environment Facility
GHG	Greenhouse gas
HHS	United States Department of Health and Human Services
IAC	Industrial Assessment Center
ICICI	Industrial Credit and Investment Corporation of India (India)
ICLEI	International Council for Local Environmental Initiatives
IIE	Institute for International Education
IIEC	International Institute for Energy Conservation
INE	Instituto Nacional de Ecología (Mexico)
IOU	Independently Owned Utility (Philippines)
IPP	Independent Power Producer (Philippines)
JI	Joint Implementation
KEI	Korean Environment Institute (Korea)
KIST	Korean Institute for Science and Technology (Korea)
LBNL	Lawrence Berkeley National Laboratory
LDI	Landscape Development Interventions
LGU	Local Government Unit
LMOP	Landfill Methane Outreach Program
MATV	Ministry of Land Management and Urban Development
MME	Ministry of Mines and Energy (Brazil)
MMT	Million metric tonnes (e.g., of carbon dioxide emissions)

MOEW	Ministry of Environment and Waters (Bulgaria)
NARUC	National Association of Regulatory Commissioners
NASA	National Aeronautics and Space Administration
NEA	National Electrification Administration (Philippines)
NEDA	National Economic and Development Authority (Philippines)
NEES	National Energy Efficiency Strategy
NEMVP	North American Energy Measurement and Verification Protocol
NEPC	National Council for Energy Policy (Brazil)
NER	National Electricity Regulator
NESEA	Northeast Sustainable Energy Association
NGO	Non-governmental organization
NOAA	National Oceanic and Atmospheric Administration
NPC	National Power Corporation (Philippines)
NREL	National Renewable Energy Laboratory
NSF	National Science Foundation
NTPC	National Thermal Power Corporation (India)
OAS	Organization of American States
OLADE	Latin American Organization for Energy Development
OPIC	Overseas Private Investment Corporation
PAGE	Project d'Appui à la Gestion de l'Environnement
PASA	Participating Agency Service Agreement
PCCMP	Philippine Climate Change Mitigation Program (Philippines)
PDOE	Philippine Department of Energy (Philippines)
PEPOA	Philippine Electric Plant Owners Association (Philippines)
PV	Photovoltaic
REC	Regional Environment Center (Central and Eastern Europe)
REFAD	Renewable Energy for African Development
REIA	Renewable Energy in the Americas
REPSO	Renewable Energy Program Support Office
SAPP	Southern African Power Pool
SADC	Southern Africa Development Community
SDPC	State Development Planning Commission (China)
SEPA	State Environmental Protection Administration (China)
SESCo	Solar Energy Service Company
SNL	Sandia National Laboratory
SOI	Statement of Intent
TCAPP	Technology Cooperation Agreement Pilot Project
TERI	TATA Energy and Resources Institute (India)
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
US-AEP	United States-Asia Environmental Partnership
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USDOE	United States Department of Energy
USDOI	United States Department of Interior
USDOS	United States Department of State
USEA	United States Energy Association
USEPA	United States Environmental Protection Agency
WBG	World Bank Group
WIND	Windpower for Islands and Non-Governmental Development
ZIE	Ecotourism Investment Zone (Madagascar)

INTRODUCTION

U.S. Government Support for Climate Technology Cooperation

The United States government is committed to working with developing countries and countries with economies in transition to advance cost-effective technology solutions to the global challenge of climate change. This document describes current U.S. government programs that facilitate the transfer of climate-friendly technologies and practices. Some of these programs also offer the additional benefit of assisting developing countries to build their capacity for measuring, monitoring, and reporting their greenhouse gas emissions.

These activities demonstrate the United States' continuing and vigorous commitment to sustainable development and the objectives of the United Nations Framework Convention on Climate Change (UNFCCC). Article 4.5 of the UNFCCC commits developed countries to "take all practicable steps to promote, facilitate, and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties." As shown by the programs described herein, the United States Agency for International Development, Department of Energy, Environmental Protection Agency, Department of Agriculture, Department of Commerce, Department of the Interior, Department of Health and Human Services, and others are working around the world to fulfill this commitment, providing information exchanges, technical assistance, training, technology demonstrations, and financial assistance.

All of these initiatives seek to engage local stakeholders in finding solutions to the dual global challenges of sustainable development and climate change. For example, the United States Government launched the Technology Cooperation Agreement Pilot Program (TCAPP) to explore means to bring donors, host country governments, and the private sector together to focus on delivering concrete results in climate technology cooperation. This is in keeping with the core belief upon which all of these initiatives are founded: that by incorporating country-driven, market-based approaches into our joint efforts we can achieve results that are both sustainable and replicable.

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LIST OF ELEMENTS

Technology cooperation activities of the United States Government employ a variety of technical assistance and support services. To help the reader identify specific outcomes or deliverables provided under each activity, this report indicates up to seven different technical assistance categories under each listing. These categories, or “elements,” are as follows:

1. Research and development
2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization
8. Project development
9. Other

MULTI-REGION PROJECTS

AGROS Agricultural Research Data Directory

Location: Global
Agency: USDA
Partners: Multiple (global)
Elements: 4. Information/data exchange and dissemination
Duration: Ongoing

The AGROS Agricultural Research Data Directory is a collection of data descriptions of USDA funded research, including soil, crop and plant, forest, rangeland, animal sciences, and other natural resource research areas, as well as economics, population, and food safety. It is linked to NASA's Global Change Master Directory (<http://gcmd.nasa.gov>), which includes comprehensive coverage of Earth science data, including oceans, atmosphere, hydrosphere, solid earth, biosphere, and human dimensions of global change. For related bibliographic information, go to the National Agricultural Library at <http://www.nalusda.gov>.

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Cities for Climate Protection Program

Location: Latin America - Mexico
Asia - India, Indonesia, Philippines
Agency: USAID
USDOE
Partners: ICLEI
Elements: 3. Demonstration projects
4. Information exchange
6. Human and institutional capacity building
Duration: 1998-2003

The International Council for Local Environmental Initiatives (ICLEI) Cities for Climate Protection Campaign (CCP), in partnership with state and national governments, is engaging cities in Latin America and Asia in an effort to reduce greenhouse gas emissions by increasing the use of energy efficiency and renewable energy technologies. Activities include developing a municipal inventory of local greenhouse gas emissions, setting targets for emissions reductions,

developing local action plans for emission reductions, building local capacity, providing technical assistance, and networking with US and other participating CCP cities.

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Clean Cities International Program

Location: Latin America - Brazil, Chile, Mexico
Asia - India, others
Agency: USDOE
Partners: Various local partners in the respective countries
Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
Duration: 1997-TBD

USDOE's Clean Cities Program is providing technical assistance to Chile, Mexico, and other nations to develop public-private partnerships and help build a local market for alternative transportation fuels. By using cleaner-burning, alternative fuel vehicles, Santiago will be able to improve urban air quality and lessen its dependence on one type of fuel for its transportation sector. Santiago has formed its own local Clean Cities Program, implemented emission standards, mandated taxis of less than five years be converted to natural gas, and put a subsidy in place for natural gas buses. It has also showcased U.S. technologies in public workshops, and Chilean representatives have been part of reverse trade missions to the U.S. In 2001-02, it is expected that similar work will result in Brazil, Mexico, other Latin American cities, and India. Other international projects affiliated with the program include cross-border programs, such as Ciudad de Juarez, Mexico, which is a partner in Paso del Norte Clean Cities Coalition based in El Paso, Texas.

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Collaboration for Labeling and Standards Program

Location: Global
Asia, Latin America

Agency: USAID

Partners: Alliance to Save Energy
International Institute for Energy Conservation
LBNL
In-country governments and standards organizations

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
8. Project development

Duration: 1999-2002

USAID provides expertise in the area of energy efficiency, particularly with regard to regional harmonization of standards and promotion of initiatives to leverage private sector investment in Asia and Latin America.

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Energy Efficiency, Standards, Economics, and Policy Programs

Location: Global

Agency: USAID
USDOE

Partners: LBNL

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building
9. Other (Information collection and analysis)

Duration: 1997-2002

USAID and USDOE support experts at LBNL to provide expertise in energy efficiency standards and in energy policy and economics related to GHG emissions in developing countries.

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Energy Partnership Program

Location: Global

Agency: USAID

Partners: USEA

Elements: 2. Investment facilitation
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1997-2002

USEA is implementing the Energy Partnership Program in Asia, Africa, Latin America, Central and Eastern Europe, and the former Soviet Union. The program's main objective is to provide a mechanism for the U.S. energy industry (utilities, regulators, and policy makers) to transfer its experience in market-based energy production, transmission, and distribution to its international counterparts, while providing U.S. participants with the opportunity to learn about the energy industry in another country. Regional program activities encompass such topics as regulation, the environment, system reliability and efficiency, renewable energy, customer service, and financial management, with an emphasis on climate change mitigation.

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Environmental Markets University

Location: Global
China, India, Romania

Agency: USDOE

Partners: Environmental Defense

- Elements:** 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 2000-2001

USDOE is collaborating with Environmental Defense to implement a program to educate international decision makers on the theory and practice of supporting energy efficiency and renewable energy through market-based environmental policy. The Environmental Markets University (EMU) will provide valuable educational forums enhancing expertise for a network of decision makers and opinion leaders with the technical expertise to implement market-based environmental strategies and clean energy policies. Specific EMU topics will include (1) the theory of clean energy incentives of market-based environmental policy; (2) the United States sulfur dioxide emissions trading program and its links to clean energy; and (3) an opportunity to participate in actual emissions trading transactions, using real sulfur dioxide allowances and working with Wall Street brokerages and the USEPA tracking system.

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Expert Cooperation and Workshops on Economic Analysis and Modeling

Location: Global
Brazil, China, Korea

Agency: USDOE
USEPA

Partners: China - Energy Research Institute, Development Research Center, Tsinghua University
Brazil - Graduate School of Engineering, Federal University of Rio
Korea - Korean Energy Economics Institute

- Elements:** 5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1998-2001

The objective of this project is to foster exchange of information and collaboration on methods and research among U.S. and international technical experts on analysis of economic impacts of climate change and related environmental policies at the national and international level. This can result in improved capacity for analysis of alternatives and policy development in key countries concerned with addressing climate change concerns and other sustainable development issues. The project has initiated collaborative exchanges with experts in China through workshops in January 1999 and

March 2000, and through a workshop in Korea in March 2000. In spring 2000, a workshop was held in Rio de Janeiro to initiate similar efforts with Brazilian experts.

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Forest Service, International Program

Location: Global

Agency: USDA Forest Service

Partners: U.S. partners - Numerous NGO and federal agency partners: USAID, Ducks Unlimited, Conservation International, Tropical Forest Foundation, etc.
Foreign partners - National natural resource agencies and research organizations

- Elements:** 1. Research and development
3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization

Duration: Ongoing

The overall objective of this program is sustainable forest management worldwide. The maintenance and proper management of forest ecosystems is important to the sequestration of atmospheric carbon in addition to other important values, such as the protection of biodiversity, watersheds, timber supply, and community stability. Numerous activities are currently supported in international policy development, cooperative forest research, institutional capacity building, demonstration projects, and international collaborative management. Low-impact logging has captured the attention of the logging community and countries are promoting it to reduce needless damage to forests.

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Global Guardianship Initiatives

Location: Global

Agency: USDOE

Partners: Center for Resource Solutions
The Nature Conservancy

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1999-2000

USDOE is collaborating with the Center for Resource Solutions and the Nature Conservancy to establish models for community renewable energy development as a strategy for protected area management and an alternative to grid extension in developing countries in Latin America and Asia.

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Integrated Co-Control Benefits Analysis Program

Location: Global
Currently active in Argentina, Brazil, Chile, China, Korea, Mexico. New activities under consideration in South Africa and India.

Agency: USEPA

Partners: Argentina - Universidad Nacional del Sur
Brazil - CETESB, State Environmental Protection Agency of Sao Paulo, University of Sao Paulo
Chile - Comisión Nacional del Medio Ambiente (CONAMA)
China - State Environmental Protection Administration (SEPA), China Council for International Cooperation on Environment and Development, numerous universities and research institutes
Korea - Ministry of Environment, Korean Environment Institute (KEI), Korean Institute for Science and Technology (KIST)
Mexico - Instituto Nacional de Ecología (INE), SEMARNAP
U.S. - NREL

Elements: 5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1998-2001

The overall objectives of this project are: (1) to carry out preliminary quantitative analysis of potential benefits of clean technologies and strategies that address multiple environmental and sustainable development objectives simultaneously in developing countries and (2) to assist host countries in enhancing their capacity to carry out such analyses and to develop strategies in the future. Three of the participating countries have produced complete initial analyses, while others have completed partial analysis. All six countries (Argentina, Brazil, Chile, China, Korea, and Mexico) are expected to provide results for a report to be distributed at COP6 and to participate in a side event on the status and policy implications of this work. Several of the key researchers in this project participated as experts in a March 2000 IPCC workshop on Ancillary Benefits of Climate Change Policies.

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International Industrial Efficiency Assessments

Location: Africa - Ghana
Latin America - Mexico

Agency: USDOE

Partners: University City Science Center

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1996-2000

USDOE provides technical support to encourage industrial energy efficiency and productivity in Ghana and Mexico. USDOE and U.S. universities participating in the Industrial Assessment Center (IAC) program send faculty/student teams to conduct energy, waste, and productivity assessments at local industries. By helping establish IACs in host countries, the program builds developing countries' technical and institutional capacities to conduct their own assessments.

Technical assistance includes training and analytical tools and experience developed by the domestic U.S. IAC program. The program has established two self-sustaining IACs at universities in Mexico and one IAC at the University of Kumasi in Ghana.

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International Motor Challenge Program

Location: Africa - South Africa
Asia - China
Latin America - Brazil

Agency: USDOE

Partners: American Council for an Energy Efficiency Economy

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1996-TBD

USDOE is partnering with developing countries in Asia, Africa, and Latin America to build on the U.S. experience with energy efficient motors and to implement country-specific programs to help local manufacturers reduce energy costs and increase productivity through improved industrial motor systems. The domestic U.S. Motor Challenge program develops and disseminates information, tools, and best practices to assist U.S. industry to make more informed decision regarding the management of motor-driven systems of all types: motor-driven pumps, fans, compressors, etc. USDOE is working with several developing countries to adapt this highly successful effort to their local conditions. The program has already been initiated in China, India, and South Africa and can serve as a model for Latin America.

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Moving Markets for Energy Efficiency (MMEE)

Location: Global

Agency: USAID

Partners: Bechtel Corporation
Core International

Elements: 4. Information/data exchange and dissemination
5. Regulatory/technical barrier removal

Duration: 1999-2000

The MMEE Project assesses the potential for increasing private sector investments in energy efficiency worldwide. The project team has selected three countries — Brazil, Egypt, and India — as initial countries of focus given the untapped markets for energy efficiency these countries represent, among other reasons. USAID’s approach to MMEE recognizes that implementation of energy efficiency in developing countries is constrained by a number of technical, economic, financial, regulatory, and institutional barriers. The project has developed mechanisms to promote private sector solutions and public-private partnerships and the related infrastructure to implement market-based strategies for key sectors in these USAID target countries. To support such activities, the project has developed “best practices” guidebooks, case studies, decision frameworks, and other resource materials for government policy makers, regulators, financial institutions, utilities, and private sector entrepreneurs.

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Renewable Energy Resources Program

Location: Global

Agency: USAID

Partners: Winrock International
Renewable Energy Program Support Offices

Elements: 2. Investment facilitation
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
8. Project development

Duration: 1999-2001

USAID is working with Winrock International to encourage activities that increase the use of environmentally beneficial renewable energy technologies to support sustainable economic development. This is accomplished by reducing technical, financial, economic, policy and institutional barriers to renewable energy and by increasing the investment in commercially-proven renewable energy technologies. This work is supported by a network of Renewable Energy Program Support Offices (REPSOs) that work to build local capacity in

renewable energy, accelerate its commercialization, and increase access to energy in rural areas. These in-country facilities are managed by local institutions and are designed to provide the technical and financial assistance necessary to help identify, design, implement, and evaluate renewable energy projects.

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Small Island States Greening Initiative

Location: Global
Small Island Developing States

Agency: USDOE

Partners: Climate Institute
Alliance of Small Island States

Elements: 5. Regulatory/technical barrier removal

Duration: 1999-2000

USDOE is collaborating with the Climate Institute and member nations of the Alliance of Small Island States to increase deployment of energy-efficient and renewable energy technologies in these nations. The Climate Institute is conducting outreach and information dissemination to government leaders, policy analysts, and energy officials of small island states, building on prior experience in the region.

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Sustainable Cities

Location: Global

Agency: USAID

Partners: Alliance to Save Energy
In-country municipal governments

Elements: 3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

8. Project development
9. Other (NGO development)

Duration: 1997-2002

USAID supports the development of energy efficiency activities in several countries, including India, Ghana, Ukraine, and Brazil. These activities focus on the development of municipally-based efficiency programs using indigenous NGOs and U.S. efficiency experts.

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Technology Cooperation Agreement Pilot Project (TCAPP)

Location: Global
Brazil, China, Kazakhstan, Korea, Mexico, Egypt, and the Philippines

Agency: USAID
USEPA
USDOE

Partners: NREL

Elements: 2. Investment facilitation
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization
8. Project development

Duration: 1997-TBD

The Technology Cooperation Agreement Pilot Project (TCAPP) is a global effort to promote the transfer of climate-friendly technologies to developing countries. Working in Brazil, China, Kazakhstan, Korea, Mexico, Egypt, and the Philippines, TCAPP has emerged as the leading model for private-sector driven technology transfer under the UNFCCC. Under TCAPP, country teams develop technology cooperation frameworks that identify priority climate-friendly technologies that will meet development goals and reduce GHG emissions. In addition, the technology cooperation frameworks identify potential barriers to the deployment of these technologies. TCAPP then works with in-country government agencies, businesses, and NGOs to develop and implement actions that will remove barriers and facilitate technology transfer. A key element of TCAPP has been attracting private investment. TCAPP actively engages over 400 U.S., international, and local businesses to help develop specific projects and to provide invaluable input regarding the removal of market

barriers. Over 10 bilateral and multilateral donors also are working with USAID in this initiative.

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Tropical Forestry and Global Climate Change Research Network (F7 Project)

Location: Africa - Nigeria, Tanzania
Latin America - Brazil, Mexico
South and East Asia - China, India, Indonesia, Malaysia, Thailand

Agency: LBNL
USEPA

Partners: Brazil - National Institute for Research in the Amazon (INPA), Manaus, Amazonas, Brazil
Mexico - Centro de Ecología, Universidad Nacional Autónoma de México (UNAM), México D.F.
Tanzania - Faculty of Forestry, Sokoine University of Agriculture (SUA), Morogoro
China - Research Institute of Forestry, Chinese Academy of Forestry (CAF), Beijing
India - Center for Ecological Sciences, Indian Institute of Science (IISc), Bangalore
Indonesia - Bogor Agricultural University (IPB), Bogor
Malaysia - Forest Research Institute of Malaysia (FRIM), Kuala Lumpur; Regional Center for Forest Management (RCFM), Kuala Lumpur

Thailand - Department of Agricultural Economics, Kasetsart University, Bangkok

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization

Duration: 1998-2000

The main objective of the Tropical Forestry and Global Climate Change Research Network (F7 Project) is to assess the potential implications of the UNFCCC and other subsequent agreements on climate change in key tropical forest countries, building on previous analyses by the group over the 1991-98 period. Project activities include helping in-country analysts improve their forestry (and possibly agricultural) sector GHG emissions inventory estimates and identifying and evaluating potential national policy and project-level sustainable forestry options with climate change benefits. Several scenarios of baseline and potential sustainable forestry national policies are modeled and assessed in terms of their climate change and other environmental and socioeconomic benefits. USEPA and LBNL have worked with analysts in India, Indonesia, Thailand, Malaysia, China, Mexico, Brazil, Tanzania, and Nigeria over the past eight years on climate change and forestry inventory and mitigation analyses, including training in-country experts to run the COPATH and COMAP computer models and to publish the results of the analyses. Several workshops are planned to bring together analysts and other interested parties in several of the F7 countries to compare analyses and to raise technical and policy issues.

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U.S. Country Studies Program

Location: Global

Agency: HHS
NASA
NOAA
NSF
USAID
USDA
USEPA

USDOE
USDOJ
USDOS

Partners: Vary from country to country, but generally includes ministries of environment and energy

Elements: 5. Regulatory/technical barrier removal
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization

Duration: 1992-Ongoing

The U.S. Country Studies Program (CSP) was initiated in 1992 to facilitate the participation of developing countries and countries with economies in transition in the UNFCCC. The CSP offers funding and expert assistance to: (1) create a national inventory of GHG emissions, assessing vulnerabilities to climate change, and evaluate strategies for mitigating emissions and adapting to potential impacts; (2) create a process for developing and implementing climate change related policies and measures; (3) prepare climate change section plans; (4) promote diffusion of mitigation and adaptation technologies; and (5) develop information to further regional, national, and international discussions. The CSP has assisted 56 countries in every region of the world and has issued three major synthesis reports documenting the results of these studies. The CSP has also sponsored more than 30 regional and global workshops to promote discussion and information on this topic.

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Village Power 2000 (VP2000)

Location: Africa - Tanzania, Uganda
Latin America - Bolivia

Agency: USDOE

Partners: NREL

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination

Duration: 1999-TBD

Village Power 2000 (VP2000) is a public-private partnership working to bring clean and affordable energy to rural people throughout the world, especially women and children, who currently have no access to electric power. VP2000 mobilizes resources from the U.S. government; bilateral, multilateral, and regional development banks; and private sector and NGOs to identify and promote project opportunities, facilitate

partnerships, and assist in overcoming technical, institutional, and financial barriers to the provision of energy services to rural populations. Projects in a number of schools have been able to couple energy provision with educational resources and Internet access.

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World Bank Renewable Energy Support

Location: Global

Agency: USAID

Partners: WBG GEF

Elements: 2. Investment facilitation
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
8. Project development

Duration: 1999-2001

USAID partners with the Global Environment Facility to support analytic and programmatic work at the World Bank to encourage the integration of renewable energy projects into the total Bank lending portfolio. The objective of this effort is to facilitate a shift of WBG/GEF renewable energy efforts from an individual project basis to larger scale, longer-term programmatic efforts. This approach is considered key in "mainstreaming" renewable energy technologies and projects by simultaneously addressing a range of development, climate change, and technology improvement objectives, and by heightening the interest of developing country client governments and task managers within the World Bank Group in such projects. Other project support modalities promoted under this effort include the use of in-country intermediaries to assist in identification and execution of projects, and long-term technology financing support tools to establish competitive and sustainable markets for renewable energy technologies.

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AFRICA REGION PROJECTS

Africa Regional

Clean Energy Transformation in Africa

Location: Côte d'Ivoire
Ethiopia
Ghana
Kenya
Malawi
Mali
Namibia
Senegal
South Africa
Uganda
Zimbabwe

Agency: USDOE

Partners: Winrock International
ENERGIA
Renewable Energy for African Development
(REFAD)

Elements: 3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 2000-2001

The project provides a wide range of training and technical assistance to African countries, with the goal of catalyzing greater and more sustainable use of renewable energy and energy efficiency technologies and services. The project aims at expanding local public and private sector capacity to use renewable energy and energy efficiency technologies to meet economic, social development, and environmental needs, particularly for rural women. The Winrock team will conduct information dissemination for clean energy transformations in Africa through a four-stage program that includes gender and energy roundtables at the November 2000 Village Power Workshop and December 2000 U.S.-African Energy Ministerial; targeted gender and energy training with public and private sector investment institutions; training and multimedia content development for off-grid Internet and distance communications initiatives; and portfolio development for income generating-clean energy projects.

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Harnessing Market Forces to Provide Energy and Reduce Potential Greenhouse Gases

Location: Regional

Agency: USAID

Partners: Southern Africa Development Community
(SADC)
Southern African Power Pool (SAPP)

Elements: 2. Investment facilitation
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1998-2002

USAID and the Regional Center for Southern Africa (RCSA) have developed a collaborative program with SADC and SAPP to promote efficient energy production and consumption. The program provides technical assistance designed to transform Southern African power markets through regional cooperation and the establishment of a SAPP Coordination Center. As a result, regional integration efforts will be accelerated and electricity trade within the SAPP will be enhanced. This program also supports activities in other sub-Saharan Africa regions to strengthen energy institutions and address legal, regulatory, and policy issues.

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Reducing Greenhouse Gas Emissions in Transport Sector in Africa

Location: Regional

Agency: USEPA

Partners: TBD

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 2001-2002

USEPA plans to work with at least one large African city to develop an accurate vehicle emissions inventory, using both monitoring and estimation techniques. Emissions to be measured include criteria air pollutants as well as GHG emissions. This information will be critical in the development of baselines to measure future project achievements as well as

in the design of efficient and effective transport/public health strategies. This work will be coordinated with a larger USEPA effort to encourage the phase-out of lead in gasoline, which is a necessary first step in any vehicle emissions/vehicle efficiency program.

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Sustainable Institute at the University of Arizona

Location: Angola
Cameroon
Chad
Equatorial Guinea
Mozambique
Nigeria
Republic of South Africa
Uganda

Agency: USDOE

Partners: University of Arizona, Tucson
NREL

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 2000

Under this project, the Sustainable Institute has undertaken the following activities:

- offering senior energy decision makers from Africa the opportunity to discuss and examine in detail the concepts and practices behind the themes of the U.S.-Africa Energy Ministers Conference, namely, the Joint Statement on Sustainable Energy Development and Cooperation in Support of the Environment and the Joint Statement on Investment Principles for the Energy Sector;
- demonstrating and educating participants with the tools needed to create programs in Africa that foster sustainable energy development;
- briefing participants on a broad range of clean energy technologies that could be used in Africa;
- offering participants teaching materials and background information so they could offer the course in their home countries to other relevant officials; and
- providing ongoing mentoring and peer support for participants after they return to their nations.

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U.S.-Africa Sustainable Energy Program

Location: Regional

Agency: USDOE
Overseas Private Investment Corporation (OPIC)

Partners: African Nations
USDOE
U.S. not-for-profit entities
NGOs
Small business entities or cooperatives

Elements: 2. Investment facilitation
3. Demonstration projects
6. Human and institutional capacity building
8. Project development

Duration: 2000-TBD

This US-Africa sustainable Energy program will help facilitate investment in sustainable energy projects and will assist U.S. not-for-profit entities, NGOs, and small business entities or cooperatives in developing sustainable energy projects in Africa. USDOE and OPIC will help identify financing opportunities for projects that meet the program's criteria. The initiative will support community-based sustainable energy development to underserved or unserved areas using grid-connected or off-grid technologies and natural gas-fired systems. The program will also seek to reduce GHG emissions through projects that promote enhanced supply, renewable sources, or DSM and will promote the application of clean energy technologies.

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Egypt

Egypt Fuel Cell Science and Technology Project

Location: Egypt

Agency: USDOS (U.S.-Egypt Science and Technology Fund)
USDOE/National Energy Technology Laboratory

Partners: Cairo University

Elements: 1. Research and development
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 2000-2002

USDOE's National Energy Technology Laboratory is supporting Cairo University's Mechanical Engineering Department in conducting an 18-month joint fuel cell feasibility study for off-grid applications. The project will be coordinated with the Egypt Power Sector Support: Fuel Cell Technical Assistance Project, which is being implemented with the Egyptian Electricity Holding Company (EEHC) with support from USAID/Cairo. The Cairo University researchers hope to work closely with the EEHC to assess the market for current and future fuel cell technologies. The proposed work plan includes training from U.S. experts on various fuel cell technologies and visits by Cairo University professors to the United States to attend important fuel cell meetings and conferences and to visit fuel cell manufacturers and installation sites.

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Egypt Power Sector Support: Fuel Cell Technical Assistance Project

Location: Egypt

Agency: USAID
USDOE/National Energy Technology Laboratory

Partners: Egyptian Electricity Holding Company (EEHC)

Elements: 1. Research and development
4. Information exchange
6. Human and institutional capacity building

Duration: 2000-2002

In February 2000, USDOE Secretary Richardson and Egypt's Minister of Electricity and Energy el Saiedi signed an Implementing Arrangement on energy cooperation. Under Annex 2 to the Implementing Arrangement, the two countries agreed to cooperate on fuel cell technologies. Under this project, USDOE is providing technical assistance to the EEHC on fuel cell technologies. The proposed work plan includes training from U.S. experts on various fuel cell technologies

and visits by EEHC experts to the United States to attend important fuel cell meetings and conferences and to visit fuel cell manufacturers and installation sites. A demonstration fuel cell may be provided to EEHC, which is erecting a new laboratory at its Pyramids High Voltage Research Center.

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Egyptian Environmental Policy Program (EEPP)

Location: Egypt

Agency: USAID

Partners: USEPA
Egyptian Ministry of State for Environmental Affairs
Egyptian Ministry of Tourism
Egyptian Ministry of Petroleum
Local Governments

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
9. Other (National strategy development)

Duration: 1999-2003

The EEPP encourages policy reform and promotes institutional capacity building throughout the environmental and natural resources arena. The program includes an energy efficiency component targeting reduction in GHG emissions. A centerpiece of this component is the development of a National Energy Efficiency Strategy (NEES) currently being prepared by the newly established Energy Efficiency Council (EEC). The EEC is composed of 12 public and private sector organizations that represent the key actors in the supply and use of energy in Egypt. This unique collaborative approach aims at maximizing the realization of public-private partnership opportunities and at using voluntary and mandatory building codes and efficiency standards to increase the demand for clean technologies. Furthermore, market transformation initiatives are facilitated within the scope of the program to develop the capacity of the private energy services sector and the financial community to stimulate investment in the energy efficiency goods and services market, potentially reaching \$2 billion in size. Achieving this level of investment would generate approximately \$3 billion (net present value) of economic benefits and would reduce annual CO₂ emissions by 16 percent. Under the EEPP, USAID is working with USEPA and the Egyptian Environmental Affairs Agency (EEAA) to

develop a National Air Quality Management Strategy (NAQMS), and to address policy reforms throughout the environmental sector, including solid and hazardous waste management, reducing lead emissions from cars and smelters, promoting natural gas in the transport sector, and increasing the overall reduction of air emissions from mobile and stationary sources.

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Power Sector Support Project (PSSP)

Location: Egypt

Agency: USAID

Partners: Ministry of Energy and Electricity
Egyptian Electricity Holding Company (EEHC)

Elements: 5. Regulatory/technical barrier removal
8. Project development

Duration: 1994-2002

To further USAID support for accelerated private sector-led growth, this project is improving electric power system efficiency and sustainability through sector restructuring. Specific activities include helping establish a regulatory commission that will rationalize the process of setting tariffs, electric company reengineering to improve organizational efficiency, unbundling of the power system leading to the privatization of the generation plans and distribution companies, and infrastructure development that emphasizes the use of natural gas.

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Madagascar

Landscape Development Interventions (LDI)

Location: Madagascar

Agency: USAID

Partners: Chemonics Inc.
ZIE
Other technical and financial partners (private businesses and conservation institutions)

Elements: 1. Research and development
2. Investment facilitation
3. Demonstration projects

Duration: 1998-2002

The USAID LDI seeks to achieve sustainable uses of natural resources in broader landscape through the promotion of high-value agricultural crops and environmentally friendly private enterprises so that local populations would not encroach on unique biodiversity-rich areas while increasing their standard of living. The program has set up demonstration plots in three priority conservation zones of the country to increase capacity of local actors to undertake sustainable agricultural practices while at the same time receiving increased commercial benefits from their crops. Such activities are undertaken in collaboration with community-based associations, private sector and public institutions, and local universities. The project also assisted the Government of Madagascar in launching highly valued ecotourism business. It supported the Ministry of Tourism in establishing the Ecotourism Development Zones in December 1999, after securing land tenure from the Ministry of Land Management and Urban Development (MATV). Development of two Ecotourism Investment Zones (ZIE), for Isalo and Amber Mountain National Parks, and the complex Ankarana Special Reserve are important accomplishments for future tourist activities in the area.

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MIRAY Project: Improved Management of Critical Biodiversity Habitats

Location: Madagascar

Agency: USAID

Partners: Consortium PACT

World Wildlife Federation
National Association for the Protected Areas
Network
Ministry of Water and Forestry
Conservation International

Elements: 2. Investment facilitation

Duration: 1999-2001

The USAID Miray Project assisted the National Environmental Action Plan-National Association for the Protected Areas Network and the Ministry of Water and Forest in developing management tools to ensure better management of the Malagasy protected areas network and the forest ecosystem forest management. Within a broader regional planning setting, decision-making tools are developed to improve informed decision-making processes.

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Projet d'Appui à la Gestion de l'Environnement (PAGE)

Location: Madagascar

Agency: USAID

Partners: International Resources Group
Implementing agencies within the National Environmental Action Plan Framework

Elements: 1. Research and development
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1999-2001

USAID's Projet d'Appui à la Gestion de l'Environnement (PAGE) assists the National Environmental Action Plan implementing agencies in establishing enabling conditions for sustainable organizations and policies through removal of regulatory and technical impediments. The project also supports activities that create national and local conditions within which the manifest benefits of sustainable environmental management become apparent. The project is instrumental in the implementation of Environmental Impact Assessments and a pilot regional development planning process taking into consideration environmental issues. Ten case studies are now under way to assist Madagascar in evaluating the economic value of natural resources in relation to urban/rural drinking water, non-timber forest products, soil degradation, and ecotourism. The project also assists the

Malagasy institutions in establishing sound monitoring of states and health of natural resources.

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Nigeria

Cooperation in Nigeria

Location: Nigeria

Agency: USDOE
USAID

Partners: Nigerian National Electric Power Authority
Ministry of Power and Steel
Bureau of Public Enterprises
Department of Petroleum Resources
Nigerian National Petroleum Corporation
Ministry of Science and Technology
Ministry of Environment
Other Nigerian agencies

Elements: 3. Demonstration projects
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 2000-2001

This program facilitates energy reforms and project demonstration through commercialization and privatization of parastatal utilities, legislative and regulatory changes, and capacity building efforts. One focus of this project is on the promotion of sustainable energy projects in Nigeria, such as the development of a domestic natural gas market (which eliminates flaring) and the expansion of energy services, especially in rural communities. The program seeks to reduce GHG emissions through projects that promote enhanced supply, renewable energy sources, or DSM and that promote the application of clean energy technologies.

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South Africa

Cities for Climate Protection

Location: South Africa

Agency: USAID

Partners: International Council for Local Environmental Initiatives (ICLEI)
Republic of South Africa Department of Environmental Affairs and Tourism (DEAT)
South African municipalities

Elements: 3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 2000-2004

In cooperation with the Republic of South Africa Department of Environmental Affairs and Tourism, USAID is sponsoring the South African Cities for Climate Protection, which is being implemented by ICLEI. The purpose of the program is to help South African municipalities understand the cost, environmental, health, and other benefits of climate protection activities; to build their capacity to assess financially viable activities that also reduce emissions; and to demonstrate and then disseminate both action planning and specific project implementation. The program will work with a small set of cities, but disseminate the information nationally. The program will focus on identifying solutions aimed at addressing city priorities and which also serve to reduce GHG emissions through energy efficient and renewable energy technologies and practices.

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Eco-Homes Project

Location: South Africa

Agency: USAID

Partners: Kutlwang Civic Association
Gugulethu Community Development Corporation
ESKOM

Elements: 3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1997-2001

Eco-homes is promoting energy-efficient housing designs to increase savings in space heating and reduce carbon dioxide

emissions. Completed in two communities, an additional three will be built in different climate zones over the coming year. The project will also train lenders, builders, and community groups through information dissemination. The aim is to increase awareness of low-cost, environmentally sound, energy-efficient housing that can be incorporated into South Africa's ongoing housing delivery program.

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South African Electricity Regulatory Cooperation Program

Location: South Africa

Agency: USDOE

Partners: National Electricity Regulator (NER)
Government of the Republic of South Africa

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 2000-2005

The South African electricity sector is undergoing fundamental restructuring and reform. The process of developing a comprehensive implementation strategy and plan is under way to move from its current monopolistic state to a final state of maximum financially viable, independent regional electricity distributors. For the rest of the electricity supply industry, the Government of South Africa is in the process of refining its policy and strategy for moving toward a competitive market structure. This restructuring and reform will have an impact on the current regulatory framework. USDOE and the Republic of South Africa have agreed to facilitate technical assistance and training of South Africans during this transition period. USDOE will facilitate technical/analytical assistance in the identified areas of regulation and through targeted training programs. With the knowledge gained from training under this program, the NER will be able to strengthen its strategic plans for the evolution of the electricity industry, which will be submitted to its legislature and gain necessary funding and buy-in.

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Sustainable Homes Initiative

Location: South Africa

Agency: USAID

Partners: International Institute of Energy Conservation
DFID
ESKOM
Republic of South Africa Department of Housing

Elements: 1. Research and development
3. Demonstration projects
4. Information exchange and dissemination

Duration: 1999-2002

USAID is co-sponsoring a national effort to increase awareness, information, and construction of environmentally sustainable affordable housing. The Sustainable Homes Initiative provides professional assistance to housing designers and developers to increase energy efficiency and environmental sustainability; development and marketing of building materials and products; training of builders, lenders, and policy makers; dissemination of products, designs, and professional resources through a network and Website; and development of case studies documenting the cost and environmental benefits of energy-efficient housing.

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Tanzania

Solar Energy and Economic Development Initiative

Location: Tanzania

Agency: USDOE

Partners: Northeast Sustainable Energy Association
(NESEA)
Sweet Unity Farms

Elements: 3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1999-2001

USDOE is collaborating with the NESEA and Sweet Unity Farms to support the development of a solar energy and economic development initiative for Tanzania. The project is working to create sustainable markets and establish solar

energy service companies (SESCos) in an underserved area and remote villages in East Africa. The project's first goals are to install 30 stand-alone units on homes and one larger unit on the new Village Community Center. NESEA is preparing educational materials, providing experts, and managing the shipping of solar panels. Sweet Unity Farms, an existing cooperative in Bara, is handling all on-site details of this 5-year project.

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Zambia

Integrating Renewable Energy Considerations into Zambian Electricity Sector Reform

Location: Zambia

Agency: USDOE

Partners: Electricity Regulatory Board of Zambia

Elements: 5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 2000-2001

NREL is collaborating with the Electricity Regulatory Board of Zambia to integrate renewable energy technology explicitly into the plans for restructuring of the Zambian electricity sector, to improve the prospects for the success of renewable energy technologies in the restructured environment.

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ASIA/PACIFIC REGION PROJECTS

Asia/Pacific Regional

Asia Forestry and Climate Change Mitigation Project (FORCLIMIT)

Location: Indonesia
Malaysia
Philippines

Agency: USEPA

Partners: LBNL
Indonesia - Bogor Agricultural University (IPB),
Bogor
Malaysia - Regional Center for Forest
Management, Kuala Lumpur
Philippines - University of Philippines at Los
Banos, Los Banos

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building
8. Project development

Duration: 1999-2000

The FORCLIMIT project is assessing the potential implications of the UNFCCC and of other subsequent agreements on climate change in three major countries in Southeast Asia with large tropical forests — Indonesia, Malaysia, and the Philippines — building on work done under the F7 Project since 1991. Project activities include (1) helping in-country analysts improve their forestry (and possibly agricultural) sector GHG emissions inventory estimates; (2) identifying and evaluating potential national policy and project-level sustainable forestry options with climate change benefits; and (3) introducing forest project evaluation for risk, investment potential, and credibility of performance over time. The project is funded by USDOS's East Asia and Pacific Environmental Program and USEPA, and is implemented with partner LBNL. USEPA and LBNL have worked with analysts in India, Indonesia, Thailand, Malaysia, China, and four other non-Asian countries over the past eight years on climate change, specifically on GHG inventory in forestry and mitigation analyses. They also trained in-country experts to run the COPATH and COMAP computer models and published the results of the analyses. Several workshops are planned for to bring together analysts and potential project developers to compare analyses and raise and discuss pertinent policy and technical issues.

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Asia Sustainable Energy Initiative

Location: India
Indonesia
Philippines

Agency: USAID

Partners: Institute for International Education (IIE)

Elements: 6. Human and institutional capacity building

Duration: 1998-1999

The Asia Sustainable Energy Initiative assists member countries in mitigating GHG emissions from the energy sector. Under the initiative, the IIE organizes technical training for professionals from India, Indonesia, and the Philippines. The training provides participants with a working knowledge of the full range of technical and institutional requirements necessary for the implementation of workable, results-oriented energy labeling programs adapted to their respective countries. The training examines the role of energy efficiency labeling in promoting the manufacture, marketing, and purchase of electrical equipment, such as refrigerators, residential air conditioners, lighting systems, and motors. As a result of this training activity, it is expected that product standards, testing, and labeling programs on electric equipment will be established and/or improved in the participating countries, with potentially significant impacts over the longer term for mitigating energy demand growth rates and reducing gross domestic product energy intensity.

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US-AEP Environmental Exchange Program

Location: Asia/Pacific Regional

Agency: USAID
Partners: Institute for International Education (IIE)
Elements: 2. Investment facilitation
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
Duration: 1995-ongoing

US-AEP provides opportunities for professional exchanges between the U.S. and Asia on a wide array of topics promoting sustainable development in Asia. The program seeks to build and strengthen ties between U.S. and Asian entities to help Asians address their environmental problems using U.S. technology and experience.

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US-AEP Environmental Professional Association Development

Location: Asia/Pacific Regional
Agency: USAID
Partners: Air and Waste Management Association
American Consulting Engineers Council (ACEC)
Water Environment Federation
Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
Duration: 1994-2000

US-AEP supports the formation of Asian environmental professional membership associations in Thailand, Indonesia, Singapore, India, and the Philippines. US-AEP also provides strengthens existing associations by providing assistance with recruitment, training in association management, technical information on environmental issues, and matching grants for local professional associations.

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US-AEP Environmental Technology Fund

Location: Asia/Pacific Regional

Agency: USAID
Partners: NASDA
Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1995-ongoing

The National Association of State Development Agencies manages a fund which provides matching grants to small-and medium-sized U.S. businesses to help them transfer their environmental technologies and expertise to Asia. The program fosters relationships between U.S. and Asian entities that promote sustainable economic development while helping Asia meet its environmental challenges.

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US-AEP Improved Environmental Management in Asia

Location: Asia/Pacific Regional
Agency: USAID
Partners: USEPA
Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
Duration: 1992-ongoing

USAID provides Environmental Action Teams through its partnership with the U.S. Environmental Protection Agency. Teams provide training, and short-term technical assistance designed to strengthen local, regional, and national environmental management practices in Asia.

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US-AEP Promotion of Pollution Prevention and Clean Technology Concepts (P2/CT), Technology and Equipment, and Education in Asia

Location: Asia/Pacific Regional

Agency: USAID

Partners: Louis Berger International
National Pollution Prevention Roundtable
International Resources Group (IRG)

Elements: 3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1992-ongoing

US-AEP provides education to foster local expertise on pollution prevention and the efficient use of energy and resources. US-AEP facilitates the sale of U.S. technology and expertise, which promotes pollution prevention and clean technology.

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US-AEP State Environmental Initiative

Location: Asia/Pacific Regional

Agency: USAID

Partners: Council of State Governments

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1994-ongoing

This activity, implemented in partnership with the Council of State Governments, works with state organizations from all 50 states identify and develop environmental projects in Asia, and provides matching grants to implement those projects.

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US-AEP Technical Representatives

Location: Asia/Pacific Regional

Agency: USAID

Partners: U.S. Department of Commerce

Elements: 2. Investment facilitation
4. Information exchange and dissemination

Duration: 1992-ongoing

Through a partnership with the U.S. Department of Commerce, US-AEP has Technology Representative Offices in India, Thailand, Indonesia, the Philippines, South Korea, Taiwan, Hong Kong, Malaysia, Singapore, Sri Lanka, and Vietnam promote demand for cleaner, more efficient industrialization and urbanization in Asia. They facilitate access to U.S. technology, expertise and partnerships to bring about clean, efficient development.

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Bangladesh

Bangladesh Livestock Technology Demonstration Project

Location: Bangladesh

Agency: USEPA

Partners: Rangpur Dinajpur Rehabilitation Service
Enterprise Works Worldwide

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination

Duration: 1997-2001

USEPA is implementing a pilot scale project to assess the feasibility and benefits of reducing methane emissions through improved feeding technologies of ruminant livestock. The project is under way in Bangladesh to promote the use of molasses-urea feed supplements to improve milk production and reduce methane emissions from dairy cattle on a per unit of milk basis. The project is being managed by U.S. and local NGOs, who are working with local dairy cooperatives to implement the project.

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China

Building Energy Efficiency

Location: China
Hong Kong

Agency: USEPA

Partners: American Institute of Architects
Hong Kong Polytechnic University
Durst Corporation

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1999-2001

USEPA is working with the American Institute of Architects and the Durst Corporation to conduct a workshop in Hong Kong (late 2000) designed to demonstrate how an Energy Star Buildings Program addresses building performance, increases asset value, and improves indoor air quality.

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Coal Mine Methane Recovery in China

Location: China

Agency: USEPA

Partners: State Administration of Coal Industry
China Coal Information Institute
China Coalbed Methane Clearinghouse

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1994-Ongoing

This project involves assessments and pilot projects for capturing abundant gas resources at Chinese mines, with concurrent mine safety, power production, and climate benefits. A Coalbed Methane Information Clearinghouse is housed at the China Coal Information Institute and has conducted considerable outreach to U.S. and other companies interested in this market. The Clearinghouse has published journals in Chinese and English, has hosted several domestic

and international seminars, and has developed with USEPA an economic analysis model to identify profitable projects to reduce methane emissions. It currently is participating in studies that will ultimately lead to significant investment in commercial-scale projects. The Clearinghouse and USEPA signed an agreement in April 1999 at the Gore-Zhou Energy and Environment Forum outlining a 2-year market data development project, which, building on the Clearinghouse's experience, is providing information and analyses on specific coal mine methane project opportunities for Chinese and Western investors and developers.

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Cooperative Study of Natural Gas Utilization in China

Location: China

Agency: USEPA

Partners: State Development Planning Commission (SDPC)
University of Petroleum, Beijing
Pacific Northwest National Laboratory

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal

Duration: 1999-2001

This project aims at providing a systematic assessment of opportunities for increasing natural gas production, imports, and utilization in China, and to quantify the potential environmental benefits of this increased utilization. China's efforts to expand natural gas use, if successful, will contribute to significantly lowering GHG emissions in China while improving the local environment and promoting economic growth. This project is consistent with a major policy initiative in China to expand gas use for environment and economic development benefits. A technical review workshop will be held in the first half of 2001, in China, and a final report will be provided by the end of 2001. It is expected that recommendations from the report will provide a basis for additional joint technical research and for policy and investment actions to encourage greater natural gas utilization in China.

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Electric Vehicle and Hybrid Electric Vehicle Technology Development

Location: China

Agency: USDOE

Partners: Ministry of Science and Technology

Elements: 1. Research and development
4. Information exchange and dissemination

Duration: 1996-TBD

USDOE and the Ministry of Science and Technology of the People's Republic of China are collaborating in research and development of electric and hybrid electric vehicle technology. USDOE efforts are focused on setting up personnel exchanges with USDOE national laboratories and encouraging participation of small U.S. technology companies that can make significant contributions to the Chinese electric vehicle program. These cooperative efforts aim at increasing the commercialization potential of electric and hybrid electric technologies with benefits for both China and the United States. U.S. and Chinese counterparts have exchanged information on electric vehicle industry standards and technical reports on batteries, fuel cells, electric motors, testing methods, training, demonstration programs, and policies to promote electric vehicle usage and environmental protection. USDOE has also provided information on policies and programs to advance electric vehicle deployment and promotion of environmental, health, and safety measures.

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Energy Efficiency Labeling Capacity Building

Location: China

Agency: USEPA

Partners: Center for the Certification of Energy Conservation Products (CECP)

Elements: 4. Information exchange and dissemination

Duration: 1999-2001

This project provides technical assistance to CECP to transfer expertise, modeling, and analytical methods for the market assessment, engineering and design analysis, and label criteria

development for products. The project will also assist in the development of promotional activities for China's label.

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Energy Efficient Buildings

Location: China

Agency: USEPA

Partners: State Environmental Protection Administration
Ministry of Construction

Elements: 5. Regulatory/technical barrier removal
8. Project development

Duration: 1999-2001

This project assists China in developing its institutional capacity to support programs to improve the energy efficiency of buildings. Initial activities focus on data collection and development, market analysis, and identification of key market and institutional barriers to energy efficiency. The data developed will support Chinese efforts to seek international funding for expanded activities to promote energy efficiency in the buildings sector.

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Energy-Efficient Industrial Motor Systems in China

Location: China

Agency: USDOE

Partners: China Energy Conservation Investment Corporation
State Development Planning Commission (SDPC)
American Council for an Energy-Efficiency Economy
LBNL

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1996-TBD

USDOE and the Government of China are working to facilitate the use of high-efficiency motor systems in China. Activities include information and expert exchanges, studies, workshops, and other technical assistance. USDOE is cooperating with the American Council for an Energy-Efficient Economy, LBNL, and the Chinese State Bureau of Technology Quality Supervision on a new UN Industrial Development Organization program, the China Motor System Energy Conservation Program. The program will develop tools and standards to optimize motor systems and will conduct training to improve motor systems in factories. Initially implemented in Shanghai and Jiangsu provinces, the program will develop a model for a national Chinese motor systems program.

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Geothermal Energy Production and Use

Location: China

Agency: USDOE

Partners: Ministry of Science and Technology

Elements: 3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1997-TBD

USDOE is providing technical assistance in the areas of drilling, safety, and geological issues to China's first 10-MW geothermal pilot project, facing delays and drilling problems in Tengchong, Yunnan in 1998. USDOE also provides funds for a geothermal heat pump study in China, which resulted in three demonstration projects in China. In addition, this project helped to transfer more than \$5 million worth of geothermal heat pumps (about 8,000 tons) for three buildings located in the cities of Beijing, Shanghai, and Guangzhou. Installation for all three buildings is expected to be completed by June 2001. China plans to commercialize this cost-effective, energy-efficient, and environmentally friendly technology throughout China's new buildings since a 1998 law prohibited using coal as a heating source.

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Industrial Pollution Prevention and Energy Efficiency

Location: China

Agency: USEPA

Partners: SEPA

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1999-2001

USEPA is working with SEPA and other organizations to share effective and innovative approaches for building pollution prevention and energy efficiency (P2E2) concepts into the environmental policy and regulatory structure, for building enforcement and beyond-compliance incentives for environmental excellence in the industrial sector, and for promoting information development and networking. This includes development of a China-specific site on the electronic Cleaner Production International Cooperative and a training-of-trainers program on the Cooperative.

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Mobile Sources Emissions Control

Location: China

Agency: USEPA

Partners: Shanghai Municipal Government
SEPA

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1999-2000

USEPA is working with the city of Shanghai as well as national authorities in the development of vehicle emissions policies and programs, building on work to phase lead out of gasoline. This work includes emissions inventory work for Shanghai.

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Modeling National Economic Impacts of Climate Change Policy

Location: China

Agency: USEPA

Partners: State Development Planning Commission

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1999-2001

This joint effort engages national experts in economic modeling and environmental policy to develop improved capacity for analysis of costs and other economic impacts of policies that limit GHG emissions.

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Renewable Energy Business Development

Location: China

Agency: USDOE

Partners: State Economic and Trade Commission

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination

Duration: 1996-TBD

USDOE is conducting a number of training activities and workshops, outreach activities, and information exchanges to facilitate U.S. companies' interests in China and to develop markets for renewable energy technologies. USDOE provides technical assistance on renewable energy policy analysis and development. USDOE also funds several studies on business profiles, the Chinese wind industry, and technology assessments.

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Renewable Energy Policy and Planning

Location: China

Agency: USDOE

Partners: State Development Planning Commission
NREL

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization

Duration: 2000-TBD

The primary objective of this project is to support China's two big national programs: Brightness Program and Grand Western Development Initiative led by SDPC. In support of this effort, USDOE provided training and a study tour to State Development Planning Commission (SDPC) Brightness Program staff in May 2000 on rural electrification and renewable energy policy. The Brightness Program is China's largest rural electrification program and will include 450,000 home systems and 500 village systems in this first phase. USDOE is also currently coordinating and leveraging its efforts with the World Bank to help develop and implement China's Renewable Portfolio Standards of 5.8% in its 10th 5-Year Plan.

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Rural Energy Development

Location: China

Agency: USDOE

Partners: Ministry of Agriculture
Inner Mongolia Science and Technology
Commission

Elements: 3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1995-TBD

USDOE, China's Ministry of Agriculture, and Inner Mongolia Science and Technology Commission are collaborating to install 320 photovoltaic (PV) solar home systems and 245 PV/wind hybrid systems in Gansu and Inner Mongolia, respectively. USDOE has supported a number of training activities, workshops, and other technical assistance aimed at the use of village-scale renewable technologies to provide energy or electricity to China's rural areas. USDOE also

provided funding for an assessment of biomass resources and technological capability in the biomass conversion areas.

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Technical Assistance to Improve the Energy Efficiency of Air Conditioners

Location: China

Agency: USEPA

Partners: State Economic and Trade Commission

Elements: 5. Regulatory/technical barrier removal
8. Project development

Duration: 1999-2001

This project provides support to assess and promote market transformation efforts to increase the market penetration of energy-efficient air conditioners. Specific efforts in China include monitoring air conditioners energy use and operating patterns, development of efficiency standards, and addressing technical and market barriers to air conditioner efficiency improvements.

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U.S.-China Energy Efficiency Steering Committee

Location: China

Agency: USDOE

Partners: State Development Planning Commission (SDPC)

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal

Duration: 1997-TBD

USDOE co-chairs the U.S.-China Energy Efficiency Steering Committee with the SDPC to provide technical assistance and government-to-government cooperative activities on energy efficiency policies and programs. The committee has activities in nine areas: buildings, cogeneration, district heating, electric

motor systems, finance, information exchange, lighting, policy, and transformers. The Steering Committee last met in May 1999 and progress was reviewed at the U.S.-China Forum on Environment and Development in Hawaii in January 2000.

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Wind Power Development

Location: China

Agency: USDOE

Partners: State Power Corporation of China
NREL

Elements: 3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal

Duration: Ongoing

USDOE has conducted a number of training activities and workshops, outreach activities, and information exchanges to facilitate U.S. companies' interests in China and to develop markets for renewable energy technologies. USDOE provides technical assistance on renewable energy policy analysis and development. USDOE also funds several studies on business profiles, the Chinese wind industry, and technology assessments.

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Chinese Taipei

Transfer of Voluntary Programs in Taiwan

Location: Chinese Taipei

Agency: USEPA

Partners: Taiwan EPA
Municipal Governments

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1998-2001

USEPA is working with Taiwan EPA on building case studies of industrial sectors (e.g., pharmaceuticals), using the established energy pathways of the Taiwan MARKAL model and developing a waste materials pathway that can be run in parallel to the energy pathway. The goal is to build a quantitative platform for the adaptation of a Climate Wise Program and other pollution prevention programs.

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India

Bagasse Cogeneration

Location: India

Agency: USAID

Partners: Industrial Development Bank of India

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1992-2002

USAID provides investment grant assistance through IDBI to nine sugar mills to set up nearly 200 MW of bagasse (waste from sugar cane crushing) cogeneration units to supply of power to the grid based entirely on biomass fuels. Of these nine sugar cogeneration facilities, four were commissioned and supplied nearly 300 million kilowatt hours of biomass-fired electric power last year. In addition, USAID's technical assistance has, in part, helped develop a pipeline of further 200 MW sugar cogeneration facilities. This activity build on the previous work of USAID on policy studies for opening the market for cogenerated power. The establishment of government policy and appropriate tariffs for cogenerated power was in part a result of USAID policy studies.

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Climate Change Initiative for Sustainable Development

Location: India

Agency: USAID

Partners: Industrial Credit and Investment Corporation of India (ICICI)
Confederation of Indian Industry (CII)
Society for Development Alternatives (SDA)

Elements: 2. Investment facilitation
4. Information exchange and dissemination
6. Human and institutional capacity building
8. Project development

Duration: 1999-2005

This activity supports development of institutional capacity of various different stakeholders in India to design and implement policies and projects that reduce GHG emissions while promoting sustainable development with USAID technical assistance and training support. Under this project, the CII and the Society for Development Alternatives have established climate change centers. These centers conduct workshops, research policy, and develop communication material to educate their constituents of challenges and opportunities arising from climate change mitigation. With USAID assistance, these centers are also engaged in developing projects and facilitating investment in GHG emissions reductions. This activity has recently expanded to include capacity building of a Government of India executive training academy on sustainable energy development. Indian financial institutions also receive technical assistance under this effort to improve financial appraisal skills for GHG emissions reduction projects.

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Efficient Power Generation

Location: India

Agency: USAID

Partners: National Thermal Power Corporation (NTPC)

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization

Duration: 1995-2005

USAID's work with the NTPC has helped establish the Center for Power Efficiency and Environment Protection as the foremost center for providing technical leadership and advice to the electric power sector. USAID's power plant efficiency demonstrations with NTPC (whose 17 plants generate 25 percent of India's electric power) have been so successful that for one of the demonstrated programs the corporation is investing \$2.5 million this year in new environmental equipment. This will save millions annually in coal purchases and will generate huge reductions in GHG emissions. USAID has helped open two new regional centers in India to provide efficiency improvement services to power plants. USAID is also supporting the development of new power plants based on advanced power generation technologies. These technologies not only reduce carbon dioxide emissions per unit of power, but will also help cut down the local pollution problems, as India doubles its mostly coal-based power generation capacity. USAID involvement is expected to help leverage a considerable amount of World Bank and GEF funding for project implementation.

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Energy Efficiency and Demand-Side Management

Location: India

Agency: USAID

Partners: Ministry of Power
AEC
Industrial Credit and Investment Corporation of India (ICICI)

Elements: 2. Investment facilitation
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization

Duration: 1992-2004

Energy efficiency and DSM are major areas of USAID assistance, and this program has focused on four areas: DSM in utilities, energy efficiency in water pumping, energy efficiency standards, and labeling and policy support. Assistance was provided to Ahmedabad Electricity Company (AEC), a private sector utility, to design a DSM program. A number of pilot DSM projects have been initiated by AEC in

the industrial and residential sectors. Technical assistance on DSM was also provided to two other state utilities, those in Haryana and Tamil Nadu. In Haryana, energy efficiency projects worth \$30 million were developed, and in Tamil Nadu, a load research program with pilot program was carried out. USAID assistance has also helped design the adoption of an energy efficiency label by the Bureau of Indian Standards. USAID technical assistance to the Ministry of Power for development of policies to promote energy efficiency is an ongoing activity. This activity has recently been expanded to support local and institutional capacity building of the Ministry of Power to develop markets for energy efficiency investments. This activity will also work with financial institutions to develop new financial products to accelerate energy efficiency investment.

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Internet-Based Information Resource and Discussion Platform on Greenhouse Gas Reduction Strategies in Asia

Location: India

Agency: USDOE

Partners: TATA Energy and Resources Institute (TERI)

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1999-2000

USDOE and the TATA Energy and Resources Institute are collaborating to build an Internet-based information resource and discussion platform on the issues of energy efficiency and renewable energy technologies and GHG emissions in Asia.

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Linking Urban Development and Climate Change

Location: India

Agency: USAID
Partners: Industrial Credit and Investment Corporation of India (ICICI)
City Municipal and Transport Authorities

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization

Duration: 1999-2005

This recently launched activity will focus on reducing carbon dioxide emissions from vehicular traffic and on methane emissions recapture from city-based municipal and industrial wastes. USAID technical assistance and training will increase institutional and human capacity of five municipal authorities to assess methane emissions and recapture potential in cities. USAID will also support development of a demonstration project and facilitate investment to demonstrate methane recapture technology. USAID assistance will help one city transport authority increase fuel efficiency and reduce both GHG and local pollutant emissions.

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Power Sector Regulatory Reform and Restructuring

Location: India

Agency: USAID

Partners: Ministry of Power
Power Finance Corporation

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1997-2004

USAID is providing support for the establishment of a policy, regulatory, and legal environment in the Indian power sector to create an enabling environment for enhanced private investment in the sector. USAID is providing extensive technical support to several state electricity regulatory commissions and the Central Electricity Regulatory Commissions in staffing plans, establishment of rules and procedures, and tariff guidelines. USAID is also providing technical assistance for power sector policy. In the state of Haryana, USAID technical assistance and training plays an

important complementary role to the much larger World Bank (\$600 million loan) and British Department for International Development (DFID \$24 million grant) programs. USAID-supported technical assistance helped to identify and develop DSM projects to be funded from the \$45 million DSM component of the World Bank loan.

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Sustainable Cities Initiative

Location: India

Agency: USAID

Partners: Alliance to Save Energy
Hagler Bailly Services, Inc.
Municipal governments

Elements: 3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
8. Project development
9. Other (NGO development)

Duration: 1998-2002

Under this initiative, USAID and the Alliance to Save Energy have designated Ahmedabad as the first sustainable city in India. With few energy resources and electricity demand rising by 5 to 6 percent annually, the city's utility could not keep pace with demand. The Alliance provided technical assistance to Ahmedabad and reaped impressive results. Along with Hagler Bailly Services, Inc. and USAID, the Alliance worked closely with the city to build support for an energy management program at the local utility, hired a full-time in-country coordinator to be a liaison, and introduced the concepts of lease financing and energy service companies. As a result of these efforts, the city government has established an official energy management cell and recently agreed to increase staff and funding for this new institution. To date, Ahmedabad has reduced peak electricity demand by 11%, saved more than \$300,000 in energy costs, and reduced carbon dioxide emissions (a primary GHG) by 4,650 tons. USAID/India is currently funding the expansion of this activity in two other Indian cities: Chennai in Tamil Nadu and Pune in Maharashtra. The Alliance team is also examining the broader issues related to urban energy management. These issues include water management and conservation, institutional development, NGO development, and energy service company (ESCO) development.

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Sustainable PV-Based Rural Electrification

Location: India
Agency: USDOE
Partners: NREL
Ramakrishna Mission
Ministry of Non-Conventional Energy Sources
Elements: 3. Demonstration projects
6. Human and institutional capacity building
8. Project development
Duration: 1995-TBD

USDOE is working collaboratively with local partners to establish a sustainable NGO-based rural electrification program through training and seeding the initial deployment of solar home systems. The program has since continued to operate on a fully commercial basis, providing lighting and small power systems to rural areas of the Ganges River Delta.

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Transportation and Electric Vehicles

Location: India
Agency: USAID
Partners: Nexant (formerly Bechtel)
Bajaj Auto and
New Generation Motors.
Elements: 2. Investment facilitation
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
Duration: 1996-2002

USAID is sponsoring activities designed to leverage public and private investments in electric vehicles. A prime objective of the program is to reduce particulate matter and lead in the urban environment.

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Utility Partnership Program

Location: India
Agency: USAID
Partners: USEA
Elements: 2. Investment facilitation
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
Duration: 1997-2002

Funded by USAID, the USEA is implementing the Utility Partnership Program in India. The program's main objective is to provide a mechanism for the U.S. energy industry to transfer its experience in market-based energy production, transmission, and distribution to its international counterparts, while providing the U.S. utilities with an opportunity to learn about the energy industry in other countries. The partnership program has established eight partnerships in the country, three of which are regulatory partnerships, and complements USAID/India's regulatory reform activities.

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Indonesia**Energy Sector Governance Program**

Location: Indonesia
Agency: USAID
Partners: Advanced Engineering Associates International (AEAI)
International Institute of Education (IIE)
Yayasan Bina Usaha Lingkungan
International Council for Local Environmental Initiatives (ICLEI)
Winrock International
Elements: 5. Regulatory/technical barrier removal

- 6. Human and institutional capacity building
- 8. Project development

Duration: 1996-2004

From 1996 to 2000, USAID's objectives in the previous Coordinated Local Environmental Action Networks (CLEAN) Energy Project were to reduce the level of pollution and GHG emitted in power generation while promoting reform of the electricity sector. During 2000, the program was folded into a new Energy Sector Governance program. The expanded aim is to improve the efficiency and transparency of the entire sector through policy reform (including electricity, oil and gas, transportation), to promote market-based pricing, and to reduce global and local emissions. Activities include technical assistance, policy reform, institutional capacity building, human capacity building, stakeholder participation, information dissemination, and financing and commercial facilitation of energy efficiency and renewable energy projects.

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Forestry and Terrestrial Protected Areas

Location: Indonesia

Agency: USAID

Partners: NRM/EPIQ
World Wildlife Fund
The Nature Conservancy
Biodiversity Support Program/Kemala
Conservation International

Elements: 5. Regulatory/technical barrier removal
6. Human and institutional capacity building
8. Project development

Duration: 1996-2004

USAID's Forest and Terrestrial Protected Area's program has provided technical assistance, institutional capacity building, and policy reform to in-country partners. This program supports sustainable and decentralized management of forestry resources through better technical practices and policy frameworks for industry, greater community and locally based resource management, capacity building of private institutions for increasing awareness of environmental issues, and increased participation of women in natural resources planning and management.

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Local Government Water Services (LGWS) Project

Location: Indonesia

Agency: USAID

Partners: PERPAMPSI
IATPI
BAPPENAS
Ministry of Home Affairs and Regional
Autonomy

Elements: 8. Project development

Duration: 2000-2003

Building on the Water Efficiency Team Project, USAID will assist 20 PDAMs/local governments to achieve full cost recovery and an expansion of service. LGWS will also provide support to an additional 10 water enterprises on a range of technical environmental and financial issues. In addition to providing direct support to targeted water enterprises, LGWS will provide strategic assistance to benefit a wider audience of water service providers. Working with key partners in the water sector, LGWS will support development of professional skills for managerial and operational staff in water utilities. Issues include open and transparent budgeting and accounting, technical efficiency, and improved environmental quality.

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Water Efficiency Team (WET) Project

Location: Indonesia

Agency: USAID

Partners: PERPAMPSI
BAPPENAS
Ministry of Home Affairs

Elements: 8. Project development

Duration: 1998-2000

USAID and US-AEP have joined together to develop a program to assist approximately 50 small, weak municipal water enterprises throughout Indonesia. This program began in 1998 during the economic crisis, when the quality and availability of water were threatened. Technical assistance is

provided to assist weak water enterprises on the edge of bankruptcy to conduct technical and financial audits and develop plans to recover financially so as to continue to provide clean water to urban populations during Indonesia's monetary crisis. Financial recovery plans, to be funded through World Bank loans, include revenue enhancement through expansion plans specifying equipment, such as energy-efficient pumps.

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Windpower for Islands and Non-Governmental Development Project

Location: Indonesia

Agency: USAID

Partners: Windpower for Islands and Non-Governmental Development (WIND)

Elements: 3. Demonstration projects
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization

Duration: 1995-ongoing

USAID's project aims at introducing wind power technology in the eastern islands of Indonesia and to involve local NGOs on these islands to provided local power needs, primarily through technology transfer. Since 1995, WIND has mapped wind power resources and installed wind monitoring equipment in 10 locations and has conducted studies to determine the feasibility of wind-based generation and transmission projects, including commercial possibilities. It has established wind power demonstration projects at 20 sites and has built the capacity of local NGOs and community members to establish and operate small, wind power generation and transmission facilities. WIND's overall objectives include technology demonstration, technology commercialization, and institutional capacity building. Current efforts focus on determining how to ensure project sustainability and how to best commercialize wind power in the focus area.

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Philippines

Accelerated Renewable Energy Activity

Location: Philippines

Agency: USAID

Partners: Hagler Bailly Services, Inc.
NREL
Winrock International
Independent Power Producers (IPPs)
Independently Owned Utilities (IOUs)
Electric Cooperatives (ECs)
Private Developers
Affiliated Non-Conventional Energy Centers (ANECs)
Local Government Units (LGUs)
NGOs
Barangay Power Associations (BPAs)

Elements: 5. Regulatory/technical barrier removal
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization
8. Project development

Duration: 2000-2004

The Accelerated Renewable Energy Activity is a component activity of the Philippine Climate Change Mitigation Program (PCCMP) contributing to increased use of clean fuels. It also intends to intensify provision of technical assistance on project development of renewable energy systems and technologies in off-grid rural areas, policy support, and capacity building. The activity considers direct technical assistance to various key players in the energy sector (e.g., IPPs, IOUs, ECs, private developers, LGUs, NGOs, and BPAs). Assistance to interested players specifically focuses on technical inputs in project development processes, financing, and implementation (identification, pre-investment feasibility) of proposed renewable energy project. The activity works to address related policy work on renewable energy investment environment and private sector concerns.

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Building Energy Efficiency Benchmarking Pilot Projects

Location: Philippines

Agency: USEPA
Partners: Department of Environment and Natural Resources (DENR)
Philippines Department of Energy (PDOE)

Elements: 3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal

Duration: 2000-2001

This project demonstrates an Internet-based tool that building owners can use to evaluate and monitor the energy performance of office buildings. The project also provides technical assistance to building owners in making energy-efficiency investments in their buildings.

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Capacity and Institutional Building

Location: Philippines

Agency: USAID

Partners: USDOE
Philippines Department of Energy (PDOE)
Department of Environment and Natural Resources (DENR)
Hagler Bailly Services, Inc.

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1996-2002

USAID works with the host-country agencies to support capacity building programs, study tours, information sharing, and cross-border partnerships. USAID, with the PDOE produced a primer on the restructuring and privatization legislation that helped educate the legislators and other stakeholders to understand the rationale and structure of the proposed reform. USAID, in coordination with USDOE, provides support to the Energy Regulatory Board to ensure an independent and competent regulator for effective transition and successful implementation of restructured sector in a truly competitive market. USAID will also work with PDOE to help build its capacity to formulate policies

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Global Climate Change Information Center (CCIC)

Location: Philippines

Agency: USAID

Partners: Manila Observatory
Inter-Agency Committee on Climate Change

Elements: 1. Research and development
4. Information exchange and dissemination

Duration: 1999-2001

In 1999, USAID launched the Global CCIC, the first data hub in Asia that provides electronic public access to climate change information. Since its launching, a total of 7,500 users of CCIC Websites, resources, and facilities have been registered. The program has provided training and joined major exhibits on climate, and established a library that provides services to researchers, students, and government and private sectors, using the latest CD contents.

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Hawaii-Philippines Cooperation Project on Energy Efficiency and Renewable Energy

Location: Philippines

Agency: USDOE

Partners: State of Hawaii

Elements: 4. Information exchange and dissemination
5. Regulator/technical barrier removal
6. Human and institutional capacity building

Duration: 1999-2001

USDOE and the State of Hawaii are cooperating with the Philippines to promote environmentally sound energy efficiency and renewable energy policies and practices in that nation. The second year of the project will concentrate on establishing a program that is modeled after the Federal Energy Management Program (FEMP) to encourage energy efficiency in government buildings.

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Natural Gas Policy Formulation**Location:** Philippines**Agency:** USAID**Partners:** Philippine Department of Energy (PDOE)
USDOE**Elements:** 2. Investment facilitation
8. Policy development**Duration:** 1999-2002

USAID works with USDOE to provide technical assistance on policy work to encourage more natural gas downstream investment and market opportunities. With the increasing cost of imported fuel oil, the Government of the Philippines has emphasized the use of natural gas, an indigenous and clean resource. This will also have greater impact on the mitigation of GHG emissions.

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Philippine Climate Change Mitigation Program (PCCMP)**Location:** Philippines**Agency:** USAID**Partners:** National Power Corporation
Philippine Department of Energy (PDOE)
National Electrification Administration (NEA)
Energy Regulatory Board (ERB)
National Economic and Development Authority (NEDA)
Department of Environment and Natural Resources (DENR)
MERALCO
Philippine Electric Plant Owners Association (PEPOA)
NGOs**Elements:** 6. Human and institutional capacity building
8. Project development
9. Other (Policy development)**Duration:** 1996-2004

The PCCMP, signed between the Government of the Philippines and USAID in 1996, focuses on mitigating GHG emissions from the power sector by expanding the use of clean fuels and promoting more efficient generation, distribution, and consumption of electricity. These activities are facilitated through building public and private sector capacity for improved energy sector development and management. Emphasis is currently placed on technical assistance for the passage and implementation of legislation that will restructure the power industry and privatize the National Power Corporation. Through this program, the PDOE and energy-related agencies, private utility, and NGOs estimate GHG emissions will be reduced by 20 MMT by 2002 with no adverse impact on economic growth. The major impact of the PCCMP will occur in 2002, when the natural gas-fired power plants will be operational. The PCCMP is the umbrella program that covers various activities related to climate change in the Philippines.

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Philippine Energy Partnership Program (PEPP)**Location:** Philippines**Agency:** USAID**Partners:** USEA
Distribution Utilities (Davao Light, Iligan Light, CEPALCO)
Energy Regulatory Board (ERB)
Electric Cooperatives (ECs)
Generation companies (National Power Corporation)**Elements:** 2. Investment facilitation
4. Information exchange and dissemination
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization**Duration:** 1998-2002

The goal of the PEPP is to assist Philippine electric utilities/cooperatives and the ERB with policy and regulatory

reform with power sector restructuring and with fulfilling their responsibility to provide sustainable and environmentally sound energy production and use. PEPP encourages the employment of private sector, market-oriented approaches to improve the planning, management, financing, and environmental functions in the Philippine power sector. Central to PEPP is the peer-to-peer sharing of real experiences in the day-to-day planning, operation, and management of utilities and regulatory agencies. These exchanges occur between the senior executives and managers who are responsible for making the major decisions necessary to reform and improve their utilities and agencies.

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Philippine Green Buildings/Resorts Project

Location: Philippines

Agency: USAID

Partners: International Institute for Energy Conservation (IIEC)
Government agencies (DOE, DTI, DENR, DOT)
Distribution utilities (MERALCO, CEPALCO, VECO)
Buildings/malls owners (Ayala Corp./Filinvest Alabang, Inc.)
Resort facilities (Pink Patio Resort)
NGOs
Trade allies (design/construction professionals, suppliers/manufacturers)

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building
8. Project development

Duration: 1999-2000

The Philippine Green Buildings/Resorts Project, which began in August 1999, is sponsored by USAID as part of the U.S. commitment to help the Philippines find local solutions that contribute to the global fight against climate change and global warming. Specifically, the project is aimed at helping reduce GHG emissions by encouraging building and resort owners/managers to invest in sustainable energy technologies in order to save money and energy. The project is completely voluntary and relies on the interest and commitment of building owners and managers, design professionals,

nongovernmental agencies, and government agencies and utilities. IIEC acts as program coordinator, organizing regular stakeholder meetings, providing technical assessments of selected facilities, collecting and analyzing data from partner facilities, organizing training courses and workshops, conducting media campaigns to promote the program, and publicizing the results of the action taken.

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Philippine Renewable Energy Project

Location: Philippines

Agency: USAID

Partners: Philippine Department of Energy (PDOE)
National Electrification Administration (NEA)
Electric Cooperatives (ECs)
Government financing institutions

Elements: 1. Research and development
2. Investment facilitation
8. Project development

Duration: 2000-2002

USAID supports the development and entry of renewable fuels into the mainstream of the Philippines power sector. Under the Participating Agency Service Agreement (PASA) with NREL and a contract with Hagler Bailly, emphasis is placed on resource assessment for solar, wind, geothermal, mini-hydro, and biomass. Coupled with the resource assessment is a profiling task to identify potential markets with specific focus on off-grid rural electrification. In addition, policy work is concentrated on the removal of barriers to entry for the private sector on renewable energy.

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Restructuring and Privatization Program

Location: Philippines

Agency: USAID

Partners: Philippines Department of Energy (PDOE)
National Power Corporation (NPC)
Energy Regulatory Board (ERB)
National Economic Development Authority (NEDA)
Hagler Bailly Services, Inc.

Elements: 5. Regulatory/technical barrier removal
6. Human and institutional capacity building
9. Other (Policy development)

Duration: 1996-2004

USAID supports the initiatives of the PDOE's main thrust to restructure the power industry. The passage of legislation to reform the electricity industry is under way. The policy supports restructuring the power sector and the privatization of the NPC. The objective of the reforms is to ensure that the country will have reliable, efficient, and competitively priced electricity. This will result in more transparent rates and more consumer choice of electricity providers. USAID, through its contractor Hagler Bailly, is providing technical assistance and works with experienced experts to facilitate briefings to the legislators and regulators on case experiences in other countries and to provide steady inputs in the formulation and implementation of the legislation.

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Thailand

Landfill Gas Utilization

Location: Thailand

Agency: USEPA

Partners: Thai National Energy Policy Office
Kasetsart University, Bangkok

Elements: 3. Demonstration projects
8. Project development

Duration: 1996-2001

The USEPA Landfill Methane Outreach Program (LMOP) provides technical assistance to the Energy and Environment Engineering Center at Kasetsart University (KU) outside Bangkok to help it assess and develop a landfill gas utilization project at the Kamphang Saen Landfill. KU received a grant from the GEF that helped fund the installation of new landfill gas wells. A flare has been installed as a first step to development of a landfill gas-to-electricity project that will supply power to the University.

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EUROPE AND EURASIA REGION PROJECTS

Europe and Eurasia Regional

EcoLinks

Location: Bulgaria
Croatia
Czech Republic
Hungary
Kazakhstan
Macedonia
Poland
Romania
Russia Far East
Ukraine

Agency: USAID

Partners: U.S. Department of Commerce
Environmental Export Council
Global Environment and Technology Foundation
Institute for International Education (IIE)
Regional Environment Center for Central and Eastern Europe

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization
8. Project development

Duration: 1998-2002

The Eurasian-American Partnerships for Environmentally Sustainable Economies, (EcoLinks) promotes market-based solutions to environmental problems in Central and Eastern Europe and the Newly Independent States, emphasizing the urban and industrial sectors. The program is helping create lasting, environmentally focused partnerships among local governments, private enterprises, and associations in the region, both with counterpart organizations in the U.S. and across borders within the region. The program facilitates trade and investment in environmental goods and services. Activities the program has undertaken include trade and investment support and grants for technology transfer in the areas of:

- environmental management systems development for GHG minimization in a municipality (Bulgaria), development of landfill gas extraction systems (Bulgaria), introduction of a comprehensive energy audit methodology (Romania), assessment of the use of water turbines in water delivery systems (Croatia), and energy audit at an organic formulating industry (Slovakia); and
- numerous business facilitation activities (including technology demonstrations) for U.S. technology providers in the areas of energy efficiency and alternative energy (all participating countries), the promotion of landfill gas utilization technology (Czech Republic), promotion of cleaner production in oil and gas industry (Kazakhstan), and facilitation of a loan (\$1.2 million) to a joint U.S.-Hungarian company promoting a new wastewater treatment technology that has the potential to minimize GHG.

EcoLinks also provides environmental professionals in the region with information about environmental laws, policies and regulations, best practices, environmental technologies, and management systems.

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Regional Climate Change Training for Eastern Europe

Location: Bulgaria
 Macedonia
 Romania

Agency: USAID

Partners: Institute of International Education (IIE)

Elements: 4. Information exchange and dissemination
 6. Human and institutional capacity building

Duration: 2000-2001

USAID sponsors a series of courses designed to assist economies in transition to reduce the threat of global climate change. The series focuses on building local capacity in the technical, economic, and policy aspects of climate change management. The course provides three 1-week courses and three executive forums.

The following is a list of offerings:

- Climate Change and Development Forum
- Economics of Climate Change
- Macro-Economic Modeling of Climate Change Options
- Role of Local Governments in Climate Change

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Albania

Albania Private Forestry Development Program (APFDP)

Location: Albania

Agency: USAID

Partners: Government of Albania
 Ministry of Agriculture and Food
 Directorate General of Forests and Pastures
 Local village officials
 Various Albania research institutes and NGOs
 Regional Environment Center (REC)
 Hieffer Project International
 Chemonics

Elements: 1. Research and development
 4. Information exchange and dissemination
 5. Regulatory/technical barrier removal
 6. Human and institutional capacity building
 7. Technology verification, assessment, prioritization

Duration: 1995-2001

APFDP is designed to increase Albanian rural household incomes and alleviate, and ultimately reverse, forest environmental degradation by encouraging and supporting development of sustainable private forestry management on privately owned lands and on komuna, and villages. Chemonics provides long-term advisors, short-term assistance and training, and development of a network of agroforestry demonstration sites.

APFDP's purpose is to increase private forestry initiatives in Albania. Two major objectives have been identified that will contribute to achieving of this objective:

- Assisting the Government of Albania in creating more coherent and dynamics policies and institutions that are supportive of community and private forestry; and
- Facilitating increased adoption by komunas, villages, and individuals of replicable, economically and environmentally sustainable forest, pasture, and livestock management practices.

APFDP's accomplishes these goals by:

- Providing information and technical support to the Government of Albania to develop and carry out both forest policy reforms and a public education and extension program that will support and encourage private enterprise in forestry; and
- Providing technical and managerial training for private land owners, komunas, and villages in sustainable forestry management as a source of income and employment under the emerging free market system.

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Bulgaria

Biodiversity and Economic Growth Project (BCEG)

Location: Bulgaria

Agency: USAID

Partners: Ministry of Environment and Water (MOEW)

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 2000-2002

USAID launched the Biodiversity and Economic Growth Project as a follow-on activity to the Biodiversity Conservation Project in May 2000 to build on the results achieved under the Biodiversity Conservation Project, as well as to strengthen the capacity for sustainability of Bulgaria's

newly established protected areas institutions. Under the new initiative, USAID will assist the MOEW with the finalization, review, and public hearings of the management plans for the Rila and Central Balkan National Parks. In addition, at the request of the MOEW, the project will assist the Government of Bulgaria in initiating management planning for the Category V Rila Monastery Nature Park, building on baseline data and scientific studies for the area generated under the GEF project. The project will also assist the MOEW in alleviating constraints to generating protected area revenues by establishing and testing appropriate financing mechanisms and park-community partnerships. On the local level, the BCEG Project will seek to develop an operational model for ecotourism that could serve the MOEW in the development of a national strategy for ecotourism. A national campaign for increasing public awareness of biodiversity, protected areas, and related issues will also be conducted.

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Bulgarian Energy Efficiency Demonstration Zone

Location: Bulgaria

Agency: USDOE

Partners: Bulgarian Foundation for Energy Efficiency (EnEffect)
GEF

Elements: 3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1999-2000

USDOE works closely with EnEffect to develop a plan for an \$8 million energy efficiency demonstration zone that has received funding from the GEF. The project combines the retrofit of a school, hospital, high-rise multi-family building, industrial plant, district heating system, and street lighting with training, monitoring, evaluation, and other capacity building activities. It is seen as a model for similar projects being considered in other countries in Central and Eastern Europe. USDOE has also provided technical assistance to Bulgaria by creating EnEffect as a nongovernmental organization to promote energy efficiency.

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GEF Biodiversity Conservation Project

Location: Bulgaria
Agency: USAID
Partners: Ministry of Environment and Waters (MOEW)
Associates in Rural Development, Inc.
Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
Duration: 1994-2000

The major objectives of this project are to (1) develop a collaborative system of administration and management of protected areas, (2) strengthen biodiversity conservation institutions, (3) develop financial mechanisms to support biodiversity conservation in the long term, and (4) provide equipment to carry out the preceding tasks. Management and institutional strengthening are carried out mainly on the local level, by assisting two Bulgarian national parks (Central Balkan and Rila) with developing Management Plans and by providing park administration staff with training and technical assistance. On the central level, the activity supports the National Nature Protection Service and assists the MOEW in the development of major biodiversity conservation legislation.

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Kazakhstan

Coalbed Methane Project Development, Kazakhstan

Location: Kazakhstan
Agency: USEPA
Partners: Government of Kazakhstan
ISPAT-KARMET Coal Company
Elements: 2. Investment facilitation
4. Information exchange and dissemination
8. Project development
Duration: 1998-Ongoing

Under this activity, USEPA has identified several U.S. companies and host coal companies and is now working with them to create two comprehensive coalbed methane projects.

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Environmental Policies and Institutions for Central Asia (EPIC) Program

Location: Kazakhstan
Agency: USAID
Partners: International Resources Group
Elements: 6. Human and institutional capacity building
Duration: 1998-2000

This program centers on water and energy management as these issues relate to regional economic development and global climate change. Under this project, a manual entitled "Greenhouse Gas Abatement: A Project Developer's Manual" was published jointly with the Greenhouse Gas Emissions Reduction Initiative project. In preparation for COP-6, the IRG Environment and Energy Policy Advisor will work with the Government of Kazakhstan to continue preparing the national inventory and investigate the possibility of changing Kazakhstan's baseline year from 1990 to 1992. Previously, assistance was given in analyzing the costs and benefits of GHG abatement.

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Greenhouse Gas Emissions Reduction Initiative (GGERI)

Location: Kazakhstan
Agency: USAID
Partners: International Resources Group
Climate Change Coordination
Elements: 6. Human and institutional capacity building
Duration: 2000-2001

The Government of Kazakhstan has established the Interagency Commission on the Implementation of the UNFCCC and Ratification of the Kyoto Protocol and its working organ, the Interagency Climate Change Center, to develop the strategy and procedures for pursuing GHG reduction measures on the national level. The GGERI project is assisting these organizations to:

- develop the framework for conducting a national Joint Implementation (JI) program and concluding bilateral agreements for early credits;
- create the capacity to evaluate potential JI projects on the basis of environmental, national development, and financial consideration;
- market JI opportunities to potential investors; and
- build institutional capacity to track GHG credits.

Training is scheduled in the following areas:

Rules and Conditions for Projects

- Baseline assessment, project development, verification, monitoring

Application and Review Procedures

- Application procedure development, project evaluation, review, and approval
- Management of Project Credits
- ERU tracking and registry procedures, legal and institutional issues

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Heating System Retrofit Pilot in Atyrau

Location: Kazakhstan

Agency: USAID

Partners: USEA
Hagler Bailly,
JSC "Energoproject"
Kazakhstan Electricity Association
Atyrau Agency for Natural Monopoly Regulation

Elements: 3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1999 - 2001

USAID/CAR is working on the pilot project in Kazakhstan to create a systems approach to improve energy efficiency in the Atyrau heat and hot water networks. The objectives are to

examine how a systematic approach involving regulatory and tariff reform, changes in internal management procedures and the introduction of new technologies can create environment to improve the energy efficiency in Atyrau. This effort entails working with local stakeholders, including municipal and regional governments, regulatory authorities, district companies, NGO and others to commence discussions on improving energy services. The goal of this project is to provide an opportunity for district energy utilities and regulatory authorities through exchange partnerships to review the design, construction, operation and efficiency in other developed and transition countries. This demonstration project could be replicated in others cities of Kazakhstan and Central Asia Republics.

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Institutional Strengthening for Kazakhstan's Participation in the UNFCCC

Location: Kazakhstan

Agency: USAID

Partners: International Resources Group

Elements: 6. Human and institutional capacity building

Duration: 2001

Under this project, USAID is working to:

- Building a broad coalition of climate change supporters that includes NGOs and the business community;
- Developing a Joint Implementation (JI) proposal that can serve as a replicable model, including verification and monitoring procedures; and
- Raising the level of awareness of climate change issues and strengthening the ability of the NGO community to participate in and monitor the policy process

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Kazakhstan Dryland Management Project (DMP)

Location: Kazakhstan

Agency: This project is funded by the GEF and implemented by the World Bank and the Government of Kazakhstan, with additional support from the Global Mechanism (GM) for the United Nations Convention to Combat Desertification (UNCCD), the International Fund for Agricultural Development (IFAD), and the following U.S.-based agencies and institutions: U.S. Department of Agriculture, Agricultural Research Service (USDA-ARS) at Logan, UT, and Beltsville, MD; the U.S. Geological Survey (USGS) Earth Resources Observation System (EROS) Data Center, Sioux Falls, SD; and the Global Livestock Collaborative Research Support Project (GL-CRSP), based at the University of California-Davis.

Partners: Ministry of Natural Resources and Environment Protection
Ministry of Agriculture
Kazakh Barayev Research Institute for Grain Farming at Shortandy (umbrella of the National Academic Center for Agrarian Research)
National Agency for Land Resources Management
Space Research Institute

Elements: 1. Research and development
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization

Duration: The DMP is in its preparatory phase from autumn 2000 to winter 2001, with the main project phase expected last from 2002-2007.

The overall development objective of this project is the conservation, rehabilitation, and sustainable utilization of natural resources in marginal cereal-growing areas in the Shetsky Rayon of Karaganda Oblast in Kazakhstan. In support of this objective, the pilot project, with the participation of local communities, will assist the Government of Kazakhstan in (1) developing alternative land uses and rehabilitating ecosystems for conservation of plant and animal biodiversity, (2) developing a coherent framework and national capacity to monitor carbon sequestration, and (3) building public capacity and developing a replication strategy so that project activities could be adopted in other similar areas of Kazakhstan, as well as other Central Asian countries.

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Regional Greenhouse Gas Monitoring Project

Location: Kazakhstan

Agency: USEPA

Partners: KazNIIMOSK

Elements: 6. Human and institutional capacity building
9. Other (Monitoring and reporting)

Duration: 2000-2002

The objective of this project is to demonstrate the feasibility of using the regional data collection systems in Kazakhstan as a foundation for preparing comprehensive GHG inventories according to international standards. The first year of the project is focusing on selected GHG sources in the Almaty region. Later stages will continue work in Almaty and expand to other regions of the country.

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Russian Federation

Collaboration on Renewable Energy

Location: Russia

Agency: USDOE

Partners: Russian Ministry of Fuel and Energy
NREL
Pacific Northwest National Laboratory

Elements: 3. Demonstration projects

4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1996-TBD

USDOE and the Russian Ministry of Fuel and Energy launched a joint program for technical collaboration on renewable energy resources. Several demonstrations have been launched, including (1) small wind turbine and rooftop PV power generators for demonstration projects in Fili Park in Moscow; (2) wind/diesel hybrid systems in 21 sites in Russia's Northern Territories; and (3) assistance in the start-up operation of a PV panel manufacturing facility in Moscow using U.S. technology. USDOE economic feasibility analysis of a 470kW wood-waste biomass electric power plant led to the World Bank authorization of a loan for up to \$3 million to build the facility. In addition, the Intersolarcenter in Moscow has been established as a sister organization to NREL for joint R&D activities.

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Emission Inventories and Methane Emission Recovery

Location: Russia

Agency: USEPA

Partners: Gazprom

- Elements:**
2. Investment facilitation
 3. Demonstration projects
 4. Information exchange and dissemination
 6. Human and institutional capacity building

Duration: 1993-Present

USEPA supports projects to measure and recover fugitive methane emissions from the Russian gas system. Activities have focused on cooperation with the U.S. private sector and on demonstrations of energy-saving techniques for compressor stations. A recent achievement was the first actual measurement of leaks in the Gazprom pipeline system. USEPA is now in discussions with Gazprom on a proposed project to perform a comprehensive emissions inventory of the entire Gazprom system.

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Moscow Mobile-Sources Pollution Control Project

Location: Russia

Agency: USEPA

Partners: Department of Natural Resources and Environmental Protection (Russia)
Government of Moscow

- Elements:**
3. Demonstration projects
 5. Regulatory/technical barrier removal
 6. Human and institutional capacity building

Duration: 1998-Present

The objective of this project is to develop a least-cost city strategy for the control of mobile-source pollution, the most significant environmental problem in Moscow. Activities include characterization of the air pollution problem in Moscow (ambient monitoring, emissions factors and inventories, etc.), upgrading of inspections program, fuel substitution, and catalytic retrofits. Recent work has focused on ROVER, a new low-cost device to measure real-time, on-road vehicle emission rates.

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Multi-Regional Project to Develop Monitoring and Reporting Capacity for Multiple Greenhouse Gases

Location: Russia

Agency: USEPA

Partners: World Wildlife Fund - Russia
Center for Energy Efficiency (CENEf)

- Elements:**
6. Human and institutional capacity building
 9. Other (Monitoring and reporting)

Duration: 1999-2004

The objective of this project is to demonstrate the feasibility of using the regional data collection systems in Russia as a foundation for preparing comprehensive GHG inventories according to international standards. In 1999, USEPA and Pacific Northwest National Laboratory provided financial and technical assistance to the Russian Federation to develop a GHG inventory for the Novgorod oblast. The Russian inventory team also developed inventory guidelines for other oblasts and conducted a workshop on the results of the

analysis (with other oblasts and Newly Independent States inventory specialists). In 2000, the project has been expanded to include Chelyabinsk, Khakassiya, and Sakhalin oblasts.

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Nizhny Tagil Environmental Project

Location: Russia

Agency: USEPA

Partners: Nizhny Tagil City Administration
Sverdlovsk Oblast Committee for Environmental Protection
Russian Federation State Committee for Environmental Protection
Clean Home (local NGO)

Elements: 3. Demonstration projects
6. Human and institutional capacity building
7. Technology verification, assessment, prioritization

Duration: 1994-Present

The objective of this project is to improve environmental quality in Nizhny Tagil (population 430,000), a highly polluted industrial city in the middle Urals region of Russia. Activities center on community-based planning and priority setting and include capacity building in the local environmental agencies, environmental education and NGO support, and reduction of industrial pollution. Results include significant improvement of the city's drinking water quality (reservoir management, upgrades at treatment plant, new chlorinators, and drinking water filters installed at a third of the city's schools and hospitals), reduction of thousands of tons of pollution (vegetative cover on mine waste, new cyclones at sintering plant, recycling of wastewater at metal-plating line, efficiency upgrades at Uralvagonzavod heating plant, removal of landfill from city limits), and improved public health (70% reduction in severity and frequency of children's bronchial asthma). Joint work with USEPA continues as the city takes over and funds new projects. A website is also under construction.

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Recovery of Coal Mine Methane in Russia

Location: Russia

Agency: USEPA

Partners: Russia Coalbed Methane Center (Institute of Coal and Coal Chemistry)

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
8. Project development

Duration: 1995-Ongoing

USEPA is working to help the Russian coal industry identify and develop economically viable projects to reduce fugitive methane emissions. A Russia Coalbed Methane Center was founded, mines with promising projects identified and profiled, demonstration feasibility studies (and demonstration projects) launched, and provision of equipment and training identify attractive recovery projects deployed.

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Russian Air Management Program

Location: Russia

Agency: USEPA

Partners: Volgograd City Administration
Volgograd Environmental Services Administration
Volgograd Citizens Environmental Task Force
Russian Federation State Committee for Environmental Protection
Scientific-Research Institute for Atmospheric Air Protection
Main Geophysical Observatory

Elements: 3. Demonstration projects

- 5. Regulatory/technical barrier removal
- 6. Human and institutional capacity building

Duration: 1994-Present

The objective of this project is to introduce reforms in the Russia-wide system of air quality management through the demonstration of policies and practices at the local level and to improve air quality in Volgograd through better air management practices. Activities include (1) upgrades of each element of Volgograd's air management system (ambient monitoring, stack testing, emissions factors and inventories, dispersion models, risk assessment, and strategy development); (2) introduction of low-cost environmental technologies, in order to reduce pollution; and (3) dissemination of successful practices. Results include better air management in Volgograd, a 7 percent reduction in stationary-source particulate emissions in the city, and the adoption of policy innovations at the national level, including new guidelines for emissions inventories, the development of new emissions factors (open burning, area sources, etc.), and further testing of the utility of visual emissions evaluation. Recent activity has focused on the introduction of pre-cast deltas, for use in electric arc furnaces at Volgograd's Red October Steel Mill, where early tests indicate an 80 percent reduction in fugitive emissions from and a 3 to 5 percent savings in energy costs at the furnace in which the first delta was installed.

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Russian District Heating Initiative

Location: Russian Federation

Agency: USDOE

Partners: Russian Center for Energy Efficiency (CENEf)
Pacific Northwest National Laboratory

- Elements:**
- 3. Demonstration projects
 - 4. Information exchange and dissemination
 - 6. Human and institutional capacity building

Duration: 1997-Present

USDOE supports CENEf and municipal efforts to identify, design, and finance district heating retrofits. In 1997, \$645,000 in efficiency improvements were made, increasing to an estimated \$2.4 million the next year, with the bulk of the funds coming from the cities themselves. Honeywell, Inc. is participating in the projects in Chelyabinsk and Kostroma.

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Russian Energy Efficient Windows Program

Location: Russian Federation

Agency: USDOE

Partners: U.S. window manufacturers
Russian Ministry of Construction

Elements: 4. Information exchange and dissemination

Duration: 1998-Present

USDOE cooperates U.S. window manufacturers to disseminate energy-efficient window technologies and window rating systems to Russia and other countries with economies in transition. Two workshops were held in Moscow where U.S. and Russian window manufacturers have developed plans for joint activities. As a result, the Russian Ministry of Construction (Gosstroj) has issued new, higher energy-efficiency requirements for Russian windows.

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Russian Wind-Diesel Hybrid Power Systems

Location: Russian Federation

Agency: USDOE

Partners: Intersolarcenter
USAID
NREL

- Elements:**
- 3. Demonstration projects
 - 4. Information exchange and dissemination
 - 6. Human and institutional capacity building

Duration: 1999-TBD

USDOE provides technical assistance through NREL to demonstrate the large potential for wind technologies in off-

grid locations in Russia's Northern Territories. NREL is collaborating with the Intersolarcenter in Moscow and the northern regional governments, with financial support from USAID and the Initiative for Proliferation Prevention. Forty wind-diesel hybrid systems were installed in 21 sites in Russia's Northern Territories in 1997-98. The project includes training and monitoring and has the potential to be replicated throughout Northern Russia.

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Second International Methane Mitigation Conference

Location: Russia

Agency: USEPA

Partners: Russian Academy of Sciences - Siberian Branch
Russia Coalbed Methane Center
Center for Energy Efficiency (CENef)

Elements: 2. Investment facilitation
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1997-Ongoing

This conference, held in Novosibirsk, Russia, June 18-23, 2000, in cooperation with the Russian Academy of Sciences, brought together more than 200 international leaders in business, policy making, and engineering from 30 countries to consider opportunities and issues in mitigating emissions of methane, a GHG responsible for 15 percent of human-induced global emissions. Specifically, the conference developed a stronger understanding of the specific measures that can result in the most pragmatic, cost-effective, and environmentally beneficial results. Participants discussed:

- the science and policy implications of implementing different methane control measures;
- costs and benefits of adopting different methane mitigation targets, focusing on the economic and environmental co-benefits of different measures;
- national and regional strategies to reduce emissions; and
- specific mitigation options, and project opportunities, in reducing emissions from coal mining, natural gas systems, ruminant livestock, solid waste disposal, and other sources, both anthropogenic and natural.

In addition, participants visited coal mines, farms, natural gas systems, and solid waste facilities in the region to better

understand practices and measures to reduce methane emissions. Follow-on activities are under discussions.

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US/Gazprom Working Group

Location: Russia

Agency: USEPA
USDOE

Partners: Gazprom

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination

Duration: 1993-Present

The US/Gazprom Working Group's goals are to increase the efficiency of the Russian natural gas industry; to reduce methane emissions to the atmosphere to help mitigate the threat of global climate change; to reduce air, soil, and groundwater pollution associated with the production and transmission of natural gas; and to promote commercial cooperation. The US/Gazprom Working Group has sponsored a number of activities, including demonstrations of technologies and practices that can reduce methane emissions while providing net economic benefits. In particular, six demonstration projects have been successfully implemented over the past seven years, effectively advancing the Working Group's goals of promoting commercial cooperation and reducing methane emissions.

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Ukraine

Climate Change Initiative (CCI) - Ukraine

Location: Ukraine

Agency: USAID

Partners: Hagler Bailly

Government of Ukraine
NGOs

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: Ongoing

The CCI is assisting Ukraine to reduce GHG emissions through the following activities:

- strengthening institutions and policies necessary for the Government of Ukraine to meet its international commitments on global climate change through the creation of a structure to administer a national climate change program and the establishment of market mechanisms to reduce GHG;
- increasing environmental management capacity to reduce GHG emissions in public and private sectors and to stimulate investment in and financing for environmental technologies and mitigation measures, especially in energy efficiency; and
- increasing the involvement of nongovernmental actors (e.g., industry, environmental groups, and the public) in the development and implementation of Ukraine's climate change policies and programs.

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Coal Mine Methane Reduction Initiative, Ukraine

Location: Ukraine

Agency: USEPA

Partners: Government of Ukraine
USAID

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building
8. Project development

Duration: 1998-2003

In cooperation with the Government of Ukraine and USAID, USEPA is supporting work of the Alternative Fuels Center to reduce methane emissions from Ukrainian coal mines. Specific activities include developing profiles and business plans for promising sites for coal mine methane projects and inventories of methane emissions from Ukrainian coal mines.

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Development of a Regional Climate Change Strategy in Lviv

Location: Lviv, Ukraine

Agency: USEPA

Partners: Ministry of Ecology and Natural Resources (MENR), State Safety Administration Lviv Region, Lviv City Council

Elements: 3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 2000-2001

The objective of this one-year project, which EPA will begin in late 2000, is to develop a climate change strategy for the Lviv region. Activities will include: (1) assessment of Lviv's sources of greenhouse gas emissions and other air pollutants; (2) assistance to Lviv policy-makers in developing specific policy recommendations for reducing GHGs and other pollutants in the various economic sectors (e.g., energy, industry, agriculture, etc.); (3) identification of several candidate UNFCCC projects and development of formal project memoranda describing the projects' potential for emissions reductions, and expected costs; and (4) workshops and seminars for local policymakers and the public on the science and potential impacts of climate change, the UNFCCC process (including the importance of GHG inventories), and the potential economic, environmental, and health-related benefits of reducing emissions and participating in flexibility mechanisms.

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Energy Service Company Support

Location: Ukraine

Agency: USDOE
USAID

Partners: Alliance to Save Energy

Elements: 4. Information exchange and dissemination

- 6. Human and institutional capacity building
- 8. Project development

Duration: 1999-2001

USDOE and USAID are supporting the Alliance to Save Energy's efforts to develop sustainable energy service companies (ESCOs) in Ukraine. The Alliance will provide technical assistance through its offices in Kiev and Lviv to the newly established Ukrainian Association for Energy Service Companies (AESCO). The Alliance aims to strengthen AESCO's capacity to function independently and will explore ways in which Ukraine's ESCOs and energy-related companies can promote the development of a market for ESCO services.

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Greenhouse Gas Emissions Modeling in Ukraine

Location: Ukraine

Agency: USEPA

Partners: Arena-Eco
Government of Ukraine

Elements: 1. Research and development
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 2000-2001

This project will assist Ukraine in improving its technical capability in the area of economic modeling and analysis. The work will enhance the ability of Ukrainian experts to conduct modeling experiments to assess the economic costs and benefits of GHG emissions reductions in their country. The effort will allow researchers to analyze the effect of various policies and specific emission reduction measures on the Ukrainian economy, including the mitigation of carbon emissions from fossil fuel combustion through fuel substitution, energy efficiency improvements, and the proposed flexibility mechanisms (joint implementation and emission trading). Particular attention will be focused on opportunities to improve energy efficiency in various sectors of the economy and to use coalbed methane as an energy source.

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Measurement of Methane Emissions at Compressor Stations

Location: Ukraine

Agency: USEPA

Partners: Naftogaz

Elements: 2. Investment facilitation
3. Demonstration projects
4. Information exchange and dissemination

Duration: 1999-Present

Methane emission measurements were conducted with the cooperation and support of Naftogaz, the national oil and gas company of Ukraine. The sites surveyed were operated by Ukrtransgas, the transmission company affiliated with Naftogaz. During this work, emission surveys were conducted at four compressor stations and one underground gas storage field. A more comprehensive measurement and emissions inventory program with Naftogaz is planned for 2001.

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Reburn Technology for NOx Control

Location: Ukraine

Agency: USEPA

Partners: Ladyzhyn Power Plant
Department for Advanced Technologies and Environment
Ministry of Power and Electrification

Elements: 3. Demonstration projects
7. Technology verification, assessment, prioritization

Duration: 1996-Present

This project is installing "reburn" (three-stage combustion) technology for the reduction of NOx emissions in Vynnytsya Oblast. An earlier reburn demonstration at Ladyzhyn boiler no. 4, which used natural gas as the reburn fuel, reduced NOx emissions by 50 to 60 percent. The completion of work on boiler no. 6, which uses a multi-fuel reburn fuel system that can burn either natural gas or pulverized coal, should yield a similar result. An added benefit of this project has been the reduction of CO₂ emissions at boilers 4 and 6. Assuming an

0.8 percent increase in boiler efficiency and an 8.08 percent decrease in CO₂ emissions when gas, rather than coal, is used as the reburn fuel, the potential for CO₂ emissions reductions is as much as 154,000 tons per year per boiler, depending on the length of time the boiler runs with gas as the reburn fuel.

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Reducing Ruminant Methane Emissions

Location: Ukraine

Agency: USEPA

Partners: National Agricultural University
Academy of Agricultural Sciences, Kharkiv

Elements: 5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1994-2000

Earlier USEPA feasibility work on ruminant methane in Ukraine (1) collected information on cattle production systems, feed resources socioeconomic conditions, infrastructure, and policies; (2) estimated emissions from cattle; (3) recommended economically feasible technologies and practices for reducing emissions; (4) identified constraints

and recommended ways to remove them; and (5) formulated a pilot project that could demonstrate some of the recommendations of a small scale. A computer model developed to simulate several national production scenarios and estimate methane emissions was used by the Ukrainian government in formulating its national climate change action plan. Activities under the renewed project will include a tracer-based methane measurement technology and Ukrainian researchers trained in this technique to develop accurate emission factors for cattle (which will improve Ukraine's GHG emissions inventory) and to select diets and feeding practices that result in higher livestock productivity and more efficient use of feed resources. The project will seek to establish a national measurement program, with collection of measurement data for major categories of cattle types and diets found throughout the country, so as to improve Ukraine's emissions inventory and make projections of future missions under various policy scenarios. It will also seek to demonstrate improved dairy cattle production practices using locally available feed resources and to advance the development of private sector opportunities in livestock production.

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LATIN AMERICA AND THE CARIBBEAN REGION PROJECTS

Latin America and the Caribbean Regional

Developing Regional Baselines for Renewable Energy and Energy-Efficiency Programs in the Caribbean

Location: Regional

Agency: USDOE
USAID

Partners: Canadian Ministry of Foreign Affairs
Center for Clean Air Policy
Caribbean Planning for Adaptation to Global Climate Change
Caribbean Energy Information System
The Caribbean Community Secretariat (CARICOM)
The Commonwealth Science Council
Global Change Strategies International, Inc.

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1999-2001

USDOE, USAID, and the Canadian Ministry of Foreign Affairs are collaborating to provide technical assistance to Caribbean nations to increase energy efficiency and renewable energy technology diffusion. The Center for Clean Air Policy is providing technical assistance to Caribbean countries to develop regional baselines for GHG emissions that can be used as the basis for developing energy efficiency and renewable energy projects under the UNFCCC.

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Development of the Clean Cities for Climate Protection

Location: Mexico
Brazil

Other countries

Agency: USDOE

Partners: International Council for Local Environmental Initiatives (ICLEI)

Elements: 3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 2000-2001

USDOE is collaborating with ICLEI to provide support for local governments in the targeted countries to identify and characterize specific energy-efficiency and DSM projects, especially those that emphasize the use of clean energy to accomplish both criteria air pollutant and GHG emissions reduction goals. ICLEI will work with each city in the identification of priority measures, provide project development assistance, and provide fundraising assistance. ICLEI's strategic objective is that these clean energy, energy-efficiency, and DSM projects result in quantifiable criteria air pollutant and GHG emissions reductions in a minimum of four of the cities involved in this project.

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Hemispheric Standards Initiative

Location: Regional

Agency: USAID
USDOE

Partners: Latin American Organization for Energy Development (OLADE)
Alliance to Save Energy

International Institute for Energy Conservation
(IIEC)
LBNL

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 2002

The Hemispheric Standards Initiative promotes the development of national and regional standards for energy efficiency, with particular focus on domestic appliances. Coordinated with the OLADE, the program receives funding from USDOE and is implemented jointly by the Alliance to Save energy, the IIEC, and LBNL.

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Increased Use of Renewable Energy Resources in Central America

Location: Regional

Agency: USAID

Partners: E & Co.
In-country partners

Elements: 2. Investment facilitation
4. Information exchange and dissemination
5. Regulatory/technical barrier removal

Duration: 1999-2001

USAID supports the development of renewable energy activities in Central America. These activities focus specifically on enterprise development, next-stage finance, capacity building, policy, and regulatory reform in El Salvador, Honduras, Guatemala, Nicaragua, and Panama. Cross-cutting activities involve options for off-grid energy deployment, GHG information for project entrepreneurs, and a monitoring and evaluation manual for renewable energy projects.

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Latin American Heavy- and Medium-Duty Vehicle Technology Initiative

Location: Mexico
Other countries

Agency: USDOE

Partners: Laredo Clean Cities Coalition

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1999-2001

USDOE is providing technical and financial assistance to the Laredo Clean Cities Coalition to develop markets for alternative fuel and energy-efficient technologies for heavy- and medium-duty transportation sectors in Latin America. The Coalition supports a program of ongoing dialogue, outreach efforts, data collection, training and technical assistance, technology transfer, and application of technologies. These technologies promote and develop markets for alternative fuel and energy efficiency for heavy- and medium-duty transportation sectors in Latin America.

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Mexico/Latin America Clean Energy Program

Location: Mexico
Other countries

Agency: USDOE

Partners: California Energy Commission (CEC)

Elements: 8. Project development

Duration: 2000-2001

USDOE and the California Energy Commission are collaborating with partners in Mexico and other nations to produce energy saving projects in 13 economic sectors and to facilitate partnerships among private sector technology vendors, project developers, investors, and potential customers in Mexico and Latin America.

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Renewable Energy Applications and Training

Location: Regional

Agency: USAID
USDOE

Partners: SNL

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building
8. Project development

Duration: 1999-2001

USAID is collaborating with USDOE's SNL to provide technical assistance to analyze, design, purchase, test, and install renewable energy systems, and to evaluate the reliability and efficiency of electric power transmission and distribution systems. In addition, this effort supports the sustainable and commercial use of renewable energy in Central America by creating projects based on the USAID/USDOE Mexico Program model and provides technical support for the extension of the Mexican Distance Learning Center (Telesecundaria) Program in Central America.

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Renewable Energy in the Americas (REIA) Initiative

Location: Regional

Agency: USAID

Partners: Organization of American States (OAS)

Elements: 5. Regulatory/technical barrier removal
8. Project development

Duration: 1999-2001

USAID is partnering with the OAS to support a Technical Secretariat for the REIA Initiative, which promotes renewable energy and energy efficiency ("sustainable energy") projects throughout Latin America and the Caribbean. The goals of this initiative include reducing GHG emissions from electricity generation, reducing local environmental emissions, increasing electrification of rural areas at a lower cost than grid extension or remote diesel generators, reducing fossil fuel imports,

creating local employment, and promoting commerce among industries throughout the Americas. REIA promotes sustainable energy through the implementation of activities in three major program areas: (1) Energy Policy and Regulation Support, (2) Technical Assistance and Trade Promotion, and (3) Sustainable Energy Impact Analyses.

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Technical Assistance to Facilitate Greater Use of Renewable Energy Technologies

Location: Argentina
Brazil
Chile

Agency: USDOE

Partners: NREL
Government of Argentina
Government of Brazil
Government of Chile

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1994-TBD

USDOE is collaborating with NREL and the governments of Argentina, Brazil, and Chile to facilitate greater use of renewable energy in these countries. Activities include demonstrating commercially viable wind, photovoltaic, and hybrid technologies that are appropriate for local conditions, as well as establishing institutional, individual, and business partnerships necessary to implement sustainable programs and commitments that benefit both the host countries and the United States. The effort also provides technical assistance for large-scale rural electrification and training and capacity building for installing and maintaining systems.

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Brazil

Adaptation of the North American Energy Measurement and Verification Protocol to Brazil

Location: Brazil

Agency: USAID

Partners: TBD

Elements: 4. Information exchange and dissemination
8. Project development

Duration: 2000-2001

Investments in energy efficiency usually require an accurate measurement of potential savings and verification of those savings after installation of equipment. Until recently, methodologies for measurement and verification have not been standardized. USDOE has sought to address this problem by developing a standard protocol called the North American Energy Measurement and Verification Protocol (NEMVP). USAID is currently working to adapt this protocol to a Brazilian context for the purpose of creating credible business and contractual instruments as well as channels for financing energy efficiency performance contracting. USAID has translated NEMVP into Portuguese and has presented it at a series of ESCO workshops. A working group will continue the dialogue on the adaptation and adoption of the NEMVP and will issue a first protocol within six months of the workshop.

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Biodiversity Conservation and Sustainable Forest Management

Location: Brazil

Agency: USAID

Partners: IMAZON
USDA Forest Service
Smithsonian Institution
Tropical Forest Foundation
World Wildlife Foundation
WHRC
University of Florida
Conservation International
IESB
The Nature Conservancy
SPVS

SOS Amazônia
IPAM
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Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: Ongoing

This USAID program focuses on global issues of biodiversity conservation and sustainable forest management through its projects in conservation management, reduced-impact forest management, agroforestry development for small producers, fire science and management activities, and environmental training and education. USAID participation in the G-7 Pilot Program to Conserve the Brazilian Rain Forest also supports teams of qualified Brazilian scientists (based on Amazonian research centers, universities, and NGOs) to address relevant natural resource issues. Two key areas of interest are: (1) a generation of knowledge to understand the structure and function of Amazonian ecosystems and the effects of human actions on ecosystem processes; and (2) a generation of science and technological knowledge applied to the sustainable use of such ecosystems, including the considerations of economic, social, cultural, and ethnic bases for sustainable use.

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Brazil Energy Training and Outreach Program (BETOP)

Location: Brazil

Agency: USAID

Partners: Institute for International Education (IIE)

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: Ongoing

BETOP was developed based on the identified need for dissemination and capacity building in such areas as climate change, renewable energy, and energy efficiency. USAID has selected the IIE consortium to implement the BETOP. This program is expected to reach governmental and nongovernmental organizations, and will cover technical, regulatory, and financial topics. By strengthening the internal capacity of key organizations and preparing them for their new roles in the restructured energy sector, USAID seeks to ensure the independence and sustainability of the key actors. BETOP focuses on design, development, and implementation of training courses and outreach initiatives in partnership with local institutions to (1) promote private sector involvement in

identifying, financing, structuring, implementing, operating, and monitoring clean and efficient energy projects; (2) assist in enhancing the capacity of Brazilian energy regulatory bodies; and (3) build the capacity of Brazilian banks, project developers, and end users to successfully structure the financing of clean energy projects. Some specific training courses that may be developed under BETOP are as follows:

- Performance-Based Contracting for Energy Efficiency;
- Economics of Climate Change;
- Economic, Financial Evaluation of Energy Efficiency Projects;
- Economic, Financial Evaluation of Renewable Energy Projects; and
- Structuring the Financing of Renewable Energy and Energy Efficiency Projects

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Brazil-U.S. Aspen Global Forum on Climate Change

Location: Brazil

Agency: USEPA
USAID

Partners: University of Colorado at Denver
The American Chamber of Commerce of Sao Paulo
LBNL
University of Sao Paulo

Elements: 5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1998-2001

This project's objectives are to identify and evaluate potential GHG mitigation in Brazil, including consideration of selection criteria and host country procedures for approving and tracking project-based emission reductions. Analytic work is carried out jointly by U.S. and Brazilian technical experts, and has identified a range of projects that are being evaluated as potential projects. Results have been discussed in the Brazil-U.S. Aspen Global Forum, which include representatives of the governments, private sector, financial community, and other NGOs from the two countries. The Forum has met five times and has provided a very positive vehicle for discussion of complex implementation issues and exchanges of views among government, industry, and NGO representatives. The Forum has established task forces on forestry and energy

(including transport) projects and met in August 2000 to review analysis of potential projects, consider financing options, and make recommendations to the negotiators relevant to COP-6 decisions. Results of the Forum process to date were discussed in a side event at Subsidiary Body meetings in Lyon, France, in September 2000. The organizers of the Forum process are considering convening one additional meeting early in 2001 to update the recommendations and findings of the Forum in light of the results and decisions of COP-6.

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Energy Technology Innovation Program (ETIP)

Location: Brazil

Agency: USAID

Partners: Agência Nacional de Energia Eléctrica (ANEEL)
Ministry of Mines and Energy (MME)
Various others

Elements: 5. Regulatory/technical barrier removal

Duration: 1999-2001

Given the identified need of stimulating the efficient use of energy, the Government of Brazil (GOB) established provisions in every new utility licensing contract that target 1 percent of utility gross revenues for energy efficiency programs in mid-1997. However, such policy has not been able to fully constitute and consolidate a Brazilian energy efficiency market. In other words, the provisions, in and of themselves, have not been sufficient to: (1) promote the development of energy efficiency service companies (ESCOs), (2) involve significant parts of the industrial and financial sectors in energy efficiency activities, and (3) support a greater number of DSM projects. In response to that, USAID designed the Energy Technology Innovation Program (ETIP). ETIP has concentrated its efforts on improving cost effectiveness in the allocation of the fund's resources by (1) trying to leverage the 1 percent of funds with other financial resources, (2) encouraging competition for use of the funds, and (3) stimulating market transformation through initiatives in partnership with the private sector.

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Landfill Gas Utilization

Location: Brazil

Agency: USEPA

Partners: City of Sao Paulo Environment Ministry

Elements: 3. Demonstration projects
8. Project development

Duration: 1996-2000

USEPA's Landfill Methane Outreach Program (LMOP) works with Brazilian officials to examine the opportunities for methane recovery at several landfills. The LMOP performed feasibility studies at the landfills and helped disseminate requests for proposals to developers. The City of Sao Paulo has accepted proposals for project development at four landfills.

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Renewable Energy Project Support Office (Winrock REPSO-Brazil)

Location: Brazil

Agency: USAID

Partners: Winrock International - REPSO Office in Brazil

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1995-2003

Through Winrock International, USAID is building a network of NGOs to increase the use of renewable energy in developing countries. Known as Renewable Energy Project Support Offices (REPSOs), these in-country facilities are managed by local institutions and are designed to provide the technical and financial assistance necessary to help identify and evaluate renewable energy projects. The REPSO in Brazil is located in Salvador, Bahia, and is staffed by Winrock and industry experts to work with cooperatives, NGOs, and private companies interested in renewable energy projects. The REPSO-Brazil provides assistance in local market and capacity building, information dissemination, project identification and development, provision of pre-investment

study funds, and industry-based training in collaboration with other energy program initiatives. The Brazilian REPSO also supports initiatives in the policy arena. By participating in regulatory public hearings and by providing technical assistance to both the MEE and the ANEEL, several ANEEL regulations supportive of clean energy technologies were enacted in 1999.

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Resident Energy Advisor to PRODEEM

Location: Brazil

Agency: USAID

Partners: Ministry of Mines and Energy's (MME) National Program for Energy Development in States and Municipalities (PRODEEM)

Elements: 2. Investment facilitation
3. Demonstration projects
6. Human and institutional capacity building

Duration: 1998-2000

Support provided by a Resident Renewable Energy Advisor to PRODEEM has proved fundamental in implementing both management and structural changes toward a market-oriented approach. Established in 1994 with the purpose of deploying decentralized renewable energy systems to off-grid remote areas of Brazil, PRODEEM had difficulty implementing financially sustainable renewable energy projects due to a lack of an integrated development approach before USAID/Brazil got involved. USAID's assistance proved to be a fundamental tool in implementing structural changes that currently steer PRODEEM and its multiple institutional partners toward a market-oriented approach. As one of the main results of this assistance, the advisor's work achieved financing for numerous components of the PRODEEM recently developed Action Plan. The advisor succeeded in bringing the leveraging of about US\$6.3 million in additional support from new non-USAID funds for Action Plan implementation for the years 2000 to 2004, with the expectation of another US\$4 million yet to be contributed during this period and another US\$135 million in new international funding — in addition to MME and other national resources — to become available for

PRODEEM projects in the 2004-2008 period. It is expected that the funds leveraged will catalyze demonstration projects, test field and approve specific technologies and applications (such as desalinization in arid areas and ice-making), and submit at least two renewable energy commercializing models to a market test.

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Sustainable Forest Strategies

Location: Brazil

Agency: USAID

Partners: IMAZON
USDA Forest Service
Smithsonian Institution
Tropical Forest Foundation
World Wildlife Foundation
WHRC
University of Florida
Conservation International
IESB
The Nature Conservancy
SPVS
SOS Amazônia
IPAM
State University of New York at Albany

Elements: 6. Human and institutional capacity building

Duration: 1996-Present

USAID/Brazil, working closely with prominent U.S.-based and Brazilian NGOs, institutions, and government agencies, is combining institutional strengthening, capacity building, research, and application of improved land management options. Currently, USAID supports efforts in 17 specific sites where its partners work with local NGOs and the communities to promote conservation, help establish viable agroforestry systems, and implement sustainable forestry strategies. The knowledge generated and lessons learned from the USAID program are producing results in land use change management that will help prevent further deforestation and are critically important in formulating workable local and global approaches to mitigating GCC emissions in Brazil.

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USAID/Brazil Support to ANEEL (Brazilian Regulatory Agency for the Electrical Sector)

Location: Brazil

Agency: USAID

Partners: ANEEL (Agência Nacional de Energia Elétrica)
Iowa Public Utility Commission
Florida Public Utility Commission
Oregon Public Utility Commission
USEA

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1998-2001

ANEEL is the established federal regulatory agency for the electrical sector. ANEEL is establishing the regulatory regime necessary to provide the right signals to the market to support the national energy policies promulgated by the Ministry of Mines and Energy (MME) and the National Council for Energy Policy (NEPC). USAID, through the USEA, has carried out activities under the so-called U.S.-Brazil Regulatory Partnership. This partnership was established in 1998 between ANEEL and three U.S. state-level public utilities commissions (Iowa, Florida, and Oregon), with the purpose of promoting regulatory experience exchanges between American and Brazilian regulatory institutions in the areas of clean and efficient energy production and use, planning, and market regulation. As a result of supported workshops and internships, several actions were considered by ANEEL in order to improve regulation of the electric energy sector in Brazil through better interaction with the state regulatory agencies, such as: (1) implementing multidisciplinary groups of quality standards and topics related to rural customers; (2) promoting supplementary power production through alternative sources, cogeneration, and small power producers; and (3) revising the low-income electric consumer policy (based on income and family size rather than electricity consumption).

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Guatemala

Guatemala City Landfill Gas Recovery and Power Generation Feasibility Study

Location: Guatemala

Agency: USAID
USDOE/National Energy Technology Laboratory
Oak Ridge National Laboratory

Partners: Municipality of Guatemala City, Guatemala

Elements: 3. Demonstration projects
7. Technology verification, assessment, prioritization
8. Project development

Duration: 1998-2000

Guatemala City's El Trebol landfill emits significant quantities of methane, a potent GHG, and other noxious gases. The El Trebol landfill consists of a large, existing, unmanaged landfill that does not meet current sanitary landfill design standards and a new managed landfill that is under development. A techno-economic feasibility study was conducted on capturing the methane from the existing landfill, after closure, and on the new landfill generating electricity to the local grid. The feasibility study included the following tasks:

- studying design options to close the existing landfill and recover methane from the closed landfill and the new managed landfill to maximize gas production;
- evaluating the economics of generating power using reciprocating engines, gas turbines, and fuel cell technologies against market electricity prices; and
- assisting the municipality with developing a Program Opportunity Notice to attract private investors.

The completed feasibility study showed that 9.2 MW of power could be generated economically using simple-cycle gas turbines. Support was also provided to the municipality in developing a Program Opportunity Notice to attracting private investors to the project. Support was also provided to the municipality in participating in the U.S. Trade and Development's Power & Energy in the Americas Conference (October 23-25, 2000, Houston, Texas) to attract investors to the project. If successfully developed, the project will serve as a model for replication throughout the Latin America and Caribbean region.

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Mexico

Border Energy Program

Location: Mexico

Agency: USDOE

Partners: Mexican Department of Energy

Elements: 4. Information exchange and dissemination

Duration: 1999-2001

Together, the U.S. and Mexican Department of Energy launched the Border Energy Forum to address the vital issues of energy and the environment that affect the rapidly developing region of northern Mexico and the southwestern United States. Each year, a broad spectrum of leaders from industry, government, educational institutions, and environmental organizations from both countries will convene to develop mutually beneficial strategies to address these issues.

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Consolidating a Methodology for Determining Greenhouse Gas Impacts of Energy Efficiency and Renewable Energy Projects and Developing Systems and Tools to Facilitate the Estimation of These Impacts

Location: Mexico

Agency: USAID

Partners: Association of Energy Conservation Technicians and Professionals (ATPAE)

Elements: 1. Research and development
2. Investment facilitation
4. Information exchange and dissemination
5. Regulatory/technical barrier removal
6. Human and institutional capacity building
8. Project development

Duration: 2000-2001

USAID is working with ATPAE to consolidate the various different methodologies used in Mexico to estimate the GHG impacts of energy efficiency and renewable energy projects. Specifically, this project will address the relative confusion that exists regarding how best to estimate the GHG impacts of energy efficiency projects given that the various

methodologies currently being used were developed by different sectors (i.e., private, public, and academic) and vary in their level of detail and basic assumptions. The project will provide a consistent framework for estimating GHG impacts of energy efficiency and renewable energy projects by development a single or a few methodologies that will be approved by both the Government of Mexico and key international institutions. The methodologies will be accompanied by tools (e.g., spreadsheet models) that will facilitate the determination of GHG impacts, thereby reducing the costs of estimating GHG impacts of energy efficiency projects (i.e., reduce transactions costs) and promoting the development of climate change-related energy efficiency and renewable energy projects. The results of this project will be disseminated among key stakeholders, and both the methodologies and the tools will be available on ATPAE's website.

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Energy Resource Management Systems Demonstration Projects

Location: Mexico

Agency: USAID

Partners: FIDE
CONAE
CMPL
ATPDE
TLALPAN
Municipalities

Elements: 3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1998-2003

To address the Government of Mexico's interest in maximizing the productive use of the increasingly limited supply of energy, the USAID energy program promotes technically viable, cost-effective models and demonstration projects to stimulate public and private sector interest in resource management systems. These projects have demonstrated that such investments are technically sound and pay for themselves through energy and other (e.g., pollution prevention) savings in a few months to a few years. However, many businesses lack the capital for the initial investment, and

relatively high interest rates in the marketplace preclude many projects from being profitable in the near term.

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Mexico Environmental Management Project

Location: Mexico

Agency: USAID

Partners: FIDE
CONAE

Elements: 5. Regulatory/technical barrier removal

Duration: Ongoing

USAID has strengthened Mexican electric sector institutions (FIDE and CONAE), leading to the design and implementation of a 5-year national-scale incentives/rebates program and has elevated Mexico to a regional energy efficiency leadership position.

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Power Wheeling

Location: Mexico

Agency: USAID

Partners: Comisión Federal de Electricidad (CFE)

Elements: 2. Investment facilitation
5. Regulatory/technical barrier removal
6. Human and institutional capacity building

Duration: 1998-2002

USAID is working to support a major investigation of the legal, regulatory, and environmental factors affecting cross-border trade in electricity between the U.S. and Mexico. Cross-border trading between the two countries could optimize the power generation mix, thereby achieving GHG reductions.

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Reduction of Power Station Emissions in Mexico

Location: Mexico

Agency: USAID

Partners: EPRI
CFE

Elements: 2. Investment facilitation

Duration: 1997-2000

USAID is collaborating with EPRI to accelerate transfer of environmental control technologies to CFE. The program aims to promote the implementation of energy efficiency technologies and to introduce low carbon-emitting energy systems through the private sector and public-private partnerships.

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Reduction of Refinery Emissions in Mexico

Location: Mexico

Agency: USAID

Partners: PEMEX

Elements: 2. Investment facilitation

Duration: 2000-2002

USAID is collaborating with PEMEX to accelerate transfer of environmental control technologies. The program aims to promote the implementation of energy efficiency technologies and to introduce low carbon-emitting energy systems through the private sector and public-private partnerships.

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Renewable Energy Power Generation

Location: Mexico

Agency: USAID

Partners: Shared Risk Trust Fund (FIRCO)
CONRE
SE
SEMARNAP
SEP
CIE-UNAM
ANES

Elements: 3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1993-2003

In 1999, more than 100 renewable energy systems were installed that will generate more than 14,000 megawatt-hours (MW-h) of electricity over their lifetimes that would have otherwise been generated by fossil fuel plants. The majority of this power generation is taking place in the town of San Juanico, Baja California Sur, where a large USIJI-approved hybrid renewable energy (wind and photovoltaic) project will avoid the generation of approximately 100,000 metric tons of CO₂ emissions over the estimated 30-year lifetime of the project. The remainder of the renewable energy systems also serve to demonstrate the usefulness of the technology and as the basis for a larger-scale program by the Government of Mexico. USAID helped key government counterpart agencies develop two national plans that promote renewable energy through expansion/replication of USAID pilot efforts.

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Renewable Energy in Rural Areas

Location: Mexico

Agency: USAID

Partners: Secretariat of Agriculture
Secretariat of Energy
Shared Risk Trust Fund (FIRCO)

Elements: 1. Research and development
5. Regulatory/technical barrier removal

Duration: Ongoing

USAID assisted the Secretariat of Agriculture and FIRCO, a key program partner, in designing and implementing a national-scale renewable energy program for productive applications in rural areas (e.g., solar-powered water pumping for agricultural uses). This program is leveraging a total of

\$31.4 million in GEF and private rural resources to install approximately 1,200 renewable energy systems that will generate more than 1 million MW-h of electrical power. At the same time, working with the Secretariat of Energy USAID will provide technical assistance to design a national-scale rural electrification program (e.g., power systems for potable water supply, schools, clinics) using renewable energy. This program will leverage \$6.5 million from the Government of Mexico.

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Support for Deployment of Renewable Energy and Energy Efficiency Projects

Location: Mexico

Agency: USDOE
USAID

Partners: SNL
NREL
Econergy International Corporation (EIC)

Elements: 4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1996-TBD

USDOE is collaborating with Econergy International Corporation and with counterparts in Mexico to establish a framework for the commercially sustainable development of renewable energy and energy efficiency projects in Mexico.

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Support for the Climate Change Action Plan

Location: Mexico

Agency: USAID

Partners: Instituto de Ingeniería
Universidad Nacional Autónoma de México
Delegación Tlalpan

Elements: 3. Demonstration projects
4. Information exchange and dissemination
6. Human and institutional capacity building

Duration: 1996-2001

USAID is implementing a project that integrates key elements of the forest conservation and energy programs in one of Mexico City's municipalities (Delegación Tlalpan). This project continues to demonstrate ways to mitigate global climate change by promoting energy efficiency, renewable energy, and pollution prevention activities, as well as forest conservation, consistent with local financial and technical capacity. To date, the project has been successful in implementing several new technologies, including a solar water heater in the 1968 Olympic Village, energy-efficient lighting in public spaces at two public housing developments, water-saving measures in approximately 100 apartments in public housing developments, and energy efficiency and water-savings measures in municipal buildings. The project recently held a seminar to announce the initiatives undertaken in Tlalpan and is currently evaluating the impacts of the demonstration projects.

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Support for the Mexico Climate Change Action Plan

Location: Mexico

Agency: USDOE

Partners: NREL
Ecological Institute of Mexico
CONAE

Elements: 4. Information exchange and dissemination
5. Regulatory/technical barrier removal
7. Technology verification, assessment, prioritization

Duration: 2000-2001

This project supports the development of specific implementation plans for several technologies included in Mexico's Climate Change Action Plan. Technologies from the Plan will be prioritized and implementation plans will be developed and carried out for the highest-priority technology areas.

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