



USIJI PROJECT

March 1999

FACT SHEET

USIJI PROJECTS

THE U.S. INITIATIVE ON JOINT IMPLEMENTATION (USIJI) IS PROUD TO PROFILE **36** ACCEPTED PROJECTS THAT OFFER INNOVATIVE APPROACHES TO COMBAT THE THREAT OF CLIMATE CHANGE AND PROMOTE SUSTAINABLE DEVELOPMENT. THESE PROJECTS TAKE PLACE IN **16** COUNTRIES ON FOUR CONTINENTS AND APPLY A VARIETY OF TECHNOLOGIES AND PRACTICES, INCLUDING WIND, GEOTHERMAL, HYDROELECTRIC, AND SOLAR ENERGY; COAL TO NATURAL GAS FUEL SWITCHING; METHANE GAS CAPTURE; BIOMASS WASTE-TO-ENERGY GENERATION; FOREST CONSERVATION; REFORESTATION AND SUSTAINABLE LAND MANAGEMENT; REDUCED IMPACT LOGGING; AND ENERGY-EFFICIENCY IMPROVEMENTS TO DISTRICT HEATING SYSTEMS AND PRIVATE RESIDENCES. IF ALL PROJECTS ARE FULLY FINANCED AND IMPLEMENTED, MORE THAN **298** MILLION METRIC TONNES (TONNES) OF CO₂ WILL BE SEQUESTERED OR OFFSET. USIJI LOOKS FORWARD TO ESTABLISHING EVEN MORE PARTNERSHIPS THAT WILL RESULT IN THE REDUCTION OF GREENHOUSE GAS (GHG) EMISSIONS.

FOR FURTHER INFORMATION,
PLEASE WRITE OR VISIT
USIJI AT:

The USIJI Secretariat
PO-6
1000 Independence Avenue, SW
Washington, DC 20585 USA
Telephone: 1-202-586-3288
Fax: 1-202-586-3485 or 3486

PROJECT ABSTRACTS

FOREST PRESERVATION

ECOLAND: Piedras Blancas National Park

Country—Costa Rica: The project preserves tropical forest through purchase of 2,500 hectares (depending on prices) in a “paper park,” the Piedras Blancas National Park in southwestern Costa Rica. The land was under threat of deforestation from private landowners who were awaiting a delayed buyout by the government. ECOLAND has acquired all of the land, and the land is now part of the

National Conservation Area System. Projected GHG benefits are estimated at 1.3 million tonnes of CO₂ over 16 years. Accepted February 3, 1995.

Participants: *COMBOS; Costa Rican Ministry of Environment and Energy; Rainforests of Austria; Tenaska Washington II Partners, Ltd.; Trexler and Associates, Inc.*

Project Contact: *Dr. Mark Trexler, Trexler and Associates, Inc., 1-503-786-0559.*

FUEL SWITCHING

Fuel Switching and Cogeneration for Decin District Heating System

Country—Czech Republic: The project has replaced part of a lignite coal-fired district heating system in the City of Decin located in Northern Bohemia. Domestic participants will assist in converting the Bynov District Heating Plant from coal-fired boilers to natural gas, internal-combustion engines, and associated exhaust gas/hot water heat exchange equipment, in addition to assisting in improving the efficiency of the hot water distribution network. The project will reduce GHG emissions

and dramatically improve local air quality. Projected GHG benefits are estimated at 607,000 tonnes of CO₂ over 26 years. A groundbreaking ceremony on September 18, 1995, attracted Czech, U.S., and other foreign dignitaries. Accepted February 3, 1995.

Participants: *Center for Clean Air Policy; City of Decin, Czech Republic; Commonwealth Edison Company; NIPSCO Development Company; Wisconsin Electric Power Company*

Project Contact: *Tim Hargrave, Center for Clean Air Policy, 1-202-408-9260.*

THE USJI EVALUATION PANEL

THE FOLLOWING AGENCIES PROVIDE
SUPPORT TO THE USJI
SECRETARIAT:

Department of State

Department of Energy

Environmental Protection Agency

Agency for International
Development

Department of Agriculture

Department of Commerce

Department of the Interior

Department of the Treasury



WIND POWER GENERATION

Plantas Eólicas, S.A. Wind Facility

Country—Costa Rica: The project, a 20-megawatt, privately owned and operated wind electric plant near the town of Tejona, became fully operational in 1996. The project consists of 55 KENETECH Model 33M-VS third-generation, variable-speed wind turbines. It is the first commercial-scale wind project in Latin America and the largest private power project in Costa Rica. Electricity

generated by the project is sold to the national utility company of Costa Rica and displaces electricity currently generated by the burning of fossil fuel. The estimated GHG benefits are 223,000 tonnes of CO₂. Accepted February 3, 1995.

Participants: *Illinova Generating Company; Plantas Eólicas, S.A.*

Project Contact: *Roger Morgenstern, Illinova Generating Company, 1-217-872-2365.*

LAND CONSERVATION AND MANAGEMENT

Río Bravo Carbon Sequestration Pilot Project

Country—Belize: The project has two components: the purchase of a total of 13,700 hectares of land to add to existing protected areas and the implementation of sustainable forest management practices on the larger conservation area to produce economic benefits to the neighboring population. The project has already purchased 6,000 hectares of endangered forest land to protect two adjacent tracts from

conversion to farmland. It also will sustainably manage 44,000 hectares of forest. It is estimated to sequester 10 million tonnes of CO₂ over the lifetime of the project. Accepted February 3, 1995.

Participants: *CINergy; Detroit Edison Company; PacifiCorp; Programme for Belize; The Nature Conservancy (TNC); Utilitree; Wisconsin Electric Power Company.*

Project Contact: *Tia Nelson, TNC; 1-703-841-5372.*

USIJI OFFERS PROJECT PARTNERS:

TECHNICAL COOPERATION



INFORMATION RESOURCES



PUBLIC RECOGNITION

LAND MANAGEMENT

RUSAFOR: Saratov Afforestation Project

Country—Russian Federation:

Originally proposed to plant seedlings on 500 hectares of marginal agricultural land or burned forest stands, RUSAFOR has planted 900 hectares, with an initial seedling survival rate of 65 percent; additional replanting occurred in 1996. The project is designed to evaluate the biological, operational, and institutional opportunities for managing a Russian forest plantation as a carbon sink. It will sequester 293,000

tonnes of CO₂ over its 60-year lifetime, prevent soil erosion, and foster public participation in joint implementation activities. Accepted February 3, 1995.

Participants: *International Forestry Institute; Oregon State University; Russian Federal Forest Service; Sustainable Development Technology Corporation; U.S. Environmental Protection Agency.*

Project Contact: *Ted S. Vinson, Ph.D., P.E., Oregon State University, 1-541-737-3494.*

SOLAR ELECTRIFICATION

Solar-Based Rural Electrification in Honduras

Country—Honduras: The project plans to increase the penetration of solar panels in rural Honduras. Building on pilot-scale solar electrification activities underway since 1992, CO₂ would be displaced by replacing kerosene lamps with solar-based electric lights in rural homes. The project is expected to reduce CO₂ emissions by more than 34,000 tonnes over 24 years. Project participants set up a solar-electric system financing program in May

1995, and the number and technical capacity of Honduran solar technicians has grown since the project's acceptance. Approximately 2,000 PV systems have been installed in Honduran homes. With full funding, a total of 7,000 units will be installed. Accepted February 3, 1995.

Participants: *ADESOL-Honduras; AHDE; AHDEJUMUR; COMARCA; Enersol Associates, Inc. Soluz Honduras, S.A. de C.V. Honduras; Soluz, Inc.*

Project Contact: *Phillip Covell, Enersol Associates, Inc., 1-978-251-1829.*

MORE THAN 140 PROPOSALS

FROM OVER 30 COUNTRIES HAVE

BEEN SUBMITTED TO USJI,

RESULTING IN 36 APPROVED

PROJECTS IN 16 COUNTRIES.

The Carbon Sequestration Through Costa Rican Territorial and Financial Consolidation of Biological Reserves Project

Country—Costa Rica: This project will transfer to the Costa Rican Ministry of Environment and Energy primary forest, secondary forest, and pasture lands that have been declared national parks or biological reserves but have not been registered in the National Property Registry as part of the Forest Patrimony of the State. Until the registration process has been completed, these lands will remain under the management of their current owners and will be vulnerable to deforestation. If fully funded, the project would sequester an estimated 57 million tonnes of CO₂ through avoidance of tropical deforestation and regeneration of secondary forests and pasture lands on 530,000 hectares of land newly converted to full protection status. The project will also involve the construction of an Earth Center: a multidisciplinary development combining residential, commercial, and work activities to provide public education and entertainment and to promote ecotourism. Two previous USIJI projects, Project

BIODIVERSIFIX and the protected area component of project CARFIX: Sustainable Forest Management, have been incorporated into this project and are no longer reported as separate USIJI projects.

Funds to purchase the project lands are proposed to be generated from the sale of “Certifiable Tradable Offsets” (CTOs) or “carbon bonds.” CTOs represent the creation of the first tradable commodity for mitigation of global climate change. Each CTO will represent a third-party certification of 1,000 tonnes of carbon the project sequestered the previous year. Monitoring and verification of the project’s increased carbon sequestration and original baseline are being conducted by an experienced commodity trade monitoring firm. The Costa Rican government will guarantee the CTOs for 20 years. Accepted July 28, 1997.

Participants: *Costa Rican Ministry of Environment and Energy (MINAE); Costa Rican National Parks Foundation; Earth Council Foundation—Costa Rica; Earth Council Foundation—U.S.*

Project Contact: *Adalberto Gorbitz, OCIC for MINAE, 011-506-220-0036.*

BIOMASS POWER GENERATION

Bio-Gen Biomass Power Generation Project

Country—Honduras: The project will develop a 10- to 15-megawatt biomass power generation plant in Guaimaca, Honduras. Sawmill and logging residues, currently burned in an uncontrolled manner and left to decompose on the forest floor, will serve as the fuel source, making the use of trees from plantations as a fuel source unnecessary and not cost-effective. All power produced by the plant will be sold to the Empresa Nacional de Energía Eléctrica, the utility responsible for generating,

transmitting, and distributing most electricity in Honduras. When fully funded and implemented, the project is expected to reduce CO₂ emissions by approximately 2,374,000 tonnes over 21 years. Accepted December 19, 1995.

Participants: *Add-On-Energy 1; Biomasa-Generación, S. de R.L.; International Utility Efficiency Partnerships (Edison Electric Institute); Nations Energy Corporation, a subsidiary of UniSource Energy.*

Project Contact: *Ronald Shiflett, International Utility Efficiency Partnerships, 1-202-508-5507.*

MOST USIJI PROJECTS HAVE
MULTIPLE PARTNERS.

USIJI PROJECTS COUPLE
CLEAN ENERGY ACTIVITIES WITH
ENVIRONMENTAL PROTECTION TO
PRODUCE EFFICIENT,
SUSTAINABLE BENEFITS.

HYDROELECTRIC POWER GENERATION

Doña Julia Hydroelectric Project

Country—Costa Rica: The project involves the construction and operation of a 16-megawatt hydroelectric plant using the Puerto Viejo River and Quebradón Creek in northern Costa Rica. Estimated average annual electricity generation is expected to be 83–87.8 gigawatthours during peak energy demand, displacing electricity and GHG emissions currently produced by thermal fossil fuel-burning facilities. The facility is partially constructed and is scheduled to be operational in November 1998.

The power generated will be sold to the Costa Rican Institute of Electricity (ICE). Over the 15-year lifetime of the project, the hydroelectric plant is estimated to produce a net reduction of 210,000 tonnes in CO₂ emissions. Accepted December 19, 1995.

Participants: *Compañía Hidroeléctrica Doña Julia; Costa Rican Ministry of Environment and Energy; ERI Services, Inc.; Grupo Saret (Costa Rica).*

Project Contact: *Jeff Nelson, ERI Services, Inc., 1-860-249-4321 ext. 138.*

GEOTHERMAL POWER GENERATION

El Hoyo-Monte Galan Geothermal Project

Country—Nicaragua: The project will develop a privately owned and operated geothermal powerplant. A 70-megawatt plant will be constructed and is expected to come on line by 2001. A final-stage upgrade of the plant to 105 megawatts may be constructed in 2004. The facility is designed to meet the demand for increased electricity supply in Nicaragua, and will use flashed steam technology with hot

water brought from a reservoir by deep wells. When fully funded and implemented, the project is estimated to reduce GHG emissions by more than 14.1 million tonnes of CO₂ over the lifetime of the project. Accepted December 19, 1995.

Participants: *C and R, Inc.; Trans-Pacific Geothermal Corporation.*

Project Contact: *Ellen Margron, Trans-Pacific Geothermal Corporation, 1-510-763-7812.*

REFORESTATION

The Klinki Forestry Project

Country—Costa Rica: The project analyzes the carbon emissions of homeowners, small organizations, and businesses in the U.S., and establishes specialized tree plantings in Costa Rica to offset those emissions. Cooperating farmers provide land and long-term management in return for financial incentives provided by emitters to establish Greenhouse Gas Mitigation Certificates, issued and guaranteed by the Costa Rican Government, documenting the actual carbon sequestered. A 40-year contract with farmers allows them to thin their forests to maintain the health and productivity of the stand, while the carbon sequestered is registered in the name of the U.S. entity.

The Klinki Carbon-Offset Forest is a mixture of native and naturalized species, a fast-growing stand which produces high-grade industrial wood. Products made from thinnings, such as

utility poles and plywood, continue the storage of sequestered carbon in use.

The project also works with schools in Connecticut, educating students about global warming and raising funds to offset school emissions through establishing Klinki Carbon-Offset Forests. Students strive towards establishing a “Carbon-Balanced Community.”

This 40-year demonstration project is designed to offset 7.2 million tonnes of CO₂ on 6,000 hectares, involving hundreds of small U.S. emitters and C.R. farmers. Accepted December 19, 1995.

Participants: *Farmers in Costa Rica, The Cantonal Agricultural Center of Turrialba, Yale School of Forestry and Environmental Studies, USDA Forest Products Laboratory, Schools, emitters, and other donors in the U.S.*

Project Contact: *Dr. Hester Barres, Reforest The Tropics, Inc. (A nonprofit organization), 1-860-572-8199.*

“ACTIVITIES IMPLEMENTED JOINTLY” (AIJ) REFERS TO A PILOT PHASE LAUNCHED IN BERLIN IN 1995 BY THE FIRST CONFERENCE OF THE PARTIES TO THE U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE IN WHICH BOTH DEVELOPING AND INDUSTRIALIZED PARTIES CAN PARTICIPATE JOINTLY IN PROJECTS THAT REDUCE GHG EMISSIONS.

METHANE GAS CAPTURE

RUSAGAS: Fugitive Gas Capture Project

Country—Russian Federation: The project plans to reduce fugitive methane emissions, improve operational efficiency, and seal valves on the main pipelines that are contiguous to the Storozhovskaya and Pallasovskaya compressor stations, Saratov and Volgograd oblasts, Russia. The GHG benefits of the project can be directly measurable and will reduce methane emissions equivalent to 31 million tonnes of CO₂ over the 25-year life of the project, if fully funded. The project

will evaluate technological, operational, and institutional opportunities for reducing methane emissions in the natural gas production and transmission system of Russia. Accepted December 19, 1995.

Participants: *GAZPROM; Oregon State University; Sealweld Corporation; Southern California Gas Co.; Sustainable Development Technology Corporation; U.S. Environmental Protection Agency; VOLGOTRANS GAS; YUGTRANS GAS.*

Project Contact: *Ted S. Vinson, Ph.D., P.E., Oregon State University, 1-541-737-3494.*

WIND POWER GENERATION

Tierras Morenas Windfarm Project

Country—Costa Rica: The project is constructing a 20-megawatt powerplant consisting of 32 NEG Micon 750/44 750-kilowatt wind turbine generators. Studies indicate the site has a very strong wind resource sufficient to support economical wind energy. The project is estimated to generate 76 gigawatthours annually, displacing 30-megawatt thermal units that burn high-sulfur diesel fuels, bunker oils, and IFO 180 fuels. The project is projected to reduce CO₂

emissions by more than 57,000 tonnes. Electricity generated will be sold to the Costa Rican Institute of Electricity (ICE). The facility is projected to be operational in July 1999. Accepted December 19, 1995.

Participants: *Aero Generacion de Centro America S.A.; Costa Rican Ministry of Environment and Energy; Energia Global International, Inc. (EGI); Molinos de Viento del Arenal, S.A., and International Wind Corporation.*

Project Contact: *Mike Skelly, EGI, 011-506-290-0796.*

“NINE OF THE TEN HOTTEST YEARS
SINCE THE MEASUREMENTS BEGAN
HAVE COME IN THE LAST TEN YEARS.
THE TREND IS CLEAR. THE HUMAN
CONSEQUENCES—AND THE ECONOMIC
COSTS—OF FAILING TO ACT ARE
UNTHINKABLE.”

VICE PRESIDENT AL GORE
THE UNITED NATIONS COMMITTEE ON
CLIMATE CHANGE
CONFERENCE OF THE PARTIES
DECEMBER 8, 1997
KYOTO, JAPAN



BIOMASS POWER GENERATION

The BEL/Maya Biomass Power Generation Project

Country—Belize: The project involves the installation and operation of an 18-megawatt waste-to-energy powerplant adjacent to a sugar mill in the community of Orange Walk in northern Belize to be fueled by sugarcane bagasse, orange processing wastes, and wood waste from sawmills and other nearby sources. Circulating fluidized bed combustion technology will be used at the plant. By displacing diesel oil-fired power generation with waste biomass fuel (that would revert eventually to CO₂ in any case), the project would reduce utility CO₂

emissions by as much as 3.4 million tonnes over its projected 30-year life.

The project will help reduce the power supply deficit in Belize, increase the economic efficiency of one of the country's principal export industries, and use biomass wastes that are often incinerated in open piles or disposed of improperly. Accepted December 6, 1996.

Partners: e-prime, Inc., a subsidiary of Public Service Company of Colorado; e-prime (Belize), Ltd.; International Utility Efficiency Partnerships, Inc. (IUEP); Belize Electricity, Ltd.

Project Contact: Ronald Shiflett, Jr., IUEP, 1-202-508-5507.

BIOMASS POWER GENERATION

The Bio-Gen Biomass Power Generation Project Phase II, Saba Site

Country—Honduras: The project will locate a 15-megawatt biomass-fueled steam powerplant 15 kilometers west/northwest of the city of Saba, Honduras. The plant will be owned and operated by Biomasa-Generacion for the purpose of generating electrical power for sale to ENEE (Empresa Nacional de Energia Electrica), the primary utility responsible for the generation, transmission, and distribution of electricity in Honduras. By displacing diesel-fired power generation with biomass fuel obtained from waste from the forest products and palm oil industries, the project

participants estimate it will reduce CO₂ by as much as 2.3 million tonnes over its projected 20-year life.

The collection and controlled burning of biomass for the project will also eliminate current disposal methods of palm and wood wastes that contaminate local air and water resources and increase the threat of forest fires. Accepted December 6, 1996.

Partners: Biomasa-Generación, S. de R.L.; International Utility Efficiency Partnerships, Inc. (IUEP); Nations Energy Corporation, a subsidiary of UniSource Energy.

Project Contact: Ronald Shiflett, Jr., IUEP, 1-202-508-5507.

DISTRICT HEATING IMPROVEMENTS

District Heating Improvements in Zelenograd

Country—Russian Federation: This project will upgrade a portion of the district heating system for the city of Zelenograd to provide more reliable, higher quality service with less consumption of natural gas. If fully implemented, the project has the potential to reduce GHG emissions by more than 1.5 million tonnes of CO₂ over the estimated 30-year life of the project. The reduction would result from the installation of heat exchangers, pumps, control valves, and related

instrumentation and control circuitry at 28 substations within the city's district heating system. Accepted December 6, 1996.

Partners: *City of Zelenograd; Consortium for Integrated Resource Planning at the University of Wisconsin; Johnson Controls, Inc.; Leonardo Academy, Inc.; Russia Energy Savings Fund.*

Project Contact: *Patrick Cronin, Johnson Controls International, Inc., 1-414-274-4148; Michael Arny, Leonardo Academy, Inc., 1-608-250-0400.*

WIND POWER GENERATION

Aeroenergía Wind Facility Project

Country—Costa Rica: The project plans to develop a 6.4-megawatt private power wind facility using 16 Micon Model 750-400-100-kilowatt latest generation wind turbines. The facility began operating in July 1998. Electricity generated by the facility will be sold to the Costa Rican Institute of Electricity (ICE) and will displace electricity currently generated by burning fossil fuels.

The project is expected to reduce CO₂ emissions by more than 26,000 tonnes over a 21-year period. Accepted December 19, 1995.

Participants: *Aeroenergía, S.A., EnergyWorks; Power Systems, Inc.; Bluefields International.*

Project Contacts: *Joseph Viroslav, Power Systems, Inc., 1-214-879-6555; Salomon Lechtman, Aeroenergía, S.A., 011-506-227-4555.*

THE "UNITED STATES INITIATIVE
ON JOINT IMPLEMENTATION"

(USIJI) IS A PILOT PROGRAM THAT

ENCOURAGES ORGANIZATIONS IN

THE U.S. AND OTHER COUNTRIES

TO IMPLEMENT PROJECTS THAT

REDUCE, AVOID, OR SEQUESTER

GHGs. THE UNITED STATES

ANNOUNCED THE USIJI

IN OCTOBER 1993 AS PART OF ITS

NATIONAL CLIMATE CHANGE

ACTION PLAN.



The Noel Kempff M. Climate Action Project

Country—Bolivia: This land-use project is located in the province of Velasco, Department of Santa Cruz, Bolivia, and stretches to the border of Brazil. It combines elements of park expansion, protection, regeneration, and development of sustainable forest product enterprises. Component A involves the cessation of logging activities on 631,908 hectares and expansion of an existing park to encompass these and other adjoining lands totaling 817,846 hectares. Component B will establish income-generating activities that will be used to preserve and protect the entire 1,523,446 hectares of park land. The income-generating activities include an endowment fund, commercialization of orchids and other products, and an ecotourism program. Component C will extend mitigation activities beyond

the boundaries of the park by establishing environmentally sustainable economic opportunities for local populations. The project developers estimate that Components A and B will sequester approximately 54 million tonnes of CO₂ over the 30-year project lifetime.

The project is located in an environmentally sensitive area. The environmental benefits of the project are substantial and include protection of biodiversity and habitat, water and air quality improvements, and soil conservation. Accepted December 6, 1996.

Partners: *American Electric Power Company, Inc. (AEP); BP America; Fundación Amigos de la Naturaleza (FAN); PacifiCorp; The Nature Conservancy (TNC).*

Project Contact: *Tia Nelson, TNC, 1-703-841-5372.*



“CARBON SEQUESTRATION”

REFERS TO THE CAPTURE OF CO₂ IN A CARBON SINK (SUCH AS THE OCEAN) OR A TERRESTRIAL SINK (SUCH AS FORESTS OR SOILS) SO AS TO REMOVE IT FROM THE ATMOSPHERE, AND THUS, MITIGATE THE GREENHOUSE EFFECT.

REFORESTATION

Reforestation of Chiriqui Province

Country—Republic of Panama: The project involves the reforestation of degraded pasture land in the Chiriqui Province in western Panama. The project plans to plant 500 hectares with teak (*Tectona grandis*) with an estimated net sequestration of 57,000 tonnes of CO₂ over the 25-year lifetime of the project, if fully funded and implemented. The sustainably managed teak plantation is expected to

yield a stream of high-quality hardwood for furniture production, providing a substitute for unsustainably harvested natural forest hardwoods.

The plantation is also expected to reduce soil erosion from grazing and cropping and will increase wildlife habitat. Accepted December 6, 1996.

Partners: CAOBO, Inc.; Center for Clean Air Policy.

Project Contact: Guillermo Suescum, CAOBO, Inc., 1-212-684-4064.

REFORESTATION

Reforestation in Vologda

Country—Russian Federation: This project plans to convert 2,000 hectares of active hayfield to natural forests in a location adjacent to the Russky Sever National Park in the Vologda region. Approximately 1,100 hectares are located within the borders of the national park, but they are not considered part of the park. These hayfields would be taken out of production and the area allowed to

regenerate. The estimate of above- and below-ground carbon sequestration is approximately 878,000 tonnes of CO₂ over the 60-year life of the project. Accepted December 6, 1996.

Partners: Center for Environmental Economics, Moscow; Environmental and Economic Consulting; Vologda Region Department of Natural Resources.

Project Contact: Alice LeBlanc, Environmental Financial Products, LLC, 1-202-261-1366.



BIOMASS CULTIVATION

Project *Salicornia*: Halophyte Cultivation in Sonora

Country—Mexico: This is a demonstration project on 30 hectares of land (in Phase I) to cultivate a native halophyte (a salt-tolerant euphorb plant, *Salicornia bigelovii*) in a coastal desert region of northwest Mexico. The crop could provide a valuable source of biomass material, food, and income from land unsuited to other human purposes. The developers estimate the project will sequester more than 3,000

tonnes of CO₂ by increasing soil organic matter and long-term storage of CO₂ in the low-carbon desert soils. A greatly expanded Phase II of the project is in the planning stages but has not yet been submitted to the USIJI. Accepted December 6, 1996.

Partners: *Econergy International Corporation (EIC); Genesis, S.A. de C.V.; Halophyte Enterprises, Inc. (HEI); Salt River Project (SRP); Planetary Design Corporation (PDC).*

Project Contact: *Roy Hodges, PDC, 1-602-912-9887.*

FOREST CONSERVATION

Forest Conservation—Bilsa Reserve

Country—Ecuador: World Parks Endowment, Inc., will implement a forest preservation project with the second largest Ecuadorian environmental NGO, Fundación Jatun Sacha, which has successfully managed forest reserves in the Ecuadorian Amazon and the highlands. The project will add 2,000 hectares of tropical forest to the already established 2,000 hectares comprising the Bilsa Reserve in the Montanas de Mache in the Esmeraldas province of northwest Ecuador. The developers estimate that the project site will store approximately 1,170,000 tonnes of

CO₂ that would otherwise be lost because of land conversion. The Pacific coast wet forest where the reserve is located has suffered extremely high deforestation rates. The project will protect a forest area that is extremely rich in biodiversity and is under imminent threat of deforestation.

Jatun Sacha will manage the reserve for ecotourism and research purposes. Accepted February 26, 1997.

Partners: *Fundación Jatun Sacha; World Parks Endowment, Inc.*

Project Contact: *Byron Swift, World Parks Endowment, Inc., 1-202-939-3808.*

Scolec Té—Sustainable Land Management and Carbon Sequestration, Chiapas

Country—Mexico

The Scolec Té project is a demonstration of sustainable forestry and agroforestry (tree/crop system) management practices in nine Mayan indigenous communities, in the humid lowland and drier hill forest-cropland mosaics of northeast Chiapas. About 2,400 hectares of farmers' and communal lands have been identified by the villagers as suitable for improved practices chosen by farmers through their rural agricultural credit union. Plans call for a 3-year start-up phase, then 27 years of social, economic, environmental, and carbon benefits, totaling 1,210,000 tonnes of CO₂ if fully funded and implemented. Scolec Té seeks to develop a model for delivering technical assistance from the project coalition and for delivering income from investors seeking potential GHG reduction benefits to farmers who increase carbon sequestration on

their lands. It also is developing protocols for the administration, monitoring, and evaluation of larger-scale land use sequestration programs for low-productivity lands in southern Mexico, through its strong research and monitoring components. Project activities should help conserve biodiversity, and reduce human migration to the critical Lacandon forest frontier undergoing deforestation. Accepted February 26, 1997.

Partners: *American Forests; Econergy International Corporation (EIC); El Colegio de la Frontera Sur; IEA Greenhouse Gas R&D Programme; International Carbon Sequestration Federation; Unión de Crédito Pajal; University of Edinburgh; Counterpart International.*

Project Contact: *John Paul Moscarella, EIC, 1-202-822-4980; Gerry Gray, American Forests, 1-202-955-4500 ext. 217; Tony DiNicola, Counterpart International, 1-202-296-9676, ext. 519.*

“TECHNOLOGY COOPERATION”

MAKES AVAILABLE ENERGY

EFFICIENT TECHNOLOGIES AND

PROCESSES DEVELOPED BY

INDUSTRIALIZED NATIONS TO LESS

INDUSTRIALIZED NATIONS. THIS

COOPERATION MAY BE CONDUCTED

THROUGH THE EFFORTS OF

PRIVATE ORGANIZATIONS OR MAY

INVOLVE GOVERNMENTS AND

INTERNATIONAL INSTITUTIONS.

Carbon Sequestration Through Reduced Impact Logging

Country—Indonesia: The project will implement reduced impact logging (RIL) techniques to reduce GHG emissions associated with logging practices in East Kalimantan, Indonesia. RIL will be introduced on 600 hectares of forest land within the Kiani Lestari and Inhutani private logging concessions in East Kalimantan, on the island of Borneo. The forests are lowland dipterocarp rain forest, have not been previously harvested, and are not densely populated. The project will include developing guidelines and procedures for implementation of RIL techniques, providing on-site training, and implementing the techniques on the 600 hectares. Some logging operations in the tropics damage a much higher proportion of the forest than the trees that are harvested. However, it is estimated that logging damage to the remaining biomass can be reduced by as much as 50 percent through precutting vines, directional felling, and planned extraction of timber on properly constructed and utilized skid

trails. Project developers estimate that this project will generate cumulative savings of more than 134,000 tonnes of CO₂ over the 40-year life of the project.

As heavily damaged residual forests yield little timber and, therefore, are at high risk of conversion to other uses, RIL techniques help preserve existing biodiversity. RIL techniques also reduce the susceptibility of the forest to weed infestations that reduce biomass recovery rates and reduce the susceptibility to destructive fires. Furthermore, by reducing the amount of forest canopy that is opened up, there are fewer ill effects on understory plants and animals because of changes in temperature, light intensity, wind speed, and moisture. Accepted March 24, 1997.

Partners: *The Association of Indonesian Forest Concession Holders (APHI); the Center for International Forestry Research (CIFOR); COPEC, a joint implementation project developer; the Kiani Lestari and Inhutani II concessionaires; Ministry of Forestry for the Republic of Indonesia.*

Project Contact: *Don Justin Jones, COPEC, 1-626-799-9059.*

SOLAR ELECTRIFICATION

Rural Solar Electrification Project

Country—Bolivia: This project intends to finance and install photovoltaic units of 48–55 watts in 400 households in the two Departments of Bolivia, Oruro and Chuquisaca, which are not serviced by the national electricity grid system. The photovoltaic units will be used for residential lighting and will reduce CO₂ emissions by replacing diesel wick lanterns. When implemented, the project is estimated to reduce GHG emissions by 1,300 tonnes of CO₂. The project is intended to test the commercial feasibility of photovoltaic technology in rural areas of Bolivia. If

successful, this project could lead to a second, much larger project. Accepted October 15, 1997.

Partners: *Center for Sustainable Development in the Americas (CSDA); Empresa Eléctrica Guaracachi S.A. (EGSA—an affiliate of GPUI, Inc.); General Public Utility International, (GPUI) Inc. (an independent power provider); National Rural Electric Cooperative Association (NRECA International, Ltd.); the Prefectures of Oruro and Chuquisaca.*

Project Contact: *James Torpey, GPUI, Inc., 1-973-263-6376; Anne Hambleton, CSDA, 1-202-588-0155.*

RURAL ELECTRIFICATION

SELCO—Rural Electrification Project

Country—Sri Lanka: This project is designed to market and install 812,000 solar home systems in Sri Lanka as an alternative to the use of kerosene lamps for lighting and the use of diesel-electric charging of lead-acid batteries for powering small home appliances. The project will build on successful pilot efforts in Sri Lanka to demonstrate and install solar home systems, obtain consumer financing, and provide technical assistance to rural homeowners who lack access to the electricity grid. Each solar system will consist of a 12-volt photovoltaic panel,

battery, and charge controller as well as compact fluorescent lamps and hardware. The systems will provide electricity for lighting, radio, and television services. If fully financed and implemented, the project is estimated to reduce GHG emissions by 5.6 million tonnes of CO₂. Accepted October 15, 1997.

Partners: *Renewable Energy Services Company of Asia, Ltd.; Solar Electric Light Company (SELCO); Trexler and Associates, Inc.*

Project Contact: *Dr. Mark Trexler, Trexler and Associates, Inc., 1-503-786-0559.*

“GREENHOUSE GASES” (GHGs) ARE CONSTITUENTS OF THE ATMOSPHERE WHICH HAVE A MAJOR EFFECT ON THE EARTH’S RADIATIVE HEAT BALANCE—BY IMPEDING OUTGOING LONGWAVE RADIATION, THEY WARM THE EARTH’S SURFACE. GHGs INCLUDE CARBON DIOXIDE (CO₂), METHANE (CH₄), NITROUS OXIDE (N₂O), AND CHLOROFLUOROCARBONS (CFCs). WATER VAPOR IS ALSO A GHG. OBSERVED INCREASES IN THE ATMOSPHERIC CONCENTRATIONS OF THESE GHGs OVER THE PAST CENTURY HAVE RESULTED FROM LAND-USE CHANGE, THE RELEASE OF CFCs FROM REFRIGERATORS AND AIR CONDITIONERS, AND THE BURNING OF FOSSIL FUELS SUCH AS GASOLINE, OIL, COAL, AND NATURAL GAS.

RENEWABLE POWER GENERATION

APS/CFE Renewable Energy Mini-Grid Project

Country—Mexico: The project involves the development of a hybrid power supply system that will use solar, wind, and diesel capacity to replace a 205-kilowatt diesel generator in the town of San Juanico, Baja California Sur State, Mexico. The hybrid system will extend the availability of electrical service from the current 3–4 hours per day to 24 hours per day. The project is scheduled to be operational in December 1998.

The project has the potential to reduce GHG emissions by more than 7,000 tonnes of CO₂ over the 30-year project lifetime. Accepted March 19, 1998.

Partners: *Arizona Public Service Company (APS) of Phoenix, Arizona; Comisión Federal de Electricidad (CFE), the Mexican national utility; Niagara Mohawk Power Corporation (NMPC) of Syracuse, New York.*

Project Contact: *Dr. C.V. Mathai, Arizona Public Service Company, 1-602-250-3569.*

LAND CONSERVATION AND MANAGEMENT

Community Silviculture in Sierra Norte, Oaxaca

Country—Mexico: This project will improve existing silviculture and forest protection activities in six communities in rural southern Mexico through forest restoration and improved forest management, increased agricultural efficiency, and increased wood use efficiency over 49,027 hectares of land. The project will build on and support local community-based efforts to expand and utilize forests in a sustainable manner over the 30-year life of the project. If fully funded and implemented, an estimated 3,065,000

tonnes of CO₂ will be sequestered. Accepted March 19, 1998.

Partners: *Consejo Civil Mexicano para la Silvicultura Sostenible, A.C. (CCMSS); Econergy International Corporation (EIC); Estudios Rurales y Asesoría Campesina, A.C. (ERA); Fideicomiso de Recursos Naturales de la Sierra Norte de Oaxaca; Secretaría del Medio Ambiente, Recursos Naturales y Pesca (SEMARNAP); Unión de Comunidades Ixlán-Etla, Oaxaca (IXETO); Union de Comunidades Zapoteco-Chinantecas (UZACHI).*

Project Contact: *Edward Hoyt, EIC, 011-525-563-4280.*

DISTRICT HEATING IMPROVEMENTS

District Heating Efficiency Improvements, Metallurgichesky District of Cheliabinsk

Country—Russian Federation: This project plans to upgrade the central heating system of the Metallurgichesky District of Cheliabinsk, Russia, which serves a population of 144,500. Energy efficiency improvements have been identified for the heat distribution system, public buildings, residential housing stock, and boiler houses. Potential GHG benefits of the project

are estimated at 828,000 tonnes of CO₂ over the 10-year life of the project. Accepted March 19, 1998.

Partners: *Administration of Oblast and Metallurgichesky District of Cheliabinsk (the municipal government); Battelle Memorial Institute/Pacific Northwest National Laboratory (PNNL), the Center for Energy Efficiency (CENEf) in Moscow.*

Project Contact: *Susan Legro, Battelle Memorial Institute/PNNL, 1-202-646-7861.*

DISTRICT HEATING IMPROVEMENTS

District Heating Renovation, Lytkarino

Country—Russian Federation: The project will employ energy efficiency technologies to rehabilitate and modernize the central heating system of Lytkarino, Russia. The system, which serves a population of 53,000, will undergo improvements to the boiler house and central heating points, municipal and public service buildings, and the housing stock. If fully funded and implemented, the total GHG benefits of the project are estimated at

486,000 tonnes of CO₂ over the 10-year project lifetime. Accepted March 19, 1998.

Partners: *Administration of the City of Lytkarino (the municipal government); Battelle Memorial Institute/Pacific Northwest National Laboratory (PNNL); the Center for Energy Efficiency (CENEf) in Moscow.*

Project Contact: *Susan Legro, Battelle Memorial Institute/PNNL, 1-202-646-7861.*



ENERGY EFFICIENCY

The Guguletu Eco-Homes Project

Country—South Africa: This project plans to construct energy-efficient Eco-Homes in the community of Guguletu, Republic of South Africa. The Guguletu Eco-Homes Project would minimize emissions through the use of passive solar construction, which can decrease a home's space-heating requirements by 50 to 70 percent. Additional environmental benefits include a reduction in the use of kerosene stoves, resulting in an abatement of local air pollution and improved indoor air quality. By providing training for members of the community in each phase of the construction, the project would also provide economic benefits through capacity building and technology transfer. The estimated life of the project is 50 years, and carbon benefits are estimated to be 13,000 tonnes of CO₂.

Housing expansion is key component of the U.S.—South African Binational Commission headed by Vice President Al Gore and South African Vice President Thabo Mbeki. The Eco-Homes project would provide for the construction of up to 6,000 houses with energy-efficient features, helping to fulfill the commission's efforts to design and build energy-efficient homes. These homes would provide a higher quality alternative to standard homes now offered and would also be eligible for the low-income housing subsidy offered by the Reconstruction and Development Program (RDP). Accepted July 14, 1998.

Participants: *The International Institute for Energy Conservation of Washington, D.C.; PEER Consultants, P.C., of Maryland; and the Community of Guguletu, Republic of South Africa.*

Project Contact: *Kelly Gordon, IIEC, 1-202-842-3388, ext. 508.*

HYDROELECTRIC POWER GENERATION

The Santa Teresa Hydroelectric Project

Country—Guatemala: This project involves the construction of a hydroelectric dam that will generate electricity by a non-GHG-emitting renewable resource, thereby displacing the combustion of fossil fuels used in generating electricity and reducing GHG emissions. The Santa Teresa Hydroelectric project is estimated to reduce GHG emissions by a total of

1.2 million tonnes of CO₂ over a 15-year project life. Plant size and water flow rates indicate that the facility will be operational 50 percent of the time.

Participants: *The Center for Sustainable Development in the Americas (CSDA); Agropolochic S.A.; Energia Global International (EGI).*

Project Contact: *Anne Hambleton, Center for Sustainable Development in the Americas, 1-202-588-0155.*

"SUSTAINABLE DEVELOPMENT"

REFERS TO THE NEED TO BALANCE THE SATISFACTION OF NEAR-TERM INTERESTS WITH THE PROTECTION OF THE INTERESTS OF FUTURE GENERATIONS, INCLUDING THEIR NEED FOR A SAFE AND HEALTHY ENVIRONMENT. AS EXPRESSED BY THE 1987 U.N. WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT (THE "BRUNDTLAND COMMISSION"), SUSTAINABLE DEVELOPMENT "MEETS THE NEEDS OF THE PRESENT WITHOUT COMPROMISING THE ABILITY OF FUTURE GENERATIONS TO MEET THEIR NEEDS."

ENERGY EFFICIENCY

The CAPSA Project

Country—Argentina: The project involves the conversion of six gas turbines from simple-cycle to combined-cycle operation at the Capex powerplant in the province of Neuquen, Argentina. Converting the turbines to combined-cycle operation results in an increase of 185 megawatts in power generated by the plant through the use of waste energy, without increasing fuel consumption. This increased capacity will displace other, more expensive fossil capacity, resulting in emissions

reduction. The total GHG benefits of the 185 megawatts of additional power achieved with no increase in fuel consumption are estimated at roughly between 16.5 and 33 million tonnes of CO₂ over the project's 30-year lifetime.

Participants: *El Paso Energy International Company; the International Utility Efficiency Partnerships, Inc. (Edison Electric Institute); Capex, S.A.*
Project Contact: *Ronald Shiflett, International Utility Efficiency Partnerships, 1-202-508-5507.*

METHANE GAS CAPTURE

Landfill Gas Management in Greater Buenos Aires

Country—Argentina: This project involves development of gas collection and combustion systems at landfills owned and operated by Coordinación Ecología Area Metropolitana, Sociedad del Estado (CEAMSE), a regional government agency serving the Greater Buenos Aires area in Argentina. Because landfill gas is approximately 50 percent methane, combustion of landfill gas results in a significant reduction in methane through oxidation of the methane to CO₂. It is estimated that if all gas generated by 5 million tonnes of

waste deposited annually in the CEAMSE landfills is collected and combusted, the project could result in an emission reduction of 4 million tonnes of CO₂-equivalent per year. On the basis of a nominal 20-year project lifetime, this would result in 80 million tonnes of CO₂-equivalent averted.

Participants: *Pacific Energy Systems, Inc. (PES); Coordinación Ecología Area Metropolitana, Sociedad del Estado (CEAMSE).*

Project Contact: *Daniel Jones, Project Manager, Pacific Energy Systems, 1-503-227-7611.*

HYDROELECTRIC POWER GENERATION

The Mantanzas Hydroelectric Project

Country—Guatemala: This is a 14-megawatt, medium-head hydroelectric project located in Baja Verapaz, Guatemala, with powerplants located on both the Chilasco and San Isidro Rivers. This project will reduce GHG emissions through the use of hydroelectric power to displace electricity that would otherwise have been generated by fossil-fuel-fired thermal plants or diesel power. The Matanzas project is estimated to reduce emissions by more than 1.1 million tonnes of CO₂ over a 15-year project life. The output of the two plants will

be sold to Guatemala's national electric utility, the Instituto Nacional de Electricidad (INDE). The project is expected to begin operation in January 2000. Developers have designed a detailed environmental management plan to mitigate the impacts of the project on the fauna and flora of the surrounding area.

Participants: *The Center for Sustainable Development in the Americas (CSDA); and Tecnoguat, S.A.*

Project Contact: *Anne Hambleton, Center for Sustainable Development in the Americas, 1-202-588-0155.*

WIND POWER GENERATION

Wind Energy Project

Country—Chile: The project involves the construction of a 37.5-megawatt wind energy facility near the city of Calama, in the desert region of Antofagasta in northern Chile. The facility will include 50 wind turbines, each of which is rated at 750 kilowatts. The developers anticipate that the proposed wind facility will meet a portion of the high growth in electricity demand and will offset electricity generated from a mixture of fuel sources including coal. When implemented, this project will lead to

reductions of about 3 million tonnes of CO₂ over the project lifetime of 20 years. This project would be the first significant energy generation project in Chile to use a renewable resource other than hydro.

Participants: *International Institute for Energy Conservation (IIEC); Corporación Nacional del Cobre de Chile (CODELCO).*

Project Contact: *Kelly Gordon, International Institute for Energy Conservation, 1-202-842-3388, ext. 508.*

FOR FURTHER INFORMATION,
PLEASE WRITE OR VISIT **USIJI** AT:

The USIJI Secretariat
1000 Independence Avenue, SW
PO-6/GP-196
Washington, DC 20585 USA
Telephone: 1-202-586-3288
Fax: 1-202-586-3485 or 3486



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