

CHALLENGES IN APPLYING EIA IN THE MEKONG RIVER BASIN

The application of environmental impact assessment (EIA) principles can help the riparian countries of the Mekong River Basin (MRB) meet their future development challenges. Currently, poverty, population pressure, lack of development and the development process itself are all contributors to environmental concerns in the Basin. As we have seen in previous courses, rampant deforestation continues despite logging bans and bans on timber export in several MRB countries. Overfishing and degradation of water quality are becoming more serious issues. Inadequate waste management facilities and treatment, including toxic wastes, contribute to the degradation of both surface and ground water. The environmental consequences of development projects related to land use, fishing, irrigation, hydroelectric power, waste management and disposal, and urban infrastructure can be far-reaching. Unless these types of development projects are undertaken with some knowledge of the likely impacts, the Basin's long-term environmental quality will be at risk.

Riparian countries of the MRB face several challenges in responding to development threats in the Basin. Although the four countries of the Lower Mekong Basin (LMB) have varying environmental review requirements, arguably none fully empower each

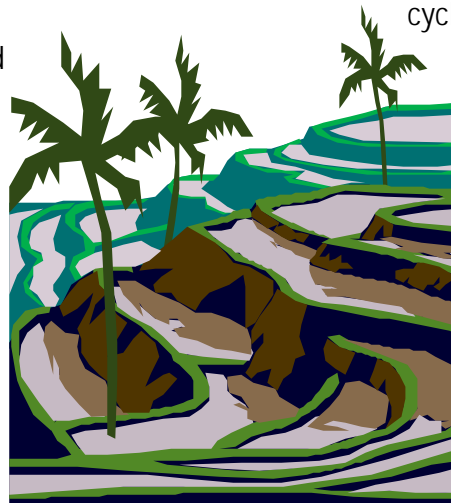
country's environmental managers to insist on adequate environmental review and protection measures. EIA practitioners must also consider some specific issues as described in the following sections in applying their country's EIA provisions.

SUMMARY OF CHALLENGES

Social Conditions

Poverty in MRB riparian countries is a limitation to effective environmental review of proposed development projects or activities. War and unstable political regimes have made some cycles of poverty difficult to escape. Many areas of human settlement are unfit for living due to inadequate shelter, sanitation and water supplies. In Cambodia, for example, only a small portion of the population has access to a safe and reliable supply of water. Some public health problems in the Basin are directly caused by inadequate environmental health within villages, including skin and eye infections, chronic diarrhea among children, haemorrhagic fever, and various parasitic infections. Lack of access to health services in rural areas just aggravates these problems.

At the individual level, the pursuit of adequate food, shelter, and drinking water will always take precedence over the protection of natural resources. However, environmental education and the creation of an environmental ethic are of fundamental importance to the



long-term protection of the Basin's natural environment. More importantly, wiser resource use at the individual or village level can help to reduce the level of poverty. Rudimentary knowledge of how various ecosystem components are related and how that ecosystem has a limited waste assimilation capacity can help local people to manage their resources in a more renewable fashion.

Environmental education can enable local communities to understand and appreciate the Basin's complex ecosystems, as well as the importance of a well-managed environment in economic development. Only an informed, motivated and committed public can provide the foundation necessary for long-term protection of the natural environment.

Environmental education is also extremely important for politicians and government agency personnel, for these people have decision-making powers far beyond the local people. When there is widespread understanding and knowledge of the MRB's natural environment, political decisions are more likely to be the choices that enhance protection of the environment.

Transboundary Issues

Transboundary refers to those impacts that are not contained within a single country's national boundaries. Transboundary environmental impacts can be of immense importance because often they are beyond the control of the individual countries which are ultimately impacted. An excellent environmental review process in one country cannot prevent impacts resulting from a poorly planned development in a neighbouring country. An implicit component of an adequate EIA process is a consideration of and

responsibility to other countries. Because natural ecosystems do not respect political boundaries, sustainable natural resource management entails an effort to limit and manage environmental impacts for the benefit of all people in a region, not just within a single country

In the Mekong River, water resources in the Basin are not yet governed by defined rules of international law concerning water use and allocation among riparian countries. In 1957, the Basin was divided between the upper Mekong (China and Myanmar) and the lower Mekong (Cambodia, Lao PDR, Thailand and Vietnam). The Mekong River Commission (MRC) was set up in that same year to foster coordinated use of the river among the four LMB countries. The vast hydropower potential of the Mekong River and some of its tributaries has long been recognized, and will most likely be increasingly harnessed as development continues in the Basin. Damming of portions of the mainstream Mekong River and/or its tributaries has the potential to impact downstream nations. For example, China has effectively impacted all the nations in the LMB with the installation of dams constructed in the early 1990s, such as the Man Wan dam. In the absence of an agreement among riparian countries concerning water rights, downstream nations might not receive compensation for loss of fisheries, irrigation water, and other losses that would result from reduced water flows.

Environmental review of hydropower developments (and other projects or activities that could impact neighbouring countries), requires an examination of possible transboundary impacts. The needs of adjacent

countries and their requirements for compensation should be considered in the overall environmental assessment.

Scientific Information Gaps

Many of the riparian countries in the LMB have limited technical databases for making accurate impact predictions. As a result, extensive baseline data needs to be collected. Baseline data is essential information that details the natural environmental conditions of a particular region or natural resource. Through the collection of baseline data, we can learn the natural flow patterns of rivers and their tributaries. We can learn the resident and migratory fish

species and start to understand their life cycles. The collection of baseline over time can reveal much about the natural processes of an ecosystem, including soil types, nutrient cycling, plant, animal community composition and the ecosystem's ability to assimilate and recover from various stresses. Baseline data is particularly important because it enables scientists and environmental managers to determine the natural conditions and processes of an ecosystem. Over time, changes within the ecosystem as a result of natural or anthropogenic disturbances can be detected and trends can be revealed. In addition, knowledge

Transboundary Issues and the Management of the Danube River

The Danube River, which flows through much of eastern and central Europe presents a transnational environmental management issue very much like that in the Mekong River. The river's headwaters are in German and it flows west for 2,860 km to its outlet in Romania on the Black Sea. Little, if any, of the Danube has escaped human impact. The river has more than 300 tributaries, 60 of which are navigable, and it is one of the principle transportation arteries in continental Europe. It is a vital source of energy to the countries that have dammed the river and built hydroelectric power plants.

The Danube River Basin covers more than 777,000 km² and includes parts of German, Austria, Slovakia, Hungary, Serbia, Montenegro, Croatia, Bosnia and Herzegovina, Slovenia, Bulgaria, Romania, and Ukraine. With this many interests involved, disputes over the use of the river and its resources are inevitable. One country's decision to install a dam will undoubtedly affect the downstream countries' use of the river. Rivalry between nations over the use of the river has long been a part of its history.

The Danube River is a source of drinking water for nearly 10 million people, yet many sections of the river have suffered severe environmental degradation. Human impacts, combined with war and decades of unmitigated pollution and toxic spills, have combined to destroy nearly 80% of the Danube River basin's wetlands and floodplains over the last century.

Current efforts in the Danube River Basin have focused on cooperative restoration efforts. The presidents of six central and eastern European nations and environment ministers from nine more have agreed to a declaration to reverse the decades of pollution and renew natural resources within the Basin. These leaders acknowledge that the use and protection issues surrounding the Danube River go far beyond the management capabilities of the individual countries. They recognize that assessment of environmental impacts to the basin and decisions regarding right-of-use must be addressed at the regional level, with sufficient international guidance and support.

of the natural conditions of a particular resource can be very useful in the design of a proposed development project's mitigation measures.

Restoring an impacted area to its former condition is often much easier when we have detailed knowledge of similar undisturbed ecosystems.

The collection of baseline data can often be the single greatest expense in the preparation of an EIA report. Data collection and analysis can also be the most time-consuming aspect of an assessment. The expense can be considerably reduced, while maintaining quality and accuracy, if the

essential baseline data and information are already available. Long-term monitoring programs such as MRC's water quality monitoring initiative are extremely important in the preparation of local environmental reviews. Over time, the data collection efforts of this program can be used to gauge the overall health of the Basin's water quality and to establish the location of sensitive ecosystems. In this way, proposed projects located in more pollution- or development-sensitive areas can be made subject to adequate environmental protection conditions as part of their project approval.