

ISSUES AND THEMES

This section provides an overview of major themes and emerging issues that span across key development sectors that have relevance to ADB's Environment Program. These include: (i) conserving biodiversity; (ii) sustaining Asia's cities; (iii) managing water resources; (iv) investing in forest management; (v) promoting cleaner production; (vi) preventing hazards and disasters; (vii) addressing regional and global environmental issues; (viii) promoting environmental governance; and (ix) facilitating transfer of funds from GEF.

Treatment of the subject matter has been intentionally broad and concise as the main purpose of this section is to emphasize the importance of the issues and their implications for the environment. This section also describes ADB's previous responses through lending and technical assistance operations, and its strategy to address these issues.

CONSERVING BIODIVERSITY

Maintaining Biological Resources

Biodiversity as defined under the Convention on Biological Diversity of 1992 is “the variability among living organisms from all sources, including, inter alia, terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part, this includes diversity within species, between species and of ecosystems.” Conservation of biodiversity is therefore a form of natural resource management that has, as its priority goal, maintenance of the long-term potential of biological resources to meet the needs and aspirations of future generations.

Biodiversity conservation in Asia is in critical need of: (i) surveys and taxonomy; (ii) ex situ conservation in the form of gene banks and zoos; (iii) data base and information systems; (iv) establishment and management of protected areas; and (v) public awareness and institutional development.

Modern society has brought expanding populations, global markets, and new pressures on land and resources. Protected areas are an essential element to ensure that biodiversity is conserved for present and future generations. (The term “protected areas” is now commonly held to include national parks, wildlife sanctuaries, conservation areas, biosphere reserves, sacred groves, and even some types of farmland allocated for conservation. They provide a wide range of economic, social, cultural, recreational, scientific, and spiritual values.)

The main threats to biodiversity arise from loss of habitat and disruption of ecosystems due to pressures of growing populations and unsustainable resource use. Factors include habitat destruction from clearing and burning of forests, exploitative and illegal logging, fuelwood collection, encroachment, wetlands conversion, degradation of grasslands, inappropriate development in coastal areas, and urbanization. Poaching, hunting, introduction of exotic species, and pollution also contribute substantially to biodiversity loss. Marine life is particularly vulnerable to outside intervention, such as the extensive oil explorations taking place in Asian waters. Adequate marine conservation will require the development and implementation of integrated coastal zone management plans with the active participation of local communities.



Habitat destruction from clearing and burning of forests is a major threat to biodiversity.

Developing countries of the region face many competing demands on their limited funds, expertise, and political realities. Meeting their national conservation objectives and obligations under international law (such as the CBD) will require governments to mobilize support from more sources. ADB has a role to play in this regard.

ADB Work in Preserving Biodiversity

In 1989, ADB observed that virtually all types of development projects can incorporate biodiversity management components to benefit both

ISSUE FOCUS

Region’s Wetlands a Rich Storehouse of Biodiversity

Wetlands are significant stores of biodiversity, and provide important sources of water purification and nursery areas. They are defined under the United Nations Convention on Wetlands of International Importance (also known as the Ramsar Convention) as “areas of marsh, fen, peatland, or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish, or salt, including areas of marine water, the depth of which at low tide does not exceed 6 meters.”

Typical wetlands in Asia include mangroves, freshwater swamp forests, peat swamp forests, coastal lagoons, floodplains, deltas and estuaries, swamps, and peat bogs. Mangroves are salt-tolerant, seed-bearing woody plants, of which there are more than 50 species in Asia. They occur along intertidal coastlines on soft saline sediments that are sometimes acidic.

Mangroves are economically and environmentally significant in terms of fish nurseries, natural coastal protection and accretion, renewable sources of forest products, water purification, etc., while freshwater swamp forests, richer in species than mangroves, provide effective flood protection along coastal river valleys.

Peat swamp forests are more abundant in Southeast Asia than anywhere else in the world and are an important renewable resource for timber, while lagoons and estuaries have been highly valued as sites for ports and harbors and the subsequent siting of industry and residential development on adjacent land. Thus they have been wrongly regarded as ideal dumping grounds for domestic and industrial wastes.

Wetlands can be influenced by projects in many ways and often suffer from the cumulative effects of a large number of individual activities over time. Some of the typical effects that might be encountered include:

- *direct effects*: conversion of wetlands for agricultural development, harbors and ports, aquaculture, and fish/shrimp farming; and
- *indirect effects*: roads, dams, and irrigation systems that affect hydrology, or activities that pollute wetlands, etc.

development and conservation. In translating this principle into policy, ADB's Medium-term Strategic Framework (1993-1996) placed increased emphasis on environmental issues, seeking to support new biodiversity conservation projects (including protected areas), and incorporating biodiversity conservation objectives into more traditional loan and technical assistance schemes, ranging from agriculture and forestry to hydropower and poverty reduction.

ADB programmed about \$37 million in technical assistance grants and \$315 million in investments from 1995 to 1999 for biodiversity conservation projects. These included biodiversity conservation in the Sundarbans (Bangladesh) (see box in "Investing in Forest Management"); integrated area development and conservation in Central Sulawesi, Indonesia (see box overleaf); fisheries resource management in the Philippines; and upper watershed management in Sri Lanka (see box in Sri Lanka section in Part III).

In addition, in 1999, there was a \$40 million loan to Sri Lanka to establish integrated management of coastal resources to improve sustainability. The Project will address the problem of coastal erosion and resource degradation including pollution, promote sustainable coastal fishery management, improve fish quality and reduce handling losses, and strengthen the capacity of concerned institutions.

Technical assistance grants connected with biodiversity have ranged from protection and management of critical wetlands in the Mekong basin and preparation of a bioregional development plan for one of the Lao PDR's largest and most important river basins, to strengthening coastal and marine resource management in the South China Sea and forestry sector improvements in Bangladesh, Cambodia, Indonesia, Sri Lanka, and Viet Nam.

ADB Strategy on Biodiversity Conservation

With ADB's increasing emphasis on poverty reduction, the integration of biodiversity conservation with sustainable and equitable development is becoming more important. Thus biodiversity conservation will feature prominently in ADB's new environment policy, which is under preparation.

While ADB has sought to address biodiversity through specific conservation projects, it is increasingly recognizing that this issue will need to be addressed also by mainstreaming biodiversity concerns into many types of development projects.

For instance, entire river basins are now being considered in water resource project planning. The needs of coastal communities will be addressed by protecting critical habitats, such as mangroves and coral reefs, and

PROJECT FOCUS

Lore Lindu National Park of Central Sulawesi, Indonesia

The livelihoods of more than 120,000 people will be improved through a \$32 million loan approved in 1998 to conserve biodiversity in Central Sulawesi. The project area comprises the 227,000 ha Lore Lindu National Park and about 117 poor rural villages in the four valleys and watershed adjoining the Park.

Community development will address the development needs of the villages most affected by the establishment of the park. A Park and Buffer Zone Management component was designed to assist with the park's 25-year Management Plan and generate community-based initiatives to promote conservation and ecotourism. A third component will be Rural Support and Infrastructure Services for all 117 villages to relieve infrastructure constraints in the project area through services provided by the provincial agencies responsible for health, agriculture, and rural infrastructure.

investments in coastal/marine resource management. Communities should be organized and empowered to manage their own reef systems, supported by local governments.

ADB will assist governments in ensuring that lending and grant operations do not negatively impact on biodiversity. The EA process is the main existing mechanism for avoiding or mitigating such impacts, and in identifying opportunities for mainstreaming biodiversity conservation into development projects and programs.



SUSTAINING ASIA'S CITIES

Asia's Urban Explosion

By the year 2025, Asia will become predominantly urbanized with an urban population of 2.5 billion, or 55 percent of the total population. By then, the number of megacities (those of more than 10 million inhabitants) in Asia will have increased to 13 from today's figure of nine. Financing the development and environmental management of these cities represents one of the most difficult challenges to meeting the goal of sustainable development in Asia in the new millennium.

The migration of Asia's population from rural to urban areas is a major cause of environmental problems in urban areas. It results in a growing housing backlog, puts pressure on already overstretched water supplies and sewage treatment, increases the number of vehicles on the roads, and hence adds to air pollution that is often already bad from heavy industrial development and fuel use.

Virtually all surface waters in Asia have become severely polluted upon entering urban stretches of waterways, and only in limited instances has their condition demonstrably improved over time. Excessive demand for groundwater in coastal cities such as Bangkok, Dhaka, Jakarta, Karachi, and Manila has led to saline intrusion and in some areas, ground subsidence.

Mismanagement of solid waste in Asian cities has become an important threat to their sustainability. Solid waste generation has outstripped the collection efficiency and disposal capacity in many areas. A per capita generation rate of 0.4 to 0.7 kilograms per day is typical in urban centers of low-income cities, such as Karachi and Calcutta, whereas cities located in higher income countries, such as Seoul, produce almost six times as much on a per capita basis. In some places such as Manila, the waste has been simply dumped in a heap, spawning a whole subclass of squatters who make their homes among the stench, living off whatever they can recycle. In June 2000, this had tragic consequences in the city's "Payatas" dump where more than 200 people were buried alive when an almost 20-meter high mountain of trash collapsed on the shanty town of squatters at its base.

The increase in the number of vehicles in major cities in Asia, particularly in Bangkok, Manila, and New Delhi, has resulted in congestion and traffic jams.

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Transportation contributes the largest share of air pollutants to the urban environment in Asia except in cities of the PRC. Two-stroke engines on motorcycles are common in some countries such as Cambodia and Viet Nam, and they can produce up to 10 times more hydrocarbons than do four-stroke cars or trucks. Diesel vehicles in Asia account for a greater portion of vehicle population and kilometers driven than in any other parts of the world, and contribute greatly to a noxious form of suspended particulate matter.

Air pollution in Asia is threatening not only people's health but also economic activity. According to WHO, 12 of the 15 cities with the highest levels of particulate matter, and six of the 15 cities with the highest levels of sulfur dioxide are located in Asia. This is primarily the result of fuel combustion and industrial processes and is complicated by resuspension of particulate matter or dust, and burning of trash.

Working for Urban Improvement

Past ADB lending for urban environmental improvement has been primarily confined to sewerage and sewage treatment, and urban air quality improvement projects. (Sewage treatment projects accounted for about 1 percent of the total number of projects and 0.7 percent of ADB lending.) Projects for urban air quality improvement, primarily in the PRC and the Philippines (see box on facing page), accounted for about 0.6 percent of the total number of projects and about 2 percent of total ADB lending. But these lending levels are small in comparison to ADB lending levels for water supply and basic sanitation projects. Improvement of solid waste management and drainage was included as part of urban water supply and sanitation projects in Cambodia, Indonesia, Malaysia, and Philippines.

Improving urban air quality is a primary aim of ADB's environmental improvement projects. The PRC was the recipient of eight out of 10 loan projects focusing on environmental improvement and energy efficiency, amounting to about 79 percent of the total amount. India and the Philippines were the recipients of one loan project each.

In the PRC, two projects with primary environmental objectives were approved in 1999. In Shanxi Province, ADB provided a loan to help solve air pollution problems in Taiyuan, Datong, and Yangquan cities through sustainable environmental management, energy efficiency, and continued progress toward market-based energy pricing. A project approved in 1999 for Viet Nam will improve infrastructure to sustain economic growth, reduce poverty, and enhance overall environmental conditions within Ho Chi Minh City. Environmental infrastructure and service improvements to be tackled include urban drainage and sewerage rehabilitation, solid waste

management, industrial waste minimization and pollution control, air quality monitoring, and capacity building and institutional strengthening.

ADB in 1999 assisted in preparing four projects with secondary environmental objectives and poverty reduction focus. In India, ADB lent \$175 million for urban development and coastal environmental management in Karnataka. In the Maldives, it lent \$8 million for a regional development investment project. In Pakistan, \$7.8 million was targeted at developing the institutional capacity of farmers for sustainable management of distributary canals. In the Marshall Islands, a \$9.2 million loan was approved for health and infrastructure improvements for water supply and sewerage systems.

ADB's involvement in advisory technical assistance to strengthen institutional capacity for urban environmental management is well integrated with its lending projects. To date, the PRC is the major recipient of ADB technical

PROJECT FOCUS

Cleaning Up Manila's Air

The Metro Manila Air Quality Improvement Sector Development Program, with its associated air pollution control investment loan and technical assistance, is the first ADB-funded clean-air project on such an ambitious scale. About 35 percent of the total lending volume for environmental projects, or \$300 million out of \$850 million, is being devoted to this Project.

The emphasis is on enforcement of standards and tougher penalties for offenders under new legislation and it is bringing in the private sector to monitor and enforce the program efficiently. A computerized system will link enforcement centers, the police, and other implementing agencies.

The program has four major components. The first is a \$200 million loan to support policy reforms that will raise pollution standards for vehicles and industries and strengthen the monitoring and enforcement of institutions that manage air quality.

Another component is a \$71 million loan to tackle vehicular emissions of Manila's 3.2 million registered vehicles, a leading cause of harmful pollution. The loan will improve traffic planning, improve roads to ease chronic congestion, and ensure better monitoring and enforcement. The key component is a motor vehicle inspection system to be carried out by the private sector under the Land Transportation Office. Stricter emission standards will be enforced starting in 2000. To implement the regulations, antismoke belching operations will be carried out.

A drive to use cleaner fuel is another important component of the program. A technical assistance grant of \$1.5 million was provided to assess the advantages and disadvantages of using alternative fuels, focusing on public transport vehicles.

A final part of the program is a \$25 million loan to establish an air pollution control facility—a fund that industries, commercial establishments, and public transport companies can utilize to purchase and install equipment to reduce emissions.

assistance for institutional strengthening for urban environmental management.

ADB Strategy on Urban Environment

ADB support for urban environmental improvement will focus on three priorities: (i) urban waste management (air, water, and solid); (ii) providing an enabling environment to improve slum conditions; and (iii) municipal management for improved environmental conditions.

Improving urban environments in Asia's major cities will require increased focus on the institutional problems of low willingness-to-pay, weak capacity, lack of technological and engineering capability, and absence of supporting policy and legal frameworks. However, the emphasis given to capacity building requires a stronger focus on local governance, and social and cultural characteristics, hence a strong country-specific emphasis in project preparation. At the same time, autonomy should be increased in the cities' environmental management agencies, involving decentralization, devolution, and community participation. Public awareness, including hygiene education, waste reduction, and water conservation issues, need to be strongly developed.

Future Actions

There are several actions that can guide ADB's technical assistance and lending operations on urban environmental improvement, including the following:

- initiating policy dialogues with DMCs as part of technical assistance and lending operations;
- according priority to urban water supply development and industrial waste management, including hazardous and toxic wastes;
- stimulating demand for investment through institutional strengthening and pilot projects that demonstrate the positive impacts of improved urban environment;
- encouraging private sector participation, by assisting DMCs in creating an environment conducive to investment;
- enhancing the environmental benefits of other related urban sectors, such as urban transport, drainage, and flood protection;
- adopting a sector lending approach that gives priority to urban projects designed to address major environmental issues, such as solid waste management, in multiple locations;
- promoting regional cooperation and sharing of experience among ADB's DMCs; and
- increasing resource mobilization to enhance financial and economic attractiveness of urban environmental improvement projects.



MANAGING WATER RESOURCES

Water and Poverty

For almost one billion of the world's poorest people living in the Asian and Pacific region, accessing adequate clean water is one of the most pressing problems, while finding water for crops is a life-threatening issue for many in rural areas.

Asia's ecological balance is critically dependent on water. Flooding, salinization, aquifer depletion, and droughts are the typical consequences of overuse of water. Widespread water pollution has resulted in increased water scarcity, poorer public health, lower agricultural yields, and a declining quality of aquatic life in lakes, rivers, and coastal waters. Because the poor are often landless and farm marginally productive areas, forests become depleted, biodiversity is lost, catchment areas deteriorate, flooding is frequent, and groundwater recharge is diminished. The poor bear the brunt of these changes in the ecological balance.

With a burgeoning population, the pressures on Asia's water resources are becoming acute. Large cities in Asia are not equipped to offer growing populations the water supply and sanitation they need: 93 million people in urban areas do not have access to safe drinking water, while 298 million are without adequate sanitation. In rural areas, the figures are 737 million people and 1.74 billion, respectively.

Domestic and industrial water demands in Asia are expected to grow at rates ranging between 70 and 345 percent from 1995 to 2025. Pressure on water resources is compounded by Asia's limited freshwater endowments, which are among the world's lowest. South Asia, for instance, home to more than one sixth of the world's population, has the lowest water resources per capita. Not surprisingly, water and sanitation related diseases are widespread and increasing.

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waste due to salinization, to which irrigation is a contributory factor. Watersheds and ecosystems have been severely degraded with particular damage in Pakistan, Philippines, and Thailand. The PRC is estimated to have suffered flood damage to the tune of \$35 billion between 1990 and 1996. Excessive extraction of groundwater in Bangladesh has led to widespread arsenic poisoning. In remote hill areas of Nepal, many poor communities must fetch water from sources up to 15 km away, with women and children carrying it on their backs over such distances.

ADB Work in the Water Sector

ADB has worked actively in the water sector, as of 1999, with investments worth more than \$15.7 billion, or about 19 percent of its total lending, in the sector. Principal areas of attention have been projects in hydropower (\$2.8 billion), irrigation and drainage (\$5.2 billion), water supply and sanitation (\$4.1 billion), watershed management (\$628 million), and flood control (\$471 million). Technical assistance worth \$297 million has also been provided to prepare projects, research sector issues, formulate sector solutions, and to build institutional capacities.

ADB's Water Sector Strategy

The future will be concerned with managing a dwindling resource and mitigating the adverse impacts of a profligate past. The main lesson learned

PROJECT FOCUS

Bringing More Water to India's Desert Cities

The severely-strained infrastructure of major cities in India's Rajasthan province will be repaired through the \$250 million loan approved by ADB in 1998. The Rajasthan Urban Infrastructure Development Project will improve water supply and sanitation facilities, slum and environmental conditions, as well as traffic management in the cities of Ajmer, Bikaner, Jaipur, Jodhpur, Kota, and Udaipur.

The Project will support essential policy and institutional reforms without which such investments will be unsustainable. Training, for example, will be provided to strengthen city-level capabilities in fields such as municipal legislation, urban development, financial management, and transport and environment planning. The aim is to encourage the transfer of responsibility from provincial to municipal level.

The Project will develop and expand water supply services. It will improve wastewater and solid waste management, drainage facilities, and slum conditions, and upgrade streets and bridges, improving traffic management. Up to seven million people will benefit from these enhanced services. To sustain such progress, the Project will also strengthen the ability of agencies concerned and promote awareness and participation among community members.

from past water investments is that ADB, like its DMCs, must move from an era of water sector investments aimed primarily at creating assets to one of holistic, integrated developments promoting efficient water use. It is no longer appropriate to invest in subsectors piecemeal.

ADB's water policy is based on Asia's urgent need for integrated, cross-sectoral approaches to water management and development. The needs of the poor are central in the formulation of sound and equitable water strategies. The poor must be empowered to influence the decisions that affect their access to water for both consumptive and productive uses.

ADB's water policy aims to:

- promote a national focus on water sector reform by supporting DMCs in the adoption of effective national water policies, laws, sectoral coordination arrangements, improved institutional capacities, better information management, and a national action agenda for the water sector;
- improve the management of water resources based on comprehensive water resource assessments, and by concentrating water investments in river basins;
- apply principles of social inclusive development to improve equitability of water service delivery, irrigation, and other subsectors, support the adoption of pricing policies to promote greater efficiency, and encourage decentralization and autonomy to improve accountability of services;
- promote the conservation of water and its sustainable use through packages that combine water use and resource management charges aimed at cost recovery in each project with improved regulation and increased public awareness;
- increase the mutually beneficial use of shared water resources within and between countries;
- facilitate the exchange of water sector information and experience, promote stakeholder consultation and participation at all levels, increase access to basic water services by poor consumers, and enhance water investments in DMCs through public-private-community-NGO partnerships; and
- improve governance through investment in capacity building, monitoring, evaluation, research, and learning at all levels, particularly in public sector institutions.

Three factors will govern policy implementation. Integrated packages of policy support, capacity building, sector reform, and investment support set in a long-term framework will be provided by ADB. Investments in the sector will be catalyzed by promoting policy, legal, and institutional reforms to enhance levels of public-private partnerships and private investments. ADB will also foster regional cooperation, supporting programs of comparative analysis, research, and exchange of experience that effectively underpin national policies and plans.



INVESTING IN FOREST MANAGEMENT

The region's total forest area was reduced by 45.1 million ha, equivalent to about 4.5 million ha per year between 1980 and 1990. Forest degradation such as that pictured above is made possible by unsustainable logging practices, which continue throughout the region.

Stores of Biological Wealth

Much of the biological wealth of the world (20-25 percent of the earth's plant species along with the greatest variety of animals) is found in the region's tropical moist forests, especially in Southeast Asia. Forests and woodlands occupy 618 million ha or 21 percent of Asia's total area of 3,000 million ha.

Asia's forest cover is shrinking by 1 percent a year. This is particularly serious as Asia has relatively less forest cover than the rest of the world. With 13 percent of the world's forestland and half its population, Asia has just one third as much forest per person as the world average.

Major threats to tropical forests in the region include: agricultural encroachment; excessive fuelwood collection; logging; and construction of infrastructure, especially roads and dams (which have been particularly important in Asia). The pattern of utilization of the region's forest resources has been influenced by a growing population with limited income opportunities and the related widespread poverty and migration of landless people in the forest areas. This has intensified shifting cultivation and inappropriate exploitation of forests, resulting in depletion and degradation of forest resources.

The unsustainable level of forest extraction and the wasteful methods utilized have led to serious economic, social, and environmental ill effects. These include widespread soil erosion, increased sedimentation of reservoirs and irrigation systems, the destruction of agricultural lands and coastal areas, and negative impacts on the sequestration of carbon for maintaining the climate. Social impacts have been similarly severe and extensive. Forest-dwelling and/or dependent communities have found their livelihoods and local cultures disrupted, often forcing whole communities to relocate.

ADB Work in Forestry

ADB's forest operations began in 1977, with loans totaling more than \$250 million over the first decade, complemented by some \$15 million in technical assistance. Since 1988, ADB support for forests has grown to total more than \$500 million. In the last five years, forest projects have been carried out in Bangladesh (see box below), Pakistan, and Viet Nam. Technical assistance grants have focused on sustainable forest management in Cambodia, forest sector work in Pakistan and Bangladesh, and forest and watershed management in Viet Nam. A 1999 technical assistance grant for \$595,000 aims to identify appropriate policies on forestry and sector strategies to address constraints and capture emerging opportunities.

ADB Strategy on Forests

Forest strategy will concentrate on efforts to restore tree cover, ensure sustainable exploitation, and protect biodiversity. It will aim to prevent commercial logging in old-growth forests, and encourage their preservation as protected areas. The ADB policy on forestry is founded on the protective functions of forests with respect to soil, water, and biodiversity, sustainable harvesting, and the involvement of all true stakeholders.

ADB has adopted a varied strategy in forest-rich DMCs as against those that are now net importers of wood products. Seven DMCs—Fiji Islands, Indonesia, Lao PDR, Malaysia, Myanmar, Papua New Guinea, and Solomon Islands—still have significant old-growth forests. ADB's strategy in these forest-rich DMCs will be to maximize the area kept as functioning forests and press for adequate areas to be set aside for harvesting, habitat and catchment protection, plantations, and for forest-dwelling communities. In forest-poor DMCs, ADB's emphasis will be particularly to create more domestic wood supplies through plantations and improved forest management practices.

PROJECT FOCUS

Conserving Bangladesh's Sundarbans Reserve Forest

ADB in 1998 approved a \$37 million loan for the development of a sustainable management and biodiversity conservation system for Bangladesh's Sundarbans Reserve Forest, a part of the world's largest remaining contiguous mangrove area. The project will introduce modern management systems, which will involve all stakeholders in the 17 subdistricts around the forest. The participatory system will conserve and manage the forest and its biodiversity as a multidimensional resource. Reversing the trends of deforestation and biodiversity loss requires financial resources, as well as a significant improvement in the institutional capacity of the Ministry of Environment's Forest Department. It also requires a new management approach based on research, community participation, greater environmental awareness, and scientific planning.



PROMOTING CLEANER PRODUCTION

Many of the region's governments are recognizing the potential resource savings from programs to promote cleaner industrial production.

Nipping Pollution in the Bud

The region's rapid and often uncontrolled urban and industrial boom over the last couple of decades has generated not only economic growth but also severe environmental problems. In light of this, many of the region's governments are recognizing the potential resource savings from programs to promote cleaner industrial production as an integral part of their national economic, social, and environment programs.

For instance, the governments of Bangladesh, PRC, India, Indonesia, Malaysia, Philippines, Sri Lanka, and Thailand in partnership with industry have started cleaner production programs, while many Pacific islands have incorporated cleaner production as part of their national environmental management strategies. Countries such as Nepal and Viet Nam, which are at an earlier stage in the development of national environment policies, are also exploring the possible integration of cleaner production in their industrial development programs.

ADB-funded cleaner production projects have featured various measures and covered different industry subsectors. Several have focused on energy conservation by changing the fuel source, others on modification of existing processes, recovery of reusable materials, equipment retrofitting or rehabilitation, and use of clean technology. Industries covered by these projects include thermal power plants, leather tanning, fertilizer, cement and metallurgical industries, pulp and paper mills, and energy supply projects.

Some projects have included credit line components to provide access to funds for small- and medium-scale industries. Other projects have aimed at strengthening research and development capacity in the field of automated manufacturing and advanced materials, developing a core of well-trained staff, and establishing an information system.

To develop cleaner production programs, governments have received financial and technical assistance from various organizations. They include

multilateral development banks, in particular ADB and the World Bank; United Nations organizations such as UNDP, UNEP, and United Nations Industrial Development Organization; bilateral and regional assistance organizations; and NGOs such as Greenpeace and the World Environment Center.

ADB Work in Cleaner Production

ADB funding of cleaner production projects started in the late 1980s and since then, there has been a significant increase in the amount of technical assistance grants and volume of lending for related projects. A total lending volume of about \$3.2 billion (46 percent of total lending volume for projects with environmental objectives as of end of 1999) was loaned to six DMCs: PRC, India, Indonesia, Malaysia, Philippines, and Thailand. Of the total, nearly 50 percent was loaned to the PRC. India followed, taking about 22 percent, while Indonesia and the Philippines shared about 9 percent each. Thailand's share was about 7 percent while Malaysia's share was the smallest at 3 percent.

A cluster technical assistance project for the PRC has helped to design a comprehensive program for clean technology development (see box overleaf). Another technical assistance project, which is regional in scope, aims to promote cleaner production policies and practices in five selected DMCs: India, Indonesia, Philippines, Thailand, and Viet Nam.

The main aims of the technical assistance are to: (i) assist the countries in developing a policy and institutional framework for integrating cleaner production principles in national environmental and industrial development strategies; and to (ii) recommend financing mechanisms for implementation of cleaner production strategies. A secondary objective is to encourage coordination and cooperation among DMC governments, private sector organizations, academic institutions, NGOs, ADB, and other aid agencies in developing national cleaner production action plans, and addressing technical requirements to promote the application of cleaner production approaches.

Outputs of the technical assistance project include the development of country-specific national cleaner production action plans, case studies for newly emerging areas including financing, tourism, educational institutions, and local units of government; a regional cleaner production action plan; and financing mechanisms to promote cleaner production practices.

The Challenges Ahead

The approach of many donors and of local organizations and governments with which they cooperate has been based typically in the belief that if information, skills and financing are made available, and if a few industry leaders are shown directly how cleaner production can help them, everyone

PROJECT FOCUS

Promoting Clean Technology in the PRC

The overall goal of the technical assistance cluster for \$3.5 million granted in 1998 is to help improve national-level policies, institutional capacity, and financing mechanisms for the promotion and application of clean technologies to achieve sustainable environmental development.

The technical assistance cluster will help design a comprehensive program for clean technology development. The cluster will consist of six interrelated subprojects:

- policies for promotion of clean technology;
- national network for clean technology transfer;
- legislative support for clean technology;
- clean technology development;
- environmental management for clean technologies; and
- financing mechanism for clean technologies in town and village enterprises.

will soon seize the available resources and emulate the leaders. In a fully rational world and with perfect access to information, that might work. Those conditions, however, do not define even the industrialized countries, much less the developing world of Asia.

Governments focusing on economic growth that will allow them to catch up with the industrialized leaders have not seen cleaner production as a policy issue. They see protecting the environment and public health, industrial growth, and promoting trade and investment all as policy issues, but they regard cleaner production as a technical solution, a fix. Most have failed to see the matrix of accepted policy issues, with cleaner production as a common theme linking those issues.

Much more could have been accomplished by now if international donors had pressed harder on the more difficult and politically sensitive issues of national policy and planning. They have instead funded programs that carry out, not the wrong actions, but an inadequate and incomplete set of actions. Even where policy and MBIs have been part of the program, they have been seen as secondary to information, training, and demonstration. But without the underlying policies and planning that could focus and orchestrate the available resources, there has been little hope for the rapid adoption of cleaner production.

A New Strategy

A new strategy for the rapid adoption of cleaner production in Asia seeks to change the perspective and behavior of enterprise decision makers, and must be rooted in several critical assumptions.

- Adoption of cleaner production should be approached as a behavioral challenge, seeking to create that combination of conditions (pressures, incentives, facilitation, and awareness) and balance of forces that will cause the enterprise decision maker to see that adopting cleaner production is in the best interests of the enterprise. The prevailing assumption that demonstrated success and access to information and technical support will induce widespread adoption has been proven false.
- Adoption of cleaner production must be voluntary by enterprise decision makers (owner, chief executive officer, financial officer, etc.). Enforcement of environmental regulations is an important part of the balance of forces acting on a decision maker, but in most developing nations enforcement is unable to reach all enterprises; and even if it could, the present structure of most regulations encourages end-of-pipe solutions rather than cleaner production.
- Promotion of cleaner production must be approached strategically, setting national goals, formulating public policies to support those goals, thinking strategically to identify the wide range of concerned parties and their interests and the resources that they can collectively bring to bear to achieve the common goal, and collaborating tactically to identify those programmatic actions that will achieve the conditions necessary for widespread behavioral change.
- Promotion of cleaner production must be achieved collaboratively, among national stakeholders and international donors. It is not the domain of a single government agency, or of only the manufacturing sector within the private sector. Only through the combined and efficiently targeted use of scarce resources can national goals be achieved.

Strategic elements may differ from one country to another, given differing business cultures and financial conditions, and the tactical solutions will almost certainly differ by country. However, the underlying premises of the approach should not differ significantly, and the strategy for each country should therefore include the following elements:

- bringing together in a neutral forum all public and private sector stakeholders to jointly identify broad national goals, policy objectives, and a national plan for cleaner production;
- formulating public policies that will promote achievement of those goals, integrating policies across sectors (e.g., integrate environmental policy versus industrial development policy to avoid conflicting directions), starting the long process of policy adoption;
- identifying those conditions of pressure, reward, facilitation, and awareness that will combine in the specific national business climate, regulatory regime, and financial conditions to change the perspective and behavior of decision-makers in a wide range of business enterprises, especially SMEs;

- developing a national action plan for the promotion of cleaner production that is derived logically from the strategic goals and the conditions for change, and which integrates the concerns and the resources of all interested parties, especially the affected business sectors;
- incorporating into the action plan and devising actions to accelerate the adoption of cleaner production principles in sectors beyond industry (e.g., tourism, local government, transportation, financial institutions, agriculture, medical, and energy, etc.);
- establishing an independent body, representing the public and private sectors, to monitor progress in the adoption of public policy and the implementation of the action plan, and to continually improve the plan and seek new resources for its implementation. The plan must not be allowed to become a static document or so officially endorsed that it is not easily modified to meet changing conditions;
- using the leverage of the general educational system and the media to create widespread understanding of the impact of industrial pollution on human health and the environment and of sound business options to prevent that impact through cleaner production;
- giving special attention to the use of MBIs and to mechanisms of public reward for good performance and censure for poor performance;
- inviting participation of international donors and lenders in the planning process and encourage communication and collaboration among them to most efficiently accomplish the elements of the plan;
- stressing development of national resources to avoid dependence on external aid. For example, promoting lending by local financial institutions to SMEs for investments for cleaner production;
- giving special attention to the forces affecting the application of cleaner production in new investments (e.g., investment incentives) as they will with time shape the future of cleaner production in an industrializing nation more than any other factor;
- focusing technical assistance and facilitation to the needs of SMEs, such as simplified approaches to environmental management and cleaner production, and assistance in preparation of proposals to access local financing; and
- promoting networking for exchange of operational and technical information, especially among relevant Asian experiences.

Most of the elements of a strategy to accelerate cleaner production, such as those above, constitute a national process. There are certain elements, however, that can also apply across national boundaries. They include:

- networking among all stakeholders for exchange of operational and technical information, especially among relevant Asian experiences;
- networking among external donors and lenders, and other concerned international organizations to promote communication of objectives, actions, and concerns, and to achieve coordination to avoid

duplication of programs and collaboration to gain synergy in their actions;

- extending local lending to SMEs through a multinational loan guarantee facility;
- development of international investment funds focused on encouraging local investment in and manufacture of cleaner technologies; and
- development of broad guidelines and training programs, such as for a national integrated policy framework or a national action plan, or for the application of concepts such as industrial ecology.

An Action Plan

An Asia-wide action plan to accelerate the rapid adoption of cleaner production will include specific actions to achieve each of the strategic elements listed above. Those specific actions may be different in each country and will certainly be carried out by different organizations in each. A regional strategy, therefore, consists primarily of a combination of actions to support the accomplishment of the national level strategic elements and is drawn primarily from the group of strategic elements above that can apply across national boundaries.



PREVENTING HAZARDS AND DISASTERS

ADB provided relief to the Philippines in the wake of the devastation wreaked in 1991 by the eruption of Mt. Pinatubo (pictured). The country has been labeled the disaster capital of the world in a region that accounts for 60 percent of disasters worldwide.

A Disaster-prone Region

The Asian and Pacific region is one of the world's most disaster-prone, accounting for 60 percent of the number worldwide, causing direct economic losses of \$5 billion-\$10 billion per year and inflicting enormous sufferings on the people affected, more than 90 percent of whom are poor.

The region is continually changing under the influence of human activities. Forces of nature are no longer the sole cause of natural disasters. Events, such as floods, droughts, mudslides, forest fires, and chemical and nuclear accidents, are often aggravated by the degradation of the environment by human activities. For example, deforestation results in an increased concentration of surface runoff and hence flooding, and destabilized slopes can result in devastating landslides. In fact, the term "natural disaster" has come to mean those events that are initiated by a natural event, e.g., a typhoon or an earthquake, and which subsequently lead to extensive loss of life, whether by force of nature alone, or otherwise.

The extensive size of the region, encompassing all types of climate and terrain, has meant that virtually all kinds of natural disasters (floods, typhoons, volcanic eruptions, earthquakes, etc.) have struck frequently in the region. Moreover, many of these disasters have occurred in the least developed countries where population densities are highest, resulting in heavy loss of life. In the PRC in 1976, for example, a single earthquake took nearly 300,000 lives.

Some disasters are not controllable. Yet floods, droughts, mudslides, forest fires, chemical and nuclear accidents, etc., can be prevented by control of atmospheric pollution, reforestation, prevention of excessive logging, adherence to building codes, land use planning and zoning, industrial pollution control, occupational health and safety, and property insurance.

Planning and preparedness is essential for management of natural disasters. Many natural hazards can be forecast with reasonable accuracy using state-

of-the-art techniques, such as those that exist in weather forecasting and seismic monitoring. However, in most developing countries of the region, even when adequate forecasting is available, conditions are such that the warning of an event is of little practical use. Overcrowding and lack of basic infrastructure and communications mean that very little can be achieved by way of evacuating or preparing the population at risk.

The countries of the region are increasingly realizing the importance of environmental enhancement measures in combating natural disasters. Programs on rehabilitation of degraded lands and afforestation are being undertaken on a large scale. Programs targeted at enhancing urban environmental quality, such as improvement of the drainage and sewerage systems of cities like Bangkok, have also contributed directly or indirectly to reducing the risk of natural disasters such as floods.

Better use of land can help offset disasters. The provision of greenbelts on riverbanks reduces flood damage, while parks and open spaces in a city can provide temporary shelters during earthquakes. Similarly, slum and squatter settlement improvement schemes that are being undertaken in many areas have also helped to reduce the risk of disasters.

It is gradually being recognized that the initial and most vital response to a disaster must be at the local level, and that the community must be well informed about disaster-preparedness measures and be constantly aware of the dangers. Countries of the region have substantially benefited through regional cooperation in tackling natural disasters. However, there is still scope for further cooperation, as the natural disasters often transcend national boundaries. This is particularly true in some of the large river basins of the region, where human activities upstream can have significant impacts on downstream flooding.

ADB Assistance on Disasters

ADB through its normal lending operations using fast-track procedures (established in 1987) has provided more than \$2 billion towards 27 projects in eight of its DMCs that are disaster-prone. Disaster assistance has generally taken one of three forms: loans for disaster relief, loans for disaster prevention, and technical assistance for disaster mitigation.

Bangladesh and the Philippines have been the major recipients of disaster relief loans. The former received seven loans between 1988 and 1998 to mitigate flood damage. Four loans to the Philippines between 1989 and 1992 have helped the country in alleviating the damage from the Baguio



In most developing countries of the region, even when adequate forecasting is available for earthquakes, conditions are such that the warning of an event is of little practical use.

earthquake in 1990 and the eruption of the Mt. Pinatubo volcano in 1991. Emergency multisector programs have also taken place in Pacific DMCs, such as Cook Islands, Samoa, and Solomon Islands for emergency infrastructure rehabilitation due to heavy typhoons.

In disaster mitigation, Bangladesh, Indonesia, and the PRC have been the main recipients, with those countries receiving 23, 24, and 26 percent, respectively, of total lending volume of nearly \$1.3 billion between 1972 and 1998 devoted to flood protection, drainage, rehabilitation, and control. Malaysia, Pakistan, and Viet Nam have received similar loans. These programs may need to be complemented with the following: (i) disaster preparedness, early warning, and response at the local level; (ii) innovative ways to protect people from catastrophe; and (iii) dealing with the underlying causes of suffering from disasters through reduction of poverty, enforcement of planning and safety regulations, and governance at the state and local level.

Disaster mitigation and rehabilitation technical assistance has focused on a variety of issues, ranging from flood control, irrigation, and drainage in Bangladesh, Indonesia, Pakistan, and Philippines (which has been labeled the disaster capital of the world); to earthquake rehabilitation, and fire and drought management planning in Indonesia, and cyclone recovery in the Marshall Islands.

Technical assistance grants have also been devoted to a regional study of disaster mitigation in 1989, institutional strengthening of an Asian Disaster Preparedness Center, based in the Asian Institute of Technology in Bangkok in 1993, a World Conference on Natural Disaster Reduction in 1994, and transboundary atmospheric pollution in ASEAN in 1998.

Future ADB Strategy on Disasters

Poor people in developing countries pay the highest price for natural and technological disasters, which account for 96 percent of all deaths. Asia is the most affected of all regions and is also the home of most of the affected people below the poverty line. Thus, special programs on microfinance, making best use of available resources, capacity building, and local information network building through inexpensive means may have to be considered.

Disaster prevention, therefore, becomes a precondition for poverty reduction and sustainable development in developing countries. ADB is drawing from its three decades of experience in this area and is revising its policy and procedures, in consultation with stakeholders.

ADDRESSING REGIONAL AND GLOBAL ENVIRONMENTAL ISSUES

Cutting Across Borders

The first article of the ADB charter states that “the purpose of ADB shall be to foster economic growth and cooperation” among its DMCs. Apart from tackling country-specific environmental problems, ADB extends support to address environmental issues common to several DMCs at regional and subregional levels. These efforts are often made in cooperation with bilateral funding agencies and international organizations.

Regional Environmental Issues

ADB assists its DMCs in addressing transboundary environmental issues, which include climate change, acid rain in Northeast Asia, and the impact of atmospheric haze brought about by forest fires, the latter through collaboration with ASEAN (see box overleaf). It also links its work in regional cooperation with its programmed activities in the policy support and capacity building areas. ADB targets high-level regional conferences on key policy and capacity issues to highlight their relevance to development in the region.

Greater Mekong Subregion

This subregion comprises about 250 million people and an overall gross domestic product of about \$212 billion. ADB has played a key role in fostering regional cooperation and sustainable development in the GMS, providing \$465 million in loans and mobilizing \$234 million in cofinancing for six

ADB has played a key role in fostering regional cooperation and sustainable development in the Greater Mekong subregion, providing \$465 million in loans and mobilizing \$234 million in cofinancing.



transportation and energy projects. The GMS Program, which began in 1992, promotes closer economic ties and economic cooperation among the six countries that share the Mekong River: Cambodia, Yunnan Province of the PRC, Lao PDR, Myanmar, Thailand, and Viet Nam.

A Working Group on Environment (WGE) of which ADB is a member, was created to ensure sustainability of the economic development programs and activities taking place among GMS countries. In a meeting attended by senior officials from GMS member countries, the following consensus was reached.

- An in-depth review of the GMS environment program is necessary to assess the environment program's effectiveness in promoting sustainable development within the GMS Program.
- Economic-cum-environmental planning methodologies being developed under the GMS regional technical assistance program, such as the Strategic Environmental Framework for the GMS and the Subregional Environmental Monitoring and Information Systems, should be supported and widely applied in the GMS countries as these methods are strengthened and experience gained.
- Coordination between the WGE and the other GMS sectors should be strengthened as this is essential in promoting sustainable development within the GMS Program.

AT A GLANCE

ADB Work to Assist Subregions, 1995-1999

Central Asian republics: ADB will launch a regional technical assistance to build the environmental capacity of various environmental institutions in this subregion.

Northeast Asia: A grant for \$495,000 was approved in 1996 to promote regional cooperation for environmental protection related to coal-fired plants among countries of Northeast Asia.

Greater Mekong subregion: ADB has provided technical assistance grants to establish and later expand the subregion environmental monitoring and information system, to build environmental capacity and strengthen institutions, and to develop a strategic environmental framework for GMS (see main text). To promote integrated water resource management, a 1999 technical assistance grant for \$250,000 was approved to develop regional cooperation in water sector reform.

South Asia: ADB is promoting sound management of coastal and marine resources upon which a vast majority of the poor subsist and earn a living in the subregion.

South Pacific: ADB will extend a grant to strengthen the subregion's capacity for environmental management.

AT A GLANCE

ADB Work on Transboundary Environmental Problems, 1995-1999

ASEAN transboundary atmospheric pollution: A 1998 technical assistance for \$1 million in collaboration with ASEAN is strengthening its capacity to implement and monitor an action plan to tackle the problem. A reference book is being produced to guide DMCs in developing a haze action plan, while a transboundary haze pollution web site (<http://www.haze.online.or.id>) will be an important tool for the Coordination and Support Unit at the ASEAN Secretariat in Jakarta.

Greenhouse gases: A major regional technical assistance aims to enhance capabilities in this issue in several countries. The project, funded by ADB and GEF through UNDP, published a study of 11 countries—Bangladesh, PRC, India, Indonesia, Republic of Korea, Mongolia, Myanmar, Pakistan, Philippines, Thailand, and Viet Nam—outlining an Asia Least-cost Greenhouse Gas Abatement Strategy (ALGAS) (see separate box overleaf). The study identified a portfolio of projects.

Acid rain and emissions: A \$600,000 technical assistance grant in 1996 implemented Phase II of acid rain and emission reduction in Asia.

Cleaner production: Developing a policy and institutional framework on the issue and fostering cooperation among governments, NGOs, the private sector, and academia were the objectives of a technical assistance in 1996 for \$600,000 to promote cleaner production policies in India, Indonesia, Philippines, Thailand, and Viet Nam (see Cleaner Production section).

Sloping agricultural land technology (SALT): A follow-up grant for \$600,000 was approved in 1998 for development of technology for soil-conserving farming systems. This targeted cost-effective techniques and other methods to enhance productivity of sloping agricultural land, while spreading awareness of SALT and other technologies.

- Improved data collection is required to ensure that GMS developmental and environment programs are developed on a sound technical foundation.
- Environmental training programs particularly on economic-cum-environmental planning methodologies should be continued.

Multilateral and Bilateral Agreements

More than 300 multilateral and formal agreements connected with environmental protection have been adopted since 1869, many of which carry substantive obligations for the States that are party to the treaties. In addition, there is a much larger number of bilateral agreements, ranging from understandings between States about the exchange of information and research cooperation to substantive questions such as those on boundary water management. By the time of the Earth Summit in 1992, there were already more than 870 international legal instruments with one or more environmental provisions.

PROJECT FOCUS

Asian Partnership on Greenhouse Gas Abatement

The ALGAS Project produced a strategy designed to assist countries to meet their commitments under the United Nations Framework Convention on Climate Change, and prepare a portfolio of greenhouse gas (GHG) abatement projects and national plans embodying country development objectives.

The strategy comprises a summary report, country reports, and a report profiling investment and technical assistance opportunities for GHG abatement projects. These include assessments of energy, forestry, land use change, and agriculture sectors; formulations of national least-cost GHG abatement strategies; portfolios of least-cost GHG abatement projects; national GHG action plans; and recommendations for follow-up actions.

The participating countries, which account for more than half of the world's population, have developed 80 project briefs for the ALGAS Project Portfolio. Several regional project proposals for climate change vulnerability, and adaptation assessment have also been developed. Perhaps the most significant product of the effort has been the creation of capacity within each of the countries to analyze and deal with the many challenges of sustainable development that arise from GHGs.

In view of these large numbers of international agreements with environmental provisions with which ADB's DMCs have committed to compliance, activities in support of these must necessarily focus on those that relate to its environment program priorities. In addition to ensuring that ADB-financed projects comply fully with international environmental law, opportunities should also be sought for assisting countries to meet their obligations and commitments in the following treaties and agreements:

- Agenda 21;
- Convention on Biological Diversity;
- Ramsar Convention or the United Nations Convention on Wetlands of International Importance;
- Convention on Desertification;
- Convention on Climate Change and Kyoto Protocol; and
- Basel Convention.

Each of these agreements relates to more than one of ADB's program priorities. In 1999, ADB, in collaboration with the Hans Seidel Foundation, International Union for the Conservation of Nature, and UNEP, conducted a regional workshop in Bangkok for representatives of 17 DMCs for implementing the Kyoto Protocol and the CDM.

PROMOTING ENVIRONMENTAL GOVERNANCE

Governance an ADB Priority

Tackling governance issues is one of ADB’s strategic objectives for environmental improvement in the region, covering the broader range of authorities and capacities exercised by government and nongovernment participants in the management of environment and natural resources.

The operation of governance systems has a strong bearing on the success of environmental policies. For example, weak state capacity and lack of an independent judiciary can preclude effective enforcement of environmental laws. At the same time, the nature of environmental and natural resource management systems strongly influences governance outcomes. For example, low economic rent generated from natural resource exploitation—such as logging and mining—not only provides incentives for inefficient production; it can also increase the political influence of “crony capitalists” by providing access to excessive profits.

The governance mechanisms allocating and managing natural resources and protecting environmental health can profoundly influence not only the economic and environmental characteristics of a society’s development path, but its political and social characteristics also. Where natural resources are scarce, poor governance can worsen conflict as communities compete for dwindling supplies of water or forest products.

Even where resources are relatively abundant, poor governance can fuel corruption, repression, and conflict. The environmental justice movement has pointed out that decisions about environmental protection may differentially affect the health and well-being of marginalized communities and poor people. Indeed, state-sanctioned efforts to exploit and to protect natural resources have often been associated with systematic human rights violations. Inequitable attention to community and urban environments has a similar track record, resulting in severe health impacts on the urban poor.

ADB Achievements in Tackling Governance

ADB has been increasingly successful in addressing environmental governance through its lending and technical assistance operations. Some achievements are as follows:

- PRC, Fiji Islands, and Philippines have passed laws on land management, environmental management, and air quality, respectively;



Weak state capacity and lack of an independent judiciary can preclude effective enforcement of environmental laws.

- Indonesia has set up institutional mechanisms to contain forest fire and haze pollution;
- coastal communities in parts of Philippines and Sri Lanka have been empowered to utilize natural resources on a sustainable basis;
- the urban poor in many cities have been included in making decisions on improvements to urban services and environmental quality and have been active participants as beneficiaries;
- Cambodia is receiving assistance to review compliance of logging concessionaires with contract conditions;
- industries in several countries are receiving assistance to shift to clean technologies, improving efficiency and competitiveness, and reducing environmental costs; and
- assistance has been provided to several DMCs to adopt environmental accounting practices, though progress has still to be made in this area.

Reforming Policies and Formulating Legislation

ADB has provided several technical assistance grants to reform policies and draw up legislation to improve the management of the environment and natural resources. Six percent or nearly \$7 million of the total technical assistance grants of \$112 million has been directed to develop or strengthen environmental policies and legislation in the region in the last five years (see Part I).

For instance, ADB assisted the Indian Government in strengthening its environmental legislation in a 1995 technical assistance grant of \$500,000. Likewise, it helped the Nepalese Government in 1997 to put into action the pesticides regulatory framework developed earlier with ADB assistance. The Philippines also received assistance in 1996 for the evaluation of environmental standards for selected industry subsectors.

ADB is also carrying out a study on environmental governance with the World Resources Institutes, Institutions and Governance Program, and the Nautilus Institute (as part of the *Asian Environment Outlook*).

PROJECT FOCUS

Strengthening Land Use Policies in Mongolia

Working with the Mongolian Government in the establishment of a sound legal and institutional infrastructure for land records management that is consistent with the ownership of rights in land, ADB extended a grant of \$580,000 in 1995. The technical assistance will help lay the foundation for an efficient agriculture sector based on private rights in land and market-based land transactions. The grant will assist Mongolia in developing a national land registration system and expedite the issuance of land certificates and the development of land markets. In addition, it will help the Government develop a judicial framework to adjudicate land disputes.



FACILITATING TRANSFER OF FUNDS FROM GEF

A Fruitful Synergy

The GEF, recently replenished at a level of \$2.75 billion, provides grant financing to cover the agreed incremental costs of achieving global environmental objectives in four focal areas: biodiversity, climate change, international waters, and ozone depletion. Activities to address land degradation, as it relates to these focal areas, are also eligible. Considerable scope exists to blend ADB finance for sustainable development with GEF grant resources for global environmental objectives.

ADB has been working closely with the GEF Secretariat and the three GEF Implementing Agencies (the World Bank, UNDP, and UNEP) to explore the possibility of an enhanced role for regional development banks (RDBs) in GEF operations. As an outcome of these discussions, the GEF Council at its 13th meeting on 5-7 May 1999 approved decision document GEF 13/C.13/3 titled "Expanded Opportunities for Executing Agencies: Recent Efforts and Current Proposals to Expand Opportunities for Regional Development Banks."

The Expanded Opportunities decision has three main operational features: (i) direct eligibility rulings; (ii) direct transfer of GEF project preparatory grants to RDBs; and (iii) "shared implementation" responsibilities between RDBs and implementing agencies. In addition, the decision covers a number of supporting measures such as enhanced training of staff, streamlining of procedures, participation of RDBs in GEF country dialogue exercises, etc.

ADB Work with GEF

Eight ADB project proposals have entered the formal GEF pipeline since May 1999. For the ADB/GEF projects in the pipeline, six GEF project preparatory grant proposals have been approved, and three full projects have been submitted for GEF Council approval. It is expected that the ensuing projects for GEF Council approval will result in grant cofinancing in the amount of about \$80 million-\$90 million.

Partnership with the GEF will allow ADB to play an increasing role in assisting DMCs to address global environmental issues.

Three GEF training and awareness building activities were conducted at ADB Headquarters by UNDP, the World Bank, and the GEF Secretariat in February, April, and July 1999, respectively. A board seminar on GEF was presented in August 1999. Additional training opportunities have taken place in January (GEF Secretariat) and February 2000 (UNDP/GEF), and will continue on a twice yearly basis.

A “Financial Procedures” agreement is being finalized with the GEF Trustee (the World Bank in its capacity as Trustee) and a “Substantive Accountability” agreement is being concluded with the GEF Secretariat for the direct transfer of GEF preparatory grants to ADB. As an interim measure, a memorandum of agreement has been finalized with the World Bank (acting in its capacity as the GEF Implementing Agency) for transfer of GEF project preparatory grants. Arrangements for transfer through UNDP are already in place.

Strategy for 2000 and Beyond

Nine additional ADB project concepts for possible GEF pipeline entry are being discussed with DMCs and the GEF Secretariat. These include an innovative Strategic Partnership to combat poverty and land degradation in dryland ecosystems. In addition, structured pipeline development exercises are being carried out for 2000 and beyond, with the first review completed for the PRC in January 2000. Beginning in 2000, GEF opportunities will be targeted explicitly in country programming missions, and all GEF country operational focal points in Asia have been informed of opportunities to collaborate with ADB in GEF implementation.

Based on the GEF Corporate Business Plan (2000-2003) and consultations with the GEF Secretariat in this regard, it is anticipated that ADB can assist DMCs to secure GEF grant cofinancing in the range of \$80 million to \$100 million annually. This could, in principle, be secured in 2001-2003, with possible increases after as ADB's role in GEF matures.

Such cofinancing would be available for components of projects that are designed to respond specifically to GEF criteria and operational programs in the focal areas of biodiversity, climate change, and international waters. In addition to opportunities for introducing biodiversity conservation in agriculture, rural development, and natural resource projects, opportunities are being tapped for ADB energy and transport sector projects that address climate change objectives.

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ANNEX 1

Environmental and Environmentally-Oriented Loans, 1995-1999

Project Title	Loan Amount (\$ million)	Date Approved
BANGLADESH		
<i>Sundarbans Biodiversity Conservation</i>	37.00	27 Nov 98
<i>Objective:</i> To develop a sustainable management and biodiversity conservation system for all Sundarbans Reserved Forest (SRF) resources. The proposed project area includes the SRF itself and 17 surrounding districts located in the impact zone. The Project will establish a participatory system for the conservation and sustainable management of the SRF as a multidimensional resource area.		
<i>Forestry Sector</i>	50.00	21 Nov 96
<i>Objective:</i> To promote conservation of forests in selected protected areas; increase overall wood production; and institute sustainable management of forest resources through local community participation, institutional capacity building, and policy reform.		
<i>Coastal Greenbelt</i>	23.40	2 Mar 95
<i>Objective:</i> To contribute to the protection and improvement of the coastal environment by increasing vegetative cover, while reducing local poverty by creating supplementary income opportunities. By augmenting tree cover in the coastal region, the Project will also contribute to the Government's sectoral objective of increasing the country's forest resources.		
CAMBODIA		
<i>Phnom Penh Water Supply and Drainage</i>	20.00	26 Sep 96
<i>Objective:</i> An integral part of the overall water supply and drainage rehabilitation program in Phnom Penh, the Project aims to supply reliable and safe drinking water to residents of the capital and improve the urban environment.		
PEOPLE'S REPUBLIC OF CHINA		
<i>Shanxi Environment Improvement</i>	102.00	7 Dec 99
<i>Objective:</i> To improve the ambient air quality in Taiyuan, Datong, and Yangquan. This will be achieved by (i) supporting market-oriented price reforms; (ii) strengthening environmental protection agencies in the areas of sustainable environmental management and enforcement of compliance with national environmental standards; and (iii) financing a portion of the investments necessary to expand the district heating and gas distribution systems to reduce direct coal burning and improve energy efficiency.		
<i>Suzhou Creek Rehabilitation</i>	300.00	29 Jun 99
<i>Objective:</i> To improve the water quality in Suzhou Creek, strengthen water resources management, and improve flood control. This will enhance the health standards and quality of life for residents living around the creek. The immediate objective is to remove discolored and foul-smelling water,		

and relocate nightsoil and solid waste collection wharves from the banks of the lower 5 km of the creek by the end of 2000.

Fuzhou Water Supply and Wastewater Treatment 102.00 30 Sep 98

Objective: To improve the quality and quantity of water supplied to Fuzhou City and reduce contamination of the local watercourses in Fuzhou City and the Min River.

Xi'an-Xianyang-Tongchuan Environment Improvement 156.00 24 Sep 97

Objective: To promote sustainable regional development by supporting Shaanxi Province in implementing its environmental plan for improving the ambient air quality in Xi'an, Xianyang, and Tongchuan cities.

North China Marine Culture and Coastal Resources Management 70.00 3 Dec 96

Objective: To: (i) enhance sustainable mariculture production in line with market demand; (ii) contribute to coastal and marine resource conservation and environmental management in the Bohai Sea; (iii) improve economic and social conditions in coastal communities in the project area through economic diversification and expansion of income-generating opportunities; and (iv) strengthen human resource capabilities to invest in, manage, and operate mariculture and aquatic products processing activities. This loan was cancelled on 3 June 1998.

Anhui Environmental Improvement Project for Municipal Wastewater Treatment 28.00 26 Nov 96

Anhui Environmental Improvement Project for Industrial Pollution Abatement 112.00 26 Nov 96

Objective: The projects and associated TA will improve the water quality in Chao Lake and reduce water, air, and solid waste pollution in the cities of Hefei and Chaohu.

Second Industrial Energy Efficiency and Environment Improvement 178.00 9 May 96

Objective: To improve energy efficiency in the industrial sector in the PRC with substantial benefits for the environment.

Hainan Agriculture and Natural Resources Development 53.00 7 Sep 95

Objective: To: (i) promote economic growth to reduce income disparities between rural and urban areas and reduce the incidence of poverty in the rural areas; and (ii) protect biodiversity and scenic resources.

INDIA

Urban and Environmental Infrastructure Facility 200.00 17 Dec 99

Objective: To assist the Government in developing urban and environmental infrastructure, meeting basic human needs, and improving the quality of life of urban residents.

Karnataka Urban Development and Coastal Environmental Management	175.00	26 Oct 99
<i>Objective:</i> To optimize social and economic development in the urban areas of west Karnataka by supporting investments in urban infrastructure and services required to meet basic human needs, and facilitating policy reforms to strengthen urban management.		
Rajasthan Urban Infrastructure Development	250.00	3 Dec 98
<i>Objective:</i> To optimize social and economic development in urban Rajasthan. This will be achieved through policy reforms to strengthen urban management and support for priority investments in urban infrastructure and services required to meet basic human needs, improve quality of life, and stimulate sustainable economic development.		
Mumbai and Chennai Ports	113.00	29 Sep 97
<i>Objective:</i> To rehabilitate and reconstruct deteriorating port facilities by (i) modernizing outdated liquid cargo-handling systems and eliminating the possibility of failure of the oil pipelines at Mumbai Port, and (ii) expanding the existing port facilities to increase the cargo-handling capacity for containers and other general cargoes at Chennai Port.		
Renewable Energy Development	100.00	26 Sep 96
<i>Objective:</i> To (i) promote commercialization of renewable energy source (RES) technologies by strengthening the Indian Renewable Development Authority's capacity to promote and finance entrepreneurial investments in alternate energy; (ii) encourage private sector investments in small-scale power generation utilizing RES technologies; (iii) expand marketing and financing mechanisms for the sale and delivery of alternate energy systems based on full cost-recovery principles; and (iv) promote environmentally sound investments to prevent depletion of India's limited forest resources and to reduce the energy sector's dependence on fossil fuels.		
INDONESIA		
Central Sulawesi Integrated Areas Development and Conservation	32.00	27 Jan 98
<i>Objective:</i> To promote economic development and resource management that are environmentally sound and beneficial for the local population and the Lore Lindu National Park.		
Coastal Community Development and Fisheries Resources Management	41.00	4 Nov 97
<i>Objective:</i> To promote sustainable management of coastal fisheries, conserve coastal fisheries resources, and reduce poverty in coastal areas by providing opportunities for increasing income and improving living standards.		
Segara Anakan Conservation and Development	45.60	17 Oct 96
<i>Objective:</i> To conserve, develop, and sustainably manage the Segara Anakan environs to ensure that economically and socially valuable ecosystems are protected for the benefit of current and future generations.		

<i>Integrated Pest Management for Smallholder Estate Crops</i>	44.00	26 Sep 96
<i>Objective:</i> To promote the adoption of cost-effective, environmentally sound integrated pest management practices by smallholder estate crop farmers.		
<i>BAPEDAL Regional Network</i>	45.00	7 Jun 96
<i>Objective:</i> To: (i) establish institutional capacity at the regional level to set environmental standards, improve environmental awareness, and provide environmental management and support services; and (ii) strengthen BAPEDAL through human resource development at regional and national levels.		
<i>Sulawesi Rainfed Agriculture Development</i>	30.36	31 Jan 95
<i>Objective:</i> To: (i) increase the productivity and farm incomes of rainfed farmers; (ii) protect and improve the fragile upland environment; (iii) create employment in the rural areas; (iv) reduce poverty; and (v) improve the socioeconomic condition of women beneficiaries.		
KIRIBATI		
<i>Sanitation, Public Health, and Environment Improvement</i>	10.24	8 Dec 98
<i>Objective:</i> To improve the development potential of Kiribati, and the health and well-being of its people through a sustained program of improvements in water supply, sanitation services, solid waste disposal, and environment conservation.		
LAO PDR		
<i>Shifting Cultivation Stabilization</i>	5.60	11 May 99
<i>Objective:</i> To: (i) improve the income of upland farmers and (ii) conserve natural resources through (a) establishment of environmentally sustainable, diversified sedentary farming systems as alternatives to shifting cultivation; and (b) provision of basic rural infrastructure in an environmentally sustainable manner. The Project will pilot-test promising farming technologies and establish appropriate land allocation procedures through extensive beneficiary participation.		
<i>Secondary Towns Urban Development</i>	27.00	26 Jun 97
<i>Objective:</i> To: (i) improve the urban environment through the development of appropriate urban infrastructure and the effective and sustainable management of urban services, (ii) further human development, and (iii) support economic growth.		
<i>Vientiane Integrated Urban Development</i>	20.00	17 Aug 95
<i>Objective:</i> To: (i) improve the physical well-being and health of the population of Vientiane; (ii) institutionalize urban planning and strengthen the development control system; (iii) establish an institution specifically oriented to the city's urban management; and (iv) increase the capacity of sector agencies to mobilize financial resources for sustaining urban investments.		

MALAYSIA		
<i>Klang River Basin Environmental Improvement and Flood Mitigation</i>	26.30	5 Dec 96
<i>Objective:</i> To: (i) improve environmental conditions, including those that worsen flooding, through an integrated river basin approach that addresses environmental and economic development needs; and (ii) minimize the adverse economic, social, and environmental impacts of flooding in the Klang River Basin.		
MALDIVES		
<i>Regional Development</i>	8.00	2 Sep 99
<i>Objective:</i> To provide the focus for regional development in the Northern Development Region and Southern Development Region, thereby supporting more equitable development in the country and taking some of the pressure off Male, the capital.		
MARSHALL ISLANDS		
<i>Ebeye Health and Infrastructure</i>	9.25	12 Aug 99
<i>Objective:</i> To: (i) improve the delivery of medical care for Ebeye and proximate islands; (ii) strengthen primary health care and preventive services to the population; (iii) rehabilitate and expand water supply and sewerage systems to meet the needs of the island; and (iv) upgrade the power generation and distribution system to provide reliable power.		
NEPAL		
<i>Second Tourism Development</i>	17.20	2 Jul 96
<i>Objective:</i> To blend critically needed improvements in infrastructure with the development of ecotourism and protection of the environment at key tourist destinations.		
PAKISTAN		
<i>Punjab Farmer-Managed Irrigation</i>	7.80	25 Mar 99
<i>Objective:</i> To develop the institutional capacity of farmers for sustainable management of distributary canals leading to (i) increased agricultural production through improved water delivery performance and more equitable distribution; (ii) reduced subsidies for the operation of the irrigation system; and (iii) environmental improvement and conservation of natural resources by reducing water losses to saline groundwater.		
<i>Korangi Wastewater Management</i>	70.00	18 Sep 97
<i>Objective:</i> To: (i) improve the urban environment and public health in the Korangi and Landhi townships; (ii) upgrade the quality of the aquatic environment of the Malir River and Girzi Creek; (iii) improve public awareness of hygiene practices to reduce disease incidence; (iv) phase out the use of raw industrial wastewater for irrigating edible food crops in Korangi; (v) strengthen the Karachi Water and Sewerage Board (KWSB)-community partnership to provide household sewer connections, using neighborhood block committees and nongovernment organizations; (vi) strengthen the capacity of KWSB to construct, operate, and maintain sewerage networks and		

sewage treatment plants; (vii) enhance revenue collection to achieve full cost recovery; (viii) facilitate private sector participation in KWSB's operations; and (ix) plan for Karachi's wastewater investment needs to the year 2020.

National Drainage (Sector) 140.00 12 Dec 95

Objective: The Project is an integral part of the National Drainage Program, which is designed to protect irrigated land and preserve surface water and groundwater quality. It will control and reduce waterlogging and salinity and improve the management of surface water and groundwater resources by laying the groundwork for minimizing the drainable surplus and evacuating the excess water and salts.

Forestry Sector 42.60 9 Nov 95

Objective: To protect and improve the hilly and mountainous environment of North-West Frontier Province, thereby raising the productivity of private, community, and government lands that are suitable for trees, fodder, and other crops.

PHILIPPINES

Metro Manila Air Quality Improvement 296.00 16 Dec 98

Objective: To promote policy reforms to improve air quality through the abatement of mobile and stationary sources of air pollution. It focuses on the Metro Manila air shed, the location of the main concentrations of air pollution. The scope consists of policy reforms and investment requirements integrated within an agreed policy matrix termed the Air Quality Action Plan. The components consist of a motor vehicle inspection system, an industrial air emissions pollution abatement program, production of clean fuels, introduction of antipollution devices such as catalytic converters, a traffic management and road rehabilitation program, ambient air quality monitoring, raising public awareness, capacity building, and institutional development.

Fisheries Resource Management 35.22 16 Oct 97

Objective: Long-term goals include sustainable development of the fisheries sector and poverty reduction among municipal fisherfolk. The primary objective is to reverse the trend of fisheries resource depletion in municipal waters.

SRI LANKA

Coastal Resource Management 40.00 7 Dec 99

Objective: To establish integrated management of coastal resources to improve their sustainability.

Tea Development 35.00 10 Nov 98

Objective: To increase the income of tea smallholders and private estates on a sustainable basis and to improve the environment.

Upper Watershed Management 16.60 24 Sep 97

Objective: To (i) rehabilitate and sustainably manage and protect critical watersheds; (ii) improve incomes of project beneficiaries; and (iii) help establish a watershed management policy.

Plantation Reform	80.00	9 Nov 95
<i>Objective:</i> To (i) provide long-term loans to participating financial institutions to finance eligible privatized plantation companies; (ii) support policy and institutional reforms to increase productivity and profitability and maintain the competitive advantage of the tree crop industry; and (iii) improve environmental conditions in the project area.		
THAILAND		
Samut Prakarn Wastewater Management Pollution Control	150.00	7 Dec 95
<i>Objective:</i> To improve the quality of the environment, public health, and welfare in Samut Prakarn Province by providing modern, reliable, and cost-effective wastewater collection and treatment facilities for the most developed urban and industrial districts in the province, combined with a program to improve environmental monitoring and enforcement, and a program on industrial pollution prevention and clean technology transfer.		
VIET NAM		
Ho Chi Minh City Environmental Improvement	70.00	7 Oct 99
<i>Objective:</i> To: (i) improve the urban environment through appropriate urban infrastructure development, and effective and sustainable management of urban services; (ii) further human development through environmental improvements; (iii) support economic growth through the development and management of sustainable and well-planned infrastructure development and urban services; and (iv) reduce environmental health hazards to the urban community.		
Forestry Sector	33.00	20 Mar 97
<i>Objective:</i> To restore the vegetative cover of the hilly and mountainous areas in critical watersheds and raise the productivity of the country's forestry resources.		
Second Provincial Towns Water Supply and Sanitation	69.00	27 Feb 97
<i>Objective:</i> To: (i) improve public health in the seven provincial capital towns by enabling improved access to safe water; (ii) improve the urban environment in the project towns by investing in drainage and sanitation systems; (iii) enhance public awareness of hygiene and sanitation and people's participation in sustainable public utility management through the design and implementation of a public environmental education program; and (iv) restructure and strengthen existing sector institutions through a blend of capacity building and policy reform.		
Provincial Towns Water Supply and Sanitation	66.00	17 Aug 95
<i>Objective:</i> To: (i) improve public health in the seven provincial capital towns by enabling improved access to safe water; (ii) improve the urban environment in the project towns by investing in drainage and sanitation systems; (iii) enhance public awareness of hygiene and sanitation and people's participation in sustainable public utility management through the design and implementation of a public environmental education program; and (iv) restructure and strengthen existing sector institutions through a blend of capacity building and policy reform.		

ANNEX 2**Technical Assistance Grants with Environmental Objectives, 1995-1999**

Country/Project Title	Type	Amount (\$)	Date Approved
Bangladesh			
Biodiversity Conservation in the Sundarbans Forests	PP	500,000	19 Dec 96
Urban Transport and Environment Improvement	AO	645,000	16 Nov 99
Sundarbans Biodiversity Conservation	AO	3,500,000	10 Nov 99
Bhutan			
Strengthening EIA Capabilities and Preparation of Environmental Guidelines	AO	350,000	13 Feb 96
Cambodia			
Institutional Strengthening and Expanding EIA Capacity	AO	400,000	19 Dec 96
Sustainable Forest Management	PP	980,000	31 Dec 98
People's Republic of China			
Improving Coal Efficiency and Reducing Environmental Pollution	AO	570,000	7 Feb 95
Coastal Environmental Protection and Institutional Assessment	AO	98,500	29 May 95
Jianfengling Park Management and Biodiversity Conservation	AO	600,000	7 Sep 95
Improving Environmental Monitoring and Enforcement in Henan Province	AO	90,000	15 Sep 95
Capacity Building for Soil and Water Conservation	AO	590,000	28 Sep 95
Land Use and Land Tenure Policy in Fujian Province	AO	600,000	28 Sep 95
Establishing a Center for the Transfer of Environmentally Sound Technology	AO	550,000	31 Oct 95
Xian-Xianyang-Tongchuan Environment Improvement	PP	500,000	16 Nov 95
Pilot Environmental Plans for Selected Medium Size Cities	AO	537,000	4 Dec 95
Sound Safety and Environmental Practices for Offshore Oil and Gas Production	AO	600,000	21 Dec 95
Strengthening the Environmental Standards and Enforcement Policies	AO	600,000	22 Dec 95
Zhejiang-Shanxi Water Conservancy	PP	1,000,000	26 Dec 95
Market-based Energy Conservation and Environmental Improvement	PP	597,000	30 Oct 96
Formulation of an Integrated Environmental Management Plan for the Chao Lake Basin	AO	800,000	26 Nov 96
Coastal Resource Conservation and Environmental Management	AO	810,000	3 Dec 96
Capacity Building for Natural Resource Legislation	AO	800,000	24 Dec 96

Industrial Pollution Investigation and Assessment in Town and Village Enterprises	AO	600,000	24 Dec 96
Capacity Building of Wastewater Treatment Operations in Anhui Province	AO	400,000	27 Jan 97
Fuzhou Water Supply and Wastewater Treatment	PP	598,000	14 Mar 97
Study on Clean Coal Integrated Gasification Combined Cycle Technology	AO	500,000	19 May 97
Capacity Building for Energy Conservation	PP	78,000	18 Sep 97
Improvement of Environmental Management in Shaanxi Province	AO	935,000	24 Sep 97
Financing Mechanism for Energy Efficiency Investment	PP	150,000	21 Oct 97
Shanxi Environment Improvement	PP	590,000	21 Oct 97
Promotion of Market-Based Instruments for Environmental Management	AO	697,000	16 Dec 97
Suzhou Creek Environmental Rehabilitation	PP	965,000	4 Jun 98
Power Rehabilitation and Environmental Improvement	PP	1,000,000	30 Jun 98
Market-Based Energy Conservation and Environmental Improvement (Supplementary)	PP	150,000	7 Jul 98
Yunnan Road Environmental and Social Analysis	PP	150,000	7 Jul 98
Soil and Water Conservation in the Upper Yangtze River Basin	AO	99,000	16 Sep 98
TA Cluster to the PRC for the Promotion of Clean Technology	AO	3,500,000	29 Sep 98
Hai River Basin Wastewater Management and Pollution Control	AO	570,000	10 Nov 98
Provincial Legislation on Environmental Protection and Natural Resource Conservation	AO	300,000	15 Dec 98
Improving Environmental Management in Suzhou Creek	AO	840,000	29 Jun 99
Tianjin Wastewater Treatment and Water Resources Protection	PP	800,000	2 Jul 99
Capacity Building in Ministerial Status Responsibilities in the State Environmental Protection Administration	AO	810,000	8 Nov 99
Shanxi Air Quality Improvement	AO	700,000	7 Dec 99
Yunnan Comprehensive Agricultural Development and Biodiversity Conservation	PP	982,000	23 Dec 99
Songhua River Flood, Wetland, and Biodiversity Management	PP	1,215,000	27 Dec 99
India			
Strengthening EIA Capacity and Environmental Legislation	AO	500,000	3 Feb 95
Energy and Environmental Management of the Industrial Development Bank of India	AO	585,000	26 Sep 95
Management Environmental Improvement and Sustainable Development of the Agra-Mathura-Ferozabad Trapezium in Uttar Pradesh	PP	600,000	15 Dec 95
Karnataka Coastal Environmental Management and Urban Development	PP	800,000	6 Jun 97
Urban and Environmental Infrastructure Fund	PP	400,000	12 Dec 97

Calcutta Environmental Improvement	PP	1,000,000	16 Oct 98
Community Participation in Urban Environmental Improvement	AO	150,000	3 Dec 99
Indonesia			
Coral Reef Rehabilitation and Management	PP	600,000	15 Feb 96
Institutional Strengthening of the Forestry and Soil Conservation Services in the Segara Anakan	AO	250,000	17 Oct 96
Strengthening of Urban Waste Management Policies and Strategies	AO	600,000	2 Jun 97
National Biodiversity Information Network	PP	700,000	11 Jul 97
Marine Resources Evaluation Management and Planning	PP	600,000	19 Dec 97
Capacity Building for Decentralization of the EIA Process	AO	420,000	3 Sep 99
Natural Resources and Environmental Management Sector	PP	380,000	30 Jul 99
Kazakhstan			
Rehabilitation and Environmental Improvement of the Almaty No.1 Heat and Power Station	PP	556,000	21 Jul 95
Strengthening Environmental Management	AO	700,000	20 Dec 99
Kiribati			
Environmental Improvement	AO	72,500	12 Sep 96
Kyrgyz Republic			
Strengthening Environmental Institutions and Improving Procedures for EIA	AO	556,000	13 Sep 95
Environmental Monitoring and Management Capacity Building	AO	598,000	11 Dec 97
Lao PDR			
Strengthening Environmental Planning and EIA Capacity	AO	599,000	10 May 95
Nam Ngum Watershed Management	AO	1,200,000	23 Dec 96
Strengthening Social and Environmental Management	AO	950,000	22 Dec 98
Malaysia			
Strengthening the Institutional Framework for Sustainable Development	AO	142,000	14 Feb 95
EIA of the Kalaka-Saribas Integrated Agricultural Development-Phase II	PP	87,000	17 Oct 95
Industrial Pollution Control Management	PP	588,000	2 Sep 97
Marshall Islands			
Fisheries Management	AO	598,000	2 Sep 97
Mongolia			
Energy Conservation	PP	100,000	26 Jun 95
Strengthening Land Use Policies	AO	580,000	5 Dec 95
Strengthening Land Use Policies (Supplementary)	AO	244,000	14 Aug 97

Nepal			
Institutional Strengthening of NEA's Environment Division	AO	534,000	23 Jul 96
Implementation of the Pesticides Regulatory Framework	AO	100,000	11 Jun 97
Institutional Strengthening of the Ministry of Population and Environment	AO	600,000	22 Aug 97
Watershed Rehabilitation and Management	PP	600,000	15 Dec 98
Ecotourism	PP	500,000	10 Dec 99
Urban Environment Improvement	PP	750,000	23 Dec 99
Pakistan			
Forestry Sector	AO	14,145,000	30 Apr 96
Quetta Water Supply and Environment Improvement	PP	900,000	5 Dec 97
Integrated Pest Management	AO	500,000	28 Dec 99
Papua New Guinea			
Social and Environmental Studies	PP	150,000	13 May 98
Philippines			
Environmental Evaluation of Swamps and Marshlands	AO	100,000	30 Aug 95
Evaluation of Environmental Standards for Selected Industry Subsectors	AO	400,000	30 Jul 96
Pasig River Environmental Management and Rehabilitation	PP	800,000	29 May 97
Metro Manila Air Quality Improvement	PP	150,000	5 Aug 97
Community-Based Forest Resource Management	PP	840,000	25 Oct 99
Solomon Islands			
Marine Biodiversity Conservation	PP	150,000	19 Oct 99
Sri Lanka			
Upper Watershed Management	PP	600,000	25 Jul 96
Biodiversity Conservation	PP	800,000	12 Dec 97
Forest Resource Management	PP	800,000	20 Jul 98
Sustainable Natural Resource Management for Development	AO	800,000	6 Oct 99
Protected Area Management and Wildlife Conservation	PP	330,000	13 Oct 99
Thailand			
Bangkok Metropolitan Region Wastewater Management Action Plan and Feasibility Study	PP	600,000	24 Feb 95
Strengthening the EIA Review Process	AO	600,000	26 Jun 95
Solid Waste Management Sector Plan	PP	400,000	28 Jul 95
Strengthening the Environmental Unit of the Department of Highways	AO	200,000	17 Aug 95
Capacity Building for Waste Management Program Administration	AO	300,000	27 Jun 97
Promotion of Market-Based Instruments for Environmental Management	AO	605,000	5 May 98

Tuvalu			
Urban Planning and Environment Management	AO	310,000	10 Apr 95
Uzbekistan			
Strengthening of Institutions Engaged in Environmental Protection	AO	675,000	8 Sep 97
Viet Nam			
Forestry Sector and Watershed Management	PP	598,000	2 Oct 95
Hazardous Waste Management	AO	600,000	12 Dec 96
Ho Chi Minh City Environmental Improvement	PP	600,000	7 May 97
Forestry Sector	AO	7,000,000	20 Aug 97
Red River Basin Water Resource Management	AO	1,362,663	31 Dec 97
Study on the Policy and Institutional Framework for Forest Resource Management	AO	470,000	14 Sep 99
Regional			
Subregional Environmental Monitoring and Information System	Study	1,000,000	9 Feb 95
Capacity Building for Environmental Law Training in the Asia and Pacific Region	Training	600,000	15 Dec 95
Capacity Building in Environmental Economics	Training	598,000	11 Jan 96
Acid Rain and Emission Reduction for Asia, Phase II	Others	600,000	10 Feb 96
Subregional Environmental Training and Institutional Strengthening in the GMS	Training	1,665,000	9 May 96
Environmental Cooperation in Northeast Asia	Training	495,000	1 Aug 96
Coastal and Marine Environmental Management in the South China Sea, Phase II	Study	2,700,000	13 Dec 96
Multilateral Financial Institutions Environmental Group Meeting	Conference	52,000	20 Feb 97
Regional Community Forestry Training Center in Kasetsart University (Suppl.)	Training	1,400,000	14 Jul 97
Regional Training Course on Solid Waste Management in DMCs	Training	75,000	7 Jan 98
Strengthening the Capacity of the ASEAN to Prevent and Mitigate Transboundary Atmospheric Pollution	Others	1,000,000	24 Feb 98
Strategic Environmental Framework for the GMS	Study	1,600,000	20 Mar 98
Appropriate Technology for Soil-Conserving Farming Systems (Phase I)	Research	600,000	23 Mar 98
Training of Journalists in Management of Environmental Information Resources	Training	40,000	15 Jul 98
Measurement of Environmental Performance	Study	441,000	24 Jul 98
Mayors' Asia-Pacific Environmental Summit	Conference	85,000	13 Nov 98
Protection and Management of Critical Wetlands in the Lower Mekong Basin	Study	1,650,000	22 Dec 98
Asian Environment Outlook	Others	900,000	28 Dec 98

Promotion of Cleaner Production Policies and Practices in Selected DMCs	Study	600,000	20 Apr 99
Promoting Sustainable Development Agenda in Asia: Ministerial Conference, 2000	Conference	600,000	24 May 99
Institutional Strengthening and Collection of Environment Statistics	Research	500,000	30 Aug 99
Capacity Building for Implementation of the Kyoto Protocol and the Clean Development Mechanism	Others	200,000	1 Sep 99
Transboundary Environmental Cooperation in Northeast Asia	Study	350,000	13 Oct 99
Fourth Agriculture and Natural Resource Research at CGIAR Centers	Research	5,600,000	14 Oct 99
Water Resource Management in Southeast Asia (Phase 2)	Conference	250,000	17 Nov 99
Third ADB-NGO Consultative Meeting on Environment and Sustainable Development	Conference	150,000	23 Dec 99
Strengthening the Live Reef Fish Trade Management in the PDMCs	Study	215,000	28 Dec 99
Subregional Environmental Monitoring and Information System (Phase II)	Others	600,000	29 Dec 99
Regional Study on Forest Policy and Institutional Reforms	Study	595,000	29 Dec 99

AO = advisory and operational (technical assistance).

PP = project preparatory (technical assistance).

ANNEX 3**ADB Publications on Environment, 1995-1999****1995**

- Climate Change: Issues and Options for People's Republic of China
- Environmental Considerations in Program Lending
- Training Manual for Environmental Impact Assessment

1996

- Economic Evaluation of Environmental Impacts
- Coastal and Marine Environment Management
- State-of-the-Environment in the Asia-Pacific Region

1997

- Central Asian Environments in Transition
- Environmental Impact Assessment for Developing Countries (Volume I—Overview; Volume II—Case Studies)
- Measuring Environmental Performance in Asia
- Potential Uses of Market-Based Instruments for Environmental Management in the Philippines
- Strategy for the Use of Market-Based Instruments in Indonesia's Environmental Management
- Measuring Environmental Quality In Asia
- Mobilizing Broader Support for Asia's Biodiversity
- Emerging Asia: Challenges and Changes

1998

- ADB's and DMCs' Performance Five Years After UNCED
- Environmental Assessment Requirements of the Asian Development Bank
- Asia Least-Cost Greenhouse Gas Abatement Strategy (ALGAS) National Reports and Summary Report (13 volumes)

1999

- Sustainable Cities: Environmental Challenges in the 21st Century
- Emissions Trading in the Energy Sector: Opportunities for the People's Republic of China
- Development of Environment Statistics in Developing Asian and Pacific Countries
- Environment and Economics in Project Preparation: Ten Asian Cases
- Environmental Management of Maldives: An Overview

2000

- Review of Environmental Legislation in Selected DMCs
- The Environment Program: Recent Achievements and a New Agenda for the Poor

Under Preparation

Environmental Assessment Guidelines
Asian Environment Outlook