
Growth and the Environment: Allies or Foes?

VINOD THOMAS AND TAMARA BELT

Newly industrializing economies have shown the way to high growth and rapid poverty reduction, but at the expense of severe environmental losses. This experience shows that the challenges of growth and the environment must be addressed simultaneously.

OVER THE PAST quarter of a century, economic growth per capita in the southeast part of East Asia—Indonesia, Malaysia, Singapore, and Thailand—averaged 5 percent a year. Socioeconomic well-being improved enormously. In Indonesia, Malaysia, and Thailand, the percentage of the population living below the poverty line is estimated to have declined by some 50–70 percent. Starting from even earlier periods, Hong Kong, Japan, Korea, Singapore, and Taiwan Province of China made dramatic economic gains. Over the past decade and a half, China experienced very high growth rates and a sharp reduction in poverty.

At the same time, environmental losses in East Asia have surpassed in many respects those of other regions. For example, 9 of the world's 15 cities with the highest levels of particulate air pollution are in this region. About 20 percent of land covered by vegetation suffers from soil degradation owing to waterlogging, erosion, and overgrazing at levels above world averages. Fifty to 75 percent of coastlines and marine

protected areas are classified as areas with highly threatened biodiversity, and the region has witnessed some of the highest deforestation rates in the world.

One lesson is that rapid growth can be a great ally of poverty reduction when supported by certain policy fundamentals. In East Asia these have included substantial and efficient investments in education, a relatively good income and asset distribution, a labor-intensive export orientation, and an emphasis on agricultural development. A second lesson, however, is that rapid growth has come at the expense of the environment. Rapid growth does not automatically improve the environment—environmental policies must also be put in place.

To be sure, many growth-inducing policies, such as clarifying property rights, investing in sanitation, improving education (especially for girls), and sound economic policies, help to improve resource use and contribute to a better environment. But in crucial areas, such as the control of pollution or sustainable forest use, environmental actions such as imposing taxes and standards, investing in technology, improving production methods, and recycling are necessary. Rapidly growing economies are learning this lesson the hard way and some are now taking corrective actions.

It is also interesting to focus on Central America. For a variety of economic and sociopolitical reasons, the Central American economies have grown slowly in recent decades, although their potential for sustainable development remains high. An exception is Costa Rica, a country with a strong record in promoting human development. But, more generally, the economies of Central America have been dominated by

traditional exports, which have faced declining terms of trade; by a highly unequal income distribution; and by inadequate educational investments—all exacerbated by political instability. Costa Rica remains a notable exception. Because growth rates have been low, poverty levels have remained stubbornly high—as in other regions with slow growth. Environmental quality has deteriorated—there are large deforested areas, soil degradation, overfishing, and polluted water in coastal zones.

The experiences of East Asia and Central America show that both slow- and fast-growing economies can suffer from severe environmental degradation. The question then is whether, with the right priorities and policies, the environment can be protected irrespective of the pace of growth.

Growth per se is not to be blamed for environmental degradation, but, in some respects, rapid growth appears to make the problem worse. When the sources of environmental problems—underpriced resources (forests, water, or air), weak institutions, and unclear property rights—are not addressed adequately, rapid growth seems to aggravate them. However, growth and high incomes can mitigate environmental degradation and improve resource use if accompanied by timely environmental actions.

Grow first and clean up later?

The human and ecological costs of environmental deterioration have been widely studied. In many instances, convincing evidence is available of the large social gains from environmental actions. And yet, environmental actions have been inadequate. The literature has emphasized a basic

Vinod Thomas,
a national of India, is the Director of the World Bank's Economic Development Institute.

Tamara Belt,
a national of the United States, is a consultant in the Environment and Natural Resources Division of the Economic Development Institute.

reason: the divergence between what is beneficial to society and what is beneficial for the private individual. When coupled with the lack of resources at low income levels, the pattern worldwide has been to grow first and clean up later.

Experience that calls this approach into question is accumulating. For one thing, it is a costly strategy socially and ecologically, and might threaten the sustainability of growth itself. Furthermore, new institutional arrangements, technologies, production methods, and targeted investments are beginning to offer opportunities to address growth and environmental protection in ways that are good for government finances as well as for private business.

The high costs of cleaning up later. Ecological damage is often irreversible. Cleaning up later is not an option when terrestrial and aquatic biodiversity has been lost because of habitat destruction. For example, pollution and destructive fishing techniques have damaged a large proportion of coral reefs in some areas. As up to one-fourth of all marine species and one-fifth of known marine fish species live in coral reef ecosystems, the loss of reef habitats disproportionately threatens a high percentage of the ocean's plant and animal life. Complete reversal of this damage is unlikely; therefore, efforts need to focus on preserving global biological resources before they are damaged.

Environmental pollution causes considerable health costs, which are compounded when pollution control is postponed. Some of the evidence comes from widely publicized episodes—for example, mercury poisoning from a manufacturing firm in Minamata, Japan resulting in severe neurological afflictions ("Minamata Disease") for people in the area since the mid-1950s, or exposure to toxic materials causing acute illness or death as in the Bhopal, India tragedy of 1984. Other evidence, even if less visible, is widely prevalent, such as the steady health losses to children and adults from air pollution.

The cost is usually far less than the benefits to society of investing in pollution control. In this regard, an ounce of prevention is worth a pound of cure. It is usually cheaper to control pollution at its source through policy reforms, especially by removing subsidies, than by investing in pollution control later.

Better use of resources. With proper concern for the environment, scarce resources can be put to high-return and sustainable uses. For example, in parts of Southeast Asia, uplands can be used for

sustainable planting of fruit trees or other perennials rather than for planting maize or cassava for a few years and then abandoning cultivation as yields decline. Similarly, in areas of Latin America, forests can be protected for their higher social value rather than converted to ranches that generate negative returns. And in many cases, putting a resource to multiple uses generates a large net benefit. For example, management of tropical forests for multiple uses that include nontimber goods, water and soil conservation, biological diversity, and other environmental services, as well as timber, could generate higher social returns as well as revenue.

Bringing in revenue. Applying pollution taxes, in addition to inducing lower emissions and better conservation of resources, can raise revenues that allow governments to scale back more distortionary forms of taxation. In Thailand, for example, a 10 percent tax on the coal and lignite used in manufacturing could yield a return of 1 to 2 percent of government revenue. The cost of such a tax is usually a fraction of the estimated health benefits it helps to produce.

It's good business. Finally, there is the economy-wide link between a country's competitiveness and the environment. In one direction, trade liberalization without environmental policies makes the environment more vulnerable. The higher prices for forest resources resulting from trade liberalization can lead to excessive deforestation if property rights are unclear and logging rights fail to incorporate the resource costs. In the other direction, trade liberalization can increase the profitability of industries that have environmental safeguards in place.

How can it be done?

Although the record is limited, innovative approaches in East Asia and Latin America offer the promise of growth with sustainable resource use. To take one example, a coalition of conservation and research organizations in El Salvador developed an ecolabeling initiative, ECO-OK, to give coffee farmers the incentives and information to produce coffee in an eco-friendly way. The program simultaneously raises awareness and motivates consumers to seek products from socially and environmentally responsible farms. ECO-OK products meet environmental standards that protect rainforests, workers, and wildlife.

User charges and tradable resource rights. Experience with market-based instruments and regulations,

notwithstanding the obstacles to their enforcement, illustrates the range of policies that are possible and widens the debate on options. In East Asia, considerable progress has been made in removing subsidies on gasoline, diesel, and kerosene. In Latin America, there are several examples of the application of market-based instruments (see table). Some have been ineffective in achieving their full objectives as a result of institutional weaknesses such as under-funding, unclear jurisdiction, monitoring requirements, and legal design requirements. Nevertheless, there are some promising examples:

• **Resource user charges.** Brazil, Colombia, and Venezuela charge a forestry tax when tree harvesting is not compensated by equivalent reforestation. So far the taxes have been set at too low a level, and enforcement has been weak; nonetheless, the principle is sound.

• **Joint Implementation Agreements.** Central America is relatively advanced in the creation of agreements for carbon sequestration through forest protection under Joint Implementation programs. Costa Rica has just initiated such an agreement with Norway. The development of such agreements will depend in part on an emerging international consensus, but initial activities are promising.

Participation and community involvement. Where institutions are weak or enforcement is expensive, public participation and community involvement can be effective in enforcing sustainable resource use and adapting local conditions to development needs. Traditional communities have known and used this approach for ages. It could be strengthened for today's market economy, as evidenced in Japan. The local government and resident groups in Japan negotiate with firms to arrive at a detailed written agreement on emissions levels. Between 1971 and 1991, the number of agreements increased from approximately 2,000 to 37,000. Once standards were agreed upon, they were effectively implemented. This consensual approach benefits local governments, residents, and companies alike.

Mainstreaming environmental concerns. A crucial approach involves mainstreaming environmental concerns in national plans and policies. This means that the environmental consequences of actions pursued by finance and planning, as well as environmental, ministries are made explicit within core economic policies. In some countries innovative approaches to confront environmental

Protecting the environment
Application of market-based instruments in Latin America

	Credit subsidies	Tax/tariff relief	Deposit-refund schemes	Waste fees and levies	Forestry taxation	Pollution charges	Earmarked renewable resource taxes	Earmarked conventional tax levy	Tradable permits	Eco-labeling	Liability insurance
Barbados	✓	✓	✓	✓							
Bolivia			✓	✓	✓				☆	✓	✓
Brazil	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Chile		✓	✓	✓					✓	✓	
Colombia	✓	✓	✓	✓	✓	✓	✓	✓			✓
Ecuador	✓	✓	✓	✓			✓			✓	
Jamaica		✓	✓	✓		☆					
Mexico	✓		✓	✓		✓		✓	☆	✓	
Peru			✓								
Trinidad and Tobago		✓	✓								✓
Venezuela		✓	✓	✓	✓						

Source: Richard M. Huber, Jack Ruitenbeek, and Ronaldo Seroa da Motta, 1996, "Market Based Instruments for Environmental Policymaking in Latin America and the Caribbean," World Bank, Washington.

✓ In place.

☆ Under introduction.

problems are beginning to be applied. Mainstreaming them would mean that these options are put on the table at the time key fiscal, trade, and industrial policies are discussed. Their benefits and costs would be revealed, providing the basis to pursue the best approaches.

Inserting the environment into policymaking can produce much stronger results for economic growth and environmental sustainability than responding to individual environmental concerns along the way. Practical ways to do this are beginning to emerge, and there would be great benefit from disseminating them. More generally, integrating environmental awareness in education programs, especially at the early stages, and influencing values and behavior would be a fundamental step in mainstreaming environmental concerns.

Uncertainties

Tough questions remain with respect to both policy choices and the implementation of environmental actions. Win-win policy choices (for example, reducing energy subsidies to benefit both economic performance and the environment) should be relatively easy for the policymaker to make. Pushing ahead with them should therefore be a high priority. But even in this case, there will be winners and losers from the changes, requiring the policymaker to manage the political economy of reforms.

Policy choices involving trade-offs to the policymaker are more difficult to make, even if society would benefit on balance (for example, financial investments for pollution control that produce net gains in

health and welfare). This difficulty is compounded if the benefits accrue later and especially if future benefits involve uncertainty, or if some of the benefits accrue to the rest of the world (for example, part of the gains from biodiversity from the protection of forests). Financial constraints make the decision hard to take even if it is socially beneficial.

Higher incomes eventually contribute to the demand for a more sustainable environment, especially in the so-called "brown" areas such as urban pollution. Higher incomes also provide the resources to help address the problem. However, this chain of events is particularly delayed in the case of the "green" dimensions of the environment, which faces severe deterioration in the early phases of rapid growth. And they also involve unacceptable thresholds of degradation, and irreversible losses, such as biodiversity. Protecting the "green" aspects during rapid growth remains a tough challenge.

Countries' institutional capacity to make, implement, and enforce difficult decisions is a key consideration. Even the best solutions require the support of well-functioning markets and property rights. Where trade-offs are involved, additional measures to align the social and private benefits (through taxes, quotas, investments, etc.) are needed. When the benefits go beyond individual countries, financial and institutional arrangements across borders might be called for.

These dilemmas need to be recognized. Clearly, priorities have to be set, resource limits acknowledged, and systemic pro-

cesses put in place to help make tough choices. There is a growing body of experience on how innovative approaches can help address trade-offs and institutional rigidities. Meanwhile, the evidence on the high costs of not taking these measures is mounting.

Conclusion

In the main, the experience of rapidly growing countries has been to grow first and clean up later. However, this neglect of the environment has resulted in irreversible losses and high cleanup costs. Current experiences and policies, even if limited, demonstrate that it is possible to protect the environment, promote growth, and enhance competitiveness at the same time. Most developing countries can benefit from both the positive and the negative lessons of rapid growth elsewhere. If they can take economic and environmental actions now, they could become the "green tigers" of the future. **[F&D]**

References

- Daniel Esty, 1997, "Environmental Protection During the Transition to a Market Economy," in Wing Woo, Steven Parker, and Jeffrey Sachs, eds., *Economies in Transition, Asia and Europe*, (Cambridge, Massachusetts: MIT Press).
- Jeffrey S. Hammer and Sudhir Shetty, 1995, "East Asia's Environment," *World Bank Discussion Paper No. 287* (Washington).
- Andrew Steer, 1996, "Ten Principles of the New Environmentalism," *Finance & Development* (December).
- World Resources Institute, UNEP, UNDP, and World Bank, 1996, *World Resources, 1996-97* (New York: Oxford University Press).