



GOINGS ON

Clean Tanneries

In developing countries, large numbers of unregistered small businesses escape the attention of understaffed and underfinanced environmental regulators. Urban clusters of small-scale polluters like leather tanneries, brick kilns, and metal-working shops cause severe environmental damage, but are difficult for regulators to identify, much less monitor or sanction. Even when identified, these small businesses often do not have the financial or technical resources to adopt pollution-control measures.

León, Mexico is the home of approximately 800 small-scale


leather tanneries. Despite the efforts of local environmental authorities, almost all of these tanneries continue to dump toxic effluents and solid wastes directly into the nearby Turbio River. As a result, groundwater has been seriously contaminated, irrigated agricultural land has been destroyed, and health risks have accrued.

Resources for the Future Fellow **Allen Blackman** recently launched a two-year research project in association with the University of Guanajuato in Mexico to guide the design of effective pollution-control policies for small-business polluters in developing countries. He will pay particular attention to

understanding what has motivated a small but significant percentage of tanneries in León to cut pollution despite a decided lack of conventional regulatory pressure. At least 200 tanneries in León will be surveyed to identify contributing factors, including tanners' awareness of the health impacts of their pollution, the costs of pollution control, changes in production processes, community pressure, and the availability of technical assistance.

The survey data will help to identify means of encouraging other tanners to adopt environmental management practices. In addition, the researchers hope to develop policy recommendations that are applicable to tanneries and other types of small-scale polluters around the globe.

The project is scheduled to be completed in May 2001 and will culminate in a book identifying promising regulatory and other approaches to pollution control. It is a follow-on study of a recently completed RFF project that analyzed efforts to control emissions from small-scale brick kilns in Mexico. Both studies are funded by the Tinker Foundation.

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Controlling Greenhouse Gas Emissions

Setting targets for emissions limits like those in the Kyoto Protocol may not be the most

effective way to reduce greenhouse gas emissions, according to a paper completed recently by RFF Fellow **William Pizer**. Uncertainty surrounding the costs and benefits of emissions limits makes it far more effective to charge sources of carbon dioxide and other greenhouse gases a set price for every ton they emit, the study shows. Such price-based controls could give policymakers a key advantage over the Kyoto protocol—the ability to limit the potential economic costs.

Price-based controls on greenhouse gases have not been pursued vigorously to date because they do not provide the kind of guarantee on total emissions that many environmentalists and policymakers find appealing about quantity-based controls. Both approaches involve considerable uncertainty, however, as it is not clear how much a quantity-based system will cost to implement, or how much a price-based system will reduce emissions.

Research that Pizer has been conducting at RFF shows that the emissions uncertainty associated with price controls is preferable to the cost uncertainty associated with quantity controls. The expected net gains associated with a price-based system are up to five times higher than even the best system based on quantity controls. His results suggest that an even better alternative may be a combination of both price and quantity controls in a “hybrid” approach, in which policymakers would fix the initial emis-

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Workers in a León tannery wheeling out a cart of hides.



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sion level, but allow emitters to buy additional emissions rights at a fixed price.

 Pizer's paper, "Choosing Price or Quantity Controls for Greenhouse Gases," can be downloaded at http://www.rff.org/issue_briefs/PDF_files/ccbrf17.pdf. For more information contact William Pizer at (202) 328-5039; pizer@rff.org.

Using Economic Instruments to Control Pollution

RFF has been awarded two grants by the state of Michigan to study innovative uses of economic strategies to tackle the state's environmental problems. The projects funded include a year-long study of various methods to combat farm runoff and other "nonpoint" sources of pollution, and an 18-month examination of ways to ensure that firms doing business in the state are financially able to pay for environmental damages they may cause.

In the first study, RFF researchers will examine the effectiveness of using land-use regulation and market-based policies to reduce the amount of nonpoint source pollution coming to lakes and wetlands from farms and city streets. In the past, polluted runoff has received considerably less regulatory attention than pollution that derives from one specific source, such as sewage treatment plants and industrial facilities. As a result, nonpoint source pollution has become the greatest contributor to

water quality problems in the Lake Michigan Basin and in the nation's waterways in general.


RFF researchers will examine whether coupling land-use policies with market-based instruments for pollution reduction can produce more cost-effective pollution control options. The study will compare the effectiveness of nutrient trading markets between point and nonpoint sources and land-use instruments such as transferable development rights. The study will be conducted by Senior Fellow **Alan Krupnick** and Fellows **James Sanchirico** and **Jihl-Shyang Shih** and is projected to be completed in the fall of 2000.

The second study explores the effectiveness of laws designed to ensure that firms possess adequate financial resources to pay for environmental damage they might cause during their business operations. These laws would require that firms demonstrate their ability to cover the costs of the most catastrophic hazard their business could create, using either the firm's own assets or insurance through a third party. These laws currently only apply to the operators of large-scale waste generators such as landfills, underground petroleum storage tanks, and offshore rigs.

The RFF project will examine the strengths and weaknesses of such programs currently in use in the United States. In addition, the study will examine whether such financial instruments could be extended

to small-scale waste generators such as dry cleaners and photo-processing facilities. This 18-month study will be conducted by Fellow **James Boyd**.

Both studies are funded by the Office of the Great Lakes, Michigan Department of Environmental Quality through the Michigan Great Lakes Protection Fund.

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Flexible Water Policies in the Face of Climate Change

Policymakers and water resource managers should adopt flexible strategies to combat threats to the water supply brought about by global climate change, says a new report co-authored by Resources for the Future Senior Fellow **Kenneth Frederick** and **Peter H. Gleick** of the Pacific Institute for Studies in Development, Environment and Security. The report, "Water and Global Climate Change," was prepared for the Pew Center on Global Climate Change.

The existing pressures on the water supply—including rising demand and variations in the water cycle—could be compounded by greenhouse gas-induced changes to the climate, the report says. But because climate change models are only capable of simulating change on large scales, it is

difficult to pinpoint effects at the local level, where most decisions about the water supply are made. Current general circulation models predict that climate change will significantly affect precipitation, evaporation from the surface and transpired from plants, and runoff. Predicting effects for specific regions introduces new uncertainties.

Despite these uncertainties, the report finds that climate change *may* increase the frequency of intense precipitation days and floods, particularly in northern latitudes and snowmelt-driven basins. Heavy rainfall may also lead to soil erosion and contribute to the leaching of agricultural and urban pollutants into streams and lakes. At the same time, arid regions may become more prone to drought, placing added stress on their limited water resources for irrigation and other uses.

The authors identify four promising areas that policymakers should explore for adapting to future climate variability. Options include establishing incentives for using, conserving, and protecting water supplies; providing opportunities for transferring water among competing uses in response to changing conditions; influencing how water is managed within and among basins; and reevaluating the operations of the existing infrastructure to address potential changes.

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