Population Density in the Greater Mekong Subregion, 2000

Legend:
- Capital
- Major City
- Mekong River
- International Boundary
- Water Body
- Border
- Main River

Persons per square kilometer:
- 0 - 50
- 50 - 100
- 1,000 - 4,042
- 100 - 500

The boundaries are not necessarily authoritative.

Despite being rich in natural resources, the subregional economies (except Yunnan Province, PRC, and Thailand) are among the least developed in the world. Their common goal is to achieve sustainable development and take better advantage of their strategic location to improve the income and employment opportunities of the subregion’s 250 million inhabitants.

Development in the subregion will include new and better roads, railways, and airports. The hydropower potential of the rivers will be harnessed and minerals will be mined. The cities will grow and with time the economies will become more industrialized. Agriculture production will have to keep pace—by increasing yields or using more land.

The challenge is to ensure that this development remains productive and sustainable. Assuring sustainable development is not easy. Changes in the noneconomic dimensions of development (social, environmental, cultural, political, and spiritual) have proven to be costly. Furthermore, the benefits and costs of development have not been spread evenly among the populations because of, for example, unequal levels of development and social structures, and development plans that put economic growth before equity and sustainability.

Much of the subregion is experiencing a double transition—from subsistence farming to more modern, diversified economies, and from central planning to more market-based economic systems. Globalization and the revolution in information, communications, and technology have increased the pressure to speed up this process. Subregional countries have chosen to meet these challenges with more openness, which became more marked in the 1990s.

Less restricted cross-border trade and other forms of economic cooperation have improved development opportunities and led to increased productivity and competitiveness—important weapons for fighting poverty. Subregional economic cooperation also makes possible the trust and confidence necessary for joint action to resolve cross-border problems, including environmental concerns.

There is much to do to strengthen and develop linkages within the subregion. Tensions and conflict during the recent past, as well as the earlier emphasis on self-sufficiency by several economies in the subregion, meant that transport connections were weak, cross-border trade was discouraged by arduous customs and other regulations, and telecommunications between the subregional countries were expensive and unreliable. Similarly, energy resources were undeveloped, even though economies with vast energy potential (Yunnan Province, PRC, Lao PDR, and Myanmar) could supply energy-deficit countries in the subregion, notably Thailand.

Tourism tended to be limited to country-specific attractions, rather than jointly promoting the diversified “jewels of the Mekong.” Sharing of skills was restricted and there was only minimal cooperation in fighting communicable diseases (e.g., HIV/AIDS) and other problems with cross-border dimensions (e.g., the drug trade and trafficking of women and children). While the subregional economies have long been supported by various international organizations to protect their watershed resources, there is a call for concerted efforts to address the issues and complexities of sustainable development.

Much of the economic growth of the subregion during the next 2 decades will result from increases in manufacturing and services, outpacing the growth of agriculture. This pattern has been experienced by Thailand since the mid-1970s and by the PRC from the 1990s. In Thailand, this pattern of growth and industrialization, combined with rising per capita consumption, will almost double the demand on natural resources in the next quarter century.

The other subregional countries in transition to more market-based and open economies are expected to follow this pattern. During the 1990s, the agriculture sector declined in importance, relative to other sectors, in Cambodia, Lao PDR, Myanmar, and Viet Nam. These changes reflect shifts in structures of national economies, and imply a shift from subsistence farming to a variety of more commercial activities. They also imply increasing specialization and economies of scale, with increasing reliance on intra-subregional trade. This, in turn, will increase the demand on natural resources in Cambodia, Lao PDR, Myanmar, and Viet Nam, and will require much better natural resource and environmental management in these countries than at present.
Projected growth rates for industry and services are expected to markedly exceed the rate for agriculture. Given projected sector trends in the subregion to 2015, one anticipated problem is the increasing gap between rural and urban incomes. More than half of the people in the subregion will still reside in rural areas, dependent on agriculture and natural resources for their sustenance and livelihoods. Rural population density increases will limit improvements in income, even if dramatic land productivity increases are made. There will be a growing tendency to overexploit natural resources, further endangering watershed, wetland, and other resources in the subregion on which poor communities are very dependent.

Population, Urbanization, and Migration Trends

The annual rate of subregional population growth is expected to slow during the coming decades, from around 1.7% in 2000 to less than 1.0% in 2015. However, the total population, slightly over 250 million currently, is expected to reach around 290 million by 2015. Myanmar and Viet Nam, with large population bases, will account for most of the population increase. For most subregional economies, which have achieved some success in raising incomes and reducing poverty, an additional challenge is to ensure that the benefits of growth are shared throughout the country and among all groups of people, especially the rural poor and ethnic minorities.
Given the increasingly limited income opportunities in rural areas, rural-urban migration is expected to increase markedly. Provision for more than 50% more people in urban centers will be needed in less than 15 years. For the major cities of the subregion, particularly its capital cities, rapid urbanization and growth over the last few decades pose a threat to the preservation of the cultural and natural environment. Swelling urban populations create greater demand for urban infrastructure and basic services. In most cases, these services—housing, health, education, green open space, recreation, transport, water supply, sewage, solid waste management, and telecommunications—have not kept pace with requirements, resulting in declining quality of life for many. The need is to find the elusive balance between the economic growth to keep pace with demands of the growing population, and the preservation of the cities’ cultural inheritance and of their surrounding natural resource endowments that spur their growth.

The way urbanization spreads will be important, especially as the countries cooperate more closely in promoting economic and physical linkages between and among them. The building of transport infrastructure and systems ("transport corridors"), around which economic activity can be clustered, is a major feature of cooperation in the subregion, and this will have a strong influence on the future distribution of populations and population centers. The challenge for future urban centers is to provide adequate services to residents within the limits of sustainable resource use.

The projected long-term slowing of population growth means that growth of the labor force will also lessen. This is expected to lower unemployment pressures in densely populated countries struggling to generate sufficient jobs. However, rising wages, as a result, could create a labor cost disadvantage relative to South Asia.

**Transportation and Economic Corridors**

Transport linkages promote trade and economic activity in the areas that they connect. In the subregion, it was thought that investments in priority infrastructure sectors (mainly transport, but also energy, telecommunications, and tourism) should focus on the same geographic space to maximize development impact and minimize costs. For this reason, the subregional countries decided to develop economic corridors in selected transport routes in the subregion.

An economic corridor is a geographically defined area in which infrastructure development, such as subregional roads, is linked directly to production, trade, and investment potential of the area, in the process starting and accelerating economic activities throughout the corridor and its surrounding areas. Among the key elements of an economic corridor are the transport corridor; the “nodes” or the economic growth areas along the corridor route; “software,” such as policies, programs, institutional arrangements, and multicountry agreements; and regionally integrated commercial infrastructure.
Economic corridor development is a key strategy of the subregional Program for Economic Cooperation (the “GMS Program”), which was established in 1992 to strengthen economic linkages among subregional entities. After a decade of cooperation, the member countries adopted the GMS Strategic Framework in 2001 to guide the GMS Program in the next decade. The framework envisions the transformation of three transport corridors into full-fledged economic corridors:

- the North-South Corridor from Kunming in Yunnan Province, PRC to Chiang Rai in northern Thailand (via the Lao PDR and Myanmar), and further to Bangkok, including another branch from Kunming to Hanoi and Haiphong in Viet Nam;
- the East-West Corridor, encompassing 1,450 km from Mawlamyine in Myanmar to Mukdahan in Thailand, to Savannakhet and Dansavan in the Lao PDR, and to Da Nang in Viet Nam; and
- the Southern Corridor, linking the major cities of Bangkok in Thailand, Phnom Penh in Cambodia, and Ho Chi Minh City, leading to the port city of Vung Tau in Viet Nam.

These three corridors span the leading areas of economic, business, commercial, and trade activities in the subregion. They will play a major role in integrating the subregion.

**Telecommunications**

Telecommunications are considered a key factor in production, development, and poverty reduction because of their dual role as a traded service and a vehicle for trade in other service sectors. An efficient telecommunications sector will not only allow transfer of information at the lowest possible cost, but will also help increase trade, incomes, and...
national benefits. As such, it will empower minorities and rural communities, as well as expand networks. The direct linkage between poverty reduction and access to telecommunications services is becoming increasingly apparent with the development of the Internet. Improvements in the telecommunications sector will help address the so-called “digital divide,” i.e., provide the poor with increased opportunity to access the Internet and take advantage of new technologies and services. Further, the lower costs of telecommunications services resulting from technological advances provide developing countries with the opportunity to leapfrog to more advanced stages of network development.

As the subregional economies grow and develop, the need for expanded telecommunications capacity and capability including the Internet is expected to increase. This, in turn, will require greater sophistication of their domestic telecommunications networks. Despite the large potential provided by telecommunications to accelerate economic growth in the subregion, investment in the sector has barely kept abreast with demand in most of the subregion. Cooperation in the telecommunications sector will give the subregional economies the opportunity to maximize the benefits to be derived from telecommunications technology.

Studies on the subregional telecommunications sector have recommended developing a modern, high-capacity network based on fiber-optic transmission systems, which should have minimal, if not zero, environmental impact, apart from some disturbances during construction. Complementing these planned investments are telecommunications sector policy reforms to encourage private sector participation, as well as technical recommendations on improving the integration of national telecommunications networks.
Given the relatively low development and very low electrification rates of the subregion, especially of Cambodia, Lao PDR, and Myanmar, the growth in electricity demand in the subregion is expected to exceed GDP growth within the next 2 decades. One advantage that the subregional economies have is the presence of energy resource options—coal, hydropower, and gas—in sufficiently commercial quantities. For example, subregional hydropower potential alone is four times the current total power generated in the subregion. However, the geographic distribution of energy resources is uneven. Most hydropower potential is in Yunnan Province, PRC; Lao PDR; and Myanmar, while most demand for power is in Thailand and Viet Nam. Cooperation through regional power trade is, therefore, vital to enable energy to flow from surplus to deficit countries, to the mutual benefit of both. This involves the coordinated development and interconnection of national power grids and systems that will allow buying and selling of power under mutually acceptable rules.

At present, hydropower and gas appear to be the best candidates for power resource development. They are abundant in the subregion and viable technologies exist for tapping them efficiently. Moreover, hydropower is an attractive substitute for coal and fossil fuels, which generate high levels of greenhouse gases. However, the benefits of hydropower development should be weighed carefully against potential adverse impact, such as the inundation of settlements and watershed areas, and the alteration of fisheries and riverine ecosystems that could affect the livelihoods and welfare of large numbers of poor people.
Economic development and environmental protection are highly complex and intertwined issues. A development strategy has to rest on productivity improvements while ensuring that the environment and natural resources continue to benefit the people of the subregion. Protecting the environment alone is not sufficient; development is necessary to lift the subregion out of poverty. The emphasis must be on sustainable development and the corresponding trade-offs that this entails, and on ensuring that development is equitable and benefits all segments of society.

Transboundary Issues

Each subregional entity has its own set of economic opportunities and constraints. But some call for transboundary cooperation. The Mekong River is the obvious example, in its 4,200-km journey through the subregion. Any development in the upper Mekong River Basin within Yunnan Province, PRC is of great concern to the lower Mekong River Basin countries—Cambodia, Lao PDR, Thailand, and Viet Nam. These countries became parties to the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin in April 1995. The agreement transformed the Mekong Committee (established in 1957) into the Mekong River Commission (MRC), whose mission is to promote and coordinate sustainable management and development of water and related resources.

Although the five countries and Yunnan Province, PRC all have their own forests, trade in logs and timber is transboundary. As one of them takes steps to conserve its forest resources, the pressure to harvest in others increases. The illegal cross-border trade in wildlife and rare and endangered species complicates efforts to protect biodiversity. Another problem is the geography of ecoregions. Although they are the appropriate entities for conservation planning, they rarely fall neatly within international boundaries. Effective conservation of rich biodiversity regions like the Annamites in Viet Nam may require the establishment of transboundary protected areas.

In terms of cross-border trade in energy, vast energy resources in Yunnan Province, PRC; Lao PDR; and Myanmar can be developed for export, with Thailand the most likely importer. Many hydropower projects are being planned expressly for this purpose. Economic and political stability in the subregion, as well as harmonious intercountry relations, is prerequisite to allay importers’ concerns about the security of supply and to minimize exporters’ risk as regards the viability of long-term contracts. However, much of the social and environmental impact associated with the development of hydropower projects will be borne by the exporting countries: their people will be resettled, their lands will be inundated, and their fisheries will be disrupted. The impact on downstream countries may materialize in the form of changed water flows and altered aquatic ecosystems.
Water Resource Use

The use of water resources is one of the most sensitive subregional issues. Of great concern to the four lower Mekong River Basin countries is the series of dams proposed for construction on the Mekong main stem, the so-called Lancang Cascade and the dams within the Mekong watersheds being considered to generate export revenues for the Lao PDR. The specific concern of governments from a subregional point of view is the alteration of the natural hydrological cycle; the impact this may have on downstream water levels and sedimentation; and the disruption of fish productivity, fish migration, and fish catches.

Agriculture is the major user of the subregion’s water supplies. Further development of the agriculture sector will depend significantly on increasing the area of cropland under irrigation to intensify production. Cambodia plans to rehabilitate existing irrigation schemes and create new ones to increase rice production. The Lao PDR aims to curtail shifting cultivation to conserve its forest resources, which will depend on its capacity to develop irrigated rice culture as an alternative livelihood. However, irrigation schemes invariably mean dams and water diversions, with consequent impact on fish and fish habitats. The alternative for such schemes is to rely on groundwater, with much uncertainty about long-term sustainability.

There exists the danger that water volume in the lower part of the Mekong River will decline in the future if deforestation trends continue and water from the Mekong and its tributaries is used for big irrigation schemes. Other factors that may contribute to decline in water quantity include large-scale hydropower development and inappropriate catchment management practices.

Agriculture Productivity

Over the next decades, population growth, income growth—which will fuel rising food demand—and the continuing effort to help the tens of millions of people who currently live below the poverty line, will exert growing pressures on the subregion’s food production systems. In response, the subregion’s farmers, particularly those subsisting on small farms, are expected to increase their crop production. Existing cropland in some parts of the subregion may be made more productive through irrigation and could meet some of the rising demand for food. However, opportunities for cropland expansion are severely limited by the mountainous nature of much of the subregion. Increase in cropland areas would have to come through wetland conversion and forest encroachment, both of which would have serious detrimental effects on the natural resource base and biodiversity.

Recent experience with large dam hydropower projects tends to support these conclusions. One challenge is to find better ways to minimize these risks. Progress is being made: better environmental and social safeguards are being put in place. In spite of poor regulation, overharvesting, and destructive fishing practices, fisheries yields have been stable or even increasing in the subregion. However, the time has come to take steps to sustain the productivity and to rationalize the use of these resources. This includes reexamining the often complex, formal and informal regulatory systems that control access to fisheries resources.

Fisheries Management

The contribution of inland fisheries to subregional economy and to the welfare of the population has been grossly underestimated. The importance of fish for the subsistence of poor families has become well understood only recently. In Tonle Sap, fisheries are indispensable to food security, income, and employment for many Cambodians. Research is revealing the complex ecological relationships that link fish productivity and fisheries catch to the annual hydrological cycle of the Mekong River. Still, there is much to be learned and more systematic and reliable information is needed.

Concerns are increasing that proposed dam developments on the Mekong River and its tributaries will affect the downstream flow of water and the supply of nutrients. These physical changes may translate into changes in aquatic ecosystems. Many believe that this will reduce the abundance of fish and change the species composition of the fish communities to the detriment of fisheries yields, fishing incomes, and the available food supply. Recent experience with large dam hydropower projects tends to support these conclusions. One challenge is to find better ways to minimize these risks. Progress is being made: better environmental and social safeguards are being put in place.

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Forests and Biodiversity Conservation

The prospects for creating wealth from forest cropping are limited. The current rates of forest exploitation are unsustainable, making deforestation a problem across the subregion. The causes include overharvesting timber by legal and illegal logging operations, dam construction, clearing to create new agricultural land, road and tourism development, slash-and-burn cultivation, and intensive illegal hunting.

As the forest cover declines, so will biodiversity. The most obvious evidence will be a decreasing abundance of larger mammals, ultimately leading to fewer species. Birds will suffer the same fate as their habitat is reduced and as wetlands are converted to agriculture. The number of other species in the animal kingdom (e.g., insects, spiders, worms, reptiles, and amphibians), while perhaps less noticeable, will also decline. When the forest cover is removed, its ecosystem is drastically disturbed, or even destroyed. Similarly, when forests are converted to cropland or settlement areas, the forest ecosystem is permanently lost.

In general, industrial forestry, based on large-scale forest management and processing, has had a poor record to date, usually operating in an unsustainable manner without optimizing employment or income generation. In well-managed forests, trees and other vegetation ultimately grow back unless the land has been severely degraded. However, the renewed forest ecosystem will be different from before: biodiversity will be poorer and the soil less fertile.

Urban and Industrial Pollution

Water and air pollution in the subregion tend to be localized, but they raise significant issues. Poor sanitation because of inadequate sewage and solid waste management affects water quality in adjacent water bodies, which leads to contamination of groundwater. The basic sewage and drainage systems in many of the subregion’s larger urban areas have not been well maintained.

The rapid growth of the industrial and agroindustrial economy has created serious pollution problems in the air, on the surface, and in the groundwater in major metropolitan areas. This is compounded when coal-fired power plants generate local and subregional sulfur dioxide pollution.

Similarly, the growing industrial sector is creating new challenges for the disposal of industrial effluents and management of industrial solid wastes, in particular, hazardous waste. As industrialization proceeds, amounts of toxic and hazardous byproducts increase with the introduction of new chemical/industrial processes. The subregion also faces industrial wastewater pollution problems associated with older industrial zones.
The need for economic development to proceed in a way that does not compromise the sustainability of the planet’s environmental and resource endowments was highlighted at a major world conference in 1992—the United Nations Conference on Environment and Development, or Earth Summit, attended by governments of 178 nations and held in Rio de Janeiro, Brazil. Agenda 21, a wide-ranging blueprint for action to achieve development worldwide, was one of the main outcomes of the conference. Agenda 21 contains detailed proposals for action in social and economic areas—such as combating poverty, changing patterns of production

### Progress Toward Implementing Agenda 21

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<th>CAMBODIA</th>
<th>PEOPLE’S REPUBLIC OF CHINA</th>
<th>LAO PDR</th>
<th>MYANMAR</th>
<th>THAILAND</th>
<th>VIET NAM</th>
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<tr>
<td><strong>Agenda 21 Actions</strong></td>
<td>–</td>
<td>Set up the Leading Group for PRC Agenda 21 in 1994, the first in GMS</td>
<td>–</td>
<td>Completed Myanmar Agenda 21 in 1997</td>
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<td><strong>Institutions</strong></td>
<td>Ministry of Environment established in 1993, enhanced in 1996</td>
<td>The EPL created the National Environmental Protection Agency; Local governments directed to implement and formulate their own Agenda 21</td>
<td>Science, Technology, and Environment Agency to coordinate environmental concerns</td>
<td>Established National Commission for Environmental Affairs as coordinator for sustainable development</td>
<td>Ministry of Science, Technology and Environment established in 1992</td>
<td>Established National Environment Agency in 1993</td>
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and consumption, and addressing demographic issues—as well as for conserving and managing the natural resources that are the basis of life.

The Agenda 21 principles were welcomed and translated into a Plan of Implementation in the 2002 World Summit on Sustainable Development held in Johannesburg, South Africa. The Johannesburg Commitment affirms that poverty eradication, changing unsustainable patterns of production and consumption, protecting and managing the natural resource base, social development, and economic development are the main objectives of, and essential requirements for, sustainable development. The Summit refocused attention on the need for increased access to clean water and proper sanitation, as well as to energy services, improved health, more efficient agriculture, and better protection of the world’s biodiversity and ecosystems.

The countries in the subregion are all formally committed to Agenda 21. Some have taken direct action and all have enacted relevant policies and/or plans (see Box, p. 126). The countries are now preparing to adopt the Johannesburg Plan of Implementation.

**National Environmental Strategies and Implementation**

In the 1990s, especially after the 1992 Earth Summit, most subregional countries set out a national environmental policy and moved toward formally making environmental concerns an integral part of their socioeconomic development plans. Nevertheless, all subregional countries have more work to do in formulating a national sustainable development strategy that integrates economic, social, and environmental concerns. Even the PRC and Myanmar, which already have a national Agenda 21, need to update their plans to address emerging issues including globalization and the five Johannesburg commitment focal areas of water, energy, health, agriculture, and biodiversity.

**Institutional Arrangements.** Generally, the subregional countries have given high-level attention to the environment, as shown through the establishment of ministerial-level meetings or of councils or other relevant government bodies. The subregional countries have been prompt in setting up the mechanisms needed to address environmental concerns in development, especially since the 1992 Earth Summit. However, the intersectoral nature of sustainable development challenges requires involvement of multiple ministries and agencies. Experience in the subregion has shown the need for stronger coordination among the different offices and ministries in terms of policies, initiatives, functions, and authorities. There is also a need for defining stronger accountability systems and for capacity-building programs for development managers.

**Civil Society.** Agenda 21 stresses the importance of involving major stakeholders in all stages of the sustainable development process, from planning to implementation to monitoring and evaluation. The level of expertise of the nongovernment and business sectors varies considerably among the subregional countries, and this directly affects the level of involvement and participation of stakeholder groups in sustainable development processes. While international nongovernment organizations (NGOs) have a strong presence in policy advocacy and awareness building, domestic NGOs, comparatively less numerous and active in the subregion, involve themselves more in community work and in policy consultations. There is much scope for more meaningful NGO participation in sustainable development. Genuine partnerships between NGOs and governments will be enhanced if means, such as constructive dialogue, can be found to remove any existing barrier between them.

**Individual and Collective National Activities**

Throughout the subregion, the potential is acknowledged for adverse social and environmental effects of development processes, both directly from projects and indirectly from economic activity or social and demographic changes induced by development activities. The subregional countries are individually or collectively, undertaking suitable mitigation activities as direct responses to specific environmental challenges.

**Transboundary Challenges.** The subregional countries have been cooperating closely in addressing the transboundary nature of environmental challenges. The four lower Mekong subregional countries formed the Mekong River Commission and all six countries have been active in cooperative programs on the environment sector, supported by various development partners active in the subregion.

**Water Resource Use.** Institutional mechanisms that allow subregional countries to coordinate actions with respect to shared water resources are in place. For dam projects, especially large dams, comprehensive assessments are undertaken to minimize potential cross-border social and environmental impact. Existing institutional mechanisms will improve information sharing among the respective power agencies, particularly of technology, experience on environmental management, resettlement, and pollution control for power projects.

**Agriculture Productivity.** The subregional countries are now putting in place mechanisms for cooperating and sharing knowledge on integrated land and water management strategies, good management practices, environmentally sound technologies, and better policies to support sustainable food production.

**Fisheries Management.** There are now moves to raise the profile of fisheries in planning for the future of large river basins in the subregion. Protection of fish habitats will involve a careful study of both large projects in the main rivers and the many smaller developments in the tributaries that may alter fish habitats. Given the dependency of large populations on fisheries, social and community concerns are now being considered in designing appropriate regulations. To balance the needs of commercial fishers with subsistence needs of communities and poor families, there are moves toward stronger co-management of fisheries based on community participation and application of sound fisheries science.

**Forest and Biodiversity Conservation.** Forest management practices are shifting toward sustainable use. Government policies on access to forest resources, particularly industrial forest operations, are being reexamined and there are efforts to reform allocation systems for harvesting rights. Community-based forest management approaches, with participation of the communities and strong support from relevant authorities, are being expanded to demonstrate alternative models of sustainable forest management.
Urban and Industrial Pollution. Waste management systems are being upgraded in view of growing urban populations. Water supply and sanitation projects to construct wastewater supply, sewerage, and drainage facilities are underway or are planned in most major cities. Local governments are now dealing with the central issue of how to finance the needed infrastructure and are trying to find ways to recover the construction, operation, and maintenance costs from users. There is still limited, but growing, advocacy in the subregion to reduce industrial pollution. Such pollution is a concern that is also being addressed partially by government regulation or new financial investments that allow closing or relocating facilities, or upgrading pollution control equipment. In new industrial zones, centralized wastewater treatment facilities are put in place to prevent or at least reduce water pollution. Still, industrial waste (including hazardous waste) is often released untreated into poorly engineered landfills. The not-in-my-backyard syndrome makes it difficult to find appropriate locations for most waste management facilities.

Protection of Aquatic Ecosystems. Integrated approaches to pollution control are being explored for aquatic ecosystems. The limitations of an isolated solution are illustrated in the case of Dian Chi Lake in Yunnan Province, PRC. Significant investments in wastewater treatment plants for Kunming reduced the organic pollution load in Dian Chi but did little to improve the water quality in the lake, because runoff from surrounding agricultural areas continued to pour organic and inorganic pollutants into the lake. For Dian Chi and other large lakes in the subregion like Tonle Sap and Inle lakes, subregional governments are now more open to applying integrated and, therefore, more effective approaches to controlling pollution.

Vehicle Emissions. Reducing vehicle emissions is increasingly becoming a major priority—with a combination of investments in mass transit and controls on fuels and vehicle engines being explored to address the problem.

Subregional and International Organizations

The institutional mechanisms that directly address subregional sustainable development concerns are the Association of Southeast Asian Nations (ASEAN), Mekong River Commission (MRC), and Greater Mekong Subregional Economic Cooperation Program (GMS Program). In addition, four United Nations bodies provide assistance for specific activities.

The World Bank and many bilateral agencies are actively addressing environmental concerns through support to projects within the subregional countries. These agencies also provide direct and program support to such institutions as ASEAN and MRC.

ASEAN

For ASEAN, the members of which include all subregional countries except the PRC, environmental issues have been addressed since 1978 through the ASEAN Environment Program, called ASEP I (1978–1982) and ASEP II (1983–1987). Environmental cooperation was further strengthened in the 1990s with the Strategic Plan of Action on Environment (1994–1998).

The forest fires and transboundary haze that threatened parts of the region provided the impetus to include control and prevention of transboundary pollution in the Sixth ASEAN Summit Declaration in May 2001. The Declaration formed the basis for defining the objectives for environment cooperation in the Hanoi Plan of Action, which led to the adoption of the Strategic Plan of Action for the Environment (1994–2004). ASEAN also set up a Regional Centre for Biodiversity Conservation (see Box, this page).

Mekong River Commission

The MRC members are Cambodia, Lao PDR, Thailand, and Viet Nam. The Commission provides a mechanism for coordinated and cooperative efforts to utilize, manage, and conserve the water and related resources of the Mekong River Basin. MRC does this by carrying out strategic programs and providing scientific information and policy advice. MRC has three core programs: the Basin Development Plan, the Water Utilization Program, and the Environment Program. The Basin Development Plan promotes knowledge sharing, capacity building, and sound environmental management, and is expected to guide investment into irrigated agriculture, watershed management, fisheries, hydropower, and other key sectors. The Water Utilization Program provides the necessary tools and knowledge to understand the hydrology of the Mekong River and its linkages to other components of the natural environment. The Environment Program focuses on transboundary environmental monitoring, but includes environmental impact assessment systems, and capacity building in environmental management.

Community-managed irrigation system, Lao PDR
United Nations Organizations

United Nations Commission for Sustainable Development (UNCSD). UNCSD offers a mechanism for UN member countries to pursue sustainable development initiatives through sessions/activities in which countries agree to carry out tasks with help from various development bodies. All six subregional countries are active participants of UNCSD sessions and activities. Member countries present reports pertaining to national initiatives and their progress toward compliance with commitments to Agenda 21. Current commitments are based on the Johannesburg Summit, including the formulation of national strategies for sustainable development and ways to involve in the planning those who will be affected by development projects.

Economic and Social Commission for Asia and the Pacific (ESCAP). ESCAP is responsible for regional cooperation and integration in the Asia-Pacific region. In the area of environment and sustainable development, ESCAP contributes to strengthening national capacities to design and implement policies and strategies. Its initiatives include a two-phase project to integrate environmental and socioeconomic planning and to involve stakeholders through national councils for sustainable development.

United Nations Development Programme (UNDP). UNDP cooperates closely with ESCAP to promote and implement the UN agenda. UNDP’s projects are funded under the Global Environment Facility and assisted by the Capacity 21 Program, which was key to the creation of numerous local and national sustainable development strategies under Agenda 21.

United Nations Environment Programme (UNEP). While UNEP’s main area of responsibility is the environment, it has been very active in sustainable development. UNEP has supported projects in the subregion in partnership with ADB, MRC, and other institutions. Its Regional Resource Centre for Asia and the Pacific worked closely with ADB, ESCAP, and UNDP for the Johannesburg Summit, involving preparation of subregional and regional sustainable development platforms. UNEP has been implementing projects under the GMS Program and is supporting the formulation of national sustainable development strategies in the subregion.

Greater Mekong Subregional Economic Cooperation Program

ADB has strongly supported the GMS Program since the latter’s establishment in 1992. The Program has helped develop infrastructure to link the subregion and develop its resource base, and has supported initiatives for resolving policy, regulatory, and other nonphysical barriers to cross-border traffic and trade. The GMS Strategic Framework adopted in 2001, which will guide cooperation into the next decade, articulates the shared vision of a Mekong subregion that is more integrated, prosperous, and equitable. This is to be realized through five thrusts that include protecting the environment and promoting sustainable use of shared resources. The GMS Strategic Framework was strongly endorsed during the GMS Summit of Leaders of the six subregional countries held in Phnom Penh in November 2002.

Cooperation in environmental concerns is an important part of the GMS Program because natural resources provide the base for the subregion’s socioeconomic development. When infrastructure projects threatened to have an adverse environmental impact, ADB focused its assistance under the GMS Program on promoting the early integration of social and environmental issues in the planning process, and on strengthening monitoring and evaluation capabilities.

ADB supported the establishment of the GMS Working Group on Environment, which ensured that environmental dimensions are addressed in various projects and activities of the GMS Program. The Working Group also coordinated the implementation of environment projects under the GMS Program. These projects involved (i) the development and implementation of a common framework (the Strategic Environment Framework) among subregional countries; (ii) cooperation in the management of shared environmental resources, such as watersheds and wetlands; and (iii) institutional strengthening to share information and undertake joint environmental monitoring.

For example, in Tonle Sap Lake, Cambodia, the natural resources are a source of conflict among stakeholders. Inequality of access rights, growing population pressure, insufficient or nonexistent rights to land tenure, and cultural and ethnic differences place the lake’s ecosystem and the population that depends on it at risk. Poverty is more severe in the Tonle Sap region than in the nation as a whole. Ability to tackle these issues has been diminished at all levels of Cambodian society by 25 years of strife brought about by the Khmer Rouge.
In recent years, concern has increased that development and unsustainable exploitation of Tonle Sap Lake’s natural richness, especially illegal fishing and clearing of forests for fuelwood, housing, and cash cropping, threaten the lake. King Norodom Sihanouk has warned that Cambodia faces environmental disaster if the fragile ecosystem of the lake is further degraded.

Poverty reduction in the Tonle Sap Lake area hinges on a clear, basin-wide vision, social and environmental justice, and sustainable livelihoods. ADB is supporting the Government of Cambodia in its efforts to attain these goals.

Strategic Environment Framework (SEF). The SEF project was developed to guide investment decisions, initially in the transport and water resources sectors. The ultimate goal was to ensure that investments in all sectors are environmentally and socially sustainable. Under the SEF, various environmental and social databases have been set up to support decisions on development and include databases on the identified environmentally sensitive areas or “hotspots” in the subregion. The development of information resources and determination of ways to disseminate and use such information, are currently works in progress.

Shared Environmental Resources. ADB has financed projects to develop sustainable management systems in degraded areas, such as watersheds and wetlands. The approach has been to develop frameworks for environmental action, consisting of mutually consistent policies, strategies, and guidelines that subregional countries could follow in reversing degradation in critical areas. In the case of the Tonle Sap Biosphere Reserve, the resource conflicts mentioned above threatened the area’s ecosystem. ADB saw the urgent need to improve management capacity for biodiversity conservation, as well as to prepare the lake’s communities to manage the resources in the reserve. Subsequently, ADB provided support to the Government of Cambodia in a 10-year project for these purposes.

Information Sharing and Joint Environmental Monitoring. In view of the need to improve social and environmental data collection and maintenance for informed decision making, ADB has supported projects to set up subregional databases, establish procedures for sharing information, and improve the agencies that manage environmental resources. A follow-up to the SEF project would develop national and subregional performance assessment systems that would enable subregional governments and other stakeholders to plan development in a way that provide for sustainable use of resources.