Civil Society and Clean Shared Growth in Asia: Towards a Stakeholder Model of Environmental Governance 2-3 August 1999

1. Introduction

The financial and economic crises which swept East Asia in the late 1990s signaled the need -- and provided an opening for -- a change of course in development strategy for Asian NICS. Central to this change is a new emphasis on the importance of "good governance," not least to attract future foreign investment. A host of voices, spanning the IMF, multinational corporations, domestic business, NGOs, and individual citizens are calling for more transparent, accountable, efficient and capable government.

The demand for better governance is taking place in the context of market-oriented policy reforms, which will increase both local business activity and foreign direct investment in Asia. The information demands of more open markets, along with the new opportunities provided by information technologies are fanning the flames of an emerging civil society. In the future, both business and non-governmental organizations will seek a larger role in societal governance.

These trends may bode well for the environment. In the old "grow now pay later" paradigm, environmental and social objectives sat at the margins of economic -- and advocates sat outside the corridors of policymaking. Any new paradigm based on "clean shared urban-industrial growth" can take root only if it garners a deep and broad political and social commitment within Asian societies. Such a commitment can best be nurtured by a broad range of stakeholders. Both business and civil society -- spanning from labor, environmental and community groups to professionals to policy-oriented think-tanks, advocates and critics -- could provide a crucial driver for paradigm and policy change.

The central question for governments in Asia will be how to harness the transformative potential of a burgeoning civil society in environmental governance. This paper first describes the roles civil society organizations could play in a performance-based approach to environmental governance. It
then sketches three, potentially overlapping, governance models: 1) community partnership; 2) corporate self-regulation; and 3) strategic stakeholder engagement. The final sections of the paper consider civil society and environmental governance in the context of globalization, both of economies and social norms, and concludes by outlining elements of a future research agenda.

2. Civil Society and Environmental Governance

Shifting to a development path which greatly reduces the energy, materials, pollution and waste intensity of urban-industrial growth will require significant investment in reshaping the structure of environmental governance. Policies will need to be developed which give the right market signals to innovators, entrepreneurs, managers, consumers, and families. Rules and regulations will need to be established and enforced. Information about environmental performance and ecological health will need to be created and strategically disseminated. Trade-offs between economic, environmental and social goals will need to be debated and fairly resolved. Investment for large-scale infrastructure projects for transport, energy, water sanitation, waste management will need to be mobilized and projects implemented.

These are roles for government. Capable, credible, fair and efficient government is a the bedrock of effective environmental governance. "For all the importance of NGOs and other representatives of civil society, for all the potential value of development partnerships with business and the private sector," argues Carol Bellamy, Executive Director of UNICEF, "we must never lose sight of the fact that it is governments that remain the primary actors in...development" (Bellamy, 1999).

Governments face constraints, however, in Asia as elsewhere. In Asia, governments face four obstacles to significantly "raising the game" on environmental performance: 1) the lack of political will; 2) fiscal constraints; 3) the lack of technical and regulatory capacity; and 4) the competitive pressures of globalization, especially competition for foreign direct investment.

Business and civil society could play central roles in overcoming these obstacles. In the context of market-oriented, democratic (or democratizing) societies, public opinion and popular demand play a large role in shaping public policy. An effectively mobilized and articulate citizenry is central to the task of building and sustaining strong, capable, publicly accountable governments with the political will to meet the sustainability challenge. Environmental quality and public health are issues in which most people feel themselves to be stakeholders. Concern for children in the strong family-centered societies of Asia is an especially potent mobilizing force. In China, for example, the story is that Premier Jiang Zemin himself ordered significant improvements in Beijing’s air quality after his grandchild was sent home from school gasping.

Popular demand for better environmental performance is likely to be increasingly framed in the language of human rights. Asian leaders have pressed for years the notion that the most important human rights are economic rights -- the right to food and housing and to development itself. The right to health and to clean air and water can be seen as an extension of economic rights. Moreover, there is an increasing clamor in the international community for the articulation and embrace of a charter of Environmental Rights (Earth Council, 1999).

In addition to building popular support and political will, the mobilization of business, community and other civil society organizations can also help to overcome fiscal constraints. Government revenues have dropped in the post-crisis era and in many cases, have been reallocated away from environmental projects. Business and non-governmental organizations (NGOs) can undertake a variety of tasks that would either otherwise fall to government or that governments simply cannot accomplish (see below). Professional associations can provide technical expertise and advice; NGOs can be pivotal in financing and implementing public goods, such as the provision of clean water in
city slums. Involving community groups in "collaborative governance" can be both cost effective and highly welfare-improving (see Douglass and Ling, 1999).

Business and NGOs are also potentially key players in designing, monitoring and enforcing the regulation of industry. Even if their capacity and will to regulate was greatly enhanced, governments cannot adequately monitor the millions of companies and other agents to ensure regulatory compliance. Moreover, community groups who live "at the mineface" are often much better informed than government that a problem exists. Effectively mobilizing community monitoring capacities and using them to spur better industry performance is central to effective environmental governance.

The fourth constraint stems from globalization. Competition for foreign investment and trade can act as a force of gravity dragging down environmental commitments. Even if governments do not lower standards in order to attract FDI, they often do not enforce standards and are wary of raising them. Only international collective action can overcome this "stuck in the mud" problem (Zarsky, 1997; see Section 4 below). International NGOs and coalitions between INGOs and local groups are important players in the push to create global industrial environmental -- and social -- standards.

What kinds of roles can and do civil society organizations play in governance? There are six broad functions:

1. **Intellectual and visionary**: Public policy think tanks, as well as academic and journalistic writers, seek to define development paradigms and objectives and to design and promote policy agendas. This independent source of creative intellectual input and visionary thinking provides an important channel for the development of strategic rather than reactive approaches to development challenges. Such independent public policy think tanks are still rare in some countries in East Asia, such as Singapore, in part because they are kept under control by wary governments (Ooi and Koh, 1999). In other countries, including Thailand and the Philippines, such think tanks are beginning to sprout;

2. **Advocacy**: Many groups are constituted around specific issues of social concerns such as gender equality, labor rights, indigenous people, environment, public health, consumer rights, resource-dependent communities, etc; These groups, which have mushroomed dramatically in Asia in the last decade, help to bring issues to the public spotlight and to change social norms;

3. **Problem solving**: A variety of professional associations, as well as community and advocacy groups, provide technical support and work with governments and businesses to develop solutions to specific environmental and social problems;

4. **Service provision**: Many NGOs, including religious and social service groups, provide direct services to the poor and other needy groups. Such services go beyond distribution of food and other basic needs to encompass capacity-building "empowerment" activities such as job training, developing community-based public goods etc. In this capacity, NGOs often implement policies and programs designed and promoted by government;
4. Critics and watchdogs: NGOs, journalists, and others can serve to monitor the activities of both government and industry. There is substantial evidence that community group pressure is an important determinant of firm-level environmental performance in Asia (see below);

4. Financial support: While it is still relatively young, philanthropy in Asia is growing (Yamamoto, 1995). Philanthropic foundations and individuals provide resources for independent think tanks and other NGO activities, often stemming from their own visionary leanings and interest in solving problems. Philanthropic foundations also sometimes provide funds for government and business activity.

Many NGOs play more than one role, while others have a strong identity as playing a particular function. In some countries, like the Philippines, groups are described either as "people's" or "non-governmental" organizations to describe their different relationships to local communities.

3. Stakeholders and Environmental Governance: Three Models

Along with social and economic welfare, environmental quality and public health are issues of concern to all members of a society. They are universal issues in which all are stakeholders. The poor especially often have the largest stake in environmental improvement, since they suffer the brunt of pollution and resource degradation. Mobilizing popular concern in order to chart an economically viable, socially just and ecologically sustainable development path -- for themselves, for their families, for the people for whom they are advocates, for their societies -- is a fundamental goal of many Asian NGOs. In their myriad forms, these NGOs constitute the voices of the community as a stakeholder in both government and business decisions.

Another key stakeholder sector is business. Small and medium firms, multinational corporations and domestic big business, industry associations, chambers of commerce, and others have especial concerns about environmental governance. As a whole, business tends to prefer stability and predictability in policymaking, including on the environment. Transnational companies find it useful for standards to be similar in different countries in which they operate and often adopt uniform internal company-wide standards.

Some business groups have embraced the principle of "social responsibility" which entail a "triple bottom line," viz, financial, environmental and social. Others fear that raising the bar for environmental performance will disadvantage them in the marketplace. In either case, business is major stakeholder in government decisions, as well as NGO activities.

The key issue for governments is what model of environmental governance will best carry forward the new "clean and equitable" growth paradigm. The traditional model of environmental governance puts government, usually national government, in the role of regulator and enforcer (as well as financier and often operator of public goods). Whether in the U.S. or China, the government has traditionally been understood to engage in dyadic relationships -- regulator and regulated, provider and consumer -- with both industry and the wider community. In this "command-and-control" model, government's role is to directly wield sticks and provide carrots and to be the "good parent" in providing public goods.
While it has achieved some success in raising environmental performance in the U.S. and elsewhere, the traditional model is being re-examined because it is expensive and rigid (Ruckelshaus 1998). On the regulatory front, the command-and-control model requires that substantial resources be devoted to enforcement. Moreover, there is no incentive for business to exceed standards. On the public goods front, government services are subject to problems of corruption, capture by sectoral interests, and political determination of prices.

In East Asia, the command-and-control model has not been very effective. While a spate of environmental legislation bloomed in the early 1990s, enforcement has languished, in part due to lack of funds (as well as political will). As providers of public goods, national governments have been constrained by ineffective tax systems, priorities for other kinds of spending (especially military), and corruption -- and, more recently, by financial crisis. Moreover, many East Asian countries lack strong traditions of law.

Driven by new fiscal constraints induced by the crisis, as well as market-oriented economic reforms, Asian governments are exploring new approaches to governance, including for the environment. As one analyst noted, "Asia's financial crisis has already begun to force potentially important changes in the institutional relationships between government, private sector, and citizenries..." (USIP, 1998, p.1). In the future, stakeholders -- from both business and community sectors -- will seek to play a greater role in governance. What governments should be, and in many cases are, asking is how to best harness stakeholders to the task of raising industrial and urban environmental performance. There are three, potentially overlapping, models.

### 3.1. Community Partnership

A **Community Partnership** model of governance rests on partnerships with NGOs and business in the undertaking of specific projects and implementation of specific policies and programs. NGOs, for example, might work collaboratively with government or take charge of a host of urban improvement/management projects, including water and waste management, slum redesign and improvement, urban reforestation and creation of parks, etc. (Douglas and Ooi, 1999). NGOs can also spearhead environmental education programs, develop school and workplace environmental trainings, etc.

In this model, the role of government vis-à-vis stakeholders is to mobilize and coordinate business and community efforts. Government may also help to finance projects or help to leverage private funds. The emphasis is on the "service provision" and "problem solving" roles of NGOs.

Public-private partnerships between governments and business are a specific form of the community service model. Governments act as organizers and coordinators, bringing together various private interests to undertake socially beneficial projects such as the development of clean energy sources or power plants (e.g. natural gas, clean coal, renewables). The government could help to leverage private sector financing through innovative methods such as technology risk guarantees for technologies which are not commercially proven.²

The Community Partnership model has three benefits. First, by using volunteer and low paid community labor, governments can greatly stretch scarce revenues. Second, by providing opportunities for people to engage with and improve their own communities, they can encourage a greater sense of civic engagement. There is substantial evidence that strong civic association is an important component of good governance, which in turn positively impacts economic growth. Third, the government's mobilization of business promotes projects which otherwise would have languished or which would have drained the public purse.
In this model, government retains in central role as regulator and enforcer and continues to structure its relationships with business and community groups bilaterally (and typically top-down). This is an advantage for those governments who are wary of the potential for social disruption or political challenge which might stem from a wider role for NGOs. In this sense, it could work as a transition model. Over the longer term, it is likely that groups and individuals who work in close partnership with government will seek not only to implement but also to design policy.

3.2. Corporate Self-Regulation

The second model, Corporate Self-Regulation, is based on two ideas. First, that companies will respond to consumer demands for better environmental performance regardless of government regulation; and second, that companies know better than governments how to improve their environmental performance. There is also a related notion that large, transnational corporations, especially from the OECD, have superior technology and management. Encouraging them to invest in Asia is thus a strategy for environmental improvement.

In this model, governments provide not an ever denser thicket of command-and-control style regulation but broad frameworks and guidelines, as well as open markets. It is a "hands off" approach to regulation wherein private ordering is given much more play. Not only is business given a greater role in governance but the relationship of the community to business is influential. In the absence of formal government regulation, communities take on the task of "informal regulation" (NIPR, 1999).

The most widely used form of corporate self-regulation in Asia is ISO, 14,001, which sets environmental management standards for firms. ISO 14,001 sets process but not performance standards. Companies commit themselves to auditing and monitoring their environmental impacts, as well as complying with domestic laws. Proof that they are doing both enables companies to be certified, which in turn, eases or even gains entry for company products to a number of OECD markets. The hope is that the audits will uncover opportunities to save money by reducing wastes and improving energy and materials efficiency. The gains in "eco-efficiency" will spur companies to make production improvements.

There is as yet little evidence as to the efficacy of the ISO approach. Environmentalists have typically been wary or downright cynical, suggesting that ISO means that the fox is guarding the hen house. A survey of US manufacturers, consultants and regulatory agencies found widespread concern on two fronts. First, that ISO 14,001 certification provides no guarantee of an actual and continuous improvement in reducing environmental impact; and second, that certification could become more of a paper chase than an effective tool to promote managerial innovation (Marcus and Willing, 1997). For Asian-based manufacturers, ISO 14,001 could become primarily a hurdle to be overcome in order to gain access to OECD markets.

A second method of corporate self-regulation is the "codes of conduct" approach. Largely in response to strong community and/or international criticism, many U.S. and some European transnational corporations (TNCs) have adopted codes of conduct which spells out their "social responsibility." Public criticism damages the reputational capital of TNCs, weakening their maneuverability and threatening market share. Some of the most heavily targeted companies include big oil multinationals like Shell, criticized for its role in Nigeria and Unocal, criticized for supporting martial law in Burma. High visibility consumer-oriented companies like Intel and Hewlett-Packard have also joined the codes of conduct bandwagon. Intel joined in response to intense community criticism of the environmental impacts of its production expansion plans in the U.S. Southwest (SWAPO, 1995).
Other groups which have generated codes of conduct include international organizations such as OECD, business support groups such as the World Business Council for Sustainable Development, and other social interest groups, such as consumer, environmental, and church organizations. According to one comprehensive survey, codes of conduct tend to focus more on social than environmental issues, in part because they are more easy to specify than environmental issues (SCOPE, 1999). Nonetheless, environmental issues are becoming more common.

Do voluntary codes of conduct work? There is little information either about whether codes target the most significant environmental (or social) issues or whether TNCs comply with their own codes. One study underway is examining codes of conduct and the need for policy innovation in the context of the U.S. oil and high tech industries (Corporate Accountability Project, 1999).

According to a European study, the likelihood of compliance depends on the specificity of the issues in the codes and the inclusion of compliance mechanisms. The study found that most codes state very general commitments and do not have compliance mechanisms, suggesting that compliance is low. "Firms might design codes for other purposes than for the sake of their own ethical behavior and corporate responsibility," the authors explain." It is highly conceivable that codes adopted by firms are in essence meant to influence other societal actors: regulators, customers, communities, suppliers and contractors, competitors or shareholders" (SCOPE, 1999, p. 5). Indeed, the authors find that codes of conduct "are drawn up to anticipate or prevent mandatory regulation" (ibid., p. 6).

Regardless of whether they comply with particular codes, the fact that TNCs feel themselves to be under public scrutiny may well help to improve their environmental and social performance. Some NGOs have taken their concerns directly to shareholders and have won resolutions which require changes in company practice. Many companies will mobilize a process of change immediately upon the filing of a resolution, even if it does not ultimately succeed. One longtime analyst describes the coming of a “triple bottom line,” wherein companies will reckon not only their financial but also their environmental and social performance (Elkington, 1998). It is doubtful, however, that companies will do so unless they are required to by governments. Without policies such as mandatory information disclosure, claims of social responsibility will not be monitor-able and thus credible. As a result, codes of conduct may have a short shelf life.

If the jury is out on whether codes of conduct significantly improve company performance, there is substantial evidence that direct community pressure can improve firm-level environmental performance. A number of studies conducted by the World Bank demonstrate that communities can strongly influence firms to clean up (NIPR, 1999). This process of "informal regulation" might take a variety of forms, including agreements between citizen groups and companies, discussions between community leaders and managers, or public protest. The World Bank studies also found strong correlations between income and education levels and firm level environmental performance (Dasgupta et al, 1997).

The final issue concerns the relationship between FDI and the environment. While environmentalists have warned of "pollution havens" and a "race to the bottom," market enthusiasts have trumpeted "pollution havens" and a "race to the top." The idea is that, on average, TNCs from OECD countries utilize and transfer clean technology and have better management systems than local firms in developing and transition economies. Increasing FDI will thus help environmental standards and performance to converge towards OECD levels.

A review of the statistical and case study evidence conducted by this author paints a muddy picture. While there are cases where FDI has helped to transfer cleaner technology (e.g. the Chinese energy sector) there are other cases where it has been the vehicle for widespread pollution and ecological destruction (e.g. mining in the Philippines; banana production in Costa Rica). The review concluded
that if there are "pollution halos" from FDI, they are pretty small. Moreover, it argued that "There is no average, performance is context-dependent and other things are more important than [foreign vs. domestic] ownership. If the goal is improvement in industry environmental performance, at both micro and macro levels, then what is needed is effective regulation utilizing both governments and communities to monitor, reward and sanction firms" (Zarsky, 1999, p. 2).

Some Asian governments think that they can escape some of the demands to develop effective environmental governance by encouraging "clean" manufacturing like high-tech. While it may not belch out black smoke, the production of silicon chips and semiconductors is highly toxic, as well as water and energy intensive. A host of ever-changing chemicals used in production, essential to maintaining a competitive edge in a highly dynamic industry, bedevils regulatory oversight even in the U.S (Mazurek, 1999). Silicon Valley, home of the world's high tech industry, has more toxic Superfund sites than anywhere in the nation. The health impacts on workers are not yet known, though an initial study found negative effects on pregnant workers and 122 workers, all with rare forms of cancer, are suing IBM. There is no free lunch.

3.3. **Strategic Stakeholder Engagement**

The third model of environmental governance, *Strategic Stakeholder Engagement*, incorporates elements of the first two but is based on a fundamentally different concept of the role of government. Rather than dyadic, top-down relationships, or a "hands off"/let the market do it approach, this model envisions government as one of three key agents in the governance process. Business and community are the other two.

In this "multiple agent" model, the government works in partnership with business and community on specific projects and programs, but it also seeks, provides avenues for, and listens to community input on policy design and broader development strategy. Moreover, the government plays two kinds of specific roles as a strategic "enabler." First, it seeks to enable communities to enhance their role in monitoring and improving the environmental performance of industry. The primary mechanism is the ability of communities to have access to reliable, user-friendly information about industry environmental (and social) performance. This means that companies need to collect the information in a standardized fashion -- standards set by the government -- and most important, they need to disclose it. The heart of a community-based monitoring system is (mandatory) information disclosure.

A disclosure-based approach to governance can work in tandem with corporate self-regulation, including ISO 14,001. Firms can retain a significant amount of managerial flexibility in how they move towards better performance. But they will have more incentive to do so. On the other hand, it can also strengthen government regulatory capacities: communities will be able to press firms towards compliance.

A disclosure-based approach can also strengthen market-based approaches to governance, including product labeling. With credible information, consumers will be more likely to trust a "green label" second, in this model the government is a "convener." It creates institutional interfaces which enable community and business groups to have ongoing conversations both with government and with each other to resolve differences and set performance goals. Collaborative governance, in short, is not just about partnerships on projects or service delivery but about an ongoing "round table" process.

The roles of government as organizer, coordinator, regulator, and arbiter are not obviated in this model. However, the government seeks to engage directly with each of the two other key agents
bilaterally, as well as to strategically engage the community sector to monitor and regulate industry (and government as well). The central policy emphasis is on transparency, accountability and the creation of institutions which allow broad debate and consensus about the fundamental goals of development.

One of the requirements in this model is for government to enhance the technical and intellectual capacities of NGOs and business (and indeed, for government itself) for collaborative governance. It will require an investment in education and training, including potential in mediation. It will also require a significant investment in information infrastructure -- gathering, storing, disseminating, etc.

The stakeholder engagement model is gaining credence in many quarters, including the OECD. "All stakeholders in society...must participate both in the design and the implementation of cleaner production processes," the OECD advised in a recent study (OECD, 1996, p. 13). Its list, however, which included "businesses, industry associations, chambers of commerce, academia and the research community," fell short. Labor, community and other NGO groups must be part and parcel of the process.

One of the advantages of the Stakeholder Engagement Strategy is that it allows for a much wider and deeper range of information and intellectual input to be part of the policymaking and governance process. Intellectual competition, in turn, can help to develop more flexible, responsive and dynamic governance mechanisms. The ability to learn and change has a great premium in the dynamic age of globalization.

4. Globalization, INGOS and Social Norms

The emergence of civil society in Asia and the new approaches to governance it bodes is taking place in the context of globalization. This has two major implications for the role of civil society in environmental governance.

First, it suggests that the evolution of environmental and social norms will be determined by both internal and external forces. Most analysts think of globalization primarily or even solely in economic terms: trade, investment, finance, corporations, technology, information -- these are the bedrocks of globalization. However, with economic integration, as well as access to information technology and travel, NGOs are themselves becoming international. Even if they never leave their communities, they have access to international news on the Internet, they communicate regularly with people throughout the world, and of course, they feel the effects of economic globalization in their day to day work and social lives.

The growing international consciousness of NGOs helps to spur the globalization of norms, especially human right and environmental norms. In addition, coalitions between international and local NGOs create commonalities of language and philosophy. Interestingly, in Asia, the process of globalization of norms is generating a common critique and rejection of "actually existing globalization" (Dorman, 1999), primarily based on what the UNDP calls the "grotesque gap" between winners and losers (UNDP, 1999). In the future, civil society in Asia is likely not only to call for better environmental performance and protection of human rights but also for new economic and social policies which promote equity. There will be a struggle between forces seeking to withdraw from and those seeking to reform the processes of globalization.

It is also likely that trans-Pacific environmental partnerships and NGO coalitions will blossom in the
next decade based not only on ethics but ecological self-interest. In March, 1999, a new report found that airborne chemicals from Asia -- carbon monoxide, radon, aerosols, hydrocarbons, and other chemicals -- were reaching the West Coast of the United States. "The air that people breathe in Seattle today may contain chemicals that spewed from a factory in China last week," reported the New York Times (NYT, 1999). Rising concern and activism in the U.S. is likely to give rise to both new governmental and civil society action.

The second implication of globalization for environmental governance civil in Asia is that local policymakers will feel a range of external pressures on policymaking. On the one hand, they will be pressed to not unilaterally raise industry standards for fear of loss of foreign investment. On the other hand, they will be pressed to accept standards set by the U.S. or Europe as conditions of market entry. Environmental issues will continue to be on the agenda for global and regional trade diplomacy -- and NGOs will press to have their voices heard.

The exclusion of NGOs and other environmental scientists and advocates reduced the efficacy of environmental diplomacy at APEC. During the early 1990s, prospects of APEC environmental cooperation gathered steam, with three Environment Ministerials, including one sponsored by the Philippines. The effort lost wind, however, in large part because it was driven by the West and it remained in the realm of bureaucrats (Zarsky, 1998). Without the political passions and visions which NGOs bring -- to inflame both their own governments and regional meetings -- as well as the knowledge that scientists bring, environmental diplomacy tends to be choked by economic and political interests. The Strategic Stakeholder Engagement Model will need to extend towards the inclusion of community voices in regional for a.

5. Conclusion

The prospects for a paradigm shift towards "clean shared growth" in Asia -- as indeed, in other parts of the world -- rest largely on the emergence of a successful and effective model of environmental governance. Effective governance requires not only strong technical and regulatory capacities and competencies within government but also the ability of government to engage strategically the two other key social agents, viz, business and the community.

The paper argues that a Strategic Stakeholder Engagement model will most effectively mobilize the growing concern and energies of an emerging civil society. The model is based on enabling the community to monitor and raise the environmental performance of industry. Central to community empowerment is a mandatory disclosure policy requiring companies to monitor and disclosure key indicators of their environmental (and social) performance.

In this model, the government also works in partnership with community and business to implement projects and programs. It also serves as a convener, creating ongoing institutional interfaces between government, NGOs and business and providing arenas in which community and business groups can directly interact.

Far more research is required into the feasibility and design of such a model in particular locales, including in Asia. Research is needed to explore institutional models, both at the level of both national and urban metropolitan governance. Indeed, the question of devolution and the role of NGOs within urban governance is a research topic in its own right (see Douglass and Ooi, 1999). Moreover, much more research is required to determine what kinds of industry information are both useful and feasible to obtain, and what kind of standardization is most practical. It is likely, for example, that tracking and reporting will be more useful on a sectoral rather than across-the-board basis.
Endnotes

1. Prepared for the Framing the Issues project, supported by the US-Asia Environmental Partnership. The final paper will be produced in collaboration with Simon Tay of the National University of Singapore. RETURN TO PAPER

2. For a proposal that the GEF create such a mechanism, see Nautilus Institute, 1999. RETURN TO PAPER

3. The U.S. Toxic Release Inventory is an early model of a disclosure-based approach. RETURN TO PAPER

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