

A Perspective on Cambodia

Sisowath D. Chanto and Ham Samnang

Introduction

Sustainable development would not be sustainable without sustainable environmental management, as people's livelihoods depend on the condition of their environment. Environmental sustainability requires institutional implementation at every level, which means that development, economic, and political decision-making processes affecting the environment must be formulated using a holistic approach, and must include the full participation of the public. A comprehensive environmental framework encompasses democratic governance in the management of natural resources and energy development.

This perspective paper addresses environmental issues in Cambodia and in the greater Mekong sub-region. More importantly, it articulates the importance of institutional management of environmental policy. In a regional context, the substance of this work identifies policy linkages among national institutions, such as the Ministry of Environment (MoE), regional environmental institutions, such as the Mekong River Commission (MRC), and non-governmental organizations (NGOs).

This paper is organized in four sections: (1) Cambodia's general environmental situation; (2) developments in the policy and institutional setting; (3) Cambodia's contribution to regional environmental management; and (4) best practice and future prospects.

General Environmental Situation

Domestic Situation and Priority Areas

Over the last 20 years, Cambodia's forests have been degraded by war, wood harvesting, and the expansion of agriculture. In the future, this degradation will increase even more, mainly because of high levels of forest reclamation and illegal logging, which are carried out without regard for technical standards.

During these 20 years of internal turmoil and anarchy Cambodia's forest cover was reduced by 11.2 percent (Hong, 1997), resulting in increasing problems for the country's agriculture and fish stocks, not to mention increased social consequences. As a result, the Royal Government of Cambodia enacted the National Environmental Action Plan (NEAP) in response to Cambodia's main environmental challenges. Key priority issues include: (1) deforestation; (2) shortage of fish and floodplain agriculture in the Tonle Sap region; (3) coastal fisheries; (4) degradation of inundated forest; and (5) urban waste.

Information about the Environment

Information about the environment in Cambodia has been insufficient. The lack of reporting on environmental indicators makes it difficult to grasp the status of Cambodia's environment.

Cambodia has a population of 11.5 million people. The Cambodian economy depends largely on agricultural production: 80 percent of the country's economy is based on agriculture. Local NGOs, such as the Partnership for Development in Kampuchea (PADEK), and international NGOs, such as Oxfam America, have been able to provide data on environmental concerns in Cambodia.

Rural Cambodians depend on natural resources for their livelihoods. Irrigated land constitutes about 16 percent of the 1,821,000 hectares of land under rice production,²⁶ the remaining depends on rains in the wet season (June-November). The average rice yield is around 1.98 tons/ha.²⁷ However, in some places, this figure is lower during drought or floods.

1) Deforestation: Supplemental Revenue

Extensive civil conflict in Cambodia has led to severe financial and physical destruction. The Royal Government of Cambodia sold natural resources for supplemental revenue for reconstruction. The government legalized commercial logging beginning in 1993, but has imposed restrictions since 1998.

Logging has had serious impacts on local livelihoods, affecting agricultural productivity and causing floods that destroy human lives, crops, roads, and people's houses. Cambodia's forests cover about 11.2 million hectares, about 62 percent of the country's total land area, and are an important source of timber for domestic use and export (Hong, 1997).

The forest sector is a source of employment, particularly harvesting and processing operations, and provides various non-timber products such as wildlife, fuel wood and medicinal plants. Wood is the principal source of fuel and fuel wood accounts for the largest use of wood harvested. Most fuel wood is collected by rural people in accessible forest areas. Out of a total of 6 million cubic meters of fuel wood extracted annually, about half come from forests.²⁸

Though measures have been taken by the government aimed at sustaining the forest, problems still remain. Procedures to award forest concessions are not transparent and contracts are approved without detailed surveys of concession areas. Despite the efforts

²⁶ International Rice Research Institute, "Distribution of rice crop area, by environment" (2001 data). Online at <http://www.irri.org/science/ricestat/pdfs/Table%2030.pdf> (March 2003).

²⁷ International Rice Research Institute, "Rough rice yield, by country" (2001 data). Online at: <http://www.irri.org/science/ricestat/pdfs/Table%2003-feb.pdf> (March 2003).

²⁸ Cambodia National Environmental Action Plan 1998-2002 (January 1998).

of law enforcement agencies, significant quantities of logs have been illegally exported. Due to weak institutional capacity and security concerns, the Forest Department has had limited ability to monitor concessions and enforce regulations, particularly in areas controlled by former Khmer Rouge (such as Anlong Veng, a town in Oddar Meanchey Province). Forest areas have been lost due to illegal land reclamation (RGC, 1998).

2) Fishing and Flood Plain Agriculture in the Tonle Sap Region

The Tonle Sap Lake, or Great Lake, has a unique hydrology. It is a natural flood retention basin regulating flood water from the Mekong River. About three million people in six provinces depend on this great lake and its floodplain for their livelihoods, including fishing and agriculture.

With its rich biodiversity, the Tonle Sap ecosystem plays an important role in the economic, social, and cultural life of Cambodians. The lake yields about 230,000 tons of fish annually (ADB, 2002). Three types of fishing operations are practiced: industrial, artisanal (medium-scale), and family fishing. Although the government has adopted a fisheries law, there are still concerns that over-fishing could occur because of the growing deficit between the supply and demand for fish, caused by a rapidly growing population. There is not enough reliable information on the status of fisheries, needed to guide planning and implementation. The size of inundated forests has been reduced through fuel wood harvesting and converting land to agricultural use, and this has reduced the number of fish in the lake. Cambodian farmers have used agrochemicals to improve crop yields, and this could harm the environment because of the damage to soils.

Another concern is that the Tonle Sap has become shallower due to increased sedimentation (JICA, 2002). A shallower Tonle Sap would cause floods because the lake would not be able to store water flowing from the Mekong River and elsewhere (flood flows from the Mekong River account for about 62 percent of the volume of water in the lake and the remaining 38 percent comes from watersheds associated with the lake).

3) Coastal Fisheries

Cambodia's coastal zone supports diverse habitats and species significant to biodiversity, including mangrove forests, coral reefs, and seagrass beds. Presently, overexploitation of mangroves in Cambodia appears to be localized, but this could become a major problem in coastal areas if action is not taken. Harvesting of mangrove forests for charcoal is one of the major causes of degradation. About 100,000 tons of mangrove trees were reportedly harvested in 1992 to produce 24,000 tons of charcoal, 90 percent of which was exported to Thailand and other Southeast Asian countries (RGC, 1998). Mangrove areas are also under threat from the brackish water of shrimp aquaculture. Other habitats critical to marine fisheries that could be threatened by human activities include coral reefs and seagrass beds, where the main threat is offshore oil and gas development. Contaminants associated with the oil and gas industry include oil spills; sanitary and domestic waste from drilling activities; and wastewater from production that contains heavy metals, elemental sulfur and sulfides, and organic compounds.

4) Degradation of Inundated Forest

Another concern is the degradation of inundated forest in the Tonle Sap's floodplain and wetland areas. The degradation of inundated forest and watersheds associated with the lake appears to be a major problem. Deforestation, mainly due to harvesting of trees for firewood or charcoal, has reportedly reduced the inundated forest in the Tonle Sap area from 1 million hectares in the 1960s to 614,000 hectares by 1992 (RGC, 1998). Also, this degradation of forest in the floodplain and wetlands has caused soil erosion and a decline in species diversity and fish populations, as the floodplain is an important spawning, nursery, and/or feeding ground for several fish species. The largest consumers of inundated forest are the cottage industries, mostly brick manufacturing and fish smoking. A second major cause of decline in inundated forests is the reclamation of forest areas for the cultivation of rice, mung beans, and other crops.

5) Urban Waste Management

The increasing waste in cities and urban areas damages their beauty, causes dirtiness and disease, and pollutes the air. Major cities in Cambodia have been experiencing a rapid increase in the volume of solid waste (mainly organic matter from residential, construction, and commercial sources) and special waste (toxic waste from small- and large-scale industries, and from hospital and pharmaceutical facilities) since the civil war ended in 1991. The disposal of wastewater, including sewage, is another emerging problem.

The drainage systems in Phnom Penh and other cities suffer various problems. Many pipes are dysfunctional because of lack of maintenance. Others are clogged because of illegally or randomly dumped garbage and infrequent removal of silt. In addition, many of the six pumping stations in Phnom Penh operate irregularly because of aging equipment, lack of spare parts, and an unreliable supply of electricity. The breakdown of the drainage system has increased the risk of flooding during the rainy season and overflows of wastewater into adjacent residential areas.

In Phnom Penh, there is only one garbage dump built on 7 hectares of land outside the city. Environmentalists have said it is not enough to hold around the approximately 2,000 tons a day currently being generated. One of the major risks associated with open dumps is the spread of disease pathogens and chemical contaminants. These dumps are accessible to waste pickers and domestic animals that feed on garbage and can spread disease pathogens and chemical contaminants to humans through the food chain. A second public health problem is air quality near the open dumps, which is adversely affected by burning and/or biodegradation of waste. People working or living close to the dumps, mostly the poor, are more susceptible to respiratory illness because of smoke generated from burning waste. In addition, gases associated with biodegradation within an open dump include benzene and vinyl chloride, both of which may be carcinogenic. Further, soils and surface and groundwater can be contaminated by seepage and microorganisms from the dumping site.

The Mekong River Commission: Transboundary Issues

The Mekong River Commission (MRC) has conducted studies to measure environmental problems along the Mekong. The most pressing issues are: 1) flood; 2) drought and damage from brine in the delta; and 3) large flow fluctuations between wet and dry seasons, which cause large differences in water level and a deterioration of water quality during parts of the year (Stensholt, 1997). Still, the greatest problem is that the governments of the region's countries have not yet adopted the environmental measures necessary as their economies develop. River pollution already exists, and will probably be aggravated as industrialization proceeds in different areas unless preventative measures are taken.

Yet the most critical regional issue that requires immediate attention is the “downstream effect” of upstream developments on ecosystems in downstream countries. Cambodia has been a victim of the irregular flows caused by Vietnam's Se San and Yali Falls Dams. According to studies conducted by Oxfam America, the Se San and Yali Falls Dams have contributed to the irregular flow that ultimately affects the livelihood of downstream communities in Cambodia's Rattanakiri and Stung Treng Provinces. The studies found that the economic impact on Rattanakiri alone was severe. Based upon the total land flooded, approximately 1,500kg of unmilled rice and 10,048,800kg of unmilled paddy rice were lost. At a value of 500 riel/kg, the total value of such a loss would be over four billion riel, or US\$1,281,735, which represents a significant loss of capital for the local people. Other assets lost included livestock and vegetables (Baird et al., 2002).²⁹

Another risk is China's plans to build dams — to help alleviate its energy shortage — at 14 different points on the upper reaches of the Mekong River in Yunnan Province. The dams are meant to control the flooding that creates havoc downstream, but could also have wide-ranging effects on the river's ecology and numerous fisheries. In this region, the basin is susceptible to meteorological changes, causing the snow line to fluctuate in the high mountains. Furthermore, human activities are reducing the basin's forest cover, which leaves open the possibility that the soil located around the river's source will gradually lose its water retention capacity. Another major concern is that the effluent flowing into the Mekong mainstream will become a serious pollution problem.

Developments in the Policy and Institutional Setting

Cambodia's Environmental Policy Framework

The overall objectives of the Ministry of Environment are to effectively manage, conserve, and protect Cambodia's environment and natural resources in an ecologically sustainable manner that will assist in alleviating poverty throughout the nation. The medium-term objectives are to: 1) develop coastal zone management; 2) reduce urban and industrial pollution; 3) strengthen protected areas management; 4) enhance forest concession management; 5) improve management of the Tonle Sap ecosystem; and 6) build the environmental planning capacity of core institutions (RGC, 1998).

²⁹ The study also notes the direct loss of human life.

Efforts in environmental protection and natural resources management have been made based on four principles: 1) the recognition of the link between poverty alleviation and the environment; 2) the recognition of the importance of communities; 3) the recognition of the need for institutional capacity building; and 4) the recognition of the importance of an integrated approach to environmental planning (RGC, 1998).

Environmental issues are cross-sectoral and different institutions have responsibilities and undertake activities that affect the environment. There is a need for monitoring the implementation of all public investment projects to ensure that their implementation is environmentally sound, and to strengthen the links between development planning and environmental protection. There is also a need to incorporate environmental impact assessments (EIA) and compliance procedures in new project screening procedures.

The Mekong River Commission: Relevant Developments

There are more than 60 million people living in the Lower Mekong Basin. Rural residents of the Mekong countries are among the poorest in the world, and three-quarters of Lower Basin residents are farmers and fishermen whose lives and livelihoods depend on the river basin and its natural resources. To promote economic growth and environmental sustainability across the borders of countries in the Lower Mekong Basin, Cambodia, Laos, Thailand, and Vietnam will collaborate on a regional development plan, the first projects of which will be established in irrigation; watershed management and fisheries; hydropower; navigation and transportation; water-related tourism; water supply to homes and industry; and flood management.³⁰ The initial stage of the plan will take three years and cost \$6.16 million, and will be funded by the governments of Australia, Denmark, Japan, Sweden, and Switzerland. In November, the Mekong River Commission received a \$2 million grant from Denmark to support the launch and initial implementation its new five-year Environment Programme. “Although the four MRC countries all have environment programs, there are as yet no well-developed mechanisms to monitor the impact of development across national borders,” according to Joern Kristensen.³¹

Contribution to Regional Environment Management

After the 1993 National Elections, Cambodia was integrated into the international and regional community. In 1995, Cambodia became a member of the Mekong River Commission (*see Table 1*), and in 1999 became a member of the Association of Southeast Asian Nations (ASEAN). As a Developing Member Country (DMC), Cambodia has passed the following legislation with global or regional implications (RGC, 1997):

- Law on the Adoption of the Ramsar Convention on Wetlands of International Importance Especially as Waterfowl;
- Law on Adoption of the United Nations Framework Convention on Climate Change;
- Law on Environmental Protection and Natural Resources Management;

³⁰ *Cambodia Daily*, Saturday and Sunday, February 16-17, 2002.

³¹ *Cambodia Daily*, Tuesday, November 27, 2001. Joern Kristensen is chief executive officer of the MRC.

- Sub-Decree on the Establishment of the National Committee for Development and Implementation of Forestry Policy; and
- Sub-decree on the Establishment of the Inter-Ministerial Technical Commission for Oil Exploration and Exploitation.

These legal instruments have been incorporated into Cambodia's own legislative framework. In 1996, Cambodia enacted the Law on Environmental Protection and Natural Resource Management, a precedent that led to the enactment of the National Environmental Action Plan (NEAP).

The approval of the NEAP by the Council of Ministers on December 4, 1997 affirmed the government's commitment to incorporate environmental concerns into its development decisions. As Cambodia moves into the implementation phase of the NEAP, it is encouraging to see that NEAP initiatives are becoming realities.

The NEAP provides a strategic framework for improving environmental management in some of the priority areas discussed above, namely forestry, fisheries and flood plain agriculture in the Tonle Sap region, coastal fisheries, biodiversity and protected areas, and urban waste management. It also covers energy development and the environment.

Five of these six priorities, with the exception of urban waste management, are aligned with the MRC's Sector Programmes. Hence, Cambodia's environmental programs are not limited to national interest, but rather key environmental issues, such as those listed above, have also been incorporated into local, regional, and international institutions and frameworks. Cambodia's own environmental framework and management will be integrated with the international community's. Thus, Cambodia's environmental management and cooperation has bilateral and multilateral implications, and is proactively driven at the national level. These common reference points are highlighted in Tables 2 and 3.

The difference between the NEAP and the MRC is that the MRC is institutionally driven in a regional framework, while the NEAP, though incorporating a domestic environmental framework into a regional agenda, is perhaps not as institutionally driven because of deficiencies in institutional capacity and resources. Nonetheless, there are many parallel programs and issues that require cross-institutional linkages between the MoE and the MRC.

The following are examples of overlapping components of the MoE and MRC. To better identify national environmental issues in the context of the region's environmental issues, it is helpful to screen shared environmental components between the MoE and MRC. The MRC's priority programs consist of its (1) core program; (2) support program; and (3) sector program, as detailed below:

Table 1: Organogram of the MRC

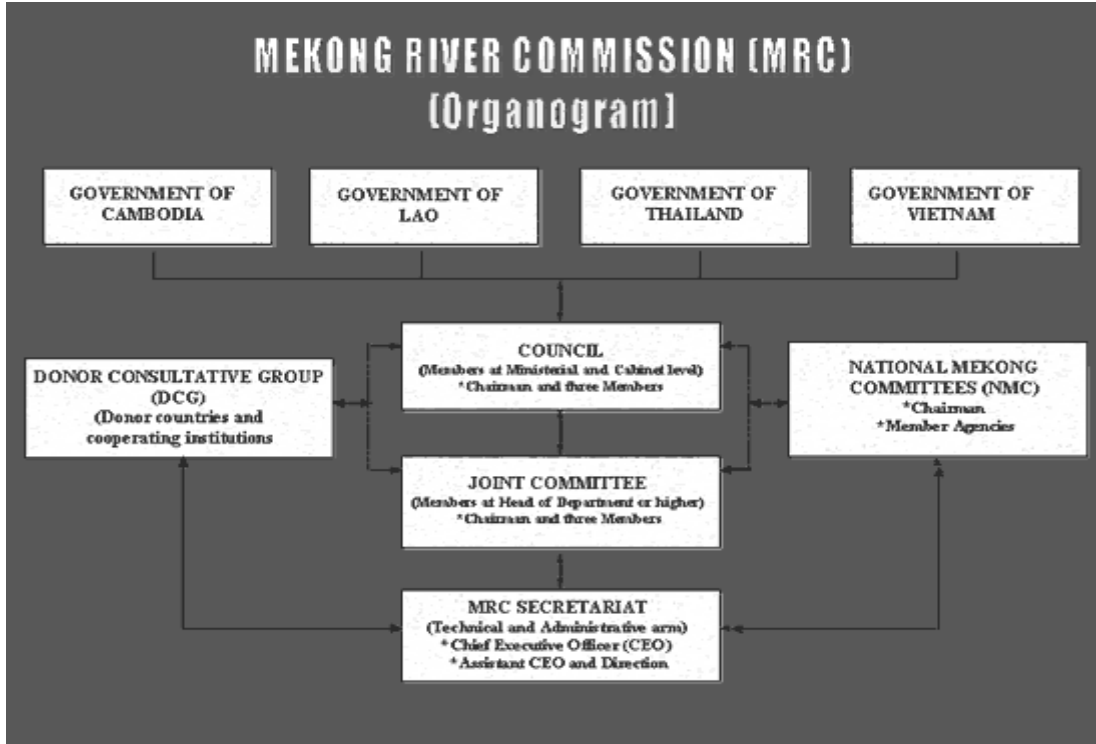


Table 2: MRC Programs

Programs	Component of programs	Environmental components	Regional Issues
Core Programmes	Develop rules, policies, and planning that are necessary for sustainable and equitable management and development of the Mekong Basin's resources	<ul style="list-style-type: none"> • Basin Development Plan; • Water Utilization Programme • Environment Programme 	<p>Institutional capacity and delivery; equitable management and transparency</p> <p>Democratic governance in regional resource management and basin development</p>
Support Programmes	Capacity building	<ul style="list-style-type: none"> • Capacity Building Programme 	Strengthen the administrative, management, and organizational systems, as well as the human resources of the MRC and the riparian governments
Sector Programmes	Focus on specific sectors and address regional issues that are significant to the management of the entire MRC. While the programs have a regional focus, they also complement and support initiatives at the national and bilateral levels	<ul style="list-style-type: none"> • Fisheries Programme • Agriculture, Irrigation, Forestry Programme • Navigation Programme • Tourism Programme • Flood Management Programme 	Complement initiatives at the national and bilateral levels

Table 3: National Environmental Issues of the NEAP

Issue Areas	Planned Action and Forthcoming Challenges
Environmental Issues	<ul style="list-style-type: none"> • Flood management program • Water resource and hydrology program • Biodiversity and protected areas • Energy development and the environment • Urban waste management
Management Issues	<ul style="list-style-type: none"> • Governance and environmental sustainability: <ol style="list-style-type: none"> 1. independent legal experts review existing concession contracts to ensure sustainable management criteria 2. develop and implement regulation to review, monitor, and enforce management plans; 3. define assessment procedures for the sector; 4. invest in field capacity (training, infrastructure, mobility, communication) • Trade control on logging • Improve management of forest concessions: <ol style="list-style-type: none"> 1. coordinate all policy reform activities 2. prepare sectoral investment program 3. coordinate policy dialogue between the government and international donors
Policy and legal issues	<ul style="list-style-type: none"> • Weak institutional capacity • Staff mobility in this field is non-existent
Multi-layered Management	<p>In phase II of the NEAP, developing and implementing a training strategy for the forest sector:</p> <ul style="list-style-type: none"> • launch in-country and overseas training programs for the staff of the Forestry Department, and the Forestry Faculty of the Royal University of Agriculture • design and implement community-based forest management activities, including agroforestry and woodlots
Public involvement	<p>Limited institutional capacity of government agencies, and local groups; the MoE consulted with other government institutions, NGOs, local communities, and international development community; only then, did the MoE decide to prioritize six key issues:</p> <ul style="list-style-type: none"> • forest policy • fisheries and floodplain agriculture in the Tonle Sap region • coastal fisheries • biodiversity and protected areas • energy development and environment • urban waste

Trend	The MRC signed an agreement with China and Myanmar on data sharing; the Asian Development Bank (ADB) and ASEAN are continuing environmental project assessments with NGOs and national think tanks
Projections	The MRC and MoE will continue to improve and become more effective in environmental management; institutional capacity strengthening and program sharing will enhance compatibility between regional and national institutions

Source: Royal Kingdom of Cambodia, "National Environmental Action Plan 1998-2002" (Phnom Penh, Cambodia, 1999).

Participation in Regional Processes

As a member of the MRC, Cambodia has supported numerous regional environment initiatives. In a regional context, Cambodia's constructive engagement in the MRC's programs enables the MRC to voice the interests of riparians in Mekong River matters. While there are many international, regional, and national organizations working in the Mekong Basin, there is only one regional river commission, combining research, capacity building, development programs, and political dialogues at the highest level.

In terms of technical support, Cambodia is an active member of the Mekong River Commission and has been proactively supporting environmental conservation and sustainable development initiatives in some of the MRC's key technical programs and policies. For instance, Cambodia has contributed to: (1) Sustainability of the Mekong River Basin Ecosystems, which specifically protects the ecology of the Mekong River Basin System; (2) Co-operation of the Management of the Basin Resource; (3) Research Integration; (4) the Water Resource and Hydrology Programme; and (5) the Navigation Programme. The supporting initiatives link directly to the MoE, and include research and data gathering, surveys, impact assessment and policy dialogue, sharing of jurisdiction and legal framework through the MRC's Joint Committee.

Multilateral and Bilateral Cooperation

Cambodia's environmental framework is grounded in multilateral cooperation, in partnership with the World Bank (WB), International Monetary Fund (IMF), MRC, United Nations Development Programme (UNDP), Food and Agriculture Organization of the United Nations (FAO), NGOs, and ADB. The nature of these multilateral partnerships encompasses the technical and financial aspects of Cambodia's environmental policy, as well as capacity programs and consultations. For example, the NEAP environmental agenda is integrated into the MRC support and sectoral programs, while key national environmental issues, such as waste management, are being managed and financed by municipal and national authorities.

While the participation of local institutions in environmental protection is important, equally important has been the role of the ADB and its Greater Mekong Sub-region initiatives. The extent that the ADB has helped to strengthen a regional environmental framework merits attention.

The Asian Development Bank's Role in Environmental Sustainability

The ADB's role in environmental sustainability is to finance and provide technical support to environmental conservation programs. Moreover, the ADB consults with local organizations and NGOs on environmental policy, including specific areas such as analytical tools for environmental impact assessment (EIA) and assessment mechanisms, and funds research on environment-related activities and programs. The ADB assists government institutions in capacity building and implementing environmental objectives. It aims to promote environmental awareness in government institutions, while at the same time improving the capacity of local institutions to manage the environment.³² The ADB also assists regional institutions, such as ASEAN and the MRC, primarily through financing the human resource development programs of the Mekong River Commission, as listed in Table 2 (Kao and Sisowath, 2001). In an environmental context, the ADB's function has been to influence local environmental practices via policy dialogue and environmental information. Identifying the level of the ADB's influence would require a separate study.

The ADB supports publications and conducts research on environmental issues, such as in its Environmental Policy Framework. The ADB's interest in environmental research has been to address environmental governance in relation to the politics of natural resources. Instead of concentrating on detailed technical issues, the ADB stresses poverty and environmental sustainability. It also expects local governments to incorporate an environmental agenda into national development plans.³³

The ADB engages indirectly in environmental adjudication. It provides a legal process for filing complaints against ADB-sponsored projects for people whose livelihoods have been adversely affected due to its own negligence. However, it should be noted that the ADB does not take responsibility for member governments' environmental abuses.³⁴ While the ADB does engage in environmental programs, it does not have the required jurisdiction to enforce environmental policy. However, there is evidence that the ADB does have the influence to incorporate its environmental prescriptions into national environmental frameworks.

With regard to environmental governance, from an institutional policy point of view the ADB has played a significant role in supporting environmental sustainability. In terms of institutional practice, however, the ADB is weak due to the fact that it has neither enforcement capacity nor the power to prescribe enforcement. However, it can mitigate environmental abuses by setting strict conditions on loans and providing sound policy information for environmental management. Thus, in the context of environmental

³² See the Cambodian National Environment Action Plan (NEAP). The Asian Development Bank (ADB) and the World Bank were consulted extensively in the drafting process for the NEAP. As such, there is evidence that the ADB and the World Bank have been involved in the legislative process of developing Cambodia's environmental framework, but not to the extent that they are able to enforce the implementation of environmental policy. They simply do not have the jurisdiction to carry out such mandate.

³³Please see also Cambodia's Socio-Economic Development Plan I/II.

³⁴Asian Development Bank Workshop on "Complaint Procedural", Phnom Penh, Cambodia, 2000.

governance, ADB has been perhaps the best liaison between the private sector and local authorities. The extent to which the ADB is accepting responsibility and engaging in environmental protection and environmental sustainability merits a separate study (ADB, 2000).

Nonetheless, it suffices to point out that the ADB does have its own framework for supporting environmental governance, or perhaps environmental sustainability. The framework has three tiers: 1) legal; 2) technical; and 3) financial. All tiers are embedded in ADB loan conditions and policy.

Best Practices and Prospects

Domestically, best practice in environmental sustainability means continuing to educate people about environmental sustainability and the significance of environmental impacts on their livelihoods.

Building institutional capacity requires continuous human resource training. Enforcement is the crux of environmental sustainability. Without enforcement, it would be extremely challenging to maintain a healthy ecological system. Since Cambodia already has a regulatory framework, institutional cooperation and setting, and consultative and participatory processes, what are needed are the monitoring, legal enforcement, and political commitment to protect the ecosystem.

The burden of regional ecological sustainability rests on the political decisions and legal culture of the MRC. The MRC's political decisions have not unequivocally addressed environmental impacts, and its political commitment has been inconsistent. In the case of the Se San and Yali Falls, the MRC has not been able to address the issues of downstream flooding, as downstream inhabitants have suffered flood damages. National institutions have been cooperating in sharing data, financial resources, human resources, and jurisdiction. On the other hand, it is encouraging that the local institutions and the MRC are sharing environment and development programs and that the communication process between regional interests and national interests has been a bottom up process, implying that the MRC is not a monolithic institution.

Most Promising Positive Developments

The most promising development for environmental management in Cambodia has been the strengthening of capacity in environmental monitoring and enforcement. The Royal Government of Cambodia has been able to curb deforestation, while at the same time beginning a reforestation program — a program has been in place in Siem Reap Province since 1998. But the most notable improvement in environmental management has been progress in urban waste management, with waste treatment facilities built in Sihanoukville, Siem Reap, and Phnom Penh, along with tighter regulations and control on industrial waste management.

Realistic enforcement of environmental violations is another promising positive development for environmental sustainability. Improving agricultural development would

alleviate deforestation by supplementing revenue. Privatization and forestry concessions require serious adjustments, as does the practice of logging. Fisheries have seriously upset ecosystems in Cambodia. This problem has been addressed in the Royal Government of Cambodia's Poverty Reduction Strategy Paper (PRSP) and Governance Action Plan (GAP).

The MRC is continuing to engage in high level dialogue with Myanmar and China, and has just recently signed an agreement with China on sharing scientific data on the upper Mekong River Basin. Capacity building continues to earn donors' confidence in its research and results. Yet the policy of cooperation, and the issues of transboundary environmental challenges, governance in practice, institutional pluralism, and regional governance must be realistic. The MRC must be realistic in its ability to deliver on long-term environmental sustainability and democratic governance, which requires that the decision-making process must go beyond the Joint Committee.

In short, best practices in environmental management in Cambodia are institutional accountability, transparency, and institutional democratic governance. Improving research and development is equally important, while political commitment is imperative. In the end, development should focus on the sustainability of people's livelihoods. A cause of concern might be the impact of commercial development on the Mekong Basin. However, since there is practically no legal framework for resolving disputes, it would be difficult to determine the implications of transparency and accountability on environmental management.

Public Involvement and Sustainable Livelihoods

Public involvement is a best practice in ecological sustainability, as environmental degradation affects people's livelihoods directly, particularly rural people. The Se San and Yali Falls scenarios show government negligence in managing for downstream impacts. Whether the release of water from the Se San and Yali Fall reservoirs was perpetuated by design or operational flaw, it was the poor who suffered. The loss of life and livelihood went uncompensated.

Unfortunately, besides NGO participation there appears to be very little participation by the public in environmental issues at the policy level. Groups such as the Se San Protection Network Project, Partners for Development (PFD), Se San District Agriculture, and the Fisheries and Forestry Office have not been able to effectively lobby the government to implement concrete measures to remedy the downstream consequences of the Se San and Yali Falls Dams.

The media, as mentioned earlier, has failed to adequately inform the public on environmental issues. The National Assembly has enacted environmental policy, namely the 1997 National Environmental Action Plan, but has failed to follow up on its implementation and enforce policy in the face of environmental violations. In other words, the MoE has not been able to provide progress reports on the NEAP. The absence of monitoring processes or programs may exacerbate environmental problems. There has been little evidence of environmental activism or academic research on environmental

management. Cambodia's environmental issues have been frequently raised and addressed by international agencies, such as the ADB, World Wildlife Fund (WWF), United Nations Educational, Scientific and Cultural Organization (UNESCO), UNDP, WB, IMF, and international donors.

Fundamentally, it is important that the public is able to participate in environmental issues, especially the rural public. People formerly living in the Tonle Sap Basin and in Rattanakiri, near Vietnam, were victimized by procedural negligence that resulted in their displacement. In Rattanakiri, an entire village was displaced when the Vietnamese opened their dams without duly warning the local authorities. The exact cost of property and environmental damage has been undetermined as both governments have brushed the issue aside (Baird et al., 2002).

The main issues in the Tonle Sap region have been illegal fishing, conflict between commercial fishermen, and indigenous peoples. Concessions to commercial fishing groups prevent local people's access to commercial fishing zones. As a result, the indigenous locals have been unable sustain their livelihoods from fisheries (Baird et al., 2002).

Priority Areas for the Next Five Years

Cambodia's environmental priorities will continue to focus on human resource development, enforcement, and improving the institutional linkages between local authorities and the MoE on environmental protection. Within this focus, special attention will be given to biodiversity and protected areas and energy development. As the development of some of Cambodia's energy potential could negatively affect its archaeological and cultural assets, agricultural lands, and sensitive ecosystems, the government is preparing a national energy policy to address demand and supply, and environmental and social issues.

Lessons Learned and Recommendations

Lessons Learned

- The region's environmental issues stem from national challenges in environmental management. These challenges include capacity, finance, legal framework, political decisions, monitoring, enforcement, democratic governance, pluralism in the decision-making process, commitment, and lack of attention to the environment.

Recommendations

- People must continue to learn about the impact of environmental degradation and environmental management, which affect their livelihoods;
- Governments can improve access to justice in environmental matters;
- To improve environmental impact assessment, regional governments can apply EIA comprehensively, not just in infrastructure projects but also in activities such as the designation of protected areas;

- Private corporations and project developers can be held to a high standard of information disclosure and public consultation to support public participation in the EIA process;
- Governments can strengthen environmental laws and regulations to clarify institutional mandates and procedures;
- Governments can provide alternative dispute resolution mechanisms.

In sum, the prospects of achieving environmental sustainability and enhancing environmental management rest not only on creative policy planning but also require realistic objectives and political commitment to carry out enforcement.

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