

# Conferences on the Environment in China

## **THE 1997 CHINA ENVIRONMENT FORUM**

Integrating Economic Development, Social Progress, and Environmental Sustainability

November 18-21, 1997

Beijing, People's Republic of China

Sponsored by the National Environmental Protection Agency and organized by the Institute of Human Ecology and the Chinese Society of Environmental Sciences.

For more information contact: <http://www.ihei.com>

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## **INTERNATIONAL COOPERATION CONFERENCE ON ENVIRONMENTAL PROTECTION PROJECTS**

November 20-21, 1997

Beijing, People's Republic of China

The conference will provide participants with information on priority environmental protection projects and opportunities for seeking potential funding sources, exploring cooperation patterns, and showcasing environmental technologies.

For additional information contact: Ms. Fang Li, Division of Bilateral Relations, Department of International Cooperation, National Environmental Protection Agency; phone: 86-10-66151934, fax: 86-10-66151762

## **SINO-SWEDISH CONFERENCE ON INDUSTRIAL WASTE WATER TREATMENT AND CLEAN TECHNOLOGIES**

December 1-3, 1997

Tianjin, People's Republic of China

The conference will cover the following topics: state-of-the-art waste water treatment and clean technologies; cost-efficient solutions for Chinese water conditions; advancements in engineering and research; industrial environmental administration and management; and future cooperation possibilities with China.

For additional information contact: IVL - The Swedish Environmental Research Institute, P.O. Box 210 60, S-100 31 Stockholm, Sweden; phone: 46-8-729-1500, fax: 46-8-731-8516, [SSETC@ivl.se](mailto:SSETC@ivl.se) or [tepi@mail.zlnet.co.cn](mailto:tepi@mail.zlnet.co.cn), Web page: <http://www.ivl.se>

## **INTERNATIONAL SYMPOSIUM ON GLOBAL ENVIRONMENT AND IRON AND STEEL INDUSTRY (ISES '98)**

April 14-16, 1998

Beijing Continental Grand Hotel, Beijing, People's Republic of China

Organized by: the China International Culture Exchange Center, the Chinese Society for Metals, and the United Nations Environment Programme.

For additional information contact: ISES '98 Secretariat, The Chinese Society for Metals, 46 Dongsixi Dajie, Beijing 100071, People's Republic of China; phone: 86-10-65133925, fax: 86-10-65124122, email: [csn@public.bta.net.cn](mailto:csn@public.bta.net.cn); Web page: <http://159.226.63.200/~rxliu/csm.html>

## **ENVIRONMENTAL SCIENCES AND SUSTAINABLE DEVELOPMENT IN THE 21ST CENTURY**

International Symposium for Celebrating the Centennial of Peking University

May 2-5, 1998

Peking University

Beijing, People's Republic of China

This conference is currently accepting papers for presentation. The themes of the symposium will include: ozone layer

protection and global environmental problems; atmospheric chemistry and physical processes; water resources and the water environment; ecology and biodiversity conservation; environmental monitoring and information acquirement; environmental management and regulations; urban and regional environmental problems; environmental pollution and control; and theory and practice of sustainable development.

For additional information contact: Zhang Shiqiu, Associate Professor, Centre for Environmental Sciences, Peking University, Beijing, 100871 People's Republic of China; phone: 86-10-62751926, fax: 86-10-62751927, email: pku100@ces.pku.edu.cn, <http://laes.ces.pku.edu.cn/>

#### **CHINA-U.S. CONFERENCE ON THE ENVIRONMENT: BUSINESS RELATED ISSUES**

May 26-29, 1998

Beijing, People's Republic of China

This conference is currently accepting papers for presentation.

For additional information contact: Global Interactions, Inc., 14 West Cheryl Drive, Phoenix, Arizona 85021; phone: 602-943-3922, fax: 602-943-4458, e-mail: [global@goodnet.com](mailto:global@goodnet.com), <http://www.goodnet.com/~global/ensched.htm>

#### **INTERNATIONAL CONFERENCE ON CHINA'S ENVIRONMENT—LAW, POLICY, TECHNOLOGY AND BUSINESS**

August 16-20, 1998

Beijing, People's Republic of China

This conference is sponsored by the Professional Association for China's Environment and is currently accepting papers for presentation. Topics to be discussed at the conference include: environmental laws and policies; water and wastewater industry; air pollution control and the energy industry; sustainable biodiversity and natural resources conservation; solid waste and hazardous waste treatment and management; and, China and the global environment.

For more information contact the PACE homepage at: <http://www.chinaenvironment.net/>

## **The Professional Association for China's Environment**

The Professional Association for China's Environment (PACE) is a non-profit, non-governmental organization, focusing on China's environmental issues. The main objectives of PACE include: (1) to facilitate China-related information dissemination by publishing newsletters, journals and books in the areas of environmental policy, indicators, and technologies; (2) to foster information exchange and education through organizing conferences, seminars, and workshops; (3) to develop and conduct educational and technical training programs for Chinese policy makers and professionals in the public and private sectors; and, (4) to conduct research on China's environmental problems.

Begun in December 1996, PACE has quickly emerged as a worldwide professional network on China's environment. As of the end of September 1997, it had 318 members of which 47% are from universities; 17% from the private sector; 17% from governments or international organizations; 13% from research institutes; and 5% from NGOs. By region, members based in the United States account for 66%; Europe 15%; and China 14%. PACE's monthly electronic publication, the *China Environment Reporter*, can be found on the organization's web site ([www.chinaenvironment.net](http://www.chinaenvironment.net)) and has been released and distributed worldwide. PACE also maintains a listserve ([pace@gmu.edu](mailto:pace@gmu.edu)) which links environmental professionals from around the world. In August, 1998, PACE will host an international conference in Beijing on China's environment. The conference will focus on China's environmental laws and policies, its need for environmental research and technologies, and its emerging environmental markets.

# Inventory of Environmental Work in China

## Government Agencies

### BATTELLE-AISU

Web address: <http://www.battelle.org/>  
Web address: <http://www.pnl.gov/china>  
Web address: <http://www.pnl.gov/aisu>

**Focus:** energy efficiency, electricity

Beijing Energy Efficiency Center (BECon)

**Partners:** Energy Research Institute and Lawrence  
Berkeley National Laboratory

BECon was established in 1993 in cooperation with three organizations — Battelle, Energy Research Institute, and Lawrence Berkeley National Laboratory. Today, it has a full-time staff of twelve professionals and many consultants. BECon is undertaking a number of projects throughout China aimed at increasing efficient use of electricity in China. See also Beijing Energy Efficiency Center.

### BATTELLE-AISU

Alternative Electric Power Futures for China:  
An Analysis of Economic and Environmental Costs

**Focus:** energy, electricity

**Partners:** Beijing Energy Efficiency Center and  
the Energy Research Institute of the State Planning  
Commission

The objective of this project is to produce an economic analysis that will estimate the least costly means of meeting China's future electricity needs. The project will be implemented jointly by Battelle and the Beijing Energy Efficiency Center. The Energy Research Institute of the State Planning Commission will play a major role in the research. A key component of the research will be determining how to internalize environmental costs for China's electricity sector.

### BATTELLE-AISU

U.S.-Chongqing Cooperation in  
Energy and Environment

**Focus:** energy, gas, electricity

**Partners:** Center for Strategic and International  
Studies, Department of Energy

At the request of the U.S.-Chongqing Task Force in Energy/Environmental Technology Cooperation, the Center for Strategic and International Studies, and the U.S. Department of Energy, Battelle has initiated a study to: (1) understand Chongqing's energy-efficiency needs; (2) identify specific opportunities for cooperation; and (3) advise U.S. businesses on commercial opportunities. The findings of the report were discussed with the Task Force in February, 1997.

### DEPARTMENT OF AGRICULTURE

Web address: <http://www.usda.gov/>

**Focus:** agriculture

Research Agreement: Scientific Cooperation on Agriculture

This project focuses on scientific cooperation programs in: (1) biological controls; (2) production and utilization of composts from organic by-products; (3) introduction of parasitoids in China for the control of an exotic mealybug; (4) evaluation of germplasm of the nitrogen-fixing symbiont of soybean; and, (5) nitrous oxide emissions.

### DEPARTMENT OF AGRICULTURE

U.S./PRC Scientific Cooperation in Agriculture

**Focus:** agriculture

**Partners:** Ministry of Agriculture

This project is intended to promote U.S. agricultural priorities, encourage long-term cooperation in science and technology, and promote agricultural trade with China.

**DEPARTMENT OF AGRICULTURE/AGRICULTURAL  
RESEARCH SERVICE**

**Focus:** agriculture

Web address: <http://www.ars.usda.gov/>

Research Agreement: Biological Control

**Partners:** Chinese Academy of Agricultural Sciences (CAAS)

This is a ten-year research agreement with CAAS to collect, evaluate and exchange biological control agents and natural enemies for integrated pest management of crop diseases, forest pests and rangeland and aquatic weeds to reduce pesticide inputs. The work will be performed at the joint Sino-American Biological Control Laboratory in Beijing.

**DEPARTMENT OF AGRICULTURE/FOREIGN  
AGRICULTURAL SERVICE**

**Focus:** agriculture

Web address: <http://www.fas.usda.gov/>

Research Agreement: Agricultural Technology

This agreement covers exchanges on: (1) U.S. dry land mechanized production technology; (2) remote sensing technology for crop yield projection; (3) U.S. food safety systems; (4) biological control of plant pests; and, (5) botanical/germplasm information exchange.

**DEPARTMENT OF AGRICULTURE/FOREIGN  
AGRICULTURE SERVICE**

**Focus:** agriculture

Research Agreement: Genetic Resource Conservation

**Partners:** Chinese Academy of Agricultural Sciences (CAAS)

This agreement is a ten-year research project with CAAS to collect, evaluate and exchange native, unique or primitive plant varieties for plant genetic resource conservation in international germplasm repositories.

**DEPARTMENT OF AGRICULTURE/FORESTRY SERVICE**

**Focus:** forest health, conservation

Web address: <http://www.fs.fed.us/>

Research Agreement: Forest Management

This agreement promotes collaborative research on finding natural enemies of the insect pest *oracella acuta*. This pest severely reduces the growth and form of U.S. Southern pines in Chinese industrial forest plantations in the United States.

**DEPARTMENT OF AGRICULTURE/FORESTRY SERVICE**

**Focus:** forest health, conservation

Cooperation Agreement: Reforestation

Cooperation for more than ten years on China's reforestation program with the establishment, monitoring and genetic screening of North American tree species plantations in China.

**DEPARTMENT OF AGRICULTURE/NATURAL RESOURCES  
CONSERVATION SERVICE**

**Focus:** soil, conservation

Web address: <http://www.nrcs.usda.gov/>

Cooperative Agreement: Soil Stabilization

Cooperative projects to collect, evaluate and exchange tree, shrub and plant species suitable for soil stabilization, wind-breaks and erosion control to conserve and maintain valuable land areas.

**DEPARTMENT OF AGRICULTURE/NATURAL RESOURCES  
CONSERVATION SERVICE**

**Focus:** wildlands, conservation, restoration

Research Agreement: Restoration and Conservation of  
Grasslands

**Partners:** Chinese Academy of Agricultural Sciences (CAAS)

Ten-year research agreement with the CAAS for restoration and conservation of grassland plant ecosystems in China's Inner Mongolian region and the U.S. Great Plains area.

**DEPARTMENT OF COMMERCE**

**Focus:** environment, education

Web address: <http://www.doc.gov/>

Web address: [http://www.tradecompass.com/library/books/com\\_guide/China.toc.html](http://www.tradecompass.com/library/books/com_guide/China.toc.html)

Global Observations to Benefit the  
Environment (GLOBE)

**Partners:** Multiple

In 1995, China agreed to participate in the GLOBE program. GLOBE brings together children and young people in the collection and exchange of environmental information to improve appreciation and understanding of the environment. The U.S. company Ameritech will provide financial assistance for China to acquire the necessary infrastructure. At least four schools have already been identified by the Chinese government for participation in this program.

**DEPARTMENT OF COMMERCE/NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION (NOAA)**

**Focus:** hazardous materials, waste

Cooperative Agreement: Hazardous Materials

**Partners:** Chinese Academy of Transportation Science  
(CATS)

NOAA/NOS (National Ocean Service of NOAA) has completed work with colleagues at the CATS in the area of Hazardous Materials Response and Assessment (HAZMAT). NOS helped develop hazardous material response contingency plans for the Guangzhou port area. The techniques and procedures for developing these contingency plans will be applied by the Chinese to other ports along the Chinese coast (Xiamen, Shanghai, Ningbo, Calian, and Tianjin).

**DEPARTMENT OF COMMERCE**

**Focus:** trade, environment, training

U.S.-China Joint Commission on Commerce (JCCT)

**Partners:** Chinese government and trade agencies

The JCCT is composed of four separate working groups: the Trade and Investment working group; the Business Development working group; the Commercial Law and Reform working group; and the Management Education and Training work program. Each working group meets independently with their Chinese partners to conduct training, produce demonstrations and discuss strategies.

**DEPARTMENT OF COMMERCE**

**Focus:** trade, technology transfer

The U.S. and Foreign Commercial Service (US&FCS)

The US&FCS staff in China offers a number of services for the Chinese market, including business counseling, export assistance, market and policy information, and introductions to Chinese government officials and other business contacts. US&FCS staff have also completed numerous market analyses on the environmental sector, and will open the Shanghai Commercial Center to support visiting U.S. businesses with a major focus on environment.

**DEPARTMENT OF COMMERCE**

**Focus:** water, climate change, flooding

Tropical Ocean Global Atmosphere Program

This project involves the sharing of environmental data resources gained from the Tropical Ocean Global Atmosphere Program.

**DEPARTMENT OF COMMERCE****Focus:** training, energy, waterCooperation Agreement: Training and  
Personnel Exchanges**Partners:** Multiple Chinese government agencies

NOAA's capacity building efforts regarding China have been active in personnel exchange, collaborative research, and technical training with many Chinese agencies, including the State Oceanic Administration, the Chinese Meteorological Administration, the Chinese Academy of Sciences, the Ministry of Agriculture, the Ministry of Transportation, the Ministry of Water Resources, and others.

Through the U.S. Country Studies Program, NOAA has assisted China with their climate change action plan and China's Agenda 21. U.S. support for the action plan has totaled approximately \$200,000 with additional support in the form of technical assistance. NOAA is working on 10 projects in activities implemented jointly to reduce greenhouse gases in industry and to promote energy efficiency.

**DEPARTMENT OF COMMERCE****Focus:** water, fisheries, marine

Cooperation Agreement: Marine and Fisheries

Cooperation in the field of marine and fishery science and technology involves many programs in four main areas: (1) oceanographic data and information exchange; (2) role of oceans in global climate change; (3) living marine resources (aquaculture and carrying capacity); and, (4) marine environmental studies. Cooperation in coastal zone management is expected to increase in 1997.

Fishery relations between the United States and China are generally positive, focusing on Pacific fisheries of mutual interest such as Alaska pollack and salmon. The United States is urging China to join the North Pacific Anadromous Fish Commission and sign/accept recently concluded international fishery agreements. A recent U.S. court decision requiring foreign commercial shrimp fleets to employ turtle excluder devices by 1 May 1996, or face an embargo of wild-caught shrimp, is a particularly sensitive issue.

**DEPARTMENT OF COMMERCE****Focus:** water, hydrology

Cooperation Agreement: Hydrology

**Partners:** Ministry of Water Resources and the  
National Weather Service (NWS)

The Ministry of Water Resources and NWS agreed in August 1994 to develop a prototype flood forecasting system for the Huai River Basin which will then be expanded and applied to the seven major rivers in China as part of a central flood control dispatching system. This project has been completed in China and the Ministry of Water Resources will be receiving special recognition by the Chinese central government for successful performance during the 1995 floods, which was based on this cooperation.

**DEPARTMENT OF COMMERCE/(NOAA)****Focus:** climate, energyWeb address: <http://www.noaa.gov/>

Cooperation Agreement: Atmospheric Science

Cooperation under the bilateral atmospheric science and technology protocol includes collaboration and exchange in the following six subject areas: climate studies, mesoscale meteorology, atmospheric chemistry, satellite meteorology and meteorological satellites, training and meteorological modernization.

**DEPARTMENT OF ENERGY (DOE)****Focus:** energy, coalWeb address: <http://www.doe.gov/>Web address: <http://www.fe.doe.gov/int/china.html>Web address: <http://www.eia.doe.gov/emeu/cabs/china.html>Protocol on Fossil Energy Research and Development  
for Cooperation on Clean Coal Technology**Partners:** State Science and Technology Commission (SSTC)

DoE and SSTC launched a demonstration project using Integrated Gasification Combined Cycle Technology.

**DEPARTMENT OF ENERGY**

**Focus:** energy, air pollution, greenhouse gases

Carbon Dioxide Induced Climate Change Research

**Partners:** Chinese Academy of Sciences

The DoE and the Chinese Academy of Sciences established a joint research program to study possible global warming due to enhanced greenhouse effect.

**DEPARTMENT OF ENERGY**

**Focus:** energy, climate change

U.S. Country Studies Program

**Partners:** State Science and Technology Commission

Under the U.S. Country Studies Program (CSP), (program to help developing countries meet their commitments under the Framework Convention on Climate Change) China was awarded funding to conduct a climate change country study. In addition to funding, the U.S. CSP has arranged for over 20 U.S. experts to provide training and technical assistance to nearly 100 experts in China on climate change assessment methods. The U.S. CSP has also provided China with state-of-the-art climate change assessment tools (e.g., models, databases, handbooks, etc.). In October 1995, the U.S. CSP awarded an additional amount of money to China for the preparation of their climate change action plan. China had requested additional money for this plan. Since more money was not available, the Chinese have agreed to use the resources to prepare a strategy for mitigating greenhouse gases in the energy sector. This work is also directed by the State Science and Technology Commission and will be completed by September 1997.

**DEPARTMENT OF ENERGY**

**Focus:** energy, climate change, greenhouse gases

Protocol on Fossil Energy Research and Development for Cooperation in the Area of Regional Climate Research

**Partners:** China Meteorological Administration

DoE and the China Meteorological Administration are undertaking a joint study to develop regional climate models for assessing regional climate changes and impacts.

**DEPARTMENT OF ENERGY**

**Focus:** energy, coal

Protocol on Fossil and Energy Research and Development for Cooperation on Coal Preparation and Waste Steam Utilization

**Partners:** Ministry of Coal Industry/Central Coal Mining Research Institute

DoE and the Central Coal Mining Research Institute are working together to provide analysis on technologies for coal cleaning and waste stream recovery.

**DEPARTMENT OF ENERGY**

**Focus:** energy, coal

Protocol on Fossil Energy Research and Development for Cooperation on Coalbed Methane and Utilization

**Partners:** Ministry of Coal Industry

DoE and the Ministry of Coal Industry are working to develop a joint research program to utilize coalbed methane for potential electricity and district heating, while mitigating pollution.

**DEPARTMENT OF ENERGY**

**Focus:** energy, coal

Asia Pacific Economic Working Group

**Partners:** Multiple

The Asia Pacific Economic Cooperation (APEC) Regional Working Group, which includes the United States and China, developed clean coal and energy efficiency programs to improve environment and energy conservation.

**DEPARTMENT OF ENERGY****Focus:** energy efficiency

Annex on Cooperation in 10 Areas to Promote Sustainable Development and Trade

**Partners:** State Planning Commission**DEPARTMENT OF ENERGY****Focus:** energy efficiency, renewable energy

Asia-Pacific Economic Cooperation (APEC) Energy Efficiency and Renewable Energy Project

This project seeks to promote sustainable development in the Asia-Pacific region. APEC distributes information on member economies' energy efficiency and renewable energy projects and plans, technologies, and practices. APEC facilitates private sector interaction among member economies to expand the delivery of environmental technologies regionally. Cooperative programs include: (1) conducting workshops and seminars on technology development; (2) developing industrial energy efficiency best practices and measures manuals; (3) implementing energy-technology greenhouse gas mitigation projects; (4) developing an APEC energy efficiency information system database; and, (5) forming expert groups to coordinate and monitor APEC's programs.

**DEPARTMENT OF ENERGY****Focus:** energy efficiency, training, Agenda 21

U.S.-China Energy and Environment Center

**Partners:** Environmental Protection Agency, Chinese government agencies, private industry, academia

The Center is co-sponsored by the U.S. and Chinese Governments as well as industry and academia. DoE and EPA are the U.S. government sponsors. The purpose of the Center is: (1) training and education on technical and financial issues; (2) project development in conjunction with Agenda 21, Green Program and Provincial Governments, and opportunities for U.S. investors and technology suppliers; and (3) to work with the Chinese in policy development. DoE supported activities under the Yixing Environment Industry Partnership will be folded into the Center.

**DEPARTMENT OF ENERGY****Focus:** energy, technology

U.S. Technologies for International Environmental Solutions (USTIES) Program

**Partners:** Environmental Protection Agency (EPA)

This program, part of the President's Environmental Technology Initiative at EPA, provides funding for competitively selected projects which apply U.S. technology solutions to international environmental problems. China was a principal focus in FY 95 funding. DoE has received funding for FY 97, 98, and 99 for additional work with China.

**DEPARTMENT OF ENERGY****Focus:** energy

The Yixing Environmental Park

**Partners:** Department of Commerce and Environmental Protection Agency

The Departments of Energy and Commerce and EPA are working together with China to support the development of this \$2.3 billion environmental-industrial park, located in Yixing. China is seeking international partnerships to promote the development of a domestic environmental technologies industry by offering preferential treatment for firms located in the 11 square kilometer park. Incentives include lower taxes, reduced land costs, preferential housing, and a waiver of internal migration restrictions.

**DEPARTMENT OF HEALTH AND HUMAN SERVICES/  
OFFICE OF PUBLIC HEALTH****Focus:** disease, healthWeb address: <http://www.hhs.gov/progorg/ophs/>

Research Agreements: Disease

The National Institute of Health supports collaborative research into several infectious and parasitic diseases with potential



environmental links, including cryptosporidium, rotavirus, hantavirus, hemorrhagic virus, lyme disease, and hepatitis.

**DEPARTMENT OF HEALTH AND HUMAN SERVICES/  
NATIONAL CANCER INSTITUTE (NCI)**

**Focus:** cancer, health

Web address: <http://www.os.dhhs.gov/>

Web address: <http://www.nci.nih.gov/>

Research Agreement: Cancer

NCI is involved in collaborative epidemiological studies with Chinese scientists to identify the dietary and environmental determinants of esophageal, lung, and stomach cancers and choriocarcinoma in China.

**DEPARTMENT OF INTERIOR/  
BUREAU OF LAND MANAGEMENT (BLM)**

**Focus:** land use planning

Web address: <http://www.doi.gov/>

Web address: <http://www.blm.gov/>

Cooperation Agreement: Land Use Planning

**Partners:** State Lands Administration

BLM cooperates with the State Lands Administration of China, primarily through the exchange of delegations on land use planning and land records administration.

**DEPARTMENT OF INTERIOR/BUREAU OF RECLAMATION**

**Focus:** water resources, conservation/management

Web address: <http://www.usbr.gov/>

Memorandum of Agreement: Water

**Partners:** Ministry of Water Resources

The Bureau of Reclamation and the Chinese Ministry of Water Resources have a two-pronged Memorandum of Agreement (MOA): (1) the exchange of information, skills and techniques for water resources management and conservation; and, (2) the exchange of information, skills and techniques for enhancing the environment. To date, neither side has used the MOA to implement any activities.

**DEPARTMENT OF INTERIOR/  
FISH AND WILDLIFE SERVICE (FWS)**

**Focus:** wildlife, education

Web address: <http://www.fws.gov/index.html>

Nature Conservation Protocol

**Partners:** Various Chinese government agencies

FWS administers exchanges with China under the bilateral Nature Conservation Protocol. Exchanges being carried out during 1995-1996 include environmental education and public outreach training, surveys of fauna and flora in wildlife refuges of both countries, shed monitoring in the Yangtze River, joint sea turtle beach surveys in Texas and Mexico, and cooperation on implementation of the Convention on International Trade in Endangered Species (CITES).

**DEPARTMENT OF INTERIOR/  
NATIONAL BIOLOGICAL SERVICE (NBS)**

**Focus:** habitat, wildlife

Web address: <http://www.doi.gov/pfm/ar4nbs.html>

Cooperation Agreement: Habitat Conservation

**Partners:** Fish and Wildlife Service (FWS)

NBS co-leads with FWS the U.S.-China Nature Conservation Protocol. Its activities in China include studies of the distribution and habitat requirements of migratory birds, spawning requirements of sturgeon species in rivers, propagation of freshwater mussels, research to support conservation of special status species, such as the snow leopard and polecats, and training in biological monitoring and wildlife.

DEPARTMENT OF INTERIOR/  
U.S. GEOLOGICAL SURVEY (USGS)  
Web address: <http://www.usgs.gov/>

**Focus:** water quality, surface water

Protocol on Surface Water Hydrology

Under the 1981 Protocol on Surface Water Hydrology, there have been recent exchanges with Chinese individuals and scholars for water quality assessment studies.

DEPARTMENT OF INTERIOR/U.S. GEOLOGICAL SURVEY

**Focus:** water, rivers, erosion

Research Agreement: River Erosion

**Partners:** Ministry of Water Resources

This agreement sponsors research on China's heavily sedimented rivers. In March 1995, five Chinese scientists from the Ministry of Water Resources visited the United States. The visit included planning sessions between the USGS and Chinese scientists to discuss ongoing activities and future plans for a joint study of sediment transport.

DEPARTMENT OF INTERIOR/U.S. GEOLOGICAL SURVEY

**Focus:** water, agriculture, land subsidence

Cooperative Agreement: Groundwater  
Pumping Strategies

**Partners:** Ministry of Geology and Water Resource

A project is being developed to determine ground-water pumping strategies to reduce damage from land subsidence. Two USGS scientists propose to meet with key personnel from the Ministry of Geology and Water Resources in Beijing. The meeting will focus on funding strategies for a joint research proposal developed two years ago to study land subsidence problems in Tianjin.

DEPARTMENT OF TRANSPORTATION

**Focus:** transportation

Web address: <http://www.dot.gov/>

Protocol on Cooperation in Science and  
Technology of Transportation

**Partners:** Chinese Ministry of Communication

Areas covered under this protocol, signed in 1983, include: port engineering; waterborne transportation; shipping management; highway engineering; traffic management systems; and urban transportation. Recent joint efforts have also included oil pollution at sea.

DEPARTMENT OF TRANSPORTATION/  
FEDERAL HIGHWAYS INTERNATIONAL

**Focus:** transportation

Intelligence Transportation Service Project (proposed)

The Department of Transportation is planning a pilot project to use innovative traffic planning systems to reduce traffic congestion in Chinese urban areas.

ENVIRONMENTAL PROTECTION AGENCY (EPA)

**Focus:** air pollution, energy

Web address: <http://www.epa.gov/>

Fourier Transform Infrared Spectrometer System  
(FTIR) for Monitoring Air Toxic Compound Emissions

**Partners:** Chinese National Environmental  
Monitoring Center of NEPA

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** air pollution, energy, fire protection

## Halon Phaseout Program

**Partners:** United States Navy, Ministry of Public Security, United Nations Development Program and NEPA

The first project under this program trains Chinese fire protection experts on operation of halon 1211 recovery/recharge machines and improved fire extinguisher service and maintenance practices to prevent unnecessary halon emissions. An initial assessment of halon use in major halon manufacturing provinces was completed. Funding has been provided from bilateral contributions to the Montreal Protocol Fund.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** air pollution, energy, health

## Children's Lung Function Study

**Partners:** National Center for Environmental Assessment and the Chinese National Monitoring Center of NEPA

This is an epidemiological study, begun in 1988, of the effects of air pollution on children's lung function. Health surveys are sent out twice a year to children in four cities, Wuhan, Chongqing, Guangzhou, and Langzhou in China. The project yields extremely valuable data for use in U.S. standard setting, especially for particles (fine and PM10).

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** automobiles, oil, transportation, energy

## Automotive Technologies/Leaded Gasoline Phaseout

**Partners:** National Environmental Protection Agency

EPA supported a major conference/workshop in October 1995 in Beijing which provided recommendations to the Chinese government for inclusion in the five-year plan and related statutes on fuels (including leaded gasoline phaseout), emissions controls, and transportation planning. EPA cooperation was instrumental in China's adoption of legislation calling for the phaseout of lead in gasoline. In addition, a NEPA official spent three months at EPA, and EPA is working closely with NEPA and other organizations on implementing regulations, including training in Shanghai and Xiamen, on mobile sources air pollution control and lead phaseout.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** climate change, energy

## Liaoning Province Greenhouse Gas Inventory and Options for Reduction

**Partners:** Illinois Department of Energy and Natural Resources, and Liaoning Province Environmental Protection Bureau

Begun in May 1995, this cooperation should result in preliminary steps towards implementing emissions reduction pilot projects within the next three years.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** climate change, policy

## Climate Change Country Study

**Partners:** Multiple agencies

This study is an interagency effort to assist China in the development of a national action plan for climate change.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** coal, energy, health

## Health Effects of Coal Combustion in Xuan Wei County, Yunan Province

**Partners:** National Health and Environmental Effects Research Lab and NEPA

This study is a multidisciplinary one which uses epidemiology, chemical analyses, and bioassays to determine the impact of domestic coal burning, ambient air pollution, and other factors on lung cancer incidence. Results from this study have been presented in several international conferences and were published in *Science Magazine*. The study is now focusing on the development of human health bio-markers.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** coal, energy, methane

## Coalbed Methane Recovery and Utilization

**Partners:** Ministry of Forestry, United Nations Development Program (UNDP), and Global Environmental Facility

EPA, with UNDP, manages a Global Environmental Facility project to demonstrate advanced methane recovery technologies at three sites in China. Cooperation principles were signed in 1991 to launch various projects, including a comprehensive assessment, country program development, feasibility studies, and model site development for coalbed methane recovery and use.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** development, industry

## Yixing Environmental Industrial Park

**Partners:** Department of Energy (DoE), Chinese State Science and Technology Commission

In cooperation with DoE, this project will provide advice to the Chinese State Science and Technology Commission on implementing Agenda 21 plans for this major center of the environmental industry. A computerized information exchange system and offices in the United States and China will enable the U.S. private sector to obtain information on opportunities for involvement in park industries.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** energy efficiency

## Sectoral Energy Efficiency Studies

**Partners:** Lawrence Berkeley Laboratory

Through Lawrence Berkeley National Laboratory and Chinese cooperators, this project will assess alternative energy utilization scenarios for particular sectors — beginning with building materials and buildings — which are major contributors to greenhouse gas emissions. The final outcome will be a detailed roadmap of technologies, environmental benefits, and costs for these sectors.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** energy efficiency

## Beijing Energy Efficiency Center

**Partners:** Department of Energy, EPA, World Wildlife Fund (WWF)

Established in 1993 with support from DoE, EPA and WWF, this quasi-non-governmental center supports energy policy reform, business ventures, demonstration projects, and public education. See also Beijing Energy Efficiency Center.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** energy efficiency

## Energy Efficient Buildings Project

**Partners:** Department of Commerce, U.S.-Asia Environmental Partnership, Hong Kong Polytechnic, Hong Kong EMSD, and Negawatts Company

This Hong Kong project will demonstrate energy efficiency measures for buildings.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** energy efficiency, renewables

## Asia Pacific Initiative for Renewable Energy and Energy Efficiency

**Partners:** Department of Energy, Export Council for Renewable Energy, International Institute for Energy Conservation, and Asia Pacific Economic Cooperation (APEC)

The objective of this two year program is to increase diffusion of renewable energy technologies to Asia through training workshops, regulatory development, and technology demonstrations.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** energy efficiency, CFCs

## Energy Efficient and CFC-free Refrigerators

**Partners:** National Council of Light Industry, Beijing Household Electrical Appliance Research Institute through NEPA

This project works at the regulatory and factory levels to assist with the conversion of refrigerator factories to produce models which use 50% less energy and are non-ozone depleting. The project is funded in phases by U.S. bilateral contributions to the Montreal Protocol Fund, plus additional GEF funding. Additional work was done through an EPA grant to the University of Maryland in FY94 for design and testing of domestic Chinese refrigerators and to the Lawrence Berkeley National Laboratory for market transformation of the refrigerator industry.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** energy, gasIntegrated Gasification Combined Cycle (IGCC)  
Power Generation Deployment to China to  
Achieve Emissions Reduction**Partners:** Department of Energy and Texaco

This project's goal is to construct an IGCC demonstration power plant which uses one-third less water and produces less CO<sub>2</sub> and toxic emissions than other coal-burning technologies. The project involves cost efficiency studies, research and identification of manufacturing capabilities in China, and workshops and training.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** energy, pollutionDemonstration of Combined NO<sub>x</sub>/SO<sub>x</sub> Control  
Technology**Partners:** Nalco, Shougang Corporation, CEPA and Beijing EPB

The objective of this two-year project is to conduct a field demonstration of NO<sub>x</sub> and SO<sub>x</sub> removal technology that was jointly developed by EPA and Nalco Fuel Technologies. This low-cost technology could reduce NO<sub>x</sub> and SO<sub>x</sub> emissions by up to 70 percent.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** energy, technology

## U.S.-China Energy and Environment Technology Center

**Partners:** Department of Energy, Tulane University, State Science and Technology Commission (SSTC)

The goal of this three-year project is to facilitate the development of U.S.-China relations in energy and environmental technology related to electric power. It will also provide a forum for information exchange, demonstrations, and research on energy and environmental technologies such as clean coal, oil and gas.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** hazardous waste, toxics disposal

## Hazardous Waste and Toxics Disposal

**Partners:** New York State EPA, NEPA

The goals of this project are to strengthen China's toxic waste regulation, to assist NEPA with demonstration facilities and specifications, and to evaluate hazardous waste treatment technologies for China.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** health, radon

## Lung Cancer and Indoor Radon Pilot Study

This study will examine a sampling of dwellings in Gansu Province and is part of a larger project funded by the National Institutes of Health.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** pollution, education, training

Pollution Prevention and Environmental Education

**Partners:** Air and Waste Management Association, Tianjin City, Anhui Province, and the Global Village Institute

This project, coordinated by the Air and Waste Management Association through an EPA grant, will work with Tianjin City and Anhui Province on improving the capacity of pollution prevention centers, and with the Global Village Institute on environmental education programs.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** pollution, energy

Pollution Prevention Assessments, Demonstrations, and Evaluations in the Petrochemical, Pharmaceutical, and Metal Finishing Industries

**Partners:** State of Illinois EPA, World Bank, United Nations Environment Program (UNEP)

The goal of this two-year project is to diffuse pollution prevention technologies and methods through workshops, assessments, and technology demonstrations.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** pollution, water

Pollution Prevention and Control in the Huai River Basin

**Partners:** World Bank and the Delaware River Basin Commission

The project will bring U.S. technologies and approaches to bear on the vast environmental damage in the Huai River Basin. Working closely with the World Bank and the Delaware River Basin Commission, which is carrying out a scoping study, this effort will lead to a \$1.2 million World Bank-financed feasibility study and possibly a \$50 million, World Bank-financed pilot project.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** waste, hazardous materials

Waste Acid Recovery

**Partners:** Department of Energy, Beijing and Shanyang EPBs

This two-year project demonstrated DoE-developed technology for recovering and recycling spent acids from electroplating and electronics manufacturing.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** water, marine, pollution

Coastal Marine Quality

This project will develop models to predict changes in coastal marine water sediment quality due to wastewater marine disposal.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** water, pollution

Membrane Drinking Water Treatment

**Partners:** U.S. Department of Agriculture (USDA), Shandong Province Water Resources Management Office, Zibo City, Ministry of Geology and Mineral Services, and the Institute of Hydrology

This project's goal is to demonstrate cost-effective technologies for the control of toxic chemicals and pathogenic microorganisms in drinking water in China.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** water, pollution

Biomonitoring of Toxic Discharges, Nanjing River

This project will develop toxicity identification techniques for highest risk discharges.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** wind energy

Wind Energy Mapping

The objective of this project is to show Chinese officials potential sites in China which are economically and environmentally viable for U.S. wind energy equipment.

**ENVIRONMENTAL PROTECTION AGENCY****Focus:** air and water pollutionEcological Monitoring Network and  
Air / Water Monitoring**Partners:** Chinese National Environmental  
Protection Agency (NEPA)

EPA is assisting the NEPA on technical assistance projects funded by the World Bank, including: (1) development of a national ecological monitoring network; and, (2) improvement of air and water monitoring technologies in China.

**EXPORT-IMPORT BANK****Focus:** financingWeb address: <http://www.exim.gov/>Web address: <http://www.exim.gov/country/ebd-y-05.html>

Environmental Exports Program

The features of this program include: (1) a short-term Environmental Export Insurance Policy that provides enhanced short term, multibuyer and singlebuyer insurance coverage for small business environmental exporters. Features of the insurance policy program include policies which deliver 95% commercial coverage and 100% political coverage with no deductible; and, (2) enhanced medium and long-term support for environmental projects, products and services. These enhancements include local cost coverage equal to 15% of the U.S. contract price, capitalization of interest during construction, and maximum allowable repayment terms permissible under OECD guidelines.

Exports that fall under the Environmental Exports Program include: instruments to measure or monitor air or water quality; emission control devices; effluent pollution control devices; equipment for systems for waste disposal, refuse collection and waste water treatment; services to upgrade environmental regulations; design and training for environmental assessments; ecological studies; ecological monitoring equipment; toxic material handling devices; and certain renewable and alternative energy equipment.

**FISH AND WILDLIFE SERVICE (FWS)****Focus:** wildlife, biology

Nature Conservation Protocol

**Partners:** Ministry of Forestry and Ministry of Agriculture

The U.S.-P.R.C. Nature Conservation Protocol Joint Committee convenes biannually to review completed activities and negotiate exchanges to be carried out over the coming two years. The last such meeting took place in Washington, D.C. in March 1997. Accomplishments of the Protocol include exchanges of specialists in: sea lion/sea otter biology; monitoring of international trade in endangered wildlife species; research on sturgeon, shad and sea turtles; biodiversity management in wildlife refuges and nature reserves; and conservation education/public awareness.

**LAWRENCE LIVERMORE NATIONAL LABORATORY (LLNL)****Focus:** water, desalinizationWeb address: <http://www.llnl.gov/>

Cost Effective Desalinization Using Capacitive Deionization

Discussions and contracts are currently being discussed with China and other Asia-Pacific states.

**LAWRENCE LIVERMORE NATIONAL LABORATORY****Focus:** water, planningRegional Water Resource Planning and  
Infrastructure Building**Partners:** World Bank and Asian Development Fund

This is sponsored by the World Bank and Asian Development Fund and includes a new water project in Sichuan Province.

**LAWRENCE LIVERMORE NATIONAL LABORATORY****Focus:** physics, engineeringEnvironmental Technologies and  
Evaluation Methodologies**Partners:** China Academy of Physics/Institute  
of Environmental Research and Engineering

LLNL has had interaction with the China Academy of Engineering Physics/Institute of Environmental Research and Engineering to discuss possible collaboration on the development of environmental technologies and evaluation methodologies.

**NATIONAL AERONAUTIC AND  
SPACE ADMINISTRATION (NASA)****Focus:** mappingWeb address: <http://www.nasa.gov/>

Research Agreement: Mapping

**Partners:** Chinese Academy of Sciences (CAS)

Under a 1992 agreement between NASA and the CAS, a Chinese Principal Investigator is participating in the NASA Dynamics of the Solid Earth (DOSE) program. Through this agreement, NASA and CAS are cooperating in exchange of data from Satellite Laser Ranging Stations, Very Long Baseline Interferometry, and Global Positioning Systems.

**NATIONAL PARK SERVICE****Focus:** biodiversity, parks, sustainable developmentWeb address: <http://www.nps.gov/>

March for Parks

Bilateral meetings were held between Chinese and U.S. parks officials in 1996. The aim of these meetings was to discuss park management strategies and techniques. High level meetings with the Chinese and officials from the Department of Interior and National Park Service were also held in 1996. These meetings discussed the possibility of formalizing a relationship among the National Park Service, Peace Corps and the Ministry of Construction.

**NATIONAL PARK SERVICE (NPS)/  
OFFICE OF INTERNATIONAL AFFAIRS****Focus:** sustainable development, parks, biodiversityUnited States National Park Service-People's  
Republic of China Cooperation**Partners:** Peace Corps

In 1988, the NPS developed an agreement with the Sichuan Provincial Construction Commission to allow cooperative technical exchanges, as well as joint planning and scientific research activities, between these two agencies.

**NUCLEAR REGULATORY COMMISSION (NRC)****Focus:** nuclear energyWeb address: <http://www.nrc.gov/>

Cooperative Agreement: Nuclear Safety

**Partners:** China's National Nuclear Safety Administration

The NRC has an active program of cooperation with China's National Nuclear Safety Administration and works within the framework of the Congressional sanctions that limit cooperation to publicly available safety information. Current and future cooperation will focus on power reactor operating performance, material safety, and emergency preparedness.



**U.S. ARMY CORPS OF ENGINEERS**Web address: <http://www.usace.army.mil/>**Focus:** water, dams

Research Agreement: Dams

**Partners:** National Science Foundation

Jointly with the National Science Foundation, the Corps of Engineers is studying the dynamic behavior of arch dams including effects of interaction of the dam with the impounded water and foundation rock.

**UNITED STATES PEACE CORPS**Web address: <http://www.peacecorps.gov/>**Focus:** parks

Parks Management Project (proposed)

**Partners:** National Park Service and Chinese Ministry of Construction and National Parks

The Park Service is currently negotiating with the U.S. Peace Corps and the Chinese to utilize Peace Corps volunteers to train Chinese park service officials in park management.

## Nongovernmental Organizations

**BEIJING ENERGY EFFICIENCY CENTER (BECON)**Web address: <http://www.gcinfo.com/becon/index.html>**Focus:** energy efficiency

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

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

BECON has recently begun a collaboration with WWF to develop efficiency and renewables in TVEs. Construction and development in TVEs is a main component of national development. The level of efficiency in the small towns is relatively low compared to urban areas. An objective of the project is to develop 2-3 full-scale proposals for obtaining external financial support.

**BEIJING ENERGY EFFICIENCY CENTER**

China Green Lighting Program

**Focus:** energy efficiency, electricity**Partners:** UNDP, SETC, SSTC, National Council of Lighting Industry, Ministry of Construction, and Ministry of Electronics

The China Green Lighting Program, which is specifically authorized in the Ninth Five-Year Plan and which is funded through BECON with a \$1 million grant from the United Nations Development Program (UNDP), will last for five years. The program's purpose is to improve consumer's awareness of "green lighting," which implies educating and training of large-scale buyers, such as operators of buildings and public facilities. BECON has held an international symposium on green lights with over 140 participants and, in October 1996, opened a China Green Lights Center in Beijing — a permanent exhibition of the products of over 60 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.

**BEIJING ENERGY EFFICIENCY CENTER**

Demonstration and Information Center

**Focus:** energy, greenhouse gases**Partners:** World Bank, European Union

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 through market-oriented mechanisms. The project will create three companies, one each 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 which will be provided through an information dissemination center. The Center will manage \$5 million of this amount. 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 will be available in 1998. A European Union grant of \$4.5 million will be available from April 1997 to maintain momentum.

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.

#### **BEIJING ENERGY EFFICIENCY CENTER**

**Focus:** oil, energy, training, electricity

Demand Side Management and Integrated  
Resource Planning

**Partners:** Department of Energy, Electric Power  
Research Institute (ERI), Battelle, and the  
Environmental Defense Fund

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.

#### **CIESIN**

**Focus:** climate change, environmental data

Web address: <http://www.ciesin.org/>

Model Visualization and Analysis Service:  
Integrated Assessment of Climate Change

**Partners:** National Institute of Public Health  
and Environmental Protection (RIVM), Battelle,  
Carnegie Mellon University, and the Stanford  
University Energy Modeling Forum

To help those interested in the climate change issue better understand the development and potential application of Integrated Assessment Models (IAMs), CIESIN has developed the Model Visualization and Analysis (MVA) Service as part of its Socioeconomic Data and Applications Center (SEDAC). The MVA service allows users to access a database of precomputed model scenarios and to visualize data of interest over the Internet. Model scenarios address such issues as choice of energy technologies, development of biomass-based fuels, and introduction of carbon taxes.

#### **CIESIN**

**Focus:** environmental data

World Data Center-A for Human Interactions in the Environment

CIESIN's World Data Center-A for Human Interactions in the Environment serves the scientific community by archiving and disseminating interdisciplinary data and information concerning human interactions with the environment. The Center focuses in particular on georeferenced data on population and administrative boundaries that are needed for a wide range of interdisciplinary research.

The Center archives or provides access to: population dynamics; land and freshwater resources; agriculture and food security; industry and energy; economic activity; policy and institutions; human attitudes, preferences, and behavior; and human and environmental health.

**CIESIN****Focus:** environmental data, population

## China Administrative Regions Data

**Partners:** Chinese Academy of Surveying and Mapping and the China in Time and Space project at the University of Washington

CIESIN's China Administrative Regions Data provides accurate and highly reliable spatial data on the country. The data consists of 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.

The databases may be overlaid with a variety of agricultural, land use, environmental, and socioeconomic data to track China's economic rise, population growth, and environmental change.

**CIESIN****Focus:** environmental treaties, resources

## Environmental Treaties and Resource Indicators

**Partners:** Multiple

The interactive Environmental Treaties and Resource Indicators (ENTRI) system is a World Wide Web tool that integrated data about the content and status of environmental treaties with national resource indicators and other socioeconomic and environmental information. ENTRI draws on diverse data from organizations around the world.

ENTRI currently provides access to information on approximately 435 environmental treaties and 145 natural resource indicators. The treaty status information is current as of January 1996. ENTRI covers nine global environmental issues: 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.

**CIESIN****Focus:** population, climate, environmental data

## Gridded Population of the World

**Partners:** National Center for Geographic Information and Analysis (NCGIA)

Gridded Population of the World (GPW) is a unique global demographic dataset that provides consistent population estimates referenced to a grid of five minute by five minute latitude-longitude quadrilaterals. GPW contains estimated 1994 population counts and densities based on population data for 217 countries, including China.

GPW is a tool which can 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.

**CIESIN****Focus:** population, environmental data

## Ulysses Cross-Tabulation Engine

Ulysses is an Internet service that provides direct access to millions of household and person census records from the 1970, 1980 and 1990 U.S. Census and the 1982 China Census. Users may select specific records from the census data to produce detailed statistics and cross-tabulations.

Ulysses accesses the U.S. Census Public Use Microdata Samples (PUMS). The data covers various topics including: housing unit type, size, location, value, and age; persons by sex, age, and race; households by size, type, and income; level of education; occupation; employment status, income; and marital status, family membership.

**EAST-WEST CENTER, ENVIRONMENT AND  
POLICY INSTITUTE****Focus:** developmentWeb address: <http://www.ewc.hawaii.edu/>

## Selected Activities Related to Promoting Environmentally Sound Development in China

The Environment and Policy Institute of the East-West Center has different operations for air pollution, hazardous waste,

water management, agroecosystems, forestry, urban environments, policy implementation, technology transfer and oceans and coasts in China.

**ENVIRONMENTAL DEFENSE FUND (EDF)**

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

**Focus:** environmental management

Environmental Management Project

**Partners:** Beijing Environment and Development Institute

EDF is currently undertaking a project, with the Beijing Environment and Development Institute, to develop strategies for implementing BEDI's Total Emissions Control Policy.

**ENVIRONMENTAL DEFENSE FUND**

**Focus:** energy, computer modeling

ELFIN Computer Modeling Training

**Partners:** 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).

**FRIENDS OF THE EARTH (FoE)**

Web address: <http://www.foe.co.uk/>

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

**Focus:** hydroelectric, water

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 10 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.

**INTERNATIONAL INSTITUTE FOR  
ENERGY CONSERVATION (IIEC)**

Web address: <http://www.iiec.org/>

**Focus:** energy efficiency, technology

Technology Transfer Initiative

IIEC is beginning a 3-year project to promote the transfer of energy-efficient motor and transformer technologies to China. The project will also include marketing and education activities and the development of finance mechanisms for the purchase of energy-efficient equipment.

**INTERNATIONAL INSTITUTE FOR ENERGY CONSERVATION**

**Focus:** energy, transportation

Xiamen Sustainable Transport Project

**Partners:** City of Xiamen, U.S. Environmental Protection Agency

IIEC is working with the City of Xiamen to undertake an Integrated Transport Services planning activity. The purpose of the project is to analyze the most cost-effective and least polluting way to improve Xiamen's transportation system.

**INTERNATIONAL INSTITUTE FOR ENERGY CONSERVATION**

**Focus:** natural gas, transportation

Compressed Natural Gas Transportation Project

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

**INTERNATIONAL INSTITUTE FOR ENERGY CONSERVATION****Focus:** energy efficiency, policy

## Energy Efficient Transformers

**Partners:** Multiple Chinese agencies and enterprises

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

**INTERNATIONAL RIVERS NETWORK****Focus:** rivers, waterWeb address: <http://www.irn.org/>

## Three Gorges Campaign

The goal of this campaign has been to increase public awareness regarding the environmental and social impacts of the Three Gorges Dam and to lobby Washington on the importance of this project. Accomplishments of the 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 will not guarantee loans to U.S. companies seeking contracts for the Three Gorges Dam.

**IUCN — THE WORLD CONSERVATION UNION****Focus:** biodiversityWeb address: <http://www.iucn.org/>

## Technical Advice on China's Biodiversity Action Plan

The Head of IUCN's Biodiversity Programme has provided technical advice to the development of China's Biodiversity Action Plan and continues to advise the Chinese on several major project initiatives being taken to implement this plan.

**IUCN — THE WORLD CONSERVATION UNION****Focus:** conservation

## Regional Action Plan for Protected Areas of East Asia

IUCN worked with Chinese experts to develop this plan, which includes many priority actions for China. In following up on this Action Plan, IUCN will promote greater international and national investment in high priority areas. IUCN hopes to work with the World Wildlife Fund and other partners in future work on protected areas in China.

**IUCN — THE WORLD CONSERVATION UNION****Focus:** conservation, biodiversityMembership in the China Council for International  
Cooperation on Environment and Development

The Director General of IUCN is a member of the China Council for International Cooperation on Environment and Development, which is a high level body of international and Chinese experts that provides advice on China's environment and development problems to the State Council and senior leaders, including directly to the State Premier and President. IUCN has played an especially significant role in the Biodiversity Working Group.

**IUCN — THE WORLD CONSERVATION UNION****Focus:** conservation, biodiversity

## State Membership in The World Conservation Union

China became a State member of IUCN in October 1996, with the Ministry of Foreign Affairs serving as the formal channel for contacts with the Government. Direct technical contacts are, however, pursued with a range of Ministries and Departments, notably the National Environment Protection Agency, the Ministry of Forestry, the Academy of Sciences and the State Oceanic Administration, as well as with the various initiatives and committees organized and chaired by these bodies.

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT)**

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

**Focus:** energy, coal, air pollution

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

**Partners:** Tsinghua University, Tokyo University,  
Swiss Federal Institutes of Technology,  
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 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.

**NATIONAL COMMITTEE ON U.S.-CHINA RELATIONS**

**Focus:** environment, planning

Internship Program

**Partners:** National Environmental Protection Agency (NEPA), and the State Planning Commission's Department of Regional Economy and Spatial Planning

The National Committee has invited three interns — from China's National Environmental Protection Agency, from the State Planning Commission's Department of Regional Economy and Spatial Planning, and from China Environment News — to spend six months working in a variety of environmental protection organizations. They have spent time in government agencies, NGOs, and at universities learning about the relationship among government, NGOs, the private sector, and academia in the pursuit of environmentally sound practices.

**NATIONAL COMMITTEE ON U.S.-CHINA RELATIONS**

**Focus:** sustainable development, conservation

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.

**NATURAL RESOURCES DEFENSE COUNCIL (NRDC)**

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

**Focus:** energy, policy

Environmental and Energy Policy Development

**Partners:** 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 environ-

mental 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.

#### **NATURAL RESOURCES DEFENSE COUNCIL**

**Focus:** mapping, climate change, modeling

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.

#### **NATURAL RESOURCES DEFENSE COUNCIL**

**Focus:** energy efficiency

Demonstration of a Model Energy Efficiency Project **Partners:** AES Corporation

NRDC met in January with the President of AES China Generating Co. Ltd., an American independent power company currently operating with power plants in China. AES 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 cogeneration 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: (1) A co-generation plant in Tianjin which will focus on energy efficiency mainly for end-users; (2) 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; and, (3) 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.

#### **PACIFIC ENVIRONMENT AND RESOURCES CENTER**

**Focus:** biodiversity, conservation, energy

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

China Biodiversity Conservation Project **Partners:** Ministry of Forests

The Pacific Environmental Resources Center has several projects under the China Biodiversity Conservation Project, the majority of which are grassroots. 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 renewable energy promotion in the rural Southwest (proposed).

**PACIFIC ENVIRONMENT AND RESOURCES CENTER****Focus:** renewable energy

## 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 (cooking, heating, and lighting, etc.). 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.

**PACIFIC ENVIRONMENT AND RESOURCES CENTER****Focus:** watershed conservation

## 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****Focus:** biodiversityWeb address: <http://www.si.edu/>

## 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.

**SMITHSONIAN INSTITUTION****Focus:** biodiversity

## Biological Diversity Program

**Partners:** 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.

**SMITHSONIAN INSTITUTION****Focus:** biodiversity, flora

## 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.

**SMITHSONIAN INSTITUTION****Focus:** climate change, water

## 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.

**SMITHSONIAN INSTITUTION**

**Focus:** conservation

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.

**SMITHSONIAN INSTITUTION**

**Focus:** conservation, training

Wildlife Conservation and Management  
Training Program

**Partners:** 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 17 of these training courses have been undertaken in China since 1987.

**STANFORD UNIVERSITY/INSTITUTE FOR  
INTERNATIONAL STUDIES (IIS)**

**Focus:** ozone, climate, greenhouse gases

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

Montreal Protocol Research

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

**STANFORD UNIVERSITY/  
INSTITUTE FOR INTERNATIONAL STUDIES**

**Focus:** energy

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.

**U.S.-CHINA ENVIRONMENTAL FUND (USCEF)**

**Focus:** conservation, planning, tourism

The Great Wall at Badaling

**Partners:** Beijing Municipal Government

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 through the design and development of the International Friendship Forest, a 75-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.

**U.S.-CHINA ENVIRONMENTAL FUND**

**Focus:** environmental education

Sister City Program for U.S.-China High Schools

**Partners:** National Environmental Protection Agency,  
Municipal Environmental Protection Bureaus

USCEF has initiated a sister city environmental education exchange for high school students in the United States and China. To date, eighteen cities are participating. The program will promote an exchange of teachers, city education and environment officials, NGOs, and industry representatives. Focus will be on experiential out-of-classroom activities with monitor-

ing projects and the development of municipal State of the Environment Reports.

**U.S.-CHINA ENVIRONMENTAL FUND**

**Focus:** pollution prevention/control, training, technology transfer

Pollution Prevention and Control

**Partners:** Multiple

USCEF has two programs underway in China on pollution prevention and control. The first focuses on environmental infrastructure finance and the methods to increase private sector investment for pollution control. The second activity is a training and technology transfer program for rural areas and pollution from township and village enterprises.

**U.S.-CHINA ENVIRONMENTAL FUND**

**Focus:** conservation, planning, development, tourism

National Parks, World Heritage Sites

**Partners:** Ministry of Construction

To address the needs for economic development in communities surrounding national parks and to protect these outstanding cultural and natural sites, a technical assistance program is being designed with the Office of National Scenic Areas in the Ministry of Construction. Activities will include training, strategic planning utilizing GIS, interpretive signage, visitor programs and education, and exchange with U.S. park professionals.

**UNIVERSITY OF WISCONSIN**

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

**Focus:** natural resources, conservation, environmental management

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/>

**Focus:** conservation, resource management

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

**Partners:** Chiang Mai University, Thailand  
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.

**WINROCK INTERNATIONAL**

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

**Focus:** agriculture

LEAD21 Program

**Partners:** Starr Foundation, Chinese Education  
Authority, and Chinese agricultural universities

The LEAD21 program brings instruction in agricultural economics, agribusiness principals, and policy reform to China, 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. The on-site LEAD21 program began in July 1996 and will be completed in August 1998.

**WORLD RESOURCES INSTITUTE (WRI)**  
Web address: <http://www.wri.org/>

**Focus:** health

Translation Project

**Partners:** Chinese researchers

WRI is currently working with Chinese researchers to translate their papers on health and environmental issues. The aim is for these reports and papers to gain an international audience and widespread recognition.

**WORLD RESOURCES INSTITUTE**

**Focus:** health, air pollution, energy

Economic Analysis of Air Pollution on Health Related Issues

WRI is currently administering a project through its Health and Environment Program that is aimed at addressing the impacts on health due to air pollution. The project will incorporate economic analyses of air pollution on health issues, such as lost wages and health care costs, and will attempt to determine the external costs of air pollution in terms of health.

**WORLD RESOURCES INSTITUTE**

**Focus:** water pollution

Water Pollution

WRI is in the research stage of a project on water pollution in China.

**WORLD WILDLIFE FUND (WWF)**

**Focus:** energy, climate

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<sub>2</sub> 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<sub>2</sub> 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 township and rural economies.

**WORLD WILDLIFE FUND**

**Focus:** wetlands

National Wetland Conservation Action Plan

**Partners:** 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.

**WORLD WILDLIFE FUND**

**Focus:** wildlife

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

**Partners:** Ministry of Forestry, Chinese zoos

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 14 new panda reserves, maintaining or re-establishing "bamboo corridors" which allow the otherwise isolated groups of pandas to communicate and to interbreed, and improving the

management and protection of panda reserves.

**WORLD WILDLIFE FUND**

Development of Environmental Education

**Focus:** education

**Partners:** National Environmental Protection Agency (NEPA), State Education Commission (SEC)

In 1993, the Chinese embassy in Switzerland approached WWF for help in furthering environmental education in China. In cooperation with NEPA 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.

**Harvard University Committee on Environment China Project**

An interdisciplinary research collaboration by Harvard University and a number of Chinese institutions, the Harvard University Committee on Environment China Project seeks integrated strategies to address a range of harmful energy-based emissions in concert. Based equally in the United States and China, over 50 professors, researchers, and policymakers now comprise the team, with a disciplinary reach that includes science, public health, engineering, economics, public policy, law, political science, anthropology, and business. The program is led by Michael B. McElroy and Xiping Xu at Harvard and Shi Dinghuan and Wang Hanchen in China, and is sponsored by State Councilor Song Jian and National People's Congress Environment Committee Chair Qu Geping.

Eighteen stage-setting studies conducted in the program's preliminary phase on a range of topics are now being published in an edited volume, *Energizing China: Reconciling Environmental Protection and Economic Growth*, distributed by Harvard University Press. Nine linked subprojects of more extensive original research are currently underway in the program's externally funded Phase II. These include:

- A dynamic economy-energy-environment model to project growth and the emissions trajectory of the Chinese energy economy, and to conduct environmental policy simulations, such as comparing enactment of new regulations versus imposition of a carbon tax;
- A technology and investment assessment of the alternatives to coal in the Chinese electric power sector, with a decision-making framework based on a mathematical programming model;
- A multidisciplinary investigation of factors in environmental policy implementation in a small Chinese city and its rural environs. The core activity is an urban-rural random household survey of indoor and outdoor air quality, respiratory health, economic conditions, household energy use, and popular perceptions of environment and legal recourse to pollution hazards;
- An ongoing study of environmental law development in China—particularly the revised Air Pollution Prevention and Control Law—and impediments to its implementation;
- A Chinese-led study to develop equitable regional “action plans” for integrated abatement of sulfur dioxide and carbon dioxide, given economic and resource disparities within China;
- Use of a 3-D chemical tracer model to explore measurement strategies to quantify China's *net* contributions of a range of important greenhouse gases, taking into account both anthropogenic emissions and natural sources and sinks;
- A multidisciplinary assessment of the challenges and impediments in Sino-American “joint implementation/ activities implemented jointly,” private-public investment mechanisms to limit emissions under the Framework Convention on Climate Change;
- Harvard Business School cases on the role of foreign investment and trade in Chinese environment. The current case examines the efficiency gains of Honeywell digital control equipment in a Beijing district heating system; and,
- A newly-developing study to estimate economic losses from air pollution impacts on human health.

The subprojects have differing grant terms and will produce a stream of results, to be presented at program workshops, conferences, policy briefings, and in scholarly journals and other published media.

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