BEIJING ENERGY EFFICIENCY CENTER (BECON)

Web address: http://www.gcinfo.com/becon/

China Green Lighting Program

Partners: UNDP, State Economic and Trade Commission (SETC), State Science and Technology Commission (SSTC), National Council of Lighting Industry, Ministry of Construction, and Ministry of Electronics
Funding: U.S. $1 million (Grant)
Status/Schedule: Initiated 1996

The China Green Lighting Program, specifically authorized in the Ninth Five-Year Plan (1996-2000), is funded through BECon with a $1 million grant from the United Nations Development Programme (UNDP). The program's purpose is to improve consumers' awareness of "green lighting," which implies educating and training of large-scale buyers, such as operators of buildings and public facilities. BECon has held two international symposia on green lights. The first, in October 1996, hosted over 250 participants and at a subsequent symposium BECon opened a China Green Lights Center in Beijing—a permanent exhibition of the products of over sixty manufacturers. BECon has also created TV spots and magazine advertising for high-quality compact fluorescent products and will soon develop standards for lighting products and for building design.

BECon will also be organizing demonstration projects and guiding major investments made by the Chinese government. They will provide recommendations for the use over the next five years of 250 million RMB in soft loans provided by the SETC through the Commercial and Industrial Bank. The subsidized investment will help improve the technical quality of lighting manufacturing.

Demand Side Management and Integrated Resource Planning

Partners: Department of Energy, Electric Power Research Institute (ERI), Battelle, and the Environmental Defense Fund
Funding: U.S. $60,000

BECon is designing an Integrated Resource Planning (IRP) effort for the "closed system" of the Shen Li Oil fields. The customer is the Chinese Natural Gas and Petroleum Company (CNPC), and BECon is working jointly with the Research and Planning Academy under the CNPC and with ERI. BECon's team is developing a least-cost energy plan for the oil field, which is "closed" in the sense that it provides all its own electricity for oil pumping and for the homes and community for its workers who, with their families, number some 100,000 people. The Asian Development Bank is providing $30,000 for this project and the Chinese government is matching this amount.

Demonstration and Information Center

Partners: World Bank, European Union, Global Environment Facility (GEF)

The Demonstration and Information Center will be a world-class, $200+ million dollar effort to introduce energy service companies (ESCOs) to China. The Center grew out of a 1994 World Bank study on greenhouse gas emissions and now includes four components. First, is an energy management company demonstration effort to show how ESCOs can deliver efficiency services though market-oriented mechanisms. The project will create three companies located in Beijing, Liaoning, and Shandong. These companies are former state-owned energy centers that will be privatized. A $35 million GEF grant will provide the basis for the establishment of these companies by providing for demonstration projects. Second, the funding will also support technical and economic analysis that will be provided through an information dissemination center. The Center will manage $5 million of this GEF grant. The third component is technical assistance, the main work of which is developing institutional capacity in the government and in the project office. The project office will provide oversight, technical assistance, and develop ESCO

guidelines. The fourth component is ESCO promotion. The funding breakdown for components one through four is $15 million, $5 million, $2 million, and $13 million, respectively. The funding was made available in 1998. A European Union grant of $4.5 million was made available from April 1997 to maintain momentum in the project.

A World Bank loan of $65 million will provide customer finance for the ESCOs. The SETC will provide $37 million of loans, with subsidized rates. There will also be a SETC grant of $7 million. Domestic banks are expected to provide an additional $41 million. Each of the three provinces will provide 20-40 million RMB of capital investment. Each project must have three parts: a feasibility study; a performance contract; and specifications for the equipment.

Energy Efficiency and Renewables in Town and Village Enterprises (TVEs)

Partners: World Wildlife Fund (WWF), Center for Renewable Energy Development

BECon has been collaborating with WWF to develop energy efficiency and renewables in TVEs. Construction and development in TVEs is a main component of national development. The level of energy efficiency in the small town industries is relatively low compared to those in urban areas. An objective of the project is to develop two to three full-scale proposals for obtaining external financial support.

Beijing Environment and Development Institute (BEDI)

Web address: http://www.cceia.org/teams.html#china

Development and Wetlands Conservation in the Sanjiang Plain in Northeast China

Partners: Resources for the Future (RFF), Henry M. Jackson Foundation
Focus: Wetlands
Status/Schedule: Initiated 1994

The Sanjiang plain, which is located at the Northeast corner of China, contains the largest area of freshwater wetlands in China. The wetlands in the plain provide habitat for numerous wildlife species, including over 1000 plant species, at least 150 species of birds and thirty-five species of mammals. However, until the mid-1990s the wetlands were treated as land resources for agricultural development. In response, this project evaluated the cost and benefit of agricultural development versus natural resource conservation. The project found areas that were slated for agricultural development actually were not suitable for profitable agriculture. It suggests that resources in this area are better used for ecological livestock husbandry, fisheries and, tourism. The project was funded by the Henry M. Jackson Foundation.

Forum on International Investment and China's Sustainable Development

Partner: Resources for the Future (RFF)
Focus: Investment
Status/Schedule: Held November 1995

The main topics at the form were the missions of the BEDI/RFF Collaborative Program (BRCP), the involvement of international investment in China's sustainable development, and the development of collaboration between BRCP and foreign companies.

Identification of Obstacles to Complying with Environmental Regulations

Partner: Resources for the Future (RFF)
Focus: Policy
Status/Schedule: Initiated July 1994, Completed January 1995

This study was conducted as part of the much larger World Bank Chongqing Industrial Reform and Pollution

Control Project. The project identified obstacles to complying with environmental regulations and to achieving environmental goals and targets, with the assumption that the Chongqing Environmental Protection Bureau has the capacity to monitor omissions and effluents and to enforce environmental regulations. Examples of obstacles that were identified by the BEDI team are the shortage of capital for upgrading industrial production processes that reduce the generation of wastes, a shortage of capital for pollution control infrastructure, and the lack of an alternative social security system to provide housing and compensation for laid-off and retired workers.

Study of Regulatory Programs for Water Pollution Control and Water Quality Management in the Xiaoqing River Basin

Partner: Resources for the Future (RFF)
Focus: Water Pollution, Policy
Status/Schedule: Initiated July 1995, Completed March 1996

This study was part of the Environmental Priorities Sub-component of the World Bank's Shandong Environmental Project. This study had three main objectives. First, was to assess the effectiveness of the regulatory framework for water pollution control in the Xiaoqing River Basin, using Jinan as a case study. Second, it identified changes needed for the improvement of the pollution levy system and the discharge permit system, in order to support the implementation of mass based pollution control regulations. The third objective was to provide information that would be needed for the preparation of the terms of reference for an action plan for water quality management in the Xiaoqing River Basin.

Center for International Earth Science and Information Network (CIESIN)

Web address: http://www.ciesin.org/
Web address: http://sedac.ciesin.org/china

China Dimensions Data Collection

Partners: The China in Time and Space Project at the University of Washington, the Chinese Academy of Surveying and Mapping, and Others.

The China Dimensions Data Collection includes a variety of data sets on China, covering such topics as population, agriculture, land use, economic development, and public health. The Collection includes China Administrative Regions Data, the Fundamental GIS: Digital Chart of China, China County-Level Data on Population (Census) and Agriculture, China County-Level Data on Provincial Economic Yearbooks, Chinese County-Level Data on Hospitals and Epidemiology Stations, Agriculture Statistics of People's Republic of China, and Priority Programme for China's Agenda 21. The China Administrative Regions Data provide accurate and highly reliable spatial data on the country. Included are two unique Geographic Information System (GIS) databases that cover the administrative regions of China, presented at a scale of one to one million, as of 1 July 1990 and 31 December 1990. Also available is a data set of GB (Guo Biao) Codes for the Administrative Regions of the People's Republic of China for 1982-1992. County-level data in the Collection may be linked directly to the GIS coverages using the GB codes. URL: http://sedac.ciesin.org/china/

Environmental Treaties and Resource Indicators

Partners: Multiple

The Environmental Treaties and Resource Indicators (ENTRI) system provides access to data on the content and status of international environmental treaties and to related national resource indicators and other socioeconomic and environmental information. It permits interactive, relational queries by country (including China), treaty, keyword, and indicator. ENTRI currently provides access to information on approximately 435 environmental treaties

(and the full text of about 170 treaties) related to nine global environmental issues, including global climate change, stratospheric ozone depletion, transboundary pollution, desertification and drought, conservation of biological diversity, deforestation, oceans and their living resources, trade and the environment, and population. It includes more than 145 national-level variables drawn from the World Resources Institute dataset and other sources.
URL: http://sedac.ciesin.org.entri

Gridded Population of the World

Partners: World Resources Institute (WRI), International Food Policy Research Institute (IFPRI)

Gridded Population of the World (GPW), version 2, is a unique global demographic dataset that provides consistent population estimates referenced to a 2.5 minute grid. This recently updated data set provides estimates of the population counts and densities for 227 countries of the world, including China, in 1990 and 1995. National estimates have been reconciled with the United Nations (UN) population estimates for those years; both the UN-adjusted and unadjusted data are available. GPW may be used in studies of greenhouse gas emissions, land use and land cover change, vulnerability to environmental change, and other aspects of human interactions with the environment.
URL: http://sedac.ciesin.org/gpw

World Data Center for Human Interactions in the Environment

CIESIN's World Data Center (WDC) for Human Interactions in the Environment serves the scientific community by archiving and disseminating interdisciplinary data and information concerning human interactions with the environment. This WDC focuses in particular on geo-referenced data on population and administrative boundaries that are needed for a wide range of interdisciplinary research. It also provides access to a Data and Information Catalog Service that can simultaneously search a wide range of national and international data catalogs and other information resources. The CIESIN WDC is one of more than forty centers comprising the World Data Center System of the International Council of Scientific Unions. URL: http://www.gateway.ciesin.org/wdc/

World Wide Website for the IPCC Special Report on Emission Scenarios (SRES)

Partners: Intergovernmental Panel on Climate Change Working Group III and Others.

In 1997, the Intergovernmental Panel on Climate Change (IPCC) charged its Working Group III with developing a Special Report on Emissions Scenarios (SRES) to provide a basis for analysis of potential future climatic changes and associated impacts and a reference for socioeconomic analysis of long-term mitigation options. Working closely with an international team of scientists from some twenty-five countries, CIESIN developed a World Wide Website to facilitate an "open process" aimed at obtaining inputs from the broad, international scientific community and ensuring a comprehensive, up-to-date, and balanced report. The SRES website includes descriptions of SRES activities and methods, detailed information on scenarios and associated integrated assessment models and "storylines," and an interactive system for visualizing scenario data. SRES scenarios provide both global and regional detail on a number of variables relevant to future greenhouse gas emissions, including data on population, economic growth, land use, and energy consumption. URL: http://sres.ciesin.org

East-West Center

Web address: http://www.ewc.hawaii.edu/

The East-West Center Research Program

The East-West Center Research Program (EWCRP) conducts multidisciplinary research on issues of contemporary significance with a view to promoting understanding and mutually beneficial relations between the United States and countries of Asia and the Pacific. The EWCRP aims to contribute to the long-term goal of building a just and prosperous regional community that eschews violence in the conduct of international relations. Current research themes include "Urban and Transnational Air Pollution" and "Ecosystems and Governance." Within the latter theme, the two research projects—*Civil Society and Resource Management in Asia* and *Developing National Institutions for Upland Development*—include activities in China.

Environmental Defense Fund (EDF)

Web address: http://www.edf.org/

Environmental Management Project

Partner: Beijing Environment and Development Institute

The Environmental Defense Fund (EDF) is currently undertaking a project, in partnership with the Beijing Environment and Development Institute (BEDI), to develop strategies for implementing China's total emissions control policy. It is the goal of Chinese State Environmental Protection Agency (SEPA) to control the emissions of some pollutants by 2000 at their 1995 levels on average throughout the country. EDF is working closely with the Planning Department of SEPA to examine implementation policy alternatives to help SEPA achieve this goal, with emphasis on the application of market-based solutions. Currently the EDF project has two pilot cities, Benxi and Nantong. At least one new city will be added this year. Capacity building in both institutions and personnel for local environmental authorities will also be provided through this project.

ELFIN Computer Modeling Training

Partner: Beijing Energy Efficiency Center

EDF is working with the Beijing Energy Efficiency Center in the training of China's energy planners in the use of ELFIN, a computer model developed by EDF to plan capacity potential from a full range of options (including renewable and demand side management).

Ford Foundation

Web address: http://www.fordfoundation.org

Sustainable Forestry at Lugu Lake

Partners: Yunnan Academy of Social Sciences, Yunnan Provincial Forestry Bureau
Focus: Sustainable Forestry

In this area of Yunnan Province the local Yi people live adjacent to a state nature reserve. Because the local nature reserve staff do not permit the Yi to engage in selective cutting in the state forest, the primary goals of this project were to help the Yi reduce soil erosion and increase income from on the land on which they live. The Ford Foundation and its partner, the Yunnan Academy of Social Sciences, successfully impelled the local government to work more closely with the Yi. The primary technique used was training local nature reserve staff in participatory rural appraisal—interviewing local people and integrating their views into the processes of project selection and design.

Friends of Nature, Beijing

Contact Information: cjliang@mail.ied.ac.cn Telephone/Fax (8610) 65252560

Environmental Summer Camp

Focus: Education
Status/Schedule: Initiated 1996

These camps were organized to give schoolchildren a deeper appreciation and fuller understanding of nature. The first, held in northeast China in July 1996, included sixty schoolchildren, ten teachers, and twenty journalists. The second camp took place in 1996 in the old-growth forests of Yunnan Province.

Free the Caged Wild Birds Campaign

Partner: Green Weekend (Environmental Publication)

Focus: Education
Status/Schedule: Initiated 1996

This campaign targeted the Chinese tradition of capturing wild birds and keeping them in cages. The campaign, during which several volunteers set free their caged birds, received a wide media response. To provide an alternative to caging birds and to give citizens the opportunity to see birds in a natural setting, Friends of Nature set up and continues a bird watching group that takes regular trips outside of Beijing.

Green Campus

Focus: Education
Status/Schedule: Initiated 1995

Friends of Nature assists student environmental groups throughout China by providing technical help and educational outreach for their on-campus activities. Friends of Nature works to attract and include students of all ages to all activities.

Green Forums

Focus: Education, Public Participation
Status/Schedule: Initiated 1993

This project consists of holding forums focused on environmental issues, which include environmental activists, citizens, and schoolteachers. They focus upon specific conservation issues that currently affect China and shortcomings in environmental education.

Information Resource Center

Focus: Education
Status/Schedule: Initiated 1996

Friends of Nature has worked to create a center that provides the public with environmental literature, reference works, visual materials, and up-to-date environmental information. The center is geared to serve the general public with regard to both education and research.

Respect for Animals

Partner: Beijing Zoo
Focus: Education
Status/Schedule: Initiated 1996

Friends of Nature helped the Beijing Zoo to replace the informational signs that describe the animals. The old signs discussed which animals could be eaten and how the parts of various animals could be utilized. The new signs emphasize the need to respect and protect animals.

Survey on Environmental Reporting in Chinese Newspapers

Focus: Environmental Reporting
Status/Schedule: Initiated 1995 to be held annually

This survey, the first of its kind in China, is compiled by scanning approximately eighty local, national, and industry-focused newspapers for environmental content. Both quantity and quality of reporting are measured, using measures such as the number of articles, the length of articles, and the placement of articles within the paper. Using these measures, trends are analyzed and individual papers are ranked from best to worst. Awards are given both to reporters and to newspapers for exceptional merit in the reporting of environmental issues.

Friends of the Earth (FoE)

Web address: http://www.foe.co.uk/
Web address: http://www.foe.co.uk/foei.html

Three Gorges Dam Activism

Friends of the Earth has played a significant role in convincing the U.S. Export-Import Bank to refuse to provide financing to U.S. companies hoping to receive contracts for the Three Gorges Dam project and has been fighting the project for over ten years. In addition, FoE has hosted Chinese opponents to the project, gained national publicity for the environmental and social problems of the project, and briefed government officials on the potential environmental impacts of the dam.

Global Village of Beijing

Web Address: http://www.ifce.org/gvb/index.html

Agenda 21 and Me

Focus: Education
Status/Schedule: Initiated 1997

This educational program for children includes a television series that is hosted by children and has children reporters, lectures at schools, training courses for teachers, and other environment-related activities.

Environmental Media Network

Focus: Education
Status/Schedule: Initiated 1997

This is an educational web for journalists, which includes training courses, workshops, forums, informational databases and program exchanges.

Environmental Newspaper Columns

Focus: Newspaper Reports
Status/Schedule: Initiated 1997

The Global Village of Beijing, as of 1997, was regularly writing environmental columns for three national newspapers (*China Consumers Daily, China Women's Daily* and *China Youth Daily*) and one magazine (*Middle School Student Magazine*). Cumulatively, the four publications had a circulation of almost two million.

Environmental 30 Minutes

Partner: China Central Radio
Focus: Radio Program
Status/Schedule: Initiated 1997

The program, which is co-produced with the China Central Radio station (CCR), is broadcast nationwide in China every other week.

Green Civilization and China

Partner: China Education Television (CETV)
Focus: Television Program
Status/Schedule: Initiated 1997

The show is produced independently by the Global Village of Beijing. *Green Civilization and China* is a thirty-

minute television program that is broadcast on an irregular basis by China Education Television, which is overseen by the State Education Commission and reaches 100 million viewers. The program is divided into four sections that provide domestic and international news, a discussion of possible solutions to China's environmental problems, information and advocacy regarding more environmentally friendly lifestyles and consumption patterns, and stories documenting individuals who are concerned about protecting the earth.

Recycling Campaign

Focus: Recycling
Status/Schedule: Initiated 1997

The Global Village of Beijing for years has conducted a variety of activities to encourage citizens to recycle. Activities include public education and advocacy, setting up pilot projects for waste sorting and recycling, and working with related government departments to spur action.

Time for Environment

Partner: China Central Television 7 (CCTV 7)
Focus: Television Program
Status/Schedule: Initiated 1997

The Global Village of Beijing produces the program independently. It is broadcast nationwide each week on Fridays and Saturdays on CCTV 7, which is the channel specializing in Science and Technology and Children's Education.

Institute for Human Ecology

Web address: http://www.ihe.org

1997 China Environment Forum

Partners: Chinese Society for Environmental Sciences, National Environmental Protection Agency (now SEPA)
Focus: Policy, Education, Energy, Technology
Status/Schedule: Held 1997

On 18-21 November 1997 in Beijing, The China Environment Forum was held. This event, which helped to bring the relatively young Institute for Human Ecology to prominence, brought together 100 delegates for two days of large meetings and one day of small workgroups. A relatively even mix was sought between Chinese and foreign delegates, with government officials, corporate officers, and authorities on environment-related issues were invited. The forum' s main goal was to put in place "practical measures" to achieve its four goals: promoting international awareness of China's situation; providing practical guidance to China on a host of environment-related issues; linking international corporations with Chinese government officials; and, launching a program of environmental education and awareness within China.

International Crane Foundation (ICF)

Web address: http://www.savingcranes.org/

Integrating Conservation with Rural Development at Cao Hai Nature Reserve

Partners: Cao Hai Nature Reserve, Guizhou Environment Protection Agency, and Trickle Up Program
Status/Schedule: Initiated 1993

Since 1993, ICF has been working at Cao Hai Nature Reserve, a wetland area supporting 400 wintering black-neck cranes and numerous other waterbirds. As a response to severe human pressure on the wetland and its watershed, this project involves local farmers in creating economic alternatives that protect the resource base on which both human and avian communities depend. The project relies on two micro-finance mechanisms (small grants and revolving

loan funds) and emphasizes farmer participation in decision-making and conservation.

Integrating Wetland Conservation with Agricultural Development in Sanjiang Plain

Partners: Heilongjiang State Farm Bureau, Heilongjiang Bureau of Water Conservation, Chinese Ministry of Agriculture, Wild Bird Society of Japan, Overseas Economic Cooperation Fund (Japan)

This project has developed guidelines for the protection of wetlands and wildlife in what was formerly the largest wetland in China, as part of preparations for farmland improvement and water management activities. They created a conservation plan to ensure the viability of wetlands protected or proposed for protection and are now negotiating with counterpart agencies about implementation of this plan during the upcoming year.

Protection of Black-necked Cranes in Agricultural Areas of South-Central Tibet

Partners: Tibet Plateau Institute of Biology, Agro-Environmental Protection Institute, Tibet Agricultural Bureau

Since 1990, ICF has been studying a wintering population of about 3,900 black-necked cranes (two-thirds of the world's known population). As this population is dependent on waste grain of fallow croplands in winter, the IFC has worked with agricultural authorities to develop strategies that will maintain cropland and roost-site conditions needed by cranes. ICF is currently considering mechanisms for initiating pilot activities at one or more additional locations.

Publication of China Crane News

Partners: Crane and Waterbird Specialist Group of the China Ornithological Society, Cracid Breeding and Conservation Center (Belgium)

Crane and Waterbird Specialist Group publishes its newsletter twice each year. China Crane News reports on research and conservation related to cranes, waterbirds, and their habitats in China. The newsletter is distributed among scientists, reserve managers, and officials interested in cranes, in order to enhance communication and cooperation. The newsletter includes full texts in both Chinese and English to promote international collaborations.

Studies of Waterbirds, Water Levels, and Aquatic Food Plants as a Basis for Conservation of Threatened Wetlands at Poyang Lake, China

Partners: Poyang Lake Nature Reserve, Jiangxi Nature Reserve Management Office

The International Crane Foundation is working with managers and technical staff at Poyang Lake Natural Reserve to study key aspects of crane and wetland ecology. Research will guide development of programs to mitigate impacts of wetland destruction and to expand protected areas in response to expected fluctuations in hydrology and aquatic vegetation.

International Fund for Animal Welfare (IFAW)

Web Address: http://www.ifaw.org/

China Bears Campaign

Partners: China Wildlife Conservation Association, Chinese Association of Medicine and Philosophy, Earthcare
Focus: Animal Cruelty, Black Bear Conservation
Status/Schedule: Initiated 1993, Targeted Completion 1996

The International Fund for Animal Welfare is headquartered in the United States and currently maintains a Beijing

office. IFAW initiated this project by investigating China's bear farms and publicizing the terrible conditions in which over 10,000 individual Asiatic black bears were incarcerated for the production of bile. They are caged in constricting wire cages and subject to barbaric surgeries. This kicked off a worldwide campaign that brought mounting pressure from within and without China to solve the problem. In 1994, IFAW granted U.S. $75,000 to fund a research program to produce an herbal alternative to bear bile, which was carried out by Beijing's State Administration for Traditional Chinese Medicine. Research and lobbying efforts continued as of 1996.

International Fund for China's Environment (IFCE)

Web address: http://www.ifce.org/

The First NGO Forum on U.S.-China Environmental Cooperation

Partners: Professional Association for China's Environment, Woodrow Wilson Center, Global Village of Beijing, Overseas Chinese Environmental Engineers and Scientists Association

The first NGO Forum on U.S.-China Environmental Cooperation was held in Bethesda, Maryland on 2-3 September 1999. In attendance were approximately 100 people from more than sixty organizations representing environmental NGOs from both the U.S. and China. The Forum provided a unique opportunity for practitioners and experts concerned about China environmental protection to become acquainted, exchange ideas on issues such as NGO development, fundraising, public education and outreach as well as conservation technologies. The goal is to strengthen communication among U.S. and Chinese environmental NGOs. The URL http://uschinango.org/ provides a summary of the meeting.

Publication of the Environmental Series Reading

Partner: Chinese Population and Environment Association and the European Union
Status/Schedule: The Series will be Published by the End of 2000

IFCE will be compiling and publishing a series of environmental readings for children and students in China. The series includes two parts: 1) "Children Version-Letters from Aunt Zhenzhen" to cover concepts of environmental elements; and 2) "Student Version-Reports and Essays from Young Environmental Protection Guardians" to teach how air and water are polluted and how to keep them clean. More than three thousands of essays and articles have been received nationwide through announcements in the *Chinese Children Newspaper* and *Chinese Young-Student Newspaper*.

Training Center in Northeast Forestry University and Assessment of Tiger Habitats in Northeast China

Partner: Northeast Forestry University, China

A natural resource management-training center will be established in Northeast Forestry University. The first training course was held in September 1999. Meanwhile, the remaining habitats for the Siberian Tigers in northeast China were assessed.

Training Center in Zhejiang University

Partner: Zhejiang University, China and Environmental Research Science Institute (ESRI), Inc

A natural resource management-training center will be established at Zhejiang University in Hangzhou City. The objectives of this center are to provide GIS, remote sensing and other resource management technologies for professionals in natural resources management areas; to enhance academic exchanges among IFCE, Zhejiang University and ESRI; and to provide a platform to develop cooperative projects in technological applications.

Young Scientists Forum "Conservation Biology"

Partner: Chinese Association of Science and Technologies

IFCE is working on a "Young Scientists Forum" to discuss conservation biology which will be held in Beijing in October 1999. The forum will bring thirty scientists, primarily from China and the United States, together to address issues in conservation biology.

International Institute for Energy Conservation (IIEC)

Web address: http://www.cerf.org/iiec

Compressed Natural Gas Transportation Project

IIEC has completed developing a proposal for a transportation project that will convert fleet vehicles in Beijing from gasoline to compressed natural gas.

Energy Efficient Transformers

Partners: Multiple Chinese Agencies and Enterprises

IIEC worked with several Chinese agencies and enterprises to promote the use of energy-efficient transformers in China. The focus of this project was to develop policies that encourage Chinese electric utilities to purchase transformers based on total life-cycle cost analysis.

Market Development/Technology Transfer in China for Energy-Efficient Industrial Motors and Motor Systems

Partners: Multiple Chinese and U.S. Government Agencies, Private Sector Companies and Research Organizations

The International Institute for Energy Conservation (IIEC) is engaged in a three-year project to facilitate the development of a market for energy-efficient industrial motors and motor systems in China. The project includes a study tour in the United States in February 2000 for IIEC's Chinese partners to meet with their counterparts in government that formulate energy efficiency policies and standards, motor manufactures, motor repair and maintenance companies, end-user associations and individual end-users (e.g., utilities, industrial plants), and research institutes. The first objective of the study tour is to provide technical support, information and training to help the delegation draft energy efficiency standards. The second objective is to partner Chinese end-users and motor manufacturers with their U.S. counterparts to help educate and promote the economic value and other benefits to China of energy-efficient motors and motor systems. For more information starting 8 February 2000 call Project Manager Denise Knight at (202) 326-5170 or email dknight@iiec.cerf.org.

Xiamen Sustainable Transport Project

Partners: City of Xiamen, U.S. Environmental Protection Agency
Status/Schedule: Completed

IIEC has completed work with the City of Xiamen to undertake an integrated transport services planning activity. The purpose of the project was to analyze the most cost-effective and least polluting way to improve Xiamen's transportation system.

International Institute for Environment and Development (IIED)

Web address: http://www.oneworld.org/iied/index.html

An Interdisciplinary Approach to Reduce Nutrient Losses by Erosion in Sichuan Province, China

by Combined Use of Participatory and Modeling Techniques

Partners: Winand Staring Center for Integrated Land, Soil and Water Research (The Netherlands), the Swedish University of Agricultural Sciences, and Several Partners in China
Status/Schedule: Initiated 1998

This joint project aims to find alternative land and water management systems to reduce the loss of soil, water, and nutrients by combined use of soil erosion and nutrient modeling, and participatory research and planning techniques in the Hilly Purple Agricultural Area of the Sichuan Province of China. The project, which began in mid-1998, involves: 1) development of a standardized method for measuring nutrients in sediment and runoff at different scales; 2) performance of a field survey in a selected watershed to determine the flows of soil, water, and nutrients and deliver the necessary model input; 3) extension of a state-of-the-art soil and water erosion model with a nutrient sub-model; 4) calibration and validation of the model for conditions met in the study area; 5) participatory appraisal of local social and environmental problems and opportunities; 6) capacity strengthening of Chinese research organizations to conduct soil erosion modeling and participatory appraisals; 7) selection of conservation alternatives and translation into model parameters; 8) formulation of methodology to find conservation alternatives using participation of local actors and the extended model; 9) testing the methodology in the watershed; and 10) implementation of a participatory monitoring and evaluation system.

The project expects to produce: 1) a standardized method of measuring nutrient concentrations in sediment and runoff at different scales; 2) an extended state-of-the-art water erosion model, able to predict and simulate transport of soil, water, and nutrients on the field and watershed scale; 3) a new methodology using a soil erosion model in a participatory planning process; and, 4) a participatory monitoring and evaluation system to ensure prolonged use of the results.

International Rivers Network (IRN)

Web address: http://www.irn.org/

Three Gorges Project

By using the Three Gorges Project as a case study, IRN is working to increase public awareness regarding the environmental, social, cultural, and economic impacts of unsustainable river management practices in China. Accomplishments of this campaign have included: a National Security Council recommendation that the U.S. government should stay clear of the project; and a May 1996 U.S. Export-Import Bank announcement that they would not guarantee loans to U.S. companies seeking contracts for the Three Gorges Project. This announcement impeded private-sector capital flows to the project by mobilizing public pressure on existing and potential investors and documented the immediate technical problems and social and cultural impacts that were being covered up by project officials.

International Snow Leopard Trust (ISLT)

Web address: http://www.snowleopard.org/

Conservation of the Snow Leopard and its Mountain Habitat

ISLT is dedicated to the conservation of the endangered snow leopard and its mountain ecosystem through a balanced approach that considers the needs of the local people and the environment. ISLT's activities in China have focused on three main areas: 1) ISLT held the 7th International Snow Leopard Symposium in Xining, Qinghai Province in 1992; 2) ISLT convened a training workshop on Snow Leopard Information Management Systems (SLIMS) and conducted "hands-on" field surveys in Gansu Province in 1993; 3) ISLT has translated and distributed snow leopard captive management techniques for eight Chinese zoos; and 4) ISLT has hired a Snow Leopard Conservationist in China to implement research activities and conservation projects throughout the snow leopard's range.

IUCN—The World Conservation Union

Web address: http://www.iucn.org/

IUCN's work in China primarily focuses upon a broader range of mechanisms and is concentrated at two levels, the provision of policy input to high-level agencies and the development and strengthening of technical networks. In due course a third mechanism—selected training and field projects—will be developed. Currently the most important policy mechanism used by IUCN is the China Council for International Co-operation on Environment and Development (For information on the Council, see entry under the Canadian International Development Agency in this inventory).

Joint Institute for Energy and Environment (JIEE)

Web address: http://www.jiee.org

Biomass in China

Partner: Yunnan Environmental Research Institute

JIEE has worked since 1989 with researchers from the Yunnan Environmental Research Institute in Yunnan Province, China to carry out extensive feasibility studies on biomass-to-electricity. The goal has been to identify sites suitable for the development of electricity production using biomass as a fuel. As a result of this work JIEE held a workshop in Knoxville, Tennessee linking energy and policy officials from Yunnan with American energy companies interested in the possibility of investing in biomass energy in China.

Memorandum of Understanding

Partner: Chinese Research Academy of Environmental Sciences

In October 1995, JIEE and the Chinese Research Academy of Environmental Sciences signed a Memorandum of Understanding. Preparation has begun for joint research in two areas: effects of greenhouse gas and exchange of information on environmental labeling.

Reform of the Pollution Levy System

Partners: State Environmental Protection Administration, Chinese Research Academy of Environmental Sciences

JIEE staff has worked with Chinese counterparts on development of incentive-based regulation of environmental pollutants since 1991 when they helped organize the first Chinese national workshop on the issue. JIEE has hosted scholars and study groups, provided consultants, and participated in decision meetings and other activities in China. They are now working with Chinese authorities and researchers on evaluation of ongoing pilot projects for pollution levy system reform and publishing and communicating results of previous work.

Renewable Energy for Rural China

Partners: Winrock International, Asia Development Bank, State Economic and Trade Commission, and other PRC Government Agencies

JIEE staff members are following up on previous projects on renewable energy in a program to determine the most effective ways in which renewable energy can be used to meet economic development, poverty reduction, and environmental goals in China.

Global Climate Change

Partners: U.S. Department of Energy, Resources for the Future, Various Chinese Scholars and Government Agencies

JIEE staff has analyzed technology transfer as one mechanism for limiting growth in greenhouse gases. Other activities have included analysis of joint implementation, both in general and as a mechanism for cooperation with China. Continuing activities are expected.

Missouri Botanical Garden

Web address: http://flora.harvard.edu/china/ [Flora of China Project website]
Web address: http://www.mobot.org/ [Missouri Botanical Garden website]

Flora of China Project

Partners: Harvard University; the California Academy of Sciences; the Botanical Institutes of Beijing, Guangzhou, Kunming, and Nanjing; the Smithsonian Institution; Missouri Botanical Garden: The Coordinating Center; and the Royal Botanic Garden, Edinburgh and Kew
Status/Schedule: Targeted Completion 2010

The Flora of China Project is a collaborative effort among a variety of institutions that seeks to create partnerships between Chinese, U.K., and U.S. research institutions to catalogue the flora of China and produce an up-to-date English version of China's *Flora Reipublicae Popularis Sinicae*, which contains eighty volumes. The project consists of four main areas: 1) publication of text and illustration volumes; 2) creation of a database; 3) maintenance of a species checklist; 4) specimen purchase; and 5) maintenance of up-to-date websites.

The major thrust of the project is to update and publish for the first time in English a comprehensive work on Chinese plants. The project is expected to be completed by the year 2010, ten years after the completion date of the Chinese version. The data from the Flora of China project will also be entered into a comprehensive Missouri Botanical Garden database that will be accessible on-line. Additional efforts include completing and updating a checklist on the plants of China of which nearly seventy percent is available on-line, and the purchase of about 600,000 Chinese plant specimens for the Garden's herbarium. Four volumes of text and one of illustrations have already been published. The fifth volume of text and second of illustration are scheduled for publication this year.

National Committee on U.S.-China Relations

Web address: http://www.ncuscr.org/

Administrative Decentralization and Environmental Protection

Partners: Heilongjiang Province Environmental Protection Bureau, Chinese Academy of Sciences, Institute of Geography, Changchun Branch

The goal of this project is to examine the impact of recent reforms in the field of environmental protection and to draw lessons from comparative experiences of the two countries in solving local problems through local initiatives. Programmatic activities related to decentralization and environmental protection involve local institutions in China's Northeast interior provinces of Jilin and Heilongjiang. The National Committee created a working group comprised of Chinese and American specialists/practitioners to identify priority needs and devise plans for an integrated set of activities to meet those needs, to be implemented over several years. Two joint working group meetings have been held and a series of training sessions and exchange activities are planned to take place in 2000. Activities focus on local water resource management related to wetlands conservation, lake pollution prevention, and community awareness raising.

Exchanges

Partners: Various Government Agencies and NGOs

Over the past decade, the National Committee has carried out delegation exchanges focusing on aspects of sustainable development and environmental protection. These exchanges (both Chinese visits to the United States and

American visits to the People's Republic of China) have included: 1) a Citizen Involvement in Environmental Protection Delegation to the United States, which examined how American environmental organizations involve citizens in environmental protection activities; 2) a Growth Management Workshop in the People's Republic of China, which focused on methods of managing urban growth in order to protect agricultural lands; 3) a Sustainable Agriculture Delegation to the United States, which examined practices and government policies related to agriculture; and 4) an Environmental Education Leadership study tour to the United States which explored curriculum development, community activism, public-private collaboration, and environmental awareness efforts. Delegation exchanges scheduled for 1999 included: 5) Energy and Transportation, which focused on energy efficiency, alternative fuels, and transportation management; and 6) Local Environmental Protection Leadership, which addressed local environmental management concerns, including laws, regulations, and enforcement.

Grassroots Environmentalism

The National Committee expects to send five American environmental education specialists to China for twelve days later this year to lead two-day workshops in several Chinese cities. Cities with significant environmental problems will be chosen and could likely include Beijing, Harbin, Changchun, Lanzhou, or Fuzhou. The workshop will examine American efforts in environmental education, including strategies for building awareness of environmental issues, establishing public-private partnerships, mobilizing public participation, and making effective use of the media. The workshops will include lectures at local schools or community organizations to demonstrate sample environmental education lessons and teaching techniques. American participants might include an environmental education teacher, a private sector representative responsible for community outreach, a park ranger specializing in public programs, an environmental NGO leader, and a professor of environmental science with a broad understanding of the field. Chinese participants in the workshops would be drawn from NGOs, the media, environmental protection bureaus, the scientific community, industry, and the education system.

Natural Disaster Preparedness, Response and Community Involvement

The National Committee is planning to bring together participants from the PRC, Taiwan, and Hong Kong to foster cooperation among them when responding to natural disasters. As the recent earthquake in Taiwan demonstrates, valuable time can be lost and flexibility in devising responses can be limited if inter-regional cooperation plans are not in place prior to the occurrence of a natural disaster. This project offers an opportunity to encourage collaboration, attempt to de-politicize the disaster response process and develop effective inter-regional policies. The study tour to the United States would include visits to the Federal Emergency Management Agency (FEMA), the Army Corps of Engineers, the Red Cross, and other national government agencies and NGOs that anticipate and respond to natural disasters. The delegation would also visit areas of the United States that have recently experienced or are particularly vulnerable to natural disasters, such as the Virginia/North Carolina coast (tidal floods), Des Moines (river floods), Oklahoma City (tornadoes) or Los Angeles (earthquakes, fires). The program would address themes such as: central versus local initiatives, intergovernmental coordination, public/private cooperation, financial incentives to encourage disaster mitigation measures, recovery efforts, and establishing effective organizational systems that anticipate and predict disasters.

Post-Flood Eco-System Recovery Workshop along the Songhua and Nen Rivers

Partner: Heilongjiang Province Environmental Protection Bureau

In collaboration with the Heilongjiang Province Environmental Protection Bureau, the National Committee on U.S.-China Relations sent a team of American specialists for a week-long visit and workshop in May 1999 to provide expert advice on post-flood ecosystem restoration. The agenda included sessions on: managing restoration and land use in the region; protecting riverbanks, bottomlands, and reservoirs; restoring forests and grasslands after emergencies as well as during non-disaster conditions; and coordinating the natural river environment with local economic development.

Sustainable Land Use and Allocation Program for the Ussuri River Watershed

Partners: Heilongjiang Territory Society, two institutes of the Russian Academy of Sciences—Far East Branch, Ecologically Sustainable Development, Inc., and Russian and Chinese Government Agencies

This project convened scientists, policy-makers, and government officials from China, Russia, and the United States to develop a sustainable land-use plan for the Ussuri River watershed, a region roughly the size of New England of which two-thirds is in Russia and one-third in China. Significant aspects of the project included: negotiating a multi-lateral agreement among the participating organizations; organizing and coordinating trilateral scientific teams; collecting and synthesizing their findings; coordinating public meetings throughout the region; and editing a 300-page final report that was published in three languages.

The recommendations outlined in the final report include: the establishment of four international peace parks; the establishment of a bilateral (Chinese and Russian) steering committee to oversee the implementation of the report's recommendations; and, specific investment opportunities in the region that are sustainable in nature. The planning stage of the project concluded in May 1998 when the Vice Governors of both regions met in Khabarovsk to sign a memorandum of understanding which included the designation of "secretariats" in each of the three territories to coordinate implementation efforts.

U.S. Environmental Priorities in China: A Dialogue with American Foundations

On 10 February 1999, the National Committee and the Woodrow Wilson International Center for Scholars co-sponsored a one-day meeting in Washington, D.C. on Sino-American cooperation in the field of environment and sustainable development for representatives of American foundations and international donor agencies. The purpose was to help shape the U.S.-China Environmental Agenda for Chinese Premier Zhu Rongji's visit to Washington in April 1999.

Natural Resources Defense Council (NRDC)

Web address: http://www.nrdc.org/

Demonstration of a Model Energy Efficiency Project

Partner: AES Corporation

NRDC met in January, 1998 with the President of AES China Generating Co. Ltd., an American independent power company currently operating with power plants in China. AES Corporation is very interested in joining with NRDC to develop a model energy efficiency project that would combine demand-side energy efficiency measures with new investments in power supply, in order to maximize the economic and environmental benefits of new power investment. AES is seeking approval from the Chinese government to begin construction of a co-generation plant in Tianjin, a major municipality north of Beijing. AES and NRDC believe that expanding this project into a first-of-a-kind pilot project, that would not only provide power but also finance energy efficiency improvements by major end-users, would attract the critical support of the central government and enable the project to proceed. NRDC has already been able to gain initial support from the Administrative Center for China's Agenda 21, which is backed by the State Science and Technology Commission.

Three pilot projects are being considered. First is a co-generation plant in Tianjin which will focus on energy efficiency mainly for end-users. Second is a power plant in the Henan province, managed by AES, that provides energy to an aluminum plant. AES is currently working on an agreement with the aluminum plant in which AES will fund expansion of the plant in an energy efficient manner and be reimbursed by savings the plant will make in energy costs. Finally, there is a proposed energy efficient power plant that AES wants to build in the independent municipality of Chongqing. This effort hopes to build upon environmental accords between the mayor in Chongqing and the Center for Strategic and International Studies and the National Center for Asia Research in Seattle.

Energy Efficient Buildings

Partners: Multiple Partners

NRDC's program to promote energy-efficient building construction in China combines a three-city demonstration project, development of more comprehensive building codes, and a new financing mechanism for energy-efficient housing.

NRDC's Three-Cities demonstration project is modeled after the Three-Cities fuel cell transportation demonstration project sponsored by the W. Alton Jones Foundation, and will include a 650,000 square foot, $70 million Chongqing Guesthouse project now in the design phase. On regulatory mechanisms, NRDC has begun a collaboration with the Ministry of Constructions' new Office of Energy Efficiency. Efforts in this area will most likely include real-world pilot projects to first determine what level of standards are achievable in practice, and then demonstrate to local governments and the market that achieving the standards is both practical and economical. NRDC's China Clean Energy Project is working to develop market transformation and financing mechanisms that will help to overcome existing barriers to energy efficiency. NRDC has proposed to work with a Chinese bank that would dedicate a share of its lending to projects that conform with certain sustainable development criteria, including at least a twenty percent net return on investment when the costs of external environmental factors and lower lending costs are considered.

Environmental and Energy Policy Development

Partner: Fudan University

NRDC met in January 1997 with the Deputy Director of Fudan University's Center of American Studies and the Director of the University's Research Center of Environmental Science. NRDC and the representatives of Fudan University agreed to establish a Fudan University-NRDC Environmental Seminar Program that will bring together experts from China and the United States on a variety of environmental and energy policy issues. This program will seek the participation of environmental policy leaders in Beijing and Shanghai as well as university students. Because of the University's close relationship with the Shanghai Municipal Bureau of Environmental Protection, NRDC was able to meet with officials from the agency, who expressed great interest in the program and provided a number of suggested topics. NRDC will also seek opportunities to use this program as an unofficial forum to further constructive dialogue between the United States and China on environmental issues.

Industrial Energy Efficiency

Partners: Multiple

NRDC's program to promote industrial energy efficiency in China consists of a demonstration project evaluating the potential for combined power and chemical production in Chongqing, and a pilot program for utility-funded demand side management in the aluminum industry. NRDC has developed a partnership with the Chongqing Municipal Economic Commission and the U.S. Department of Energy to evaluate the use of natural gas, coalbed methane, hydrogen, and coal gasification in combined technologies to produce both power and chemical fertilizer while minimizing carbon dioxide emissions. The feasibility study for this project will be carried out by a team of NRDC policy analysts and technical experts from the U.S.-China Energy and Environment Technology Center (EETC) in Beijing, and the Lawrence Livermore National Laboratory. NRDC is also working with the Chinese partners to develop a pilot utility program designed to improve energy efficiency in the aluminum industry. This program would link power production and energy conservation for what may be the first time in China, and provide a model for utility financing of demand side management programs.

Promotion of Gaseous Fuels in China

Partners: Battelle, Pacific Northwest National Laboratory

NRDC will continue to work with Battelle, Pacific Northwest National Laboratory to promote the use of domestic and imported natural gas, coalbed methane, and hydrogen as a large-scale alternative to coal and nuclear power in China. These groups will also work together on a White Paper analyzing the potential for an increased use of gaseous fuels in power production and the resultant impact upon global carbon emissions.

Technology Development and Climate Change Modeling

Partners: China Academy of Engineering Physics (CAEP)

NRDC has signed an Agreement for Cooperation with the CAEP, a complex of ten major institutes and laboratories in Beijing and Sichuan province, whose major responsibilities include the research, development and testing of Chinese nuclear weapons. Because of advances in nuclear weapons arms control and China's signing of the Comprehensive Test Ban Treaty last September, CAEP is redirecting some of its substantial research capabilities to work on the country's pressing environmental problems. Based on its long-standing working relationship with NRDC on arms control issues, CAEP has asked NRDC to help with the development of CAEP's newly created Research Center on Environmental Protection Engineering (the "Environmental Research Center").

NRDC met in Beijing in January 1997 with representatives of the Environmental Research Center, which employs 1,000 highly skilled scientists and has perhaps the most advanced computing and modeling capabilities in China. NRDC reached agreement on several priority projects of mutual interest including climate change modeling, the development of energy-efficient lighting and hydrogen fuel cells, and the formulation of lower-polluting gasoline. NRDC will assist the Center in its research and development efforts through a series of technology exchanges with experts in the United States and other countries.

Pacific Environment and Resources Center

Web address: http://www.pacenv.org/

China Biodiversity Conservation Project

Partner: Chinese Ministry of Forestry

The Pacific Environmental Resources Center has several projects under the China Biodiversity Conservation Project, the majority of which are grassroots projects. These projects include: wetlands conservation; migratory bird protection in Southwest Asia; NGO and grassroots capacity building and technical support; wetland action plan development; nature preserve management, particularly in the Tumen River basin; development of a natural resources database on the Tumen River basin; Ecological Information Centers in Beijing and the Yunnan province; and a proposed project to promote renewable energy in the rural Southwest.

Renewable Energy Project

Partners: Linglan County, China Exploration Research Society, Yunnan Geography Institute, staff and students at Yunnan University

The Renewable Energy Project will include an energy audit to assess options and barriers for future clean, sustainable energy development for local needs (e.g., cooking, heating, and lighting). The project will involve work with villagers in the Lugu Lake area of Linglan County, as well as the China Exploration Research Society, the Yunnan Geography Institute, and staff and students at the Yunnan University (Kunming). The project will involve meetings with local agencies involved in energy planning and research, such as the Yunnan Department of Agriculture. In subsequent stages of this project, the energy audits will serve as the basis for further work to bring together international and local individuals, agencies and businesses to meet rural energy needs in Linglan and other areas in China. The

ultimate goal of the project is to implement an appropriate renewable energy project at Lugu Lake over the next several years.

Tumen Environmental Initiative

The Tumen Environmental Initiative has four basic components: 1) to create and distribute a comprehensive directory of environmental advocates working in Tumen; 2) to provide direct funding for Russian, Chinese, and North Korean individuals and environmental organizations working on scientific, policy and education efforts in Tumen; 3) to establish a Russian-Chinese-North Korean exchange program for environmental advocates; and 4) to improve public participation in national and international agency decision-making.

Smithsonian Institution

Web address: http://www.si.edu/

Biological Diversity Program

Partner: UNESCO

This program fosters international cooperation in the management and conservation of protected areas through research and training. Previous training sessions have included a biodiversity measuring and monitoring program with the Chinese Academy of Sciences and methodology courses in Guangzhou City.

Flora of China

Partners: Missouri Botanical Garden, Harvard University, California Academy of Sciences, and National Science Foundation

This project, funded by the National Science Foundation and coordinated by the National Museum of Natural History, will study and document the plants of China, and translate and revise Chinese efforts in works on the plants of China.

Giant Panda Conservation

Coordinated by the National Zoo, this project documents the biology and behavior of the giant panda for purposes of developing and maintaining a captive self-sustaining population.

Global Change Program - Deltas

Partners: National Geographic Society, Multiple Universities

This project will examine the recent geological evolution of Mediterranean and other world deltas in light of natural factors (sea level, paleoclimates, subsidence) and humans. Initial studies have focused on the Holocene geology of the Yangtze Delta.

Mass Extinctions (International Geological Correlation Program)

Partners: UNESCO, International Union of Geological Sciences

This project will study worldwide patterns of biotic recovery following mass extinctions over geologic time and develop predictive theories of extinction. Initial study has been conducted with the Nanjing Institute of Geology and Paleontology.

Wildlife Conservation and Management Training Program

Partner: North American Association for Environmental Education

Begun in 1981, this extensive program trains wildlife professionals from developing countries in the techniques and theories of conservation biology and wildlife management. Over seventeen of these training courses have been undertaken in China since 1987.

Television Trust for the Environment (TVE International)

Web address: http://www.eetpc.org/

Environment Education Television Project for China

Partners: The Centre for Environmental Education and Communications of the State Environmental Protection Administration, the Institute of Science and Technical Information of China, the Chinese Academy of Science, Friends of Nature, Global Village, and the WWF China Programme Office
Focus: Education, television programming
Status/Schedule: Initiated 1997

The Environmental Education Television Project for China was officially launched on 13 March 1997 with an agreement signed between the Television Trust for the Environment (TVE International) and the Centre for Environmental Education and Communications of the State Environmental Protection Administration. The aim of this project is to import high-quality documentary films with environmental content to China and translate them for Chinese language transmission. The films will be brought into China in the form of broadcast master tapes, which are of high enough quality to be duplicated. Then, after import, copies of the films will be available to anyone who wishes to screen or broadcast them for a nominal fee.

The China Environment and Sustainable Development Reference and Research Center

Partners: Center for Environmental Education and Communications, State Environmental Protection Agency
Focus: Education
Status/Schedule: Initiated 1997

The Center aims to provide information and services to the growing number of concerned environmentalists in China and to scholars from around the world. It is open to the whole community, including government agencies, nonprofit organizations, Chinese and international scholars, scientists, communicators, development workers and international assistance agencies. It houses a library of books, periodicals and officially published data, has computer and reference resources, contains meeting space, and provides office space.

U.S.-China Environmental Fund (USCEF)

Contact Information: mail@uscef.org; Tel: 608-767-3888, Fax: 608-767-3887

Biodiversity Conservation and Forest Management

Partners: SEPA, State Forestry Administration, Provincial Bureaus for respective sites, University of Wisconsin-Madison, Fauna and Flora International

A range of capacity building programs are being developed in Yunnan, Sichuan, Qinghai Provinces, and in the Tibet Autonomous Region with local agencies to conserve biodiversity and sustainably manage critical forest resources. The first major program is the Wuliangshan Mountains in Yunnan Province with funding from the Global Environment Facility. In general, all programs will involve local stakeholders in project design and implementation, which will include alternative agricultural practices and livelihoods to reduce development pressures on sensitive ecosystems. Key priorities focus on long term planning, development of funding mechanisms, and facilitation of multi-agency and multi-disciplinary cooperation for resource management.

The Great Wall at Badaling

Partners: Beijing Municipal Government, Badaling Special Zone Administration

This project integrates environmental planning with economic development by balancing conservation and tourism at Badaling. In partnership with the Beijing Municipal Government, USCEF is preserving the cultural integrity of this section of The Great Wall though the design and development of the International Friendship Forest, a 100-acre natural park along the western edge of The Great Wall at Badaling. A master plan for Badaling, the most popular Great Wall site, is being designed and implemented to accommodate increased tourism from the newly completed Beijing-Badaling expressway.

High School Environmental Education Program

Partner: China State Environmental Protection Administration (SEPA)

After initiating an environmental education exchange between eighteen U.S. and Chinese sister cities in 1996, USCEF is now working with SEPA on an experiential environmental education program for high school students in China's largest cities. A major product of the program is the publication of municipal Environmental Handbooks (for Beijing, Shanghai, Tianjin, Shenzhen, and Lanzhou to date), which serve as a hands-on, practical guide on local environmental conditions. The Handbooks are linked to a field studies program that turns a city's environmental management systems into a laboratory for study, including suggestions for monitoring exercises and environmental community service activities. In 2000, in cooperation with International Awareness Community Theater (I-ACT) USCEF will launch Theater for Environmental Awareness (TEA) that will use storytelling, dance, song, and drama as powerful and compelling methods to engage audiences on a range of environmental issues.

National Parks, World Heritage Sites

Partner: Chinese Ministry of Construction

In cooperation with the Ministry of Construction's National Park Administration, USCEF is helping build the institutional capacity of China's national park system. The technical assistance program will publish interpretive literature, strengthen policies and laws for park administration and concessions, create design standards for construction within parks, address economic development needs of communities surrounding parks, and conserve threatened cultural and natural resources. Specific activities include policy research and development, training, strategic planning utilizing GIS, interpretive signage, visitor programs and publication of educational materials, and ongoing exchanges with U.S. park professionals.

Lead Poisoning Prevention in China

Partners: China State Environmental Protection Administration, Beijing University, Shanghai Children's Medical Center, Alliance To End Childhood Lead Poisoning

The project will assist key Chinese institutions in developing and implementing effective education and prevention programs to control and eliminate environmental sources of childhood lead poisoning. USCEF, working with the Alliance To End Childhood Lead Poisoning (a U.S. NGO) and Chinese partners, will help build coalitions of government agencies, environmental organizations, industry associations, universities, and medical centers to provide technical and policy assistance at the national and local levels and help conduct community-based pilot projects. Currently, coalitions are being built in Beijing and Shanghai, and one more city will be identified by Earth Day 2000. Partnerships are being sought with Chinese, U.S., and international entities who can support these lead prevention initiatives.

Wetlands International, Asia-Pacific

Web Address: http://www.wetlands.agro.nl/

National Wetland Conservation Action Plan

Partners: WWF, Ministry of Forestry (now State Forestry Administration)
Focus: Wetlands Conservation, Policy
Status/Schedule: Initiated May 1996

China's extensive wetlands currently are over-exploited. This cooperative effort brings together 15 national level ministries in a process that identifies and begins to resolve conflicts regarding the use, exploitation and conservation of China's wetlands.

Mangrove Forest Management

Partner: Euroconsult (Netherlands)
Focus: Wetlands
Grant: U.S. $3 million
Status/Schedule: Funding anticipated in 2000

The project focuses on enhancing the management and restoration of mangrove forests in Guangdong Province's Leizhou Peninsula, which is the largest mangrove area left in China. In recent years, some of the area has been destroyed and the health of much of the rest has been harmed by human activity, especially aquaculture fish farming (Source: *Chinabrief*, August-November 1999).

Newsletter for Wetlands

Partners: WWF, CITES, Qiniuangdao Safari Park
Focus: Wetlands conservation, Education, Policy
Status/Schedule: Initiated

This biannual publication is written and produced by Wetlands International and distributed to citizens, researchers, professionals and Chinese government officials. The magazine-format newsletter is in Mandarin Chinese, with selected articles and a table of contents in English. Its contents include special sections and articles on topics that relate to wetlands conservation, reports on wetland-related research, reports on wetland-related organizations, meeting summaries, and lists of new English and Chinese language wetland-related publications.

Winrock International Focus: Agriculture

Web address: http://www.winrock.org/

LEAD21 Program

Partners: Starr Foundation, Chinese Education Authority, and Chinese Agricultural Universities
Status/Schedule: Initiated 1996, Target Completion 1998

The LEAD21 program brings instruction in agricultural economics, agribusiness principals, and policy reform to China, as well as training farmers in economics. LEAD21 students are being trained to become policy makers and instructors in the hope that they will help ensure China a place in the world food market.

World Resources Institute (WRI)

Web address: http://www.wri.org/

Climate Policy, Air Pollution and Public Health: Estimating Mortality and Morbidity from Fossil Fuel Consumption in Major Urban Areas in China

Partners: USEPA, China Council's Pollution Working Group, Tsinghua University, Beijing Medical University, Shanghai Environmental Protection Bureau

This project focuses on conducting studies in Beijing and Shanghai and other major urban areas of China to document the benefits that would follow from adopting less carbon-intensive energy and urban transportation policies. This would lessen the impact of greenhouse gases from fossil fuel consumption, and significantly reduce current and future public health impacts from exposure to combustion-related air pollutants.

China Energy Future Project

Partners: Energy Research Institute, China State Environmental Protection Administration

This project has two overarching objectives. The first is to support a process within China to compare several studies on energy, environment, and climate change as they relate to China's economy. Several such studies have been undertaken in recent years, and they are essential to developing a broad-based, well-informed discussion of China's energy options and their environmental ramifications. The second objective is to improve international understanding of the energy challenges facing China and to encourage effective, international cooperation on energy and environment issues.

China Environment and Health Project

Partners: Policy Research Center for Environment and Economy, Chinese Academy of Science's National Conditions Analysis Group

The primary goal of this project is to improve the quality and type of information available on the relationship between environmental degradation and human health. To assist in this effort, WRI is working with its partners to develop the Environment and Health Profile of China. This profile will pull together in one place the key indicators and studies that link environmental conditions to public health and will attempt to identify the direct and underlying causes for these conditions and what is being done to address the problems.

World Wildlife Fund (WWF)

Web address: http://www.panda.org/

Web address: http://www.panda.org/resources/countryprofiles/china/page1.htm

Beijing Energy Efficiency Center (BECon)

Partners: Battelle, ERI, and Lawrence Berkeley National Laboratory

WWF is working with BECon to help implement its energy policy analysis in China. WWF is moving forward in its efforts to help create a strong domestic market for energy efficient and renewable energy technologies in China and build capacity at a local government level to implement efficiency and renewable based energy solutions. WWF is also promoting a shift to economic growth at low CO_2 emissions in China, with an overall goal to promote a domestic market for priority applications, which integrate available energy efficiency and renewable energy technologies into the sustainable growth of the local rural economy while reducing or eliminating CO_2 emissions sources. The objective is to identify and develop market and policy incentives to promote a domestic market for a set of specific end-user applications with wide applications in local townships and rural economies.

National Wetland Conservation Action Plan

Partner: Asian Wetland Bureau

WWF and the Asian Wetland Bureau are helping the Chinese government to formulate a comprehensive national action plan, in consultation with the various agencies involved in wetland conservation, and those whose activities affect wetlands, to ensure support at all levels. The project was initiated in response to a realization by the Ministry of Forestry, the National Environmental Protection Agency, and other agencies, that the lack of a comprehensive national action plan is a major impediment to wetland conservation in China.

Giant Panda Conservation, Management Plan for the Giant Panda and Its Habitat

Partners: Ministry of Forestry, Chinese Zoos
Status/Schedule: Initiated 1992, Targeted Completion 2002

Known in China as "The National Conservation Program for the Giant Panda and its Habitat," the ten-year program, which gained approval in China in 1992, is focused on setting up fourteen new panda reserves, improving the management and protection of these panda reserves, and maintaining or re-establishing "bamboo corridors." These corridors allow the otherwise isolated groups of pandas to communicate and to interbreed.

Development of Environmental Education

Partners: State Environmental Protection Agency (SEPA), State Education Commission (SEC)

In 1993, the Chinese embassy in Switzerland approached WWF for help in furthering environmental education in China. In cooperation with SEPA and SEC, WWF helped devise an action plan for teacher training, resources, and curriculum development on environmental issues. WWF is currently providing institutional support for these plans.

Capacity Building

Focus: Capacity Building

WWF emphasizes the need to help build knowledge and expertise among the government officers, scientists and environmental managers who are involved in China's conservation initiatives. For example, at Hong Kong's Mai Po Marshes Nature Reserve WWF has developed training materials and run training courses in wetland protection for the staff of numerous Chinese governmental agencies. WWF also has sponsored the staff of the China Giant Panda Research and Captive Breeding Center in Sichuan to attend numerous training programs, including wildlife management and postgraduate courses overseas.

Conservation in the Baimaxueshan Nature Reserve, Yunnan Province

Focus: Reserve Management, Sustainable Livelihood
Status/Schedule: Initiated 1998

The project aims to strengthen the management capacity of the 1,900 square kilometer Baimaxueshan Nature Reserve. The reserve is remote and mountainous, and supports important habitats for the snub nosed golden monkey. The project also aims to reduce pressure on the reserve from poor communities adjacent to the reserve, by implementing demonstration projects focusing on sustainable livelihoods (Source: *Chinabrief*, November 1998).

Conservation in Sichuan's Wanlang Reserve

Focus: Wildlife Conservation, Watershed Protection

WWF is helping to improve and strengthen management in the reserve, which provides habitat for the Giant Panda, Clouded Leopard, Takin, golden monkey, and the Chinese monal partridge. Improved reserve management also should provide additional protection for vital watersheds, which in turn would help to prevent flooding and soil erosion and to improve agricultural productivity.

Conservation in Xishuangbanna Prefecture, Yunnan Province

Partners: Yunnan Forest Department, Chinese Academy of Sciences (various institutions), Unnamed Local Authorities in and around Xishuangbanna Nature Reserve
Focus: Tropical Forest Conservation

Xishuangbanna prefecture contains part of China's single largest area of tropical rain forest. This wide-ranging project's primary goal is to develop and promote methods of producing food and fuel that are relatively environmentally sensitive. WWF activities attempt to simultaneously protect the area's tremendous biodiversity and promote the livelihood of the 200,000 people living there. Participatory development planning techniques are included, with cooperation from a number of institutions under the Chinese Academy of Sciences that have expertise in this field.

Environmental Education Training Center

Partner: Beijing Normal University
Focus: Education
Status/Schedule: Initiated 1997

In its early months, the center sponsored two pairs of Chinese professionals to attend training courses abroad. The first pair attended a three-month course in environmental education, based in Ahmedabad, India. The second pair of Chinese professionals attended a three-month course on environmental education at Strathclyde University, Scotland (Source: *China Development Briefing*, July 1997).

Environmental Education Workshop and Teacher Training and Support

Partners: National Environmental Protection Agency (now SEPA), State Education Commission (SEC)
Focus: Education
Status/Schedule: Initiated May 1996

WWF, in partnership with NEPA and the SEC, ran an environmental education workshop for selected education officials and schoolteachers prior to May 1996. As of May 1996, WWF planned to help implement the teacher training plans that were developed at the workshop. WWF also committed to help both the NEPA and the SEC further promote environmental education in China.

Numerous projects

Focus: Conservation, Wetlands, Energy, Climate Change, Education
Status/Schedule: Initiated 1980

WWF, which was the first international nonprofit conservation organization to be invited to work in China, initially focused on protecting the Giant Panda and its Sichuan Province habitat. Today WWF maintains a significant staff in China, who work on Giant Panda conservation and a wide variety of other topics that include wetland and tropical forest conservation, energy, climate change, and environmental education. Overall, WWF expenditures in China have totaled more than 10 million Swiss francs (U.S. $6.6 million dollars based on the market rate of 31 October 1999). To find out about other WWF work in China, please contact WWF China directly.

Universities

Massachusetts Institute of Technology (MIT)

Web address: http://web.mit.edu/

Clean and Efficient Utilization of Coal in China: Environmental Aid and Coal Combustion

Partners: Tsinghua University, Tokyo University, Environmental Aid and Coal Combustion Swiss Federal Institutes of Technology, and Taiyuan University

The goal of this project is to determine how coal use in China can be made cleaner and more efficient. Coal combustion engineers and social scientists from MIT, Tsinghua University, Tokyo University, the Swiss Federal Institutes of Technology, and Taiyuan University are all members of the research team. The group is examining coal use in industrial boilers, utilities, and households.

One group is examining: 1) energy efficiency and environmental performance measures for firms in five provinces; 2) engineering factors including hardware, mode of operation and fuel types that affect energy efficiency and environmental performance; and 3) economic and social factors such as price systems, incentives, ownership, and domestic and international environmental programs that affect the choice of hardware, operational methods, and fuel. Another group is examining household coal use and ways of encouraging cleaner and more efficient cooking and heating and how combustion processes may affect human health at the household level.

Stanford University/Department of Civil and Environmental Engineering

Web address: http://www-seep-server.standord.edu/seepweb/ews/ewsbroch/research.html#enviornmental

Stanford's Department of Civil and Environmental Engineering has several research projects related to air and water quality management in China. Some projects focus on the transfer and diffusion of technologies and methods to increase "cleaner production" in certain industrial sectors. Work is also being done on the implementation of Chinese environmental regulations by enterprises and on what China is doing to implement the Montreal Protocol. One recent topic of research, funded by NSF and the UPS Foundation, is the Role of Japan in Clean Technology Transfer to China.

Stanford University/Institute for International Studies (IIS)

Web address: http://www-iis.stanford.edu/

Energy Development Conference

Partners: NITO, Japan; Tsinghua University, Beijing

IIS cosponsored an energy development conference that explored issues of reducing acid rain, transferring clean energy technology, and developing compliance monitoring systems for potential enforcement.

Montreal Protocol Research

IIS graduate students have been working on projects aimed at keeping China in compliance with the Montreal Protocol.

Tulane University

Web address: http://www.tulane.edu/~uschina/

U.S.-China Energy and Environment Technology Center

Partners: U.S. Department of Energy, Tsinghua University, and Multiple Other U.S. and Chinese Governmental Agencies.

The U.S.-China Energy and Environment Technology Center (EETC) was established in Beijing in 1997 to enhance the competitiveness and adoption of U.S. clean energy and environmental technology in China. The center is implemented jointly by the U.S. and Chinese governments, Tulane and Tsinghua Universities and is overseen by a

Board of Directors and Steering Committee. Both the Memorandum of Understanding between Tulane and Tsinghua, and the Center's charter are in place. Over the past year, the Center has conducted education and training programs, and information seminars that support policy development. It has worked to develop policy initiatives in the energy and environmental sectors, and matched U.S. business interests with China's needs.

University of Wisconsin

Web address: http://www.wisc.edu/

Community-Based Management of Natural Resources

Partners: University of Cheng Mai, Yunnan Province

This project focuses on local community-based management of natural resources. In addition, work is being performed to examine the use of local, traditional knowledge systems for environmental management, as is a project to promote the formation of local watershed councils.

University of Wisconsin/Institute for Environmental Studies

Web address: http://www.ies.wisc.edu/

Natural Resource Management in the Upland of Asia: Developing Tools for Local Policy

Partners: Chiang Mai University, Thailand of Asia: Developing Tools for Local Policy and Yunnan Academy of Social Sciences, China

The goal of this project is to link rural communities in selected watersheds to: 1) national institutions in China, Thailand and Vietnam for research; 2) training and networking activities for policy makers; and 3) researchers and officials from government institutions, non-government organizations and private sector institutions.

Part IV. Multilateral Organization Activities

Asian Development Bank (ADB)

(Pre-project Technical Assistance)

Web Address: http://www.adb.org/

Chengdu General Des Eaux-Marubeni Waterworks Company Limited

Partners: Vivendi of France (sixty percent), Marubeni Corporation of Japan (Marubeni) (forty percent)
Focus: Water Supply
Funding: U.S. $48 million (ADB Complementary Financing Scheme U.S. $21.5 million; European Investment Bank U.S. $26.5 million)
Status/Schedule: Initiated February 1999

The project will be the first Build-Operate-Transfer (BOT) urban water supply project in People's Republic of China. This project will finance the following activities:1) water intake facilities, and a two-kilometer transmission line to the water treatment plant; 2) a water treatment plant; and 3) twenty-seven kilometers of transmission pipelines to the city. The project will supply treated water to Chengdu Municipal Waterworks General Company (CWGC) in Chengdu City, Sichuan under a take-or-pay off-take agreement. Commercial production is scheduled to begin in September 2001.

Fuzhou Water Supply and Wastewater Treatment

Partner: Fuzhou ADB project Office
Focus: Social Infrastructure/Water Supply and Sanitation
Funding: U.S. $192.2 million (ADB loan: U.S. $102 million Ordinary Capital Resources [OCR]; Local investment: U.S. $90.2 million)
Status/Schedule: Initiated 1998, Targeted Completion 2002

The project will help resolve an acute shortage of potable water and address severe water pollution problems in Fuzhou City. Part A of the project consists of constructing a new water supply source from the Ao River, water treatment facilities, and feeder mains. Part B consists of a sewerage system including collection, interceptors and pumping facilities, and a wastewater treatment plant at Yang Li. The objectives of the project are to improve the quality and quantity of water supplied to Fuzhou City in Fujian Province and to improve the urban environment by reducing contamination of local water courses in Fuzhou City and the Min River.

Heilongjiang Water Supply

Partners: Harbin Municipal Water Supply Construction Company and Mudanjiang Linhai General Water Supply Company
Focus: Social Infrastructure, Water Supply and Sanitation
Funding: U.S. $1 million (ADB loan)
Status/Schedule: Initiated 1999

The objective of this technical assistance is to update the feasibility studies to help formulate an investment project for water supply in Harbin and Mudanjiang cities. The ensuing project is expected to include the following components: 1) two multipurpose dams with a small-scale hydroelectric plant; 2) raw water conveyance; 3) construction of water treatment plants and expansion of distribution systems; and 4) capacity building of the water supply companies.

Market-based Energy Conservation

Partner: State Economic and Trade Commission
Focus: Energy, Cleaner Production

Funding: U.S. $300 million (ADB loan: U.S. $150 million; Local financing: U.S. $150 million)
Status/Schedule: Initiated 1999, Targeted Completion 2004

The project will promote modification of existing production processes, installation of energy-saving equipment, recovery of waste materials, elimination of hazardous wastes, and establishment of energy management systems throughout China. Sub-project enterprises will be the respective implementing agencies; the Industrial and Chemical Bank of China, the Construction Bank of China, and the China Energy Conservation Investment Corporation will be the intermediaries.

North China Flood Protection

Partner: Chinese Ministry of Water Resources
Focus: Agriculture, Natural Resources
Funding: U.S. $1 million (ADB Loans: U.S. $1 million Technical Assistance Support Funds [TASF])
Status/Schedule: Initiated May 1999

The objective of the technical assistance is to prepare a follow-on sector project which aims at longer-term flood protection in North China, including the Songhua and Liao River basins as well as part of Yellow River basin. The technical assistance will identify the necessary structural and non-structural flood protection measures that are needed in these river basins, as well as identify candidate sub-projects to be included in the project and prepare feasibility studies for some representative sub-projects.

North China Marine Culture and Coastal Resources Management Project

Partner: Chinese Ministry of Agriculture
Focus: Environment
Funding: U.S. $70 million (OCR)
Status/Schedule: Initiated 1996, Targeted Completion 2000

The main objectives of the project are: 1) to enhance sustainable marine culture production in line with increasing demand for fish products; 2) to contribute to coastal and marine resource conservation and environmental management in the Bohai Sea; 3) improve economic and social conditions in coastal communities in the project area through economic diversification and expansion of income generating opportunities; and 4) to strengthen human resource capabilities in the investment, management, and operation of aquatic product processing activities.

Northeast Flood Damage Rehabilitation Project

Partner: Heilongjiang Province
Focus: Agriculture and Natural Resources
Funding: U.S. $110 million (ABD loan: U.S. $57.33 million OCR; Local investment: U.S. $52.67 million)
Status/Schedule: Initiated 1999, Targeted Completion 2002

The project is given high priority by the Chinese central government. The project will reinstate essential infrastructure in key sectors that were damaged by the 1998 floods in Heilongjiang Province and their after-effects in the Songhua and Liao river basins in northeast China. The project will finance the rehabilitation of flood-damaged facilities in three key sectors: 1) water resources infrastructure; 2) urban facilities; and 3) roads and bridges. The project scope includes surveys and design, civil works, supervision, materials, equipment, and consulting services for project coordination, monitoring, and evaluation.

Power Rehabilitation and Environment Improvement

Partner: State Power Corporation
Focus: Energy, Electric Power

Funding: U.S. $400 million (ADB loan: U.S. $200 million; Local investment: U.S. $200 million)
Status/Schedule: Initiated 1999, Targeted Completion 2004

This project is a continuation of an earlier advisory technical assistance. The potential for this project to expand its scope nation-wide is great. Based on previous technical assistance work, the bank has identified 200 potential 100-300MW sized coal fired power plants for renovation and six areas have been identified as priorities: turbines and generators; boilers; environmental protections equipment; control instruments; fans/pumps; and valves. Loans will subsequently be made to smaller subprojects in a suitable "Sector Loan" approach.

Power Rehabilitation and Environmental Improvement Project

Partner: State Power Corporation
Focus: Energy, Power Transmission
Funding: U.S. $1.23 million (ADB loan: U.S. $765,000; Local loans: U.S. $235,000; Central government loan: U.S. $230,000)
Status/Schedule: Initiated Late 1998

The objective of this technical assistance study is to help the People's Republic of China prepare the proposed Power Rehabilitation and Environmental Improvement project for external financing. Fifteen 125MW - 300MW facilities will be eventually selected country-wide for rehabilitation or upgrade based on the results. Consultant services and equipment was procured for the work beginning in late 1998.

Shanxi Environmental Improvement

Partner: Shanxi Environmental Protection Bureau
Focus: Energy Efficiency, Air Pollution
Funding: U.S. $102 million (ADB loans: U.S. $102 OCR)
Status/Schedule: Initiated 1999

The ADB-financed project aims to improve the environmental condition in Shanxi Province. The project will introduce policies to mitigate the environmental pollution and to encourage environmentally friendly technologies that will conserve energy and raw materials. These goals will be achieved by:1) supporting market-oriented price reforms; 2) promoting institutional improvements of environmental protection agencies for sustainable environmental management and compliance with environmental standards; and 3) financing a portion of the environmental investments for expanding the district heating and gas distribution systems to reduce direct coal burning and improve energy efficiency. The scope of the project includes three sub-projects: a) Datong District Heating Plant; b) Taiyuan Coal Gasification Plant; and c) Yangquan Coal-bed Methane Collection Plant. Piggybacked onto this loan is technical assistance from the Shanxi Environmental Protection Bureau.

Suzhou Creek Rehabilitation

Partner: Shanghai Suzhou Creek Rehabilitation and Construction Co., Ltd.
Focus: Social Infrastructure, Water Supply and Sanitation
Funding: U.S. $912.2 million (ADB loan: U.S. $300 million OCR; Foreign investment: U.S. $373.50 million, Local investment: U.S. $542.7 million)
Status/Schedule: Initiated 1999, Targeted Completion 2004

The project is the first phase of a twelve-year program to take place from 1998 to 2010, to rehabilitate the Suzhou Creek. Phase I in Shanghai will be implemented over a five-year period from 1999 to 2004, and will include components aimed at: 1) improving wastewater management, including sewage treatment and disposal; 2) introducing water resource management and quality control methods; and 3) providing environmental sanitation and urban renewal. The long-term water quality objectives for the section of Suzhou Creek within the Shanghai Municipal Government administrative area are to achieve Class IV water quality standards in the lower twenty-four kilometers of the creek and Class III standards in the upper twenty-nine kilometers by 2010.

Tianjin Wastewater Treatment and Water Resource Protection

Partner: Tianjin Municipal Government
Focus: Social Infrastructure, Water Supply and Sanitation
Funding: U.S. $8 million (ADB loan)
Status/Schedule: Initiated April 1999

Under the Hai River Pollution Prevention and Control Plan, approved by the State Council in April 1999, the central government has designated Tianjin as one of the four major cities requiring urgent intervention in pollution control on a priority basis. The technical assistance would help formulate a project suitable for ADB financing including construction of the Baicang wastewater treatment facilities and implementation of a water resources protection scheme in the existing Luan-Tianjin water diversion system.

West Henan Agricultural Development

Partner: Henan Provincial Government State Development Bank
Focus: Agriculture, Natural Resources, Rural Development
Funding: U.S. $216.1 million (ADB loan: U.S. $100 OCR; Foreign investment: U.S. $14.4 million; Local investment: U.S. $101.7 million)
Status/Schedule: Initiated 1999, Targeted Completion 2005

This initiative is a top government priority. Technical advice and training will be provided to improve the quality of produce, and environmentally sound agronomic practices and land development techniques will be introduced to prevent soil erosion and pollution in Henan Province. The project will integrate agricultural production, agro-processing, and marketing in the province.

Wind Power Development Project

Partner: State Power Corporation
Focus: Energy, Electric Power
Location: Xinjiang Autonomous Region, Liaoning and Heilongjiang Provinces
Funding: U.S. $65 million (ADB loan: U.S. $45 million; Local co-financing: U.S. $20 million)
Status/Schedule: Initiated 1999

The project promotes the development of commercial grid-connected, wind-based electricity generation by expanding one existing wind farm in the Xinjiang Autonomous Region, and developing new wind farms in Liaoning and Heilongjiang Provinces.

Xian-Xianyang-Tongchuan Environment Improvement

Partner: Shaanxi Provincial Planning Commission
Focus: Energy Efficiency, Air Pollution
Funding: U.S. $298 million (Loan: $156.0 million OCR; Local costs: U.S. $142 million)
Status/Schedule: Initiated 1998, Targeted Completion 2001

This ADB-financed project in Shaanxi Province will institute reforms for sustainable environmental management and continued progress towards market-based energy pricing, while at the same time financing investments for improving air quality. Air pollution will be reduced by: 1) the replacement of old, small, inefficient boilers and domestic stoves by modern efficient cogeneration plants and district heating systems fitted with pollution control devices; 2) the substitution of natural gas for coal burning by end users; and 3) the reduction of particulate emissions from a large cement plant.

Zhejiang-Shanxi Water Supply Project (Phase II)

Partner: Wenzhou Water Supply Investment Development Company
Focus: Social Infrastructure, Water Supply and Sanitation
Funding: U.S. $250 million (loan OCR)
Status/Schedule: Initiated 1999, Targeted Completion 2004

The project includes construction of raw water mains, pumping stations, wastewater treatment, and water transmission network in Wenzhou City, Ruian City, and Pingyang County. The project will also involve extensive capacity building and training to facilitate implementation and to convert the implementing agency into an efficient operating company following the completion of project construction.

United Nations Development Programme (UNDP)

Web Address: http://www.undp.org/

Barrier Removal for the Widespread Commercialization of Energy-Efficient CFC-Free Refrigerators in China

Partners: Global Environment Facility (GEF), United Nations Office of Project Services and Chinese manufacturers of refrigerators
Focus: Climate Change
Funding: U.S. $41.5 million (GEF: U.S. $9.860 million and Chinese government co-financing: $31.290 million)
Status/Schedule: Initiated March 1998, Targeted Completion September 2003

This project aims to reduce greenhouse gas (GHG) emissions in China by removing barriers to widespread commercialization of energy-efficient refrigerators. The project activities focus on key market, technological, social, and commercial barriers to the adoption of high-efficiency refrigerator technology. Another component of the project addresses acceptance of these refrigerators by Chinese consumers as well. Activities include technical assistance and training for compressor and refrigerator manufacturers, incentives for energy efficient production design, national efficiency standards, a national labeling program and a consumer buyback/recycling program.

Beijing Municipality: Addressing Key Agenda 21 Sustainable Development Issues

Partner: Executing Agency: Ministry of Foreign Trade and Economic Cooperation (MOFTEC); Implementing Agency: China International Center for Economic and Technical Exchanges (CICETE)
Focus: Sustainable Development
Funding: U.S. $1,275,000 (UNDP Budget: U.S. $1,100,000; Government cost-sharing: U.S. $175,000)
Status/Schedule: Initiated July 1996.

The development objective of this project is to assist Beijing in implementing China's Agenda 21 at the local level in several urgent areas by technical transfer and capacity building.

Capacity Development for Acid Rain and Air Pollution Control in Guiyang Province

Partner: Executing Agency: MOFTEC; Implementing Agency: CICETE; Cooperating Agency: United Nations Department for Development Support and Management Services (UNDDSMS)
Focus: Air Pollution
Funding: U.S. $969,000 (UNDP budget: U.S. $609,000; Government cost-sharing: U.S. $360,000)
Status/Schedule: Initiated January 1997

The project has the following three immediate objectives: 1) assessing air pollution in Guiyang and obtaining an expanded and updated SO_2 emissions inventory; 2) developing a control strategy and associated regulatory framework for sulfur dioxide emissions; and 3) strengthening the commitment of municipal authorities to implement a control strategy and revising the regulatory program for SO_2 emissions and acid deposition.

Capacity Development for Ambient Particulate Emissions Control in Xian

Partners: Executing Agency: MOFTEC; Implementing Agency: CICETE; Cooperating Agency: UNDDSMS
Focus: Air Pollution
Funding: U.S. $855,000 (UNDP Budget: U.S. $470,000; Government cost-sharing: U.S. $385,000)
Status/Schedule: Initiated January 1997

The project located in Xian and Shaanxi Provinces has the following three immediate objectives: 1) conduct in-depth investigation and analysis about the types and sources of atmospheric particulate in Xian; 2) develop a particulate control strategy; and 3) strengthen municipal capacity for particulate atmospheric pollution control in Xian.

Capacity Development for NOx Pollution Control in Guangzhou City

Partner: Executing Agency: MOFTEC; Implementing Agency: CICETE; Cooperating Agency: UNDDSMS
Focus: Air Pollution
Funding: U.S. $ 960,000 (UNDP Budget: U.S. $600,000; Government cost-sharing: U.S. $360,000)
Status/Schedule: Initiated January 1997

The project has the following two immediate objectives: 1) to assess the impact of vehicular and NO_x emissions on air quality in Guangzhou and 2) to provide integrated policy guidance to the Guangzhou Municipal Government on the control of vehicular NO_x emissions.

Capacity Building for the Rapid Commercialization of Renewable Energy

Partner: Global Environment Facility (GEF)
Focus: Energy Efficiency, Renewable Energy
Funding: U.S. $28 million (GEF: U.S. $9 million)
Status/Schedule: Initiated 1997

This project aims to promote the widespread adoption of renewable energy sources in China by strengthening the capacity of Chinese government agencies to implement policies that support the removal of barriers to solar and wind hybrid systems, wind farms, biogas, and other forms of renewable energy. Some activities include: 1) conducting workshops to focus on market penetration, foreign investment, and power purchase agreements; 2) establishing a renewable energy center for training and facilitation programs; 3) training policymakers, renewable energy professionals, and business community in market-based renewable energy development and best practices; and 4) installing 200 pilot solar heating systems and several biogas digestion plants.

Capacity Building for Widespread Adoption of Clean Production for Air Pollution Control in Benxi

Partner: Executing Agency: MOFTEC; Implementing Agency: CICETE; Cooperating Agency: UNDDSMS
Focus: Clean Production
Funding: U.S. $969,000 (UNDP budget: U.S. $530,000; Government cost-sharing: U.S. $500,000)
Status/Schedule: Initiated January 1997

The project has the following immediate objectives: 1) to identify possible production modifications and industrial restructuring options and 2) to strengthen the municipal capacity for clean technology promotion in Benxi, Liaoning Province.

China Wetlands Project

Partners: Global Environment Facility, Australian Government, Wetlands International
Focus: Water Conservation
Grant: U.S. $14.7 million (GEF U.S. $12 million; Australia U.S. $2.4 million; UNDP U.S. $0.3 million)

Duration: Initiated 1999

The project initially focuses on four significant wetland areas: Sanjiang in Heilongjiang, Yanchen in Jiangsu, Dongting Lake in Hunan, and Ruogai on the border between Sichuan and Gansu (Source: *Chinabrief*, August-November 1999).

Energy Conservation and GHG Emission Reduction in Chinese Township and Village Enterprises

Partners: GEF and United Nations Industrial Development Organization (UNIDO)
Focus: Climate Change
Funding: U.S. $18.55 million (GEF: U.S. $8.000 million; UNDP and others: U.S. $10.550 million)
Status/Schedule: Initiated 1999, Targeted Completion June 2003

UNDP is the implementing agency and UNIDO is the executing agency of this project. This project will focus on Township-Village Enterprises (TVEs) which constitute a significant share of Chinese economic production. The project seeks to reduce GHG emissions in China from the TVE sector by increasing the utilization of energy efficient technologies and products in brick, cement, metal casting, and coking industries. The project will encourage the removal of key market, regulatory, technological, management, and commercial barriers in order to promote the production, marketing, and utilization of energy efficient technologies in these major TVE industries.

Prevention and Management of Marine Pollution in East Asian Seas

Partners: Global Environment Facility, International Marine Organization, Coastal Management Center, Asian Fisheries Society, Marine Environmental Resource Foundation, UP Marine Science, local universities and oceanographic institutions.
Focus: International Water
Funding: U.S. $11.4 million (GEF: U.S. $8.000 million; Co-financing by international organizations and recipient governments: U.S. $3.400 million)
Status/Schedule: Initiated July 1997, Targeted Completion October 2000

In addition to China, other participating countries are Cambodia, Indonesia, Korea DPR, Malaysia, Philippines, Thailand, and Vietnam. The goal of this project is to promote the development of policies and plans to control marine pollution for land and sea-based sources; upgrade national and regional infrastructures and technical skills; and establish financing instruments to promote continuation of the project. Demonstration sites have been selected and regional monitoring and information networks will be established. A regional association of marine legal experts is involved in the project to help improve the capacity to implement relevant marine conventions. One of the earliest selected sites was Xiamen City in Fujian Province in southern China. This demonstration project has been particularly successful.

Programme Support Project for Air Pollution Control in China

Partner: Executing Agency: The Ministry of Foreign Trade and Economic Cooperation (MOFTEC) Implementing Agency: China International Center for Economic and Technical Exchanges (CICETE) Cooperating Agency: United Nations Department for Development Support and Management Services (UNDDSMS)
Focus: Air Pollution
Funding: U.S. $570,000 (UNDP budget)
Status/Schedule: Seeking additional investment

The project is intended to be the coordination and policy component of a broader national program for air pollution that will include four projects directed at separate, but complementary aspects of air pollution in China. Four cities—Benxi (Liaoning), Guiyang (Guizhou), Xian (Shaanxi), and Guangzhou (Guangdong)—have agreed to work within the framework of a national program of air pollution control activities in order to enhance the country's ability to effectively improve air quality at the local and regional levels.

Renewable Energy Technologies in China

Partner: State Economic and Trade Commission with assistance from SEPA
Focus: Renewable Energy
Funding: U.S. $25.83 million (GEF: U.S. $8.8 million; the Government of Australia: U.S. $3 million; the Government of Netherlands: U.S. $2.53 million: and the Government of China: U.S. $11.5 million)
Status/Schedule: Seeking additional investment

This project will assist China in developing market-based institutions and instruments to attract new players in the renewable energy industry and increase investments in renewable energy technologies. To provide first-hand knowledge of a particular instrument/institution, the project will support pilot activities for five promising technologies, namely: 1) rural electrification by solar and wind hybrids; 2) wind farm development; 3) industrial scale biogas production; 4) bagasse cogeneration; and 5) solar-water heaters. The selection of technologies was made on the basis of recent assessments of market conditions and potential for future greenhouse gas reductions. Project activities include supporting the formation of a China Renewable Energy Industries Association, international training for policymakers and professionals, development of standards, and technology demonstration. The project is jointly financed by the Global Environment Facility through UNDP.

Wetland Biodiversity Conservation and Sustainable Use

Partners: Global Environment Facility, State Forestry Administration of the PRC
Focus: Biodiversity
Funding: U.S. $35.1 million (GEF: U.S. $12 million; UNDP and other co-financing: U.S. $23 million)
Status/Schedule: Initiated November 1998, Targeted Completion January 2004

The Biodiversity Conservation Action Plan, Agenda 21, and the draft National Wetland Conservation Action Plan provide the foundation for conservation and sustainable management of China's wetland resources. Nevertheless, in China, as well as in other countries, barriers to effective conservation of wetland biodiversity remain. Challenges facing wetland conservation include: 1) lack of integration of wetland management and biodiversity conservation into development planning; 2) paucity of institutional mechanisms and technical capacity at national and local level to manage and conserve wetlands for their biodiversity and to undertake multi-sector wetland management; 3) limited awareness within government and society of wetland values and functions; and 4) insufficient examples of sustainable development of wetland resources that include involvement of local communities. This project aims to remove these barriers at four demonstration project sites—Sanjiang Plain, Ruoergai Marshes, Yancheng Coast and Dongting Lakes. Each represents a different ecosystem and is of high global biodiversity importance. A national coordination component will ensure that lessons learned will be transferred throughout the country. The UNDP and the GEF are the implementing agencies and the Chinese State Forestry Administration is the executing agency for this proposed project. GEF support will be closely tied with new Chinese government programs that promote biodiversity and sustainable development at the local level.

United Nations Educational, Scientific, and Cultural Organization (UNESCO) Man and The Biosphere Program

Web address: http://www.unesco.org/

Biodiversity Conservation and Sustainable Development in Xishuangbanna Biosphere Reserve

Partners: Canadian International Development Research Center (IDRC), Yunnan University, Xishuangbanna Biosphere Reserve Management Bureau
Focus: Conservation
Grant: U.S. $250,000 (IDRC)
Status/Schedule: Initiated 1995, Targeted Completion 1997

This UNESCO project aimed to promote sustainable forestry practices in the sub-tropical forests of Xishuangbanna in southern Yunnan Province.

Cooperative Ecological Research Project

Partners: German Federal Ministry for Education, Science, Research and Technology (GFMESRT)
Focus: Research
Grant: U.S. $4.0 million (GFMESRT)
Status/Schedule: Initiated 1987, Targeted Completion 1995

This multilateral research project brought together 100 scientists from Germany and China to study forest, aquatic and urban ecosystems in China.

United Nations Environment Programme (UNEP)

Web Address: http://www.unep.org

Biodiversity Enabling Activity

Partners: GEF; the Department of International Cooperation and the Chinese State Environmental Protection Agency
Focus: Biodiversity
Funding: U.S. $59,000 (GEF allocation)
Status/Schedule: Approved in February 1997, Completed April 1998

The aim of this project was to assist China with the preparation of the first national report pursuant to Article 26 of the Convention on Biodiversity. The National Report was finalized in March 1998.

Lop Nur Nature Sanctuary Biodiversity Conservation

Partners: Global Environment Facility and the Chinese National Environmental Protection Agency
Focus: Biodiversity
Funding: U.S. $1.507 million (GEF: U.S. $725,000; Chinese government co-financing U.S. $782,000)
Status/Schedule: Approved November 1998

The Lop Nur region of Gashun Gobi desert was formally a nuclear testing site, but in 1998 was declared a Nature Sanctuary by the Chinese government. This new sanctuary is home to the last surviving genetically pure herd of wild Bactrian camels (Camelus bactranus ferus) in the world. This project is aimed at developing management and monitoring to help protect this dry-land ecosystem from damaging human encroachment—particularly from illegal miners and hunters.

People, Land Management, and Environmental Change (PLEC)

Partners: Global Environment Facility, United Nations University, and domestic universities
Focus: Biodiversity
Funding: U.S. $11.1 million (GEF: U.S. $6.3 million; Recipient governments co-financing: U.S. $4.8 million)
Status/Schedule: Approved 1997, Targeted Completion April 2001

PLEC is a global project on agrodiversity of different ecosystems in the tropics and subtropics. The goal of the project is to establish how sustainable and conservationist development can be achieved by participatory methods integrating expertise of local farmers and knowledge of scientists. Central activities include demonstration sites, biodiversity assessments and participatory rural appraisals, as well as cross-country workshops to promote training and information dissemination. Demonstration sites have been established and data have been gathered by villagers and scientists in China, as well as in the other participating countries—Brazil, Ghana, Guinea, Kenya, Papua New Guinea, Tanzania, and Uganda.

World Bank

Web Address: http://www.worldbank.org/

Anning Valley Agricultural Development Project

Focus: Agriculture, Irrigation
Funding: U.S. $120 million (IDA credit: U.S. $30 million equivalent; IBRD loan U.S. $90 million)
Status/Schedule: Initiated January 21, 1999

This project will increase the incomes of more than 250,000 poor families in China's Anning Valley, Sichuan Province including many minority Yi families, by improving the potential for production of large areas of marginal land through better irrigation, improved crop varieties, and extension work. It will also help farmers develop hilly land for orchard production, boosting incomes and productivity while preventing soil erosion and flooding in China. The project includes all areas of production, ranging from better irrigation and improved seed varieties to better processing and more training and research. All of these project activities are focused on producing products suitable for sale in other parts of China and increasing the income and standard of living in this poor area of Sichuan Province.

China-Beijing Environment Project II

Partner: Beijing Environmental Protection Bureau (EPB)
Focus: Air pollution, Urban Development
Funding: U.S. $670 million (Local beneficiaries: U.S. $240 million; Beijing municipal government: U.S. $230 million; IBRD loan: U.S. $200 million)

This project in Beijing will support facilities and work to reduce emissions from coal-burning boilers and to collect and treat municipal sewage around the Liangshui river basin. In addition, it will also strengthen the city's environmental management institutions and policies with upgraded monitoring capabilities and policy and regulatory tools. There are five main components to this project: 1) conversion or improvement of coal burning devices (total estimated cost approximately U.S. $300 million); 2) power plant pollution abatement (U.S. $25 million), which includes installation of a flue gas desulfurization facility at the Shijingshan power plant and will effectively reduce its overall sulfur dioxide emissions by twenty-five percent; 3) vehicle conversion to liquefied petroleum gas (U.S. $20 million). This pilot project aims to demonstrate the feasibility of liquefied petroleum gas vehicles as a practical means of reducing nitrogen oxides, hydrocarbon, and carbon monoxide emissions; 4) waste water management (U.S. $315 million) which encompasses the construction of a set of secondary and possibly tertiary wastewater treatment plants with total capacity of about 650,000 m^3/day to improve the quality of the Liangshui river basin; and 5) institutional strengthening (U.S. $10 million), which encompasses technical assistance programs and equipment upgrading to improve the capacity of municipal agencies responsible for managing the environment, energy, and sewage.

China-Chongqing Urban Environment Project

Partner: Municipality of Chongqing
Focus: Urban Environment
Funding: U.S. $500 million (World Bank Loan: U.S. $250 million; Local government investment U.S. $250 million)
Status/Schedule: Projected Board Date January 1999

Targeted investments would support the expansion of urban environmental infrastructure in Chongqing, primarily in the water sector. This project would also finance technical assistance to strengthen the financial and operational management of municipal services providers, as well as the capacity for region-wide environmental water resource management of the Environmental Protection Bureau.

China-Development

Partner: State Economic and Trade Commission
Focus: Renewable Energy

Funding: U.S. $408 million (IBRD loan: U.S. $100 million; GEF grant: U.S. $35 million; Central government: U.S. $15 million; Local equity: U.S. $140 million; Local debt U.S. $118 million)
Status/Schedule: Projected Board Date March 1999

The proposed project aims to develop state-of-the-art wind and solar photovoltaic technologies to increase electricity supply in an environmentally sustainable way and improve access of dispersed rural households and institutions to modern energy. The project would include: 1) installation of 190 MW of grid-connected wind farms in four provinces; 2) a supply of about 200,000 photovoltaic systems to households and institutions in remote areas of four Northwestern Provinces; 3) support for technology upgrading to improve the performance and reduce the costs of wind farm and solar PV technologies in China; and 4) assistance to strengthen institutional capacity and market infrastructure for large-scale commercialization of wind farms and solar PV. The wind farm development component would develop 190 MW of wind farms at up to five sites. Proposed sites include: Huitingxile, Inner Mongolia; Zhangbei, Jiangsu Province; Pingtan, Fujian Province, and; Chongming Island, and Nanhui, Shanghai Municipality. Each wind farm will be developed using a commercial framework that includes power purchase agreements and other legal documentation (to be developed during the project) that will encourage private sector participation in future wind power projects.

China-Fourth Rural Water Supply and Sanitation Project

Partners: National Patriotic Health Campaign Committee, China Water Supply and Sanitation National Project Office
Focus: Water Supply
Funding: U.S. $92 million (Central government: U.S. $23 million; IBRD: U.S. $16 million; IDA: U.S. $30 million;
Local beneficiaries: U.S. $23 million)
Status/Schedule: Board Date June 3, 1999

The country-wide project will comprise of the following three main components: water supply, sanitation and health, and management. The water supply project activities include the provision of safe water suitably financed to poor communities currently lacking such supplies. This will include both piped as well as non-piped systems (e.g., hand pumps and rain catchments). Users will be expected to pay for the full cost of the water, net of government investment. The sanitation and health education component would support demonstration programs to increase use of improved latrines. Finally, the project for management would increase project office capacity to provide services to beneficiary villages.

China Guangxi Urban Environment Project

Focus: Urban Environment, Water supply
Funding: U.S. $92 million (IDA credit: U.S. $20 million; IBRD equivalent loan: U.S. $72 million)
Status/Schedule: Initiated June 1998

This project will help improve the environment of Nanning and Guilin municipalities and support sustainable economic growth and poverty alleviation in the Guangxi region. Specifically, the project will:1) improve the quality of major water bodies; 2) regulate the flow of the Lijiang river; 3) improve institutional and financial capacity for environmental protection, environmental services, and water resource management; 4) pilot a participatory approach to environmental improvement in poor neighborhoods; and 5) implement pilot schemes for control of sugar refinery pollution.

China Irrigated Agriculture Intensification Project II

Partners: State Office for Comprehensive Agriculture Development, Ministry of Finance; and the provinces of Hebei, Henan, Shandong, Jiangsu and Anhui
Focus: Agriculture, Water Resources
Funding: U.S. $300 million (IBRD loan)
Status/Schedule: Initiated June 1998

This project will: 1) increase agricultural production; 2) increase farmers' incomes; and 3) establish mechanisms for sustainable use, development, and management of water and land resources in irrigated areas in the Huang-Huai-Hai Plain, the most important agricultural production region in China. The project will benefit some low-income areas that suffer from lack of water or partial irrigation by providing facilities for full irrigation, improved agriculture support services, and forest produce production, which will raise incomes substantially.

China-Liaoning Environment Project

Partner: Liaoning Provincial Government (LPG)
Focus: Environment, Urban Development
Funding: U.S. $338.1million (IBRD: U.S. $150 million; Foreign investment: U.S. $29.3 million; Local investment: U.S.
$158.8 million)
Status/Schedule: Projected Board Date June 1994

The project would provide physical works and technical assistance for institutional development in water supply, wastewater treatment, air pollution control, waste management, water conservation and process improvements, and cultural asset management in the province of Liaoning. The project objectives are to: 1) protect the main water resources in Liaoning Province including the Hun-Taizi River Basin to allow their sustained economic and safe use for drinking, industrial, and agricultural purposes; 2) strengthen pricing policies and institutional arrangements for environment protection, water pollution control, wastewater, and municipal solid waste management; and 3) institute measures for air pollution and cultural heritage asset management.

China Liaoning Urban Transport Project

Focus: Urban Development, Air pollution
Funding: U.S. $150 million (IBRD loan)
Status/Schedule: Project Board Date March 30, 1999

This project will ease the flow of traffic through three cities of the Liaoning Province in China—Shenyang, Fushun, and Anshan—as well as improve the urban air quality through the use of unleaded fuel and catalytic converters. The benefits of this project include reduced travel time for passengers and freight transport, lower transport costs, and increased reliability and safety of the urban transport system. The project will also strengthen the policy-making, regulatory, and implementation capacity of transport institutions. Additionally, the three project cities recognize that unchecked growth in motor vehicles will gradually erode the benefits of the project. The cities therefore recognize the need to implement controls on vehicle emissions.

China Renewable Energy Promotion

Partner: Global Environment Fund
Focus: Renewable Energy
Funding: U.S. $408 million (GEF: U.S. $36 million)
Status/Schedule: Initiated 1998

This project aims to develop commercial markets for wind farms and photovoltaic (PV) systems in China. The project will finance the installation of 190 MW of wind farms and install 200,000 solar heating systems in rural households, as well as establish a PV test center and national PV system standards. Consumer awareness campaigns will also be conducted.

China Second Inland Waterways Project

Partners: Guangdong and Jiangsu Provincial Waterway Bureaus
Focus: Water
Funding: U.S. $123 million (IBRD)

Status/Schedule: Project Board Date May 1998

This project, located in Guangdong and Jiangsu Provinces, will provide more efficient and productive inland waterway transport services that would be more competitive than the current services. This will be achieved through reduction of unit cost and transit time by: 1) upgrading inland waterways infrastructure to allow navigation of larger size vessels; 2) increasing ship lock capacity to reduce waiting time; and 3) increasing financial and organizational capacity of inland waterways transport agencies.

China Second Loess Plateau Watershed Project

Partners: The provinces of Shanxi, Shaanxi, and Gansu, Inner Mongolia
Focus: Water resources, Agriculture
Funding: U.S. $250 million; (World Bank loan: U.S. $150 million)
Status/Schedule: Initiated 1998

This project will help achieve sustainable development in the Loess Plateau by increasing agricultural production and incomes and improving ecological conditions in tributary watersheds of the Yellow River. This will be accomplished through the introduction of more efficient and sustainable uses of land and water resources and reducing erosion and sediment flow into the Yellow River. The feasibility of the project's components, the institutional arrangements, and the participatory process have been confirmed by the highly successful implementation of the First Loess Plateau Watershed Rehabilitation project over the last five years.

China Sustainable Coastal Resource Development Project

Partners: Fishery Department, Chinese Ministry of Agriculture
Focus: Coastal Development
Funding: U.S. $100 million (IBRD loan)
Status/Schedule: Initiated 19 May 1998

This project will support the Chinese government's commitment to sustainable development of China's coastal resources, as well as reduce pressure on coastal fishery resources. The project will also help improve aquatic product quality. Without environmental safeguards, agriculture investments may carry environmental risks. The project will put in place environmental practices and systems at the local level to ensure that private investment operates under environmentally sound criteria.

China-Tarim Basin Project II

Partners: Xinjiang Uygur Autonomous Region; Prefectures of Bayingol, Aksu, Kashgar, Kizilsu; and Hotan
Focus: Agriculture, Water Resources
Funding: U.S. $276 million (IBRD loan: U.S. $90 million; IDA credit: U.S. $60 million; Local investment: U.S. $126 million)
Status/Schedule: Tentative Board Date June 9, 1998

The project would be implemented in five prefectures and twenty-two counties in southern Xinjiang Uygur Autonomous Region in the Tarim River Basin. The project's objectives are to: 1) increase incomes of poor farmers through irrigated agriculture development and improvement; 2) establish mechanisms for sustainable use, development, and management of water resources in the Tarim Basin; and 3) partially restore and preserve the "green corridor" in the lower reaches of the Tarim River.

China Tuoketuo Thermal Power Project

Focus: Energy Efficiency, Air Pollution
Funding: U.S. $400 million (IBRD loan)
Status/Schedule: Board Date May 1997

The project will increase electricity supply and electricity trade in North China through creation of an independent

power company to develop a mine-mouth power plant in Tuoketuo. This power company will improve the efficiency of energy supply and use in the region by introducing modern technologies and reducing losses in transmission and distribution in Beijing.

China—Wanjiazhai Water Transfer Project

Partners: Yellow River Diversion Project Corporation, Shanxi Provincial Government
Focus: Water
Funding: U.S.$ 1.268 billion (Foreign investment—Italian co-financing: U.S. $30 million; Yangtze River Development Planning Commission: U.S. $838 million; World Bank: U.S. $400 million)
Status/Schedule: Project Board Date September 1996

The objectives of this project located in Wanjiazhai, Shanxi Province include: 1) reducing the severe water supply infrastructure bottlenecks that impede economic growth; 2) increasing employment and thereby reducing poverty, by eliminating constraints to development; 3) reducing the distress of the urban population caused by insufficient and intermittent water supplies that are barely enough to meet their basic needs; 4) improving the environment by ending the over-extraction of groundwater and the subsequent drying of surface streams and land subsidence, as well as by treating all waste, so as to reduce water pollution downstream; and 5) creating a system to rationalize water use, by sector, and reducing water shortages by managing demand. The project would provide the physical works needed to transfer water from the Yellow River through a system of tunnels, aqueduct pipelines, and reservoirs. It would also support policy and institutional reform for economic water pricing and water marketing.

China Yangtze Flood Emergency Rehabilitation Project

Focus: Flood Rehabilitation
Funding: U.S. $80 million (IDA Credit: U.S. $40 million equivalent; IBRD loan: U.S. $40 million)
Status/Schedule: Board Date February 1999

This project, which covers areas in the Yangtze river basin—Hubei, Hunan and Jiangxi Provinces—will rebuild schools, roads, water systems, hospitals, and clinics to restore basic services to poor communities devastated by the 1998 and 1999 Yangtze floods. Eighty-four county and rural roads covering 945 kilometers will be restored and reconstructed with project funds. Water supply systems, fifty-five in all, providing almost 2.5 million people with safe drinking water, will be restored or reconstructed as will 146 county and township hospitals, health centers, clinics, and 194 secondary and primary schools.

Chongqing Industrial Pollution Control and Reform Project

Focus: Cleaner Production, Energy Efficiency
Funding: U.S. $170 million (IBRD loan)
Status/Schedule: Approved 18 June 1996

This project will combat environmental pollution in Chongqing, Sichuan by integrating environmental protection objectives into economic policies. The project will assist in the development of an integrated economic reform policy by linking industrial pollution control and environmental regulation with industrial enterprise reform, particularly of inefficient state-owned enterprises. This will be achieved by: 1) eliminating key sources of pollution in Chongqing's worst polluting industries, iron and steel, with investments in modern production and energy-efficient technologies; 2) improving environmental management and enforcement of regulations, as well as restructuring and commercializing local industries through reform initiatives; and 3) and reducing greenhouse gas and SO_2 emissions through an associated Efficient Industrial Boilers project.

Efficient Industrial Boilers Project

Partner: State Machine-Building Industry Bureau

Focus: Energy Efficiency, Air Pollution
Funding: U.S. $32.8 million (GEF Grant),
Status/Schedule: Initiated 26 December 1996

The project aims to introduce combustion systems and equipment needed to upgrade heating and power boilers in China; introduce modern manufacturing techniques and new boiler designs; and support technical assistance and project management. This project is associated with the Chongqing Industrial Pollution Control and Reform project.

Ertan II Hydroelectric Project

Partner: Ertan Hydroelectric Development Corporation (EHDC)
Focus: Hydropower
Funding: U.S. $2.383 billion (World Bank loan: U.S. $400 million; Foreign investment: U.S. $100 million; Local investment: U.S. $1883 billion)
Status/Schedule: Projected Board Date June 1995

The proposed project would comprise the completion of the construction of the Ertan hydroelectric project in Chengdu, Sichuan Province. The Ertan project, appraised in 1991 and supported by World Bank loan 3387-CHA, includes the construction of a 240 meter high dam and an underground powerhouse complex with an installed capacity of 3,300 MW, resettlement of about 30,000 people, an environmental management program, consulting services, studies, and training.

Forest Protection

Partner: Global Environment Facility
Focus: Forestry
Funding: U.S. $217.9 million (World Bank loan: U.S. $200 million; GEF allocation: U.S. $17.9 million)
Status/Schedule: Initiated 1994, Targeted Completion 2002

The project, which targets sixteen provinces, aims to establish 735,000 hectares of plantations and 280,000 hectares of multipurpose protection forests. The GEF portion of the project supports nature reserve management in five provinces (Source: *Chinabrief,* November 1998).

Guangzhou City Center Transport Project

Partner: Guangzhou City Center Transport Project Leading Group
Focus: Urban Transport
Funding: U.S. $200 million (IBRD loan)
Status/Schedule: Initiated 29 May 1998

This project will improve the accessibility of the city center of Guangzhou, Guangdong Province, by promoting efficient use of the urban transport system in an environmentally sustainable way. This will be achieved through: 1) improved level of service and reduced congestion on the city center road network; 2) increased output of public transport corridors within the city center; 3) reduction in the relative levels of air pollution and accidents; 4) improved effectiveness and efficiency of road maintenance; and 5) strengthened management capacity of municipal agencies responsible for urban transport.

Guanzhong Irrigation Improvement Project

Partner: Shaanxi Water Conservancy Bureau, Government of Shaanxi Province
Focus: Irrigation
Funding: U.S. $100 million (IBRD loan: U.S. $80 million)
Status/Schedule: Board Date May 1999

This project will improve the performance of existing irrigation systems in the Guanzhong Plain of Shaanxi Province

and thereby raise agricultural production, in particular of grains. This project will support reforms of Shaanxi's irrigation sector that are aimed at strengthening the organizational, technical, and financial aspects of Irrigation Districts and at transferring water management below the branch canals to the farming communities.

Hebei Urban Environment Project

Partner: Hebei Finance Bureau
Focus: Urban Development, Water Supply and Treatment
Funding: U.S. $330 million (Chinese government: U.S. $180 million; IBRD: U.S. $150 million)
Status/Schedule: Projected Board Date 15 February 2000

The project, implemented in various cities in Hebei Province would include three main components: water supply, wastewater management, and water conservation control. Water supply projects in Tangshan City include the construction of a water treatment plant with a capacity of 150,000 m^3/d. This treatment plant includes an intake pumping station, a nineteen kilometer raw water transmission main; and eleven kilometer distribution trunk mains. Water supply projects in Handan City include the construction of a water treatment plant with a capacity of 100,000 m^3/d, a fifty-six kilometer raw water transmission main, and some sixty kilometers of water distribution network. Qinhuangdao City's waters supply projects will build a bulk water transmission system with a capacity of 150,000 m^3/d, consisting of twenty-nine kilometers of pipelines, and a booster pumping station (1.7 m^3/s). Wastewater Management projects in Shijiazhuang City include the construction of a wastewater treatment plant with a capacity of 250,000 m^3/d, including some 100 kilometers of trunk sewer, rehabilitation, and expansion. Tangshan City wastewater management includes the construction of a treatment plant at Xijiao with a capacity of 160,000 m^3/d and associated lateral and trunk sewer infrastructure. Handan City's wastewater treatment plant will have a capacity of 100,000 m^3/d with a forty kilometer trunk sewer infrastructure. Water Conservation and Pollution Control projects will take place in all of these cities and include: a) industrial counseling program for process adjustments to promote water conservation and pollution reduction; and b) public awareness campaign for water conservation at households. Provincial Environmental Protection Bureaus will create a credit facility for lending to small and medium industries to finance water pollution abatement. The project also has an institutional strengthening component that would finance the design and equipment for setting up GIS based decision support systems and provide training to staff. Technical assistance would also support construction management services and future investment project preparation.

Huai River Basin Pollution Control Project

Partner: Anhui Provincial Finance Bureau
Focus: Water Pollution
Funding: U.S. $100 million (World Bank loans: U.S. $50 million; Local investment: U.S. $50 million)
Status/Schedule: Project Board Date September 1997

This project environmental regulation and enforcement project would comprise support for the Anhui provincial government plans for improved enforcement of surface water pollution regulations in the Huai River Basin. Key indicators of successful implementation of government plans would be chosen as benchmarks to be tracked during project implementation. Loan support for improved enforcement would be considered. Based on World Bank experience and discussions with the provincial project office, various provincial, municipal, and county leaders and agencies, enterprises, and the Huai River Basin Commission, a potential project has been identified with the objective of speeding environmental recovery in the Anhui section of the Huai River Basin. A secondary objective is to foster environmental monitoring and investment planning at the Basin level, in order to develop a more efficient alternative to existing plans.

Hunan Power Development Project

Focus: Energy efficiency, Air pollution
Funding: U.S. $747.2 million (IBRD: U.S. $300 million; Hunan Electric and Power Commission: U.S. $149.7

million; China Construction Bank: U.S. $148.8 million; State Development Bank: U.S. $148.7 million)
Status/Schedule: Initiated 18 June 1998

This project will alleviate power shortages in the Hunan region by providing efficient, reliable, and environmentally sound power supply. The project will have a marked impact on the economic development of the Hunan Province, specifically through three targeted activities. These activities include: 1) a reduction in the value of lost production; 2) improvements in quality of supply in terms of reduced interruptions and recognized but difficult to quantify service parameters, such as more stable frequency and voltage; and 3) improvements in local air quality, with retirement of older pollution-generating units, which tend to be located in urban and populated areas.

Shandong Environment Project

Partner: Shandong World Bank Environmental Protection
Focus: Water supply and treatment, Urban Air pollution
Funding: U.S. $215.1 million (Proposed World Bank loan: U.S. $110 million; Foreign investment: U.S. $69.1 million; Local investment: U.S. $ 36 million)
Status/Schedule: Projected Board Date May 1997

Specific objectives of the project to improve the environment in Shandong Province are to:1) strengthen policies, regulations, and institutional arrangements for municipal water, wastewater, and district heating management, and environmental pollution control; 2) support the improvement of the waters of the Xiaoqing River Basin in order to allow the waters to be used for potable supply, industry or agriculture, as appropriate; 3) expand surface water supply to Jinan to prevent further depletion of ground water aquifers; 4) facilitate complementary sustainable investments in pollution control and municipally-provided urban environmental services; 5) reduce air pollution in Weihai and Yantai; and, 6) introduce a comprehensive approach to planning, prioritization, management, and financing of urban environmental infrastructure investments.

Shenyang Engineering Industry Project

Partners: Shenyang Municipal Government, Shenyang Machine Tools Corporation, Ltd.; Participating Financial Institutions
Focus: Waste and Wastewater Treatment, Cleaner Production
Funding: U.S. $ 175 million
Status/Schedule: Initiated 15 January 1994

While focusing on the engineering industry as a major demonstration effort, the proposed project would further support Shenyang's overall industrial restructuring through reforms and investments. The project would include an environment component that would support Shenyang's policy of improving the enforcement of existing environmental regulation, extending coverage to pollution centers not adequately covered, and strengthening the capabilities of Shenyang Environment Planning Board. The sub-components would include a Hazardous Waste Treatment Facility, Water Quality Monitoring Network, and technical assistance for necessary training, computerization, and analytical capabilities. The funding will be divided between industrial restructuring (U.S. $160 million) and environmental protection (U.S. $10 million). The last known status of this project was that the plan had been prepared 15 January 1994.

Sichuan Urban Development Project

Focus: Urban Development
Funding: U.S. $152 million (IBRD loan: U.S. $150 million; Local investment: U.S. $2 million)
Status/Schedule: Board Date June 1999

The objective of this project is to provide a safe environmental setting for the sustainable long-term economic growth of urban areas in Sichuan Province. The project will: 1) support the first phase of a long-term urban environmental services improvement program to recover from past environmental degradation of its water and land re-

Protecting the Oriental White Stork & Other Endangered Migratory Birds of North East Asia Earth Island Institute's Russian-Chinese Wetlands Exchange Program

In December 1999, Earth Island Institute launched a long-term, Russian-Chinese wetland exchange program. This exchange breaks new ground and brings together a number of leading environmental professionals from throughout Northeast Asia. This exchange includes the directors of many national parks and nature reserves, wetlands scientists, nongovernmental activists, and key government policymakers. Their aim in coming together is simple: to preserve and to restore habitat for the numerous endangered bird species that migrate between the Amur and Yangtze River Basins. The coordinators for this exchange are the China Biodiversity Network Baikal Watch, and SAVE projects at Earth Island. Late last year they invited fourteen wetland managers from China, Russia, and Taiwan to survey wetlands issues in the western United States and to meet with related management agencies and citizens groups. In the end, a stronger Russian/Chinese partnership was inspired by this first exchange-and the inspiration came from the many success stories where wetlands have been protected or restored in other parts of the world.

The participants in this exchange are now committed to planning for an integrative wetland-management regime in Northeast Asia. In taking advantage of this opportunity to collaborate, the participants have now begun to develop a conservation strategy specifically for the endangered Oriental White Stork and other migratory species, such as the Crested Ibis and the Blackface Spoonbill. Less than 800 Oriental White Storks survive in the wild. This species breeds only in the Amur Basin in Russia and China, and over winters at key wetlands in the Yangtze River Basin. The habitats for these birds have suffered greatly from recent flooding, pesticide use, the draining of wetlands, and the conversion of additional areas for agricultural usage. Only in recent decades has wetlands conservation come to the fore as an issue of global significance and has become prominent in East Asia only in the last few years. Therefore, the first accomplishments of this exchange were, importantly, to:

1) Introduce Chinese/Russian colleagues to sustainable and collaborative ways for using wetlands and protecting wild bird populations.
2) Familiarize them with laws related to biodiversity protection, and show how federal, regional, and local agencies interact to enforce these laws in other parts of the world.
3) Help them discover the economic advantages derived from biodiversity protection.
4) Introduce them to institutions whose mandate is to protect biodiversity on an international level.
5) Help them assess methods both of environmental education and promoting public involvement in decision-making processes that affect biodiversity management.
6) Present them with basic methodologies for biodiversity protection, such as possible means for: a) the creation and management of protected territories; b) setting up anti-poaching and anti-encroaching programs; c) developing biological monitoring stations; d) restoring habitats for endangered species; and e) other innovative technical methods for protecting biodiversity.

The next phase of this long-term program will bring the Chinese and Russian colleagues together again for follow-on work in Northeast Asia in the summer of 2000. Some twenty to twenty-five wetlands specialists will exchange trips across the border regions of Russia and China. Special focus on these trips will be paid to the coordination of management and research projects at reserves in the Amur Basin and to programs that support the breeding of storks and other key migratory species. Information on the exchange partners and their wetland reserves, regional resources, and future ecotourism opportunities will become available in the near future through the Earth Island web page. Funding provided for this exchange program is derived from the Trust for Mutual Understanding and members of Earth Island Institute.

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sources; 2) provide an adequate supply of safe water to its growing urban population and economy; and 3) maintain water quality at levels compatible with the needs of the basins of the Min and Tuo Rivers, protecting the water quality of the Yangtze River while protecting public health, especially of lower income groups.

Sustainable Forestry Practice

Focus: Forestry
Funding: U.S. $200 million (World Bank loan $100 million)
Status/Schedule: Initiated 1998

The project aims to establish, on a sustainable and participatory basis, a timber plantation of 315,000 hectares and 230,000 hectares of economic forest crops. The areas involved are in impoverished areas of central and western China. This loan was made on commercial terms (Source: *Chinabrief,* November 1998).

Waigaoqiao Thermal Power Project

Partner: Shanghai Municipal Electric Power Company
Focus: Energy Efficiency, Air pollution
Funding: U.S. $2144.3 million (IBRD: U.S. $400 million; Shanghai Municipal Electric Power Co.: U.S. $216.2 million; East China Electric Power Group Co.: U.S. $ 108.1 million; Shanghai Energy Company Limited: U.S.

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About Earth Island Institute

Earth Island Institute has been confronting ecological threats in Russia, China, and around the world by working with local citizens and communities to protect endangered ecosystems, especially forests, wildlife, and biodiversity. As an umbrella organization for over twenty-five individual projects, Earth Island educates and empowers citizens to protect natural resources and prevent environmentally destructive development. Projects include forestry, clean energy, marine mammals, tree-free paper, environmental education, and ecotourism/sustainable economies. Earth Island focuses on those regions where there are major environmental crises, potential for citizen activism, possibilities to develop ecologically sustainable economic alternatives, opportunities for governmental reform, and a desire and need for Earth Island's expertise.

Earth Island's China Biodiversity Network

Earth Island's China Biodiversity Network has been working since 1995 to strengthen biodiversity protection in China by educating the Chinese public and community leaders, and by building the long-term capacity of the nascent Chinese environmental movement. The Network has especially focused on the Tumen Environmental Initiative, where it promoted biodiversity protection by facilitating international cooperation and advocating for designation of the Tumen River wetlands as a RAMSAR site. The Network has also worked to increase local involvement and awareness of the environmental importance of the UNDP Tuman River program. The Network was under the umbrella of the Pacific Environment and Resources Center as the China Biodiversity Conservation Program until 1998, and is now a project of Earth Island. The wetland exchange is the first collaborative project of the Chinese and Russian programs at Earth Island.

For additional information, please direct your inquiry to either: Gary Cook (baikalwatch@igc.org) or Jeanny Wang (tadpole@igc.org), China-Russia Wetlands Exchange, Earth Island Institute, 300 Broadway, Suite 28, San Francisco, CA 94133 USA; Tel: 415-788-3666 ext. 109; Fax: 415-788-7834; Web info: www.earthisland.org\cbn.

$216.2 million; Local banks: U.S. $703.8 million; Co-financing: U.S. $ 500 million)
Status/Schedule: Initiated June 25, 1997

This project will finance the building of two 900-1,000 megawatt coal-fired supercritical thermal power units in Shanghai and the installation of flue-gas desulfurization equipment (to offset anticipated SO_2 emissions) at Shanghai's Shidongkou Power Plant. This World Bank project will also lead to the construction of two 500 Kilovolt power lines to connect electricity users to the Shanghai power grid.

Xiaolangdi Multipurpose Project II

Partner: Xiaolangdi Construction and Management Bureau
Focus: Water
Funding: U.S.$ 430 million equivalent (IBRD loan)
Status/Schedule: Initiated June 25, 1997

This project will expand on massive flood protection, hydropower, sediment control, and irrigation infrastructure works begun in 1993. The project will finance the second construction stage of a dam and hydroelectric power plant on the Yellow River and will invest in water resource schemes and in flood control and water storage.

Yangtze Basin Water Resources Project

Partners: Foreign Investment Management Office, Chinese Ministry of Water Resources
Focus: Agriculture, Water Resources
Funding: U.S. $613 million (Bank/IDA loan/credit: U.S. $210 million; Local investment: U.S. $403 million)
Status/Schedule: Projected Board Date March 1995

The project areas lie to the north and south of the middle reaches of the Yangtze River in Hubei and Hunan Provinces. The project's objectives are to support the implementation of high priority improvements in water control in the two large Yangtze River Provinces of Hubei and Hunan Provinces while simultaneously promoting advances in project planning, procurement and independent review. The project work represent a cross-section of the highest priority water control investments in the two provinces and will alleviate poverty among several million rural dwellers through a combination of irrigation, drainage, flood protection, and power benefits. In addition, safety from flood hazards for millions more of the Yangtze Basin's residents will be improved through improved flood forecasting and warning in the mid-Yangtze region.

Yunnan Environment Project

Partner: Yunnan Provincial Government, Yunnan Environment Project Office
Focus: Urban Development, Pollution Control
Funding: U.S. $150 million (IBRD loan: U.S. $125 million; IDA credit: U.S. $25 million equivalent)
Status/Schedule: Initiated June 25, 1996

The project will set the stage for Yunnan Province's long-term economic and social development by designing a system of urban management that includes a sustainable environmental framework with strategies for urban environmental improvement and industrial pollution control. The project will support formulation of improved pollution control policies and regulations; support improvements in the water quality of lakes within the province; facilitate complementary investments in pollution control and municipal environmental services; and support the introduction of a comprehensive approach to planning and financing investments in urban environmental infrastructure.