

Cambodia National Mekong Committee

**Tonle Sap Environmental Management Project
Component One: ADB Loan No 1939-CAM (SF)**

**Policy and Strategy for
The Tonle Sap Biosphere Reserve**

Tonle Sap Biosphere Reserve Secretariat

Revised version

January 2007

TABLE OF CONTENTS

	<i>page</i>
1 Introduction	1
1.1 Background.....	1
1.2 Purpose	1
2 The Need for Coordinated Management.....	1
Land Use, Agriculture and Forests.....	2
2.1 Fisheries.....	3
Water Resources.....	4
Biodiversity	5
2.2 Donors and Civil Society.....	6
Summary of Resource Management Issues.....	6
3 Management Partnership Approach.....	8
3.1 Common Policy Framework.....	8
3.2 Common Policy Coordination	11
3.3 Role and Organization of the TSBR Secretariat.....	13
4 Conclusion.....	14

List of Figures

Figure 1: Common Policy Framework.....	8
Figure 2: TSBR Policy Goals.....	9
Figure 3: Common Policy Coordination using Management Partnership Approach.....	12
Figure 4: TSBR Management Coordination Mechanism.....	13

1 INTRODUCTION

1.1 Background

The Tonle Sap Great Lake is the most important inland wetland in Southeast Asia. In October 1997 the lake was nominated as a Biosphere Reserve under the Man and the Biosphere Program of the United Nations Educational, Scientific and Cultural Organization (UNESCO). The Tonle Sap Biosphere Reserve (TSBR) was formally designated by Royal Decree on 10 April 2001. The internationally recognized status as a biosphere reserve aims to reconcile biodiversity conservation with sustainable development. The Royal Decree for the TSBR was followed in September 2001 by a Sub-decree signed by the Prime Minister to establish the TSBR Secretariat and define its role and functions, recognizing that the objectives of the TSBR will not be achieved without coordination and cooperation among relevant stakeholders.

Land-use zones provided by the biosphere reserve mandate encompass conservation, development and support functions. Three **Core Areas** comprised of 42,300 ha of important wetlands are set aside for protection, one of which, Beung Chhmar, has been designated a Ramsar Site¹. A **Buffer Zone** of 541,000 ha, including the Great Lake, is designated for sustainable fishery and flooded forest management. Finally, there is a large encircling Transition Area of some 900,000 ha.

From 2003 onward the Royal Cambodian Government has supported this process through funding from the Asian Development Bank (ADB) for the Tonle Sap Environmental Management Project (TSEMP), the first of four proposed loan projects under the Tonle Sap Initiative (TSI). Component One of the TSEMP provides for *Strengthening Natural Resource Management Coordination and Planning for the TSBR*, which includes formulation of common policy objectives by the TSBR Secretariat.

1.2 Purpose

Trends in natural resource use for the Tonle Sap that accompany the modernization of Cambodia are not sustainable. The analysis of key natural resource sectors (land-use, agriculture and forestry; fisheries; water resources; and biodiversity) reveals practices that give rise to conflict among stakeholders and compromise the long term and equitable use of resources. Common policies reflect management priorities to be achieved through a partnership among government agencies and civil society. A strategy is proposed for the Tonle Sap Biosphere Reserve to achieve agreement on these common policies.

2 THE NEED FOR COORDINATED MANAGEMENT

Natural resource management issues are interrelated, and confrontation occurs often between groups with considerably different approaches to resource use, disparate institutional and literacy skills, and contrasting incomes. The job of government is to mediate these clashes equitably so that groups without power, often relying on traditional rights to resources, can continue to obtain benefits.

Sector line agencies exercise authority over resource domains at national and provincial levels. Provincial and local government agencies (district, commune councils and village organizations) undertake responsibilities in civil administration. Some national agencies are cross-sector in scope: the Ministries of Interior, Environment, Women's and Veterans' Affairs, and Rural Development are examples. The TSBR Secretariat under the Cambodia National Mekong Committee is responsible for cross-sector coordination among agencies in respect to the TSBR. The commune council is the focal institution for decentralization, putting it at the forefront in community-based resource management.

¹ Wetlands designated as internationally important under the Convention on Wetlands (Ramsar, 1971).

There are both gaps and redundancies in the reach of institutional responsibility, arising from untested and unequally applied laws and institutional authority, which tends to emphasize control of a resource domain rather than stewardship for the common good. Though many Cambodian laws provide local communities with the right to govern resources within their areas, these clauses in the law are not commonly exercised. Application of Cambodian law in land, fisheries and forestry sectors should result in agencies that work together for benefit of local communities.

Land Use, Agriculture and Forests

Land and land use are central to many natural resource conflicts in the Tonle Sap Basin. Lack of secure land tenure in upland areas causes migration onto the Lake. People migrate seasonally to fish once crops are harvested following the flood. Use-tenure, concessions and other types of claim can be found within the TSBR, some of which, when applied excessively, are not sustainable. Land use and vegetation type are synonymous in a rural setting. Flooded forests protect the shoreline of the Lake from wave erosion, provide breeding refuge for fishes, birds and other forms of wildlife, and contribute essential needs for communities on the Lake.

Land clearing in the TSBR has reduced forest cover from 80% in 1965 to about 40% at present with the greatest loss occurring since 1990. High canopy forest comprised of at most seven species of tree account for only 4% of the total, though much scrub forest will contain isolated tall trees in a continuous process of re-growth. Forest destruction in the TSBR is mostly due to conversion of land for agriculture. Fires take their toll: of 154 TSBR communities interviewed in 2004—2005, 54% report grass, shrub or forest fires on their common lands within the last three years. Much land is being taken out of the hands of communities and converted to dry season rice production, a practice that does not recognize the needs of local communities or indigenous ecological knowledge of people practicing subsistence farming in the TSBR. Access by communities to seasonally submerged land for fishing is constricted in some locations by fishing lots.

An appropriate land use code is needed to assure continued use of land held in common by communities within the TSBR. Existing land claims following the defeat of the Khmer Rouge were considered void, and since then a series of land laws (1992, 2001) have progressively provided the legal framework for property rights leading to land registration. The current Land Law provides for improving management of State land, grants of social concessions to the landless, the reform of land taxation, and the establishment of land use planning procedures. Legal protection for land tenure and a basis for the reduction of land disputes is also addressed by the Law.

Dry season encroachment into flooded forests for agriculture may be regulated by means of land use zoning. Usufruct (use) rights may be granted in areas designated as public State-owned land, thereby securing areas for community use within the TSBR. Titling may be possible in areas near roadways where land has become valuable and is subject to greater competition and disputes. Distribution of State land outside the TSBR to landless poor living on the Lake would ease pressure on resources. The sub-decree on community forestry under the Forestry Act could be used to protect flooded forests while enabling community participation in forest management.

The primary agency for administering land titling is the Ministry of Land Management, Urban Planning & Construction (MLMUPC), which has a Committee for Land Use Disputes within the Department of Land Management. Within MAFF, Departments of Agriculture, of Forestry and of Fisheries also are major stakeholders in land policy decisions within the TSBR. The Department of Nature Conservation and Protection in the Ministry of Environment (MOE) has overlapping responsibility for flooded forests through the Office of Community Forestry and Buffer Zones. Commonality of law and agency purpose should guide land use decisions. Institutional conflict should not serve as an excuse for lack of management, as human and ecological needs must continue to be met by the land, water and forests.

Key Issues:

- ⇒ Dry season encroachment and clearance of flooded forests for agriculture, firewood and charcoal; and other types of economic concession that remove land from community use
- ⇒ Landlessness among poorer community members in the Tonle Sap Basin, and lack of access to community land for fishing and farming within the TSBR
- ⇒ Inconsistent application of the Land Law for titling in areas of high land value, allowing Public State-owned land to enter into private possession and other forms of land theft

2.1 Fisheries

The fisheries of the Tonle Sap is an important asset of Cambodia and of the people living within the TSBR. Over-exploitation of aquatic resources in the Tonle Sap is likely occurring, threatening fish biodiversity and long term productivity. Even though the annual fish catch has remained fairly constant, there is a decrease in numbers of key species and relative sizes of fish being caught. Greater effort must be exerted for like quantity. The number of fishermen has increased, and well-financed operations harvest unsustainably. Others use illegal fishing methods that damage the stock remaining. Important fish habitats are lost due to clearing of flooded forests, and upstream dams on the Mekong river negatively affect Tonle Sap flooding and sedimentation.

The Department of Fisheries (DOF) under the Ministry of Agriculture, Forestry and Fisheries (MAFF) is a well-established and technically proficient organization. Long term programs financed by the United Nations, ADB and bilateral agencies have given rise to administrative, scientific and policy approaches for fisheries management. The *National Fisheries Sector Policy* embodies a number of common policies, or policies held for the common good, including co-management by community fisheries, conservation of fishery resources, and funding of research and surveillance activities. Nevertheless, the fishing lot system has been the traditional means for DOF to manage the resource.

The fishing lot system is not practiced in accordance with the burden book. Conflicts arise between fishing lot operators and community fisheries organizations due to overlapping boundaries. Small scale fishing is allowed within fishing lots when the main fishing season is closed, and some areas are set aside for common access for subsistence fishing. Nevertheless, given sufficient influence, someone may expropriate open access fishing grounds. In general, villagers may not have access to fishing areas nearby their homes due to the presence of fishing lots. Co-management would spread benefits among large sections of the population.

DOF implements the program on community fisheries, guided by the Sub-decree on Community Fisheries and *Prakas* now being finalized. Conservation of natural resources, the primary management objective within TSBR core areas, is the responsibility of the Department of Nature Conservation and Protection (DNCP) of the Ministry of Environment (MOE). Both MOE and the TSBR Secretariat aim to monitor all forms of resource use throughout the TSBR. Provincial and communal administrations and village level authorities interact over fisheries issues in a variety of ways. Provincial fishery offices (PFOs) answer to provincial governor's offices in part, and both may call on the provincial authority and police to suppress illegal activity.

In summary, fisheries management could be said to suffer from lack of access among the broader TSBR community to the economic benefits of fisheries. A number of reform policies are incorporated into the DOF *Second Five-Year Fisheries Sector Development Plan (2000-2005)*, including conservation and improvement of fish habitat; cooperation with local authorities and community fisheries organizations for co-management; promoting fishing lot reform and further release of lots for community use; and continued work to establish community fisheries in areas that have already been released. These reform policies depend for success on the will of the Government and DOF to provide the necessary budget and staff motivation. And, like all sector policies relevant to management of TSBR resources, they require co-implementation with other sector policies (land, water, forests), as well as other forms of government cooperation.

Key Issues:

- ⇒ Over-reliance on the commercial fishing lot system as a means of management
- ⇒ Difficulty in demonstrating clear economic benefit from membership in community fisheries organizations, due to restrictions on type of gear and lack of markets for catch
- ⇒ Overexploitation of the resource through illegal fishing practice and intensified capitalization of big operations
- ⇒ Destruction of fish habitats through the cutting of flooded forests
- ⇒ Impacts from dam and irrigation projects on fish migration and habitat

Water Resources

The primary water use in the Tonle Sap Basin is agriculture, and local farm communities are the main user group. Irrigation systems, though limited in size, provide additional water for local farm communities. These schemes are located mostly outside the annual flood zone of the TSBR, but may affect fish production adversely. Over large areas within the flood zone, water is trapped in impoundments during the flood, then used for dry season rice production, affecting community access, animal foraging, and fish and bird habitat. Flows into riparian wetlands adjacent to the Lake are sometimes diverted for agriculture. Conflicts arise between small-scale farmers and fishing lot managers, who drain water from dry season streams to harvest the fish, whereas farmers want to retain water to provide a steady supply for their crops.

Water quality is degraded in local areas around boat landings and populated areas. Human and animal wastes, oil spilled and lost from boat engines, solid waste, and pollutants in rainfall runoff degrade water quality during flood recession and dry periods of the year. Conditions may lead to outbreaks of waterborne disease and skin affliction from use of surface water for household purposes and bathing. The effect of pesticides and chemical fertilizers on plant and animal communities, or the people of the TSBR, is also a concern, though transport and fate of these chemicals requires investigating.

The water resource sector agency is the Ministry of Water Resources and Meteorology (MOWRAM). The CNMC mandate also includes water resources in the synoptic sense of Cambodian surface water as a segment of the Mekong River. CNMC role within the Tonle Sap Basin is evolving to that of a bridging agency that allows cross-sector and interagency cooperation on water resources issues. The Ministry of Rural Development (MRD) has rural water supply as one of its key areas of responsibility. MOE and MAFF also are charged with maintaining and managing various aspects of water resources as they relate to environment and agriculture/forestry/fisheries, respectively.

MOWRAM projects include irrigation headworks and primary and secondary canal systems. Sector policy advocates community ownership of distribution and drainage systems through local networks of Farmer Water User Groups, but the approach has been slow to develop among local communities due to fragile land claims and lack of technical/financial support. Under its sector approach MOWRAM is introducing sub-basin planning, which, among other considerations, looks at allocation of surface water among users, design of systems to divert water, and water quality management. The key priority for TSBR common policy is provision of water for farm communities within the Tonle Sap Basin to offset the shortage of supply during the dry season. An unstable farm community in upland areas, brought about by lack of water, increases seasonal and long term migration into the TSBR, affecting forests and fishing rights.

Key Issues:

- ⇒ Water quality is degraded in rivers near communities and at landings on the lake due to animal and human waste from communities, oil spills from boats, and solid wastes. Agricultural chemicals may be toxic to ecosystems and people, but requires scientific study.

- ⇒ Lack of fresh water supply for upland communities during periods of scarce rainfall, and difficulty in distributing water to where it is needed, induce migration onto the Lake
- ⇒ Better understanding of water supply needs for communities on the Lake is needed, including use criteria and systems.
- ⇒ Impoundment irrigation systems within the TSBR involves use of water resources to induce land use changes that affect community access and grazing
- ⇒ Pumping of water from streams and rivers during the dry season in order to collect fish depletes fish stock as well as water for agricultural use

Biodiversity

The Tonle Sap Lake is well known for its biodiversity values found in flooded forests, seasonally submerged grasslands, meandering rivers and other unique natural features. Sustainable use contributes to the Nation's natural heritage, preserves ecosystem resiliency, and fosters quality of life for people living on the Lake. Factors leading to biodiversity decline include loss of flooded forest to land clearing, intensive exploitation of fisheries, and invasive species. Poverty contributes to biodiversity loss through forced over-exploitation of resources. High demand in foreign and domestic markets for some species, low levels of enforcement, illiteracy, and low levels of awareness of biodiversity values all exacerbate the problem.

The Kingdom of Cambodia confirmed its commitment to biodiversity conservation by ratifying the UN Convention on Biological Diversity in 1995. The Government set out its strategy in the *National Biodiversity Strategy and Action Plan* (April 2002), which provides protection for freshwater fisheries, forests and wild plant and animal resources, community participation, awareness, education, research coordination and development. It creates a policy level *National Biodiversity Steering Committee* (NBSC) with representation from all relevant agencies and a *National Secretariat for Biodiversity* (NSB) to coordinate the Strategy. In addition, environmental laws adopted over the past several years contain several provisions that support biodiversity conservation. The *Wildlife Protection Law* being promulgated by the government provides a clear regulatory framework regarding management, use and conservation of wildlife and habitat, and establishes management authorities with defined duties and functions.

Both MOE and MAFF are responsible for biodiversity protection. The Department of Nature Conservation and Protection (DNCP) of MOE has a Protected Areas Office, which is active throughout the Country to conserve forest, coastal and wetlands resources. The Wildlife Protection Office within the Department of Forestry and Wildlife at MAFF has integrated various conservation practices within the forestry administration; however, since flooded forests come under the purview of the Department of Fisheries, this agency has little input into the management of biodiversity in the TSBR. MOE through its program for protected area management is responsible for the core areas of the TSBR. The MOE Protected Areas Law provides for community based natural resource management, which encompasses protection of biodiversity resources.

There is still inconsistency in implementation of the biosphere reserve concept in accordance with international practice. For instance, the core areas in the TSBR are still leased for commercial fishing lots. Removal of the lots or incorporation of commercial fishing practice into core area management plans is a priority. Maintenance of biodiversity in each province is often dictated by external factors rather than application of uniform policies.

Biodiversity values are promoted by the international community, an important stakeholder in the TSBR. Recognition of biodiversity values among the local community, the target groups in environmental education initiatives, is an important goal to which the international community and government agencies can contribute. Biodiversity programs should provide sustained funding for research and maintenance of core areas, and should identify land, submerged or otherwise, for maintenance of biological communities both for core zones and within the buffer zone of the TSBR.

Key Issues:

- ⇒ Over-exploitation of flooded forests and fisheries
- ⇒ Negative impacts from invasive species
- ⇒ Removal of fishing lots from core areas, or incorporation into core area management plans
- ⇒ Lack of monitoring and enforcement of protection measures in core areas and buffer zone
- ⇒ Low level of public awareness of biodiversity values
- ⇒ Uncoordinated research, monitoring and evaluation of species populations

2.2 Donors and Civil Society

The general public, communities, NGOs, private sector entrepreneurs as well as other interests influence sustainable resource management within the TSBR. NGOs, active in the TSBR alongside donor assistance projects, use human rights and advocacy tools such as fact-finding, litigation and organizing in an effort to empower communities. Improved coordination with NGOs and other civil groups enhance benefits from projects, and introduce transparency.

Traditional, gender-based division of labor exists in most TSBR communities, with differing uses of natural resources. Few programs reach out to women as strategic partners, and most village and commune leaders are men. The role of women with regard to common policy needs to be better defined if gender equity is to be realized over time, with specific initiatives for strengthening women's groups to lobby and inform local governments on environmental and natural resource management issues, and providing leadership training for women in governance.

Summary of Resource Management Issues

A number of key resource management issues are present on the Lake, some common to all sectors and others particular to a specific type of resource. These are summarized as follows:

Common Issues:

- Development too often amounts to resource exploitation, wherein commercial, or “modern”, interests conflict with subsistence, or “traditional”, interests. A **balance of these interests** is called for in the Royal Decree for Establishment of the TSBR, with local communities empowered to manage resources, with the aim of preserving the ecology of the TSBR and its way of life.
- Modern governance supports **stewardship for the common good**, whereas Cambodian institutions tend to view resource management narrowly, and miss the common purpose embodied in national policies. Laws for land, forests, fisheries and community administration contain many elements aimed at commonly held benefits; however these same laws are often interpreted in terms of sector interests and used to extract rents and levies.

Land Use, Agriculture and Forests:

- Greater speed and efficiency in **land allocation to landless families**, accompanied by access to services, including water supply, throughout the Tonle Sap Basin, will ease the problem of population and resource exploitation within the TSBR. The Sub-decree on Social Land Concessions may be used to provide land security to persons living within the Tonle Sap Basin and relieve some stress on natural resources.
- **Land use classification** within the TSBR is in its infancy, whereas unsustainable and inequitable uses are increasing. Determinations of current land use are needed, coupled with detailed boundary mapping and demarcation of fishing lot leases and sub-leases, community fisheries, and administrative jurisdictions. An incremental process of land use zoning, involving relevant stakeholders for a particular location, should follow, resulting in a variety of land use classifications

and permissible uses based on human and natural ecological determinants. Commercial agriculture in the multiple use zone may conflict with other land uses.

- **Preservation of forests**, including natural and human induced reforestation, should be a key priority of land use zoning efforts. Other key priorities are securing access to land held in common for community fisheries and household farm plots, and community involvement in agriculture within the multiple use area.
- **Population and land use** are closely connected, and there is a paucity of information on the numbers, locations and movements of people on the Lake, increase in population of ethnic Vietnamese and Khmer Islam, and seasonal migration onto the Lake during the dry season for foraging, hunting and fishing. Access to resources should be made secure for communities on the Lake. Access should be monitored and regulated through commune councils, fisheries communities and other community-based organizations.

Fisheries:

- **Detrimental fishing practice**, including use of illegal fishing gear, fishing out of season, over-exploitation within fishing lots, and extension of fishing lot boundaries into open access and community fishery areas, work to the detriment of small scale fishers. Fishing lot boundaries, including those of sub-leases, should be mapped and demarcated. Community fisheries should be granted rights in areas at, or nearby, their community locations, and those areas demarcated. Laws related to illegal fishing should be enforced, and the practice of over-fishing of fenced lots should be prohibited. Local community involvement in enforcement is essential to provide oversight and transparency in the regulation of the fisheries sector.
- The definition of **“family-scale” fishing** upon which community fisheries members depend is too restrictive to provide sufficient income for fisher families. Use of medium-scale fishing gear should be allowed under certain conditions for members of community fisheries, and a system of community marketing established that accommodates individual incentive while maintaining operating costs of the cooperative. Community fishery accounts should be audited to prevent improper use of funds.
- **Ethnic Vietnamese** make up an important component of the fishing community of the Tonle Sap, yet these people are not well integrated into community fishery committees; however their participation as members is allowed. Specific policies and planning are needed to engage legal Vietnamese residents in community fishery organizations.
- **Commune councils and community fishery organizations** are poorly aligned. The Government’s decentralization initiative has improved the status of communes. Community fishery organizations should be empowered and monitored by commune councils, with the potential to enforce fishing laws within their domains.

Water Resources:

- **Water allocation** and distribution for village, household and farmstead use will stabilize communities in the Tonle Sap Basin. Sub-basin planning provides the means for allocating water for community use and for maintenance of aquatic habitat.
- **Conflicts between agriculturalists and fishers** stem from right of access and passage, differing demands on use of water, and in-stream barriers for impoundment and diversion of water. Resolving specific water use conflicts locally, and better understanding of the effects of in-stream structures on aquatic habitat, are both necessary for assuring sustainability of the fishery resource and equity among water users.
- **Water quality is degraded** from human liquid and solid waste and spilt oil and fuel from boats, often directly affecting local water supplies for the poorer segment of the population. Water quality management planning is needed, to include means for handling of solid waste in heavily traf-

ficked areas. The effect of agricultural chemicals (pesticides and fertilizer) on the ecology of the Lake should be assessed.

Biodiversity:

- Maintenance of **the Lake’s biodiversity** cuts across all natural resource sectors and human welfare issues. Poverty alleviation, a key objective in equitable allocation of resources, will have a beneficial effect on biodiversity conservation, as will good governance, local area management, and improved agency coordination among agency officials.
- The TSBR abounds in biodiversity, which is most visible in the core areas, but not restricted to those areas. **Land use zoning** can assist to conserve biodiversity habitats of many types within local communities, and assure that a key habitat, the flooded forests, remains intact.

3 MANAGEMENT PARTNERSHIP APPROACH

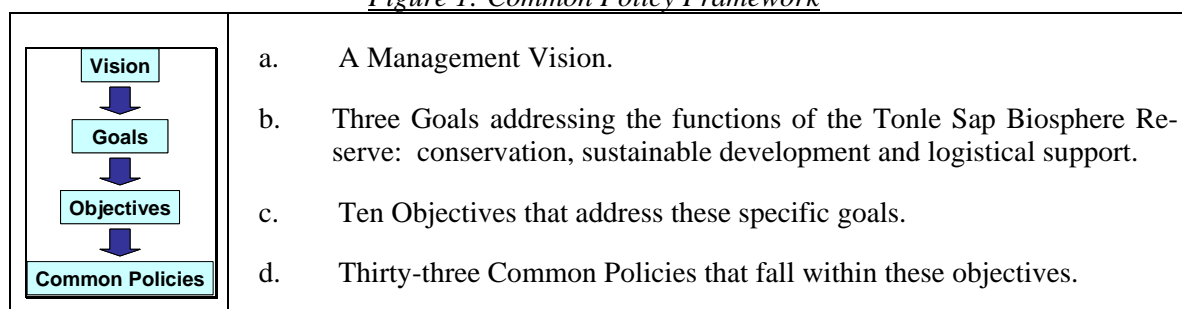
Effective management of natural resources of the TSBR will benefit of the Kingdom of Cambodia and its people. Agencies of government should shift their emphasis from competition to cooperation, delegate management to the appropriate level of local government, provide advice, support and oversight, and implement co-management approaches that build on established Tonle Sap lifestyles. Conservation of biodiversity is compatible with community-driven development, supported by scientific approaches for management. Above all there is the need for partnership. The mechanisms for a *Management Partnership Approach* (MPA) for biodiversity conservation and sustainable development on the TSBR are:

- a. **Common policy framework** established and agreed upon by partner agencies
- b. **Common Policy Coordination** among partner agencies
- c. Recognition of the **TSBR Secretariat** to coordinate among partner agencies, and promote and institutionalize common policies in the TSBR.

3.1 Common Policy Framework

The Common Policy Framework consists of the following: (see Figure 1)

Figure 1: Common Policy Framework

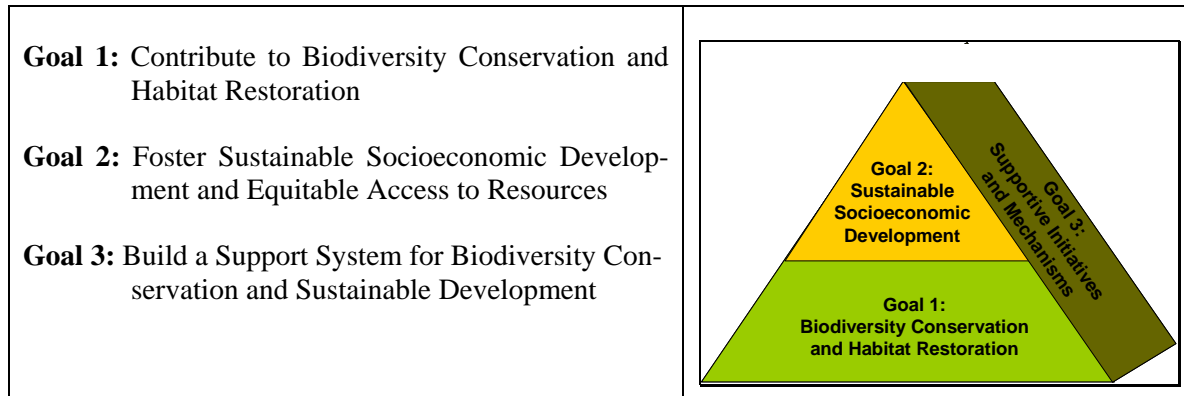


The three primary functions of TSBR management, conservation, sustainable development and logistical support. are derived from the “*Royal Decree on the Establishment and Management of the Tonle Sap Biosphere Reserve*” (April 2001), and provide the basis for the *Vision for the TSBR*:

“By 2020 the Tonle Sap Biosphere Reserve will be a productive and restored environment supporting biodiversity conservation and sustainable development through effective management models, extension, training, environmental education, research and monitoring programs.”

These same three functions of TSBR management give rise to the policy goals shown in Figure 2.

Figure 2: TSBR Policy Goals



Objectives and common policies in relation to these goals are proposed as follows:

Goal 1: Contribute To Biodiversity Conservation and Habitat Restoration

Objective 1.1 Ensure Protection of Core Area Biodiversity

- CP 1.1.1 Following sufficient study and planning, fishing lots shall be reformed to meet the conservation objectives of the Tonle Sap Biosphere Reserve with management plans put into practice by the end of 2011.
- CP 1.1.2 Local communities will be engaged in enforcing regulations on biodiversity and natural resources, to be supported by formal arrangements through commune councils.
- CP 1.1.3 Revenues generated from fines, ecotourism, research, video production and other fees will be efficiently allocated for administering core areas.

Objective 1.2 Enhance Biodiversity Conservation by Establishing additional Core Areas and Fish Sanctuaries

- CP 1.2.1 Boundaries will be demarcated for fish sanctuaries, and viable management plans will be developed with active enforcement to prevent fishing and illegal activities.
- CP 1.2.2 Zoning agreements will be made between partner agencies within the TSBR. These agreements should consider special zoning for additional protected areas, fish sanctuaries and other areas of biodiversity significance. Zoning restrictions will be enforced with the assistance of commune councils and provincial authorities.

Objective 1.3 Protect, Enhance and Restore Flooded Forests as a Critical Habitat

- CP 1.3.1 Partner agencies will cooperate to reach an agreement on cross-sector policies for flooded forest protection through zoning and land use policy, and by activating commune councils to comply with agreed forest zoning and land use policies.
- CP 1.3.2 Partner agencies will agree on habitat and forest restoration programs and help to mobilize funding for communities, NGOs, religious and private groups to replant flooded forest and prevent forest fire.
- CP 1.3.3 Sustainable best practices for use of forest products will be promoted by the partner agencies for local communities whose livelihoods depend on those products.

Goal 2: Foster Sustainable Socioeconomic Development and Equitable Access to Assets

Objective 2.1 To improve management practice through greater law enforcement

- CP 2.1.1 Resource users and relevant stakeholders will be involved in raising community awareness about laws and policy to improve resource use.
- CP 2.1.2 A monitoring network will be implemented by partner agencies to document illegal resource exploitation, assisted by commune councils and local organizations.
- CP 2.1.3 Provincial authorities and commune councils will be given rights to undertake law enforcement, where appropriate and formally agreed by partner agencies.
- CP 2.1.4 Partner agencies will analyze potential inter-agency cooperation on law enforcement in multi-sector areas going beyond the responsibility of single ministries.

Objective 2.2 To build the capacity of Commune Councils, Community Organizations and Private Groups for Sustainable Socio-economic Development

- CP 2.2.1 Capacity for resource allocation, planning and project implementation will be enhanced for commune councils and local organizations through provincial training.
- CP 2.2.2 Local NGOs will be encouraged and supported by partner agencies to deliver training in income generation, health care, education and social infrastructure.
- CP 2.2.3 Partner agencies will develop extension programs to introduce environmentally sound technologies for increased productivity, quality control and market orientation.

Objective 2.3 Enhance Community Well-Being and Ensure Equitable Access to Natural Resources and Funding

- CP 2.3.1 A framework of formal agreements will be developed for integrating local resource management plans into commune council development plans.
- CP 2.3.2 Partner agencies and commune councils will develop means for equitable access and sustainable use by seasonal migrants of Lake resources.
- CP 2.3.3 Funding mechanisms and social land concessions will be used to support neglected stakeholders and vulnerable groups (e.g., women, marginalized groups, poor, and ethnic minorities), and will be incorporated into the commune council development plans.
- CP 2.3.4 Private developments within the TSBR should avoid significant environmental impact and provide maximum benefit to local communities through job creation, credit, social service, and other forms of assistance.
- CP 2.3.5 Land use and resource allocation plans within commune boundaries will be prepared by commune councils with the assistance of partner agencies to ensure equitable access to land, water and fisheries resources by communities.

Objective 2.4 To Promote Integrated Basin Planning of Civil Infrastructure, Water Resources Development, Agricultural Development and Industrial Estates

- CP 2.4.1 Partner agencies will establish a basin-level inter-ministerial council or committee to maximize benefits of water, energy, agriculture and infrastructure, minimize environmental consequences, and guarantee equitable access for people of the Tonle Sap Basin.
- CP 2.4.2 Guidelines and standards for sustainable basin planning will be agreed and followed by partner agencies, with broad participation of commune councils.
- CP 2.4.3 Economic concessions and other forms of development in the TSBR will be accompanied by sector or project Environmental Impact Assessment (EIA). The Ministry of Environment, the Inter-ministerial Basin Committee and the TSBR Secretariat will review EIAs and advise on its appropriateness.
- CP 2.4.4 Water quality management planning will commence for the Tonle Sap Lake and tributaries, to identify pollutant sources and conditions that affect water quality, and to develop a strategy of mitigate impacts on the Lake's water.

Goal 3: Build Support System for Biodiversity Conservation and Sustainable Development

Objective 3.1 To Support Environmental Advocacy and Awareness

- CP 3.1.1 Partner agencies will establish a trust fund mechanism for promoting research on the Tonle Sap through formal agreements with international donors.
- CP 3.1.2 The Tonle Sap Forum will be established as a public discussion forum that meets every two or three years to review development and conservation programs and activities, and to provide recommendations to partner agencies.
- CP 3.1.3 Partner agencies will explore mechanisms to promote international recognition of the Tonle Sap Lake.

Objective 3.2 To Improve Education, Extension, and Training

- CP 3.2.1 Partner agencies will create provincial extension services to effectively transfer sustainable development knowledge and technology to communities.
- CP 3.2.2 A network with other biosphere reserves and education centers will be established by the TSBR Secretariat through the World Network of Biosphere Reserves and the TSBR website for exchange of knowledge, experience and management approaches.
- CP 3.2.3 Partner agencies will assist the relevant Cambodian universities and institutes to include accurate and up-to-date information into their curricula about sustainable development and conservation of the Resources of the Tonle Sap Lake.
- CP 3.2.4 Actions to establish a Tonle Sap Institute will be initiated through the TSBR Secretariat, to be supported by partner agencies and to link with Cambodian and International Universities and Institutes.

Objective 3.3 To Promote Research, Monitoring and Database Management

- CP 3.3.1 A program to monitor ecosystem health will be implemented, which will be used to support decision making on conservation and development issues. This Monitoring Program will be administered by the Tonle Sap Institute.
- CP 3.3.2 Partner agencies will make formal agreements on research, data sharing and data management for joint use through a centralized database system.

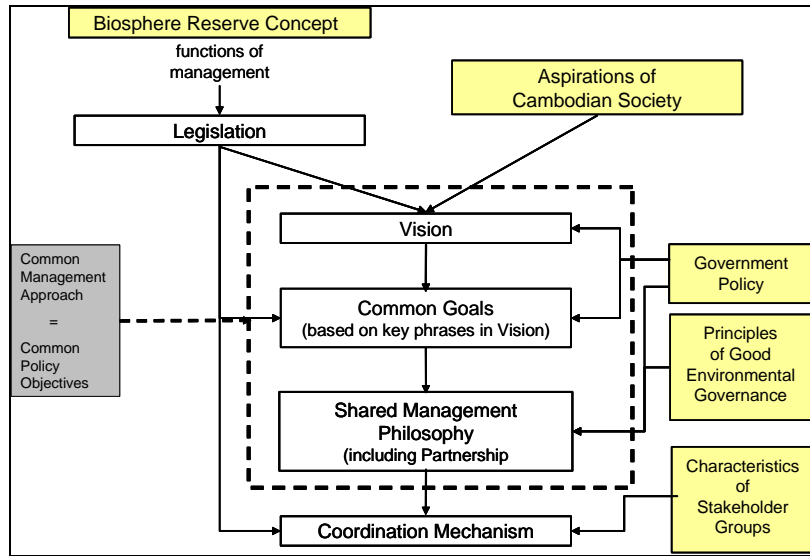
3.2 Common Policy Coordination

The Royal Decree (April 2001) for establishing and managing the TSBR and the Prime Minister's Sub-decree (September 2001) on establishment, role and functions of the TSBR Secretariat recognize that the objectives of the TSBR will not be achieved without coordination and cooperation among relevant stakeholders.

The functions, vision, goals, objectives and common policies comprise elements of the proposed **Management Partnership Approach (MPA)**, shown in Figure 3. This Approach supports a collaborative multi-stakeholder partnership to overcome conflicting policies and practices by defining how the TSBR partner agencies will collaborate to improve resource management. with strengthened Secretariat support and facilitation. Partnership arrangements in support of the management coordination mechanism are proposed for national and provincial levels.

The TSBR Committee will be composed of key stakeholders inclusive of the provincial governors for provinces bordering on the Tonle Sap Lake and national institutions engaged in natural resource management for the Tonle Sap. The Committee will need to meet initially to gain commitment to common policies for the TSBR, and then twice yearly to reaffirm commitments and plan courses of action in line with those policies.

Figure 3: Common Policy Coordination using Management Partnership Approach



Technical Advisory Groups (TAG) will provide expert technical advice to the TSBR Secretariat and national and sub-national management partners of the TSBR Committee on management issues pertaining to: (i) land-use, agriculture and forests; (ii) fisheries; (iii) biodiversity, environment and water resources; (iv) socio-economic development and livelihoods.

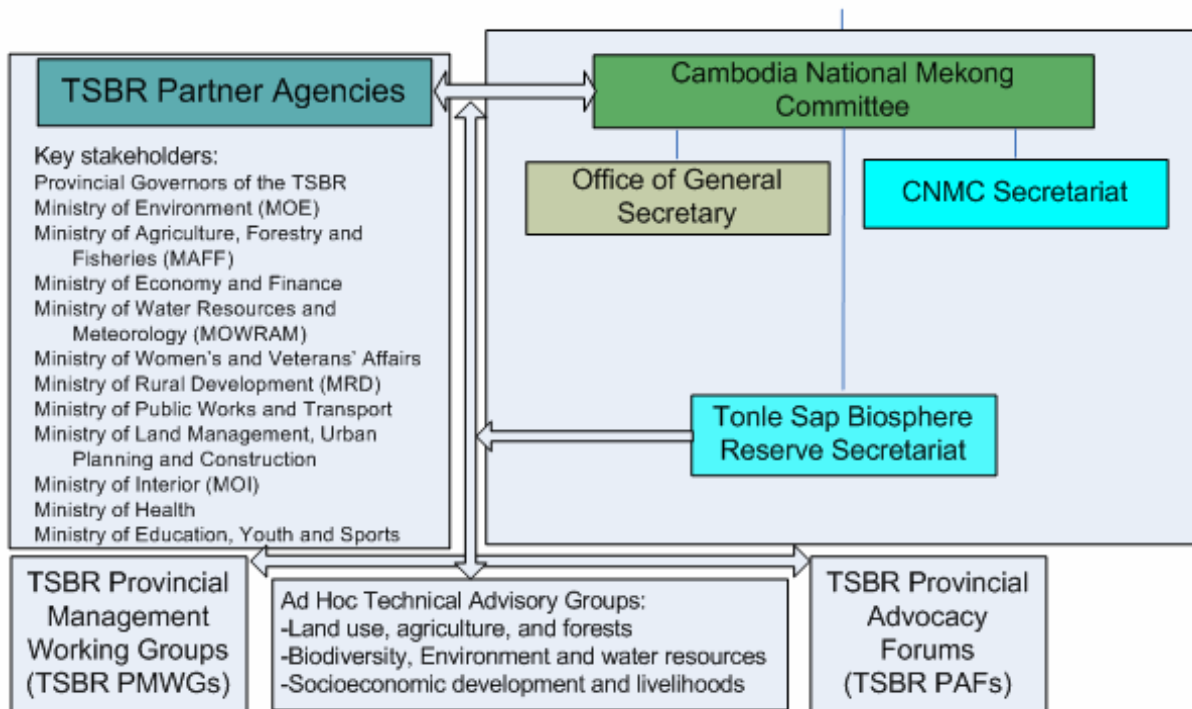
Provincial TSBR Management Working Groups (PMWG) in each of the TSBR provinces will be directly facilitated by Tonle Sap Biosphere Reserve Secretariat. PMWG will mobilize people and resources for ecosystems planning and management. Each PMWG will coordinate program formulation and implementation within the TSBR to optimize biodiversity conservation and sustainable development, and to address conflicts, develop common programs and regularly monitor activities. Each PMWG will also promote several principles of the TSBR Management Partnership Approach: (i) developing partnerships among a variety of stakeholders, (ii) decentralized and de-concentrated (D&D) decision-making and management implementation, (iii) eco-governance, (iv) adaptive management and (v) stakeholder participation.

Provincial TSBR Advocacy Forums (PAF) in each of the TSBR provinces are intended to be civil society consultative forums and will be directly connected to and facilitated by an elected NGO as a Secretariat. Advocacy forums will promote several principles of the TSBR Management Partnership Approach; namely, (i) advocacy, (ii) transparency, (iii) social justice, (iv) stakeholder participation, and (v) recognizing women, poor marginalized people and ethnic minorities for affirmative action.

The purpose of the Management Partnership Approach is to (i) help the relevant ministries initiate critical policy reforms to correct and arrest the most severe environmental and natural resource trends facing the TSBR, (ii) institutionalize the process of inter-agency coordination, and (iii) enable decentralization of functions to local levels.

The proposed Management Partnership Approach forms the basis of the TSBR Secretariat’s role of facilitating development of a TSBR policy coordination mechanism. Developing and strengthening the Secretariat’s capacity for leadership to facilitate this process will be the key to long-term success. Figure 4 presents the proposed structure of the TSBR **Management Coordination Mechanism**.

Figure 4: TSBR Management Coordination Mechanism



3.3 Role and Organization of the TSBR Secretariat

Roles and responsibilities of the Secretariat arise from Article 4 of the Prime Minister's "Sub-Decree on the Establishment, Role and Functions of the Secretariat for Tonle Sap Biosphere Reserve" (2001).

The **role of the Secretariat** is to

..."facilitate **coordination** and strengthen the **communication** and **cooperation** among relevant agencies, provincial authorities, civil society in the protection and sustainable management of the TSBR...

Within this role the Secretariat has a strategic, a coordinative and a cooperative function. The sub-decree specifies the functions as follows:

- to develop a strategy and a mechanism for the achievement of the functions of the TSBR
- to coordinate the establishment of an integrated database management system for the TSBR
- To monitor, evaluate, and review the status of the TSBR within 4 to 10 years period
- To coordinate and cooperate for the review of the existing laws and regulations
- to establish networks with local authorities, civil society, relevant agencies, international organizations and NGOs
- to organize meetings and forums to discuss issues
- to coordinate with relevant ministries, agencies and organizations the preparation of project plans for financial assistance

The current organizational structure of the Secretariat includes three divisions: (i) policy, strategy and networking; (ii) database and research, and (iii) administration and training. It is recommended to include a section for communication, awareness and stakeholder participation among the administration and training division. The objectives of the added section include ensuring awareness and understanding of the values of the TSBR and the need for conservation and sustainable management through a

cooperative effort. A progressive approach for the Secretariat to build its institutional prestige can be developed through strategic networking and well designed and implemented media campaigns initiated by the Secretariat and later expanded to include active Partner participation. Broad-based political will for improved environmental governance is critical for the success of the Secretariat's mandate.

A Communications and Awareness Strategy for the Secretariat is a critical element. The strategy should be designed to include a program to gain international interest in the TSBR. Web site development, attendance at international conferences, and newsletters sent out to selected institutions and universities could generate further support. Management of the TSBR may be linked with that of the Angkor World Heritage Site by joint agreement among the Secretariat, APSARA and UNESCO. Increased coordination with the UNESCO MAB Secretariat would raise the status of the TSBR. Increased networking and information sharing between the TSBR and other biosphere reserves would be helpful to generate cooperative ventures with other international organizations and experts.

4 CONCLUSION

Biodiversity conservation and sustainable use of the TSBR is critical for the national patrimony of Cambodia, and is central to the lives of people on the Lake. Reversing trends toward degradation and overuse, the Royal Government of Cambodia is committing itself to cooperation among its many agencies to achieve in practice the spirit of its policies and laws, for community-based management of resources, preservation of biological assets both productive and diverse, and equitable treatment and access for its people. We believe the natural assets of Cambodia are held in the name of the people, and that in fairness to them, agencies must work together to achieve that common purpose. Decision making at the appropriate local level should be accompanied by accountability, oversight and transparency, guaranteeing the participation of national agencies and civil society. Better management and achievement of the functions of the TSBR will be the outcome.