



GOINGS ON

RFF Team to Help Chinese Province Develop Air Pollution Permit Trading System

With support from the Asia Development Bank (ADB), a team of RFF researchers, led by Senior Fellow Dick Morgenstern, will soon start work on a project in Shanxi Province, in north-central China, to help officials there develop an air pollution permit trading scheme. Shanxi is a heavily industrialized inland province. A 1998 World Bank report listed the provincial capital, Taiyuan, as one of the most polluted cities in the world as well as the most polluted city in the People's Republic of China (PRC).

The goal of the project is to develop a system, based on emissions-trading models now in use in industrialized countries, that will work in concert with the current regulatory infrastructure in the PRC. The RFF team will study the existing legal, regulatory, and administrative bodies in Shanxi to assess their adequacy for carrying out various approaches to meeting this goal; determine specific options; and offer recommendations for carrying out a demonstration project. Examples of emissions-trading models under consideration include emissions offsets, open-market trading systems, and cap-and-trade systems.

Despite recent increases in the efficiency of its electricity-generating sector, China as a whole faces serious environmental challenges from its heavy reliance on relatively uncontrolled and inefficient coal combustion as a source of power. Sulfur dioxide (SO₂) controls recently were incorporated into the national environmental strategy. In the PRC, environmental policies and strategies are first developed at the national level by various agencies and then further refined

at the provincial level, where environmental management efforts are coordinated.

The ADB was established in 1966 as a multilateral development finance institution, owned by 59 members, mostly from Asia and the Pacific. Promoting environmental protection is a key strategic-development objective of the Bank. Its principal tools are loans and technical assistance, which it provides to governments for specific projects and programs such as the one described here. RFF has provided training to ADB staff on emerging policy instruments for environmental management, but this marks the first time that RFF has won one of these highly competitive contracts for technical assistance.

ADB wants to enhance the use of economically sustainable, market-based instruments (MBIs), such as subsidies and tradable permits, in Shanxi Province. According to one recent study conducted in a nearby province, the use of MBIs could generate potential cost savings of 50% or more for SO₂ reductions, compared to traditional command-and-control regulations.

RFF Researchers to Examine Effect of Resource Quality on Poverty and Population Growth in India

India, like many developing countries, has been plagued by problems associated with population growth, poverty, and resource degradation. Roughly a third of India's 1 billion people live below the poverty line. Access to clean water, animal fodder, and fuelwood is particularly important for them, because many of these people depend directly on natural resources. India's natural resources, however, have been deteriorating, with 53% of India's total land area degraded or prone to soil erosion, and with marked deforestation and wide-

spread water scarcity and pollution. Meanwhile, India's population continues to increase by 2.2% annually, one of the highest growth rates in the world.

The fact that rapid population growth, acute poverty, and severe resource degradation coexist in India is no coincidence. In fact, a considerable amount of research has already examined the effect of poverty and population growth on environmental degradation worldwide. However, few analysts have considered that a degraded environment may also cause poverty and rapid population growth.

In a two-year study funded in part by RFF and the World Bank, RFF Fellows Urvashi Narain and Heidi Albers, along with David Zilberman, from the University of California at Berkeley, and Shreekanth Gupta, from the Delhi School of Economics at the Delhi University in India, will examine whether improvements in natural resource management could lead to sustained economic growth, decreased fertility rates, and other demographic changes.

In order to better define the intricate relationships between resource degradation, poverty, and population growth, the researchers will conduct a household survey, interviewing 300 households from 30 villages in the Shivaliks mountain range in northern India. This region struggles with severe shortages of drinking water, fodder, and fuelwood because of degraded and limited forest cover and soil erosion.

The survey will elicit data on resource quality, human fertility, income, household labor allocation, household schooling decisions, migration, and household size in an effort to examine trade-offs that have been previously overlooked. To examine changes in household behavior, demographics, resource quality, and economic wealth over time, the researchers hope to administer fol-



GOINGS ON

lowup surveys to the same families in five years. Village leaders will also be interviewed regarding the past successes and failures of village projects to gauge whether cooperative behavior may be a successful route to improving and maintaining resource quality.

The researchers hope to gather a wealth of data that will shed light on how resource quality affects poverty. They speculate that if resource degradation forces households to spend time in the pursuit of fuelwood, villagers would have less labor for income-generating activities. Also, water scarcity can lower agricultural yields, and fodder scarcity can make animal husbandry less profitable.

As agriculture and animal husbandry become less productive, men may be forced to migrate to towns and cities in search of employment opportunities, which increases the work burden placed on women. In short, resource degradation may not only be the effect, but also a cause of poverty.

The researchers believe that improved management of natural resources could create income growth by expanding opportunities for both animal husbandry and the sustainable harvest of natural resources like trees and grasses. In addition, improved management could lessen resource scarcity and also enable villagers to better cope with natural disasters, such as hurricanes and floods.

Resource quality and population growth have a similar relationship. Population growth puts pressure on natural resources, and resource degradation may increase fertility rates. Because resource degradation forces households to spend more time in pursuit of fuelwood and fodder for grazing animals, families might choose to have more children to meet that labor requirement.

Child labor is particularly important in animal husbandry because children can contribute more effectively to the care of animals than to tilling and harvesting. Their workload could increase to the point where girls would be required to forgo school to help with household chores, a still-common division of labor in India. Female literacy would likely decline, leading to an increase in fertility rates. Consequently, if natural resource management is improved, population growth could be abated as well.

Using survey results, along with policy simulations and results from economic models of household behavior, the researchers hope to develop potential policy prescriptions that will reflect empirical evidence and input from villagers, non-governmental organizations, and government agencies.

RFF and Sweden's Beijer Institute to Explore Biodiversity as a Primary Land Use

Declining biological diversity is a pressing concern for environmentalists worldwide. Many natural scientists believe the world is in the midst of a human-induced crisis in which species are being lost at rates not encountered since the extinction of the dinosaurs. Although a number of factors can be identified for the decline of biodiversity, the conversion of natural habitat to other uses like farmland is probably the single greatest cause. However, habitat conversions may not always benefit all the citizens of the nations that allow them. Farming, fishing, and forestry enterprises that benefit members of the upper class or arise from inadequate local market and legal institutions may fail to meet the basic needs of local citizens.

While most would agree that effective conservation policies are needed, there is less agreement on how biodiversity should be conserved. RFF and the Beijer International Institute of Ecological Economics in Stockholm, Sweden, have initiated a program to determine when, where, and for whom the best use of land will involve the maintenance of biodiversity.

Researchers from RFF and Beijer will explore the potential of actual and emerging markets for eco-friendly products and ecosystem services to provide conservation incentives. For example, ecotourism operations may provide incentives for the maintenance of biodiversity since tourist revenues depend upon maintaining attractive natural features. The researchers also will consider whether such incentives should be actively and specifically promoted, or if more general policies to promote institutional and economic development would prove more effective. Because economists generally agree that resources are allocated more efficiently when property rights are established and enforced, one aspect of the research program will be to see what effects the establishment of property rights has had in different geographical areas.

RFF and Beijer researchers will collaborate with experts from universities and other institutions around the world to conduct applied economic, institutional, and ecological research on the relationships among habitat attributes, ecosystem functions, and their economic value. A number of case studies will be conducted in developing countries to contrast the effects of different economic, social, institutional, and political circumstances on land use choices. The research will culminate in joint publications that will provide practical guidance to policymakers, resource managers, and other stakeholders.



GOINGS ON

RFF and Beijer launched the research program by hosting a workshop at RFF in October. Leading ecologists, economists, and other experts made presentations and directed discussions on issues of biodiversity and land use. After the workshop, plans were made to pursue a number of directions for future research, focusing on developing the economic and ecological criteria through which the success of conservation policies can be judged and identifying the social and institutional contexts required for instituting successful conservation.

According to RFF researcher David Simpson, "This research is critically important because conservation advocates and funders need practical advice on what works, what doesn't work, and how to make their dollar go the furthest."

An Update on RFF's Pilot Project to Build Environmental Citizenship in Hungary and Slovenia

RFF is working with New York University Law School (NYU) and the Hungarian-based Regional Environmental Center for Central and Eastern Europe (REC) on a pilot project to support efforts in Hungary and Slovenia to create environmental administrations that are more transparent and to strengthen public participation in environmental decisionmaking.

The first in-region meeting took place in early October in Szentendre, just outside of Budapest. The purpose of the project is to assist each country in implementing international legal obligations they have agreed to under the Aarhus Convention and various agreements to improve the quality of the Danube River. (The *Convention on Access to Information and Public Participation in Decision-Making and Access*

to Justice in Environmental Matters was signed in 1998 in Aarhus, Denmark, by environment ministers from throughout Europe.)

Discussions at the Szentendre meeting centered on the current status of laws, regulations, and practices governing public access to environmental information in each country. Hungarian and Slovenian participants outlined the considerable legislative and institutional progress that has taken place in both countries in the past 10 years and described the development of environmental nongovernmental organization initiatives. Both countries have laws in place that should make public access to environmental information possible, but parts of the laws fall short of the standards set out in the Aarhus Convention.

Ambiguities in these laws hamper public access to information. Officials who must interpret unclear laws regarding the confidentiality of official and commercial secrets often deny requests by the public for fear that they might get themselves into trouble by releasing sensitive information. The absence of enabling regulations and guidelines has resulted in other problems. Officials have wide discretion and often deny information requests on technicalities. In some instances, officials require the person making a request for information to provide justification or ask whether requesters have adequate rights or "legal interest" to receive the information in question, even if the law does not require the person requesting information to provide a reason.

Even when the law on information access is clear, problems with the institutional structures in Hungary and Slovenia can thwart efforts by the public to access environmental information. In most cases,

information is only truly available to those who know how to ask for it (namely, people who know and are known to the officials in charge of the information). Sometimes there are no appointed officials to deal with requests at all, or requests are handled by officials who are overwhelmed by other duties.

Next steps

By the end of the meeting, each country delegation had selected case studies to use as vehicles for examining current practices, recommending reforms, and developing project outputs. The Slovenian delegation decided to evaluate a controversial pulp and paper mill located not far from the Croatian border. The Hungarian delegation chose to focus on discharges to the Tisza River, a tributary to the Danube recently made famous by a cyanide spill from an upstream Romanian mine.

Potential project outputs, or publications, may include a citizen's guide to accessing available information and legal and practical guidelines for national and local-level governments that have line responsibility for responding to public requests for environmental data and information. Whatever recommendations or outputs come out of this project must be consistent with the requirements of the European Union, because Hungary and Slovenia are among the leading candidates for membership.

Capacity-building meetings will be held in Hungary and Slovenia this winter, in the countries' native languages, to examine in detail the issues identified during the October meeting. An electronic discussion list has been established to allow the project team and participants to share ideas, information, and best practices. Hungarian and Slovenian participants will go on a study



GOINGS ON

tour to the Netherlands, New York, and Washington, DC, in the early spring.

Funding for this project is from the Global Environment Facility, with funds administered by the United Nations Development Programme.

Despite Benefits, Gasoline Taxes in Britain Are Too High, RFF Scholar Concludes

In September 2000, truck drivers and farmers in Britain protested high gasoline prices by blockading oil refineries and depots, causing most gasoline stations to run dry. These protests were mirrored in various countries across Europe, with truck drivers blockading Brussels and snarling traffic on motorways around Dutch cities.

The demonstrations followed a three-fold increase in world oil prices over the last two years to over \$30 per barrel as the world economy expanded rapidly following recovery from the Asian financial crisis. But gas prices are also high in Britain because it has the highest gasoline tax in the world. The current excise tax is 50 pence per litre (\$3.40 per gallon), which is 75% higher than the 1990 level in the United Kingdom, even allowing for inflation. Indeed the price of gasoline now stands at about 83 pence per litre (\$5.65), more than three times the U.S. price (currently \$1.56 per gallon). Britain's Labour government claims that high gasoline taxes are necessary to reduce pollution and traffic congestion and to provide revenue that will help pay for promised increases in public spending.

In a recent discussion paper, RFF scholar Ian Parry suggests that, despite the benefits of gas taxes—cleaner air, reduced traffic congestion, and increased government revenue—the current tax of 50 pence

per litre still seems excessive. In terms of the environment, Parry writes, a gasoline tax of around 5 to 10 pence per liter could be defended, based on studies that assess the damages from vehicle pollution. This does not seem to justify the 1990 level of tax in the United Kingdom, let alone the current tax rate.

The argument that gasoline taxes are effective at decreasing traffic congestion is also questionable, Parry says. To effectively reduce congestion, policies must be in place that encourage people to consider all alternatives to driving on busy roads at peak periods, including using public transport; altering work schedules to avoid the rush-hour peak; carpooling; and driving on alternative, less-congested routes. A gasoline tax may encourage people to use public transportation and to carpool, Parry explains, but it does not encourage people to modify their work hours or drive on less-congested routes. Furthermore, a gasoline tax raises the cost of driving on roads that are relatively free flowing, for example, in sparsely populated areas or urban areas on weekends.

A much more effective policy to tackle traffic congestion would be to charge drivers for using busy roads at peak periods. Nonetheless, in the absence of peak-period charges, Parry argues that it is still appropriate to include the congestion benefits in the overall assessment of gasoline taxes. Parry concludes that the environmental and congestion benefits together might justify a tax of about half of the current U.K. rate. This is still a hefty tax, however, about four times the current U.S. gas tax.

In terms of providing money for public spending, Parry argues, the issue is whether increasing gasoline taxes beyond levels justified by pollution and congestion benefits will generate government revenues

at lower economic costs than raising revenues from other sources, such as the personal income tax. Income taxes cause economic costs, for example, by discouraging employment. But gasoline taxes also produce economic costs by inducing people to drive less than they would otherwise. They also raise transportation costs for businesses, which can ultimately lead to higher prices for products purchased by households.

Summarizing recent research findings, Parry suggests that the costs of the recent gasoline tax hikes in the United Kingdom probably outweighed the additional environmental and congestion benefits. Indeed, the net costs appear to be significantly higher than the costs would have been if the additional revenues had been financed through higher income taxes. In other words, there appear to be substantial benefits from shifting some of the burden of taxation off gasoline and onto income taxes, thereby lowering the current rate of gasoline taxation below 50 pence per litre.

Parry's paper, titled "Are Gas Taxes in Britain Too High?", is available at: www.rff.org/issue_briefs/PDF_files/parry_gas-tax.pdf.