Environmental funds have become popular in developing and transition economies as a way of channeling money into environmental programs when access to financing for such activities is limited. In countries where state-owned enterprises are still important, environmental funds tend to focus on pollution abatement in that sector. Despite their appeal, environmental funds do not solve underlying problems; they are most useful as transitional measures that provide resources for some environmental improvement while stronger environmental policies and regulatory structures are being put in place. Chinese and World Bank experience bears out this reading.

Environmental Funds: The Chinese Experience

Lee Travers

In 1980, 76 percent of China's industrial output came from the state-owned sector. By 1996, in the face of mounting competition and declining profit margins, the share of state-owned enterprises (SOEs) had fallen below 30 percent—yet almost all of the 3,000 most polluting enterprises in China are SOEs. Despite contributing an ever-smaller share of total output, SOEs remain important for the economy, especially on the local level, where they are key players in providing social services, sustaining employment, and generating tax revenues. The interaction of environmental damage and enterprises' financial weakness with the need to generate employment and income strongly conditions enforcement by local governments of environmental regulations and the operation of environmental funds. This note reviews China's experience with environmental funds and examines the advantages and disadvantages of these instruments. (For a general discussion of environmental funds, see Discussion Note 1 in this series.)

Enforcing Environmental Policy

In environmental matters, as with other government functions in China, the central and provincial governments provide policy direction and guide government revenue flows, while local governments implement the policies (see Box 1).

Chinese enterprises function in a regulatory regime that combines command and control with economic incentives. Firms discharging effluents within regulatory limits may be subject to a minor wastewater discharge fee, currently capped at US$0.0065 per cubic meter. Firms discharging more than the limit become liable for payment of a pollution levy fee. The rules do not allow firms simply to pay the fee and continue to operate. Typically, firms are given a fixed period of time to correct discharge problems, and if they do not meet that goal, they are subject to additional fees, fines, or even closure. Although local governments can authorize the shutdown of non-compliant firms, they do not often take
income to be earmarked for environmental funds, with the remainder financing related environmental monitoring and regulatory activities. In practice, about 70 percent of the fee income is allocated to the funds—primarily for investment in industrial pollution abatement. Investments in pollution control equipment for environmentally noncompliant firms totaled US$522 million, of which US$266 million came from environmental funds.

Like the Chinese environmental protection system described in Box 1, fee collection and the environmental funds are decentralized. The national government provided the legal basis for the funds’ financing and use but exercises only general oversight regarding implementation. Provincial governments have the power to adopt complementary regulations, but, with a few minor exceptions, they do not directly administer regulations or manage funds. As with regulatory implementation, fee collection and fund management reside at the lowest level that has an effective environmental protection bureau (EPB). This is typically at the county level for rural areas and the city level for urban areas. In large cities, the district government may be the operating level.

Environmental fund managers in EPBs have varying degrees of flexibility, depending on their location. National regulations stipulate that only firms paying the pollution levy fee (that is, firms discharging pollutants at rates above the national standards) are eligible for fund financing and that the funds can go only to approved investment projects designed to help the firms comply with the standards. In practice, most localities require that fund financing go directly back to the firm that paid the fee. (At least one provincial unit, however, pools the funds and permits allocation to any

### Box 1. China’s Environmental Regulation Structure

<table>
<thead>
<tr>
<th>Central government</th>
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<tbody>
<tr>
<td>National People’s Congress</td>
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<tr>
<td>- Passes and oversees environmental law</td>
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<tr>
<td>State Environmental Protection Administration (SEPA)</td>
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<tr>
<td>- Writes and interprets implementing regulations</td>
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<td>- Supervises lower levels of government</td>
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<table>
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<tr>
<th>Provincial governments</th>
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<tbody>
<tr>
<td>Provincial People’s Congress</td>
</tr>
<tr>
<td>- Passes and oversees environmental law supplementing (or stronger than) national provisions</td>
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<table>
<thead>
<tr>
<th>Provincial environmental protection bureaus</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Write and interpret implementing regulations</td>
</tr>
<tr>
<td>- Supervise lower levels of government; undertake some direct enforcement</td>
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<table>
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<tr>
<th>Municipal or county (rural) governments</th>
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<tbody>
<tr>
<td>Environmental protection bureaus</td>
</tr>
<tr>
<td>- Make regulations supplementing (or stronger than) national and provincial provisions</td>
</tr>
<tr>
<td>- Implement rules</td>
</tr>
<tr>
<td>- Monitor and enforce</td>
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</table>

this step; the firms are too important to the local economy

The pollution levy is not designed to approximate the environmental damage incurred or the cost of meeting national environmental standards. Furthermore, fee collection is estimated to be about half of the potential assessment levels; some firms escape monitoring or negotiate reduced payments.

**Seeking Capital**

Typically, to become environmentally compliant, firms need to make capital investments and to budget the necessary operating costs. Raising the capital poses a challenge for most firms. Under prevailing conditions (including the informal practice that permits firms to keep operating even if they fail to repay loans), the overall demand for capital far exceeds the supply. Banks therefore look to finance projects that generate net revenues, which environmental compliance investments rarely do. And, despite China’s move toward the market, there is still much state involvement in the allocation of capital.

Local governments, which are understandably interested in maintaining the financial health of the SOEs, continue to channel state-controlled funds to that sector. Most local governments, even if they are responsive to environmental concerns, first seek investments that promise to maintain employment or to increase profits (and municipal tax revenues). Faced with these conflicting pressures, governments often allow continued operation of environmentally noncompliant firms while directing capital to projects promising a higher financial or employment return.

**Environmental Funds**

The Chinese government adopted the pollution levy fee as a transitional economic instrument that would complement political and legal pressure to comply with environmental policy. To encourage investment in pollution abatement, government guidelines call for 80 percent of fee income to be earmarked for environmental funds, with the remainder financing related environmental monitoring and regulatory activities. In practice, about 70 percent of the fee income is allocated to the funds—primarily for investment in industrial pollution abatement. Investments in pollution control equipment for environmentally noncompliant firms totaled US$522 million, of which US$266 million came from environmental funds.

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enterprise that has made payment.) In the early years of the program, the firms received the moneys as grants. Later, in line with a general national policy aimed at ending grant financing of SOE capital needs, the rules were changed to encourage funding in the form of loans. By 1996, over one third of disbursements were in the form of loans, while the remainder continued as grants.

Firms desiring fund assistance must prepare a project for technical appraisal by the EPB. (Financial appraisal is typically limited to review of the availability of counterpart funding for any needs not covered by the fund.) Because fund grants or loans are capped by the firm’s levy fee payments, many projects await accumulation of sufficient sums in the fund before moving forward. To encourage timely project completion and adequate quality, government guidelines allow all or part of the capital amount of the loan to be forgiven for investments meeting those goals. Most localities have chosen full forgiveness. For such loans, the fund recovers only the (below-market) interest on the loan during project construction. As a result of this policy, funds do not build their capital base from year to year.

Although earmarking environmental tax revenue for environmental clean-up offers some benefits, environmental funds—and environmental subsidies in general—can easily send the wrong messages and contribute to existing distortions (see Discussion Note 1). This is a danger in China, as in other transition economies.

Efficacy and Shortcomings

Environmental funds give the EPBs a rare positive instrument for improving environmental performance—a reward for good behavior. Although earmarking leads enterprise managers to assume that their pollution levy fee payments will return to them, EPBs dictate when and under what conditions that will happen. An enterprise seen as responsive to EPB concerns will enjoy an earlier and fuller return of funds than will an uncooperative enterprise.

At the same time, the very existence of the funds gives firms an excuse to delay environmental investments. As noted earlier, firms needing capital look to their local governments for help in securing that financing. The government, for its part, has a history of meeting those needs by cobbling together financing from many different sources: enterprise-generated funds, government-retained profits, special budgetary allocations, various earmarked or general banking system resources, and, lately, international financing. Firms frequently argue that if the EPB, a government agency, demands an environmental investment by a particular firm, the bureau has the responsibility for organizing the financing and has the means to do so. Firms themselves take a very passive stance, knowing that closure or other harsh sanctions are unlikely. When, as in China, environmental funds become a part of the pervasive nonmarket allocation of capital and environmental agencies themselves become players in such allocation, the fund system serves to reinforce the structural problems that justified its creation.

Think Locally, Act Locally?

The system of fund management influences the types of environmental problems firms address first. Both the firms and the EPB managers of the funds give priority to effluents that have an impact on the county, city, or city district that the EPB regulates. As a result, where the main effect of effluent streams is felt outside the locality, neither the political will nor the financing for abatement is present. Provincial and national environmental authorities have long recognized the problem, and some have advocated more centralized allocation of funds to allow targeting on the wide range of pollutants with regional impact. Such efforts have been fiercely resisted by local governments, local environmental agencies, and firms. None of these wish to see control devolve to a higher-level agency, and to date they have been quite effective in blocking such moves.

International Financing

One way around this situation, in the view of the State Environmental Protection Agency (SEPA), is to seek international concessionary financing for a national environmental fund that would operate with a requirement of full repayment of capital. To date, bilateral and multilateral agencies have not shown much interest, in part because of the danger of reinforcing the structural problems cited above. Another concern is the risk that potential borrowers would not take the repayment requirement seriously because of the financial system’s long-standing failure to enforce loan contracts through repossession or bankruptcy.

Yet another issue emerges when full payment of an environmental fund loan is required (as is not normally the case in China). A number of Bank projects have supported industrial pollution control through various types of funds. The efforts range in size from US$5 million project components to the US$250 million Southern Jiangsu Environmental Protection Project. The projects finance either pre-identified activities or revolving funds. Because the World Bank must be repaid, these loans cannot be forgiven, and the in-
ternational source of the funds helps reduce the moral hazard that attends Chinese domestic loans. However, the repayment requirement also shapes the type of project that enterprises submit for funding. In particular, it has led to a tendency to support projects that generate sufficient revenue to repay the loan, such as:

- **End-of-pipe projects that can profitably process waste materials.** An example is processing wastewater from a reed-based pulp mill to produce lignosulfonate, a binder used in fire retardant applications in China (Liaoning Urban Environmental Project).
- **Projects that replace existing production processes with cleaner processes, coupled with substantial increases in total output or with creation of profitable new products.** Examples include increased capacity in an alcohol production line (Jiangsu Environmental Protection Project) and installation of larger, cleaner boilers that allow cogeneration of electricity, with the process steam used in the original production process (Hubei Urban Environmental Project).

A major environmental management risk is that end-of-pipe treatment can be switched off without affecting normal plant operations. EPB spot checks have shown high percentages of treatment equipment being either shut down or badly maintained. The exception comes in those rare opportunities when end-of-pipe processes can themselves generate a profit. Alternatively, the need for end-of-pipe treatment can be minimized through environmentally efficient production processes. Then, an operational failure in pollution control typically affects productivity or product quality, forcing management action to correct the problem.

Despite the benefits, an approach that selects environmental investments on the basis of their inherent profitability does not necessarily target the most damaging pollution in an enterprise or in a community. There is no reason to expect any correlation between the amount of environmental damage and the availability of profitable abatement processes. And the profitability of the processes themselves depends greatly on accurate market assessment. Several Bank-supported industrial investments have failed not because the pollution control equipment was badly engineered or operated but because the enterprise could not sell the final output at the predicted price. Bank-supported environmental funds have all included provisions for financial and market analysis of proposed projects, but EPBs have difficulty hiring staff or consultants with the requisite high-level skills, which are scarce in the country.

**A Final Word**

SEPA reports that in 1996 nearly 500,000 enterprises were paying pollution levy fees. Two decades into China's pollution control effort, failure to meet standards remains pervasive. Clearly, if compliance demands were enforced, under a deadline, firms would have to budget resources for the necessary investments or shut down. The environmental funds themselves come from, and are partially returned to, enterprises that are out of compliance with environmental regulations. Do the funds increase the pollution abatement effort or improve the quality of resource use? The answer would appear to be, no. The funds do not create additional resources, and there is no reason to believe that investments made with fund money abate more efficiently than those made directly with the firms' own resources.

This outcome is but a symptom of an underlying difficulty: environmental funds appear to be attractive tools, but in practice, wider structural reform is essential if the funds are to work as they should. And if reforms do occur, the funds might well become irrelevant.

**References**


