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Integrated management in the Mekong River Basin

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ABSTRACT

The Mekong River is of great importance because of its geographical size, the size of the human population that depends on it, its geopolitical location, and the high diversity of fish and invertebrates that it supports. It is shared by six countries and the need to manage it for the benefit of all has been recognized since the end of World War II (1945). The present Mekong River Commission (MRC) was established through an agreement reached by the four lower Mekong countries (Cambodia, Laos, Thailand and Viet Nam) in 1995 as an agency to assist with planning and promoting sustainable integrated development within the basin. It has been successful in improving technical understanding, developing planning tools and improving cooperation between the four lower Mekong countries. However, integrated management in the Mekong has been inhibited by a number of factors: the lack of participation by two countries, Myanmar and Peoples Republic of China in the MRC; by the poorly coordinated activities of multiple agencies, including unilateral aid agencies, the Asian Development Bank (ADB) and World Bank; and a continuing lack of technical capacity and understanding. The absence of a culture of public participation and the pursuit of narrow short-term national objectives benefitting the powerful continue to be major constraints on integrated management of the Mekong.

1. Introduction

1.1. Characteristics of the Mekong River Basin

The Mekong River is significant for several reasons. It is a very large river – one of the 25 largest in terms of catchment area (about 795,000 km^2), and the 15th largest in terms of mean annual discharge, about 475 km^3 (MRC, 2009; Campbell, 2009a). It is therefore an important water resource.

Secondly the Mekong Basin supports a very large human population, at least 70 million people (Pech and Sunada, 2008) or close to 1% or the human population on earth. Many of those who live in the basin are dependent upon water resources for a large part of their diet and subsistence. Rice is the major source of carbohydrate and fish the major, if not the only, source of animal protein for people within the basin. The fishery not only provides food but also an important source of livelihoods for many people who either fish, or trade fish, or produce and sell fishing equipment such as boats and nets (Hortle, 2009). The aquatic resources of the lower Mekong, in particular, have supported large populations that allowed civilizations to flourish at least since the Angkor period (approx. 9th–15th centuries) and probably earlier (Evans et al., 2007).

Thirdly the Mekong Basin is in a geopolitically sensitive area. The basin includes part of the territory of six countries (Fig. 1): Republic of China, Myanmar, Lao Peoples' Democratic Republic, Thailand, Viet Nam and Cambodia. Five of the countries were involved to some

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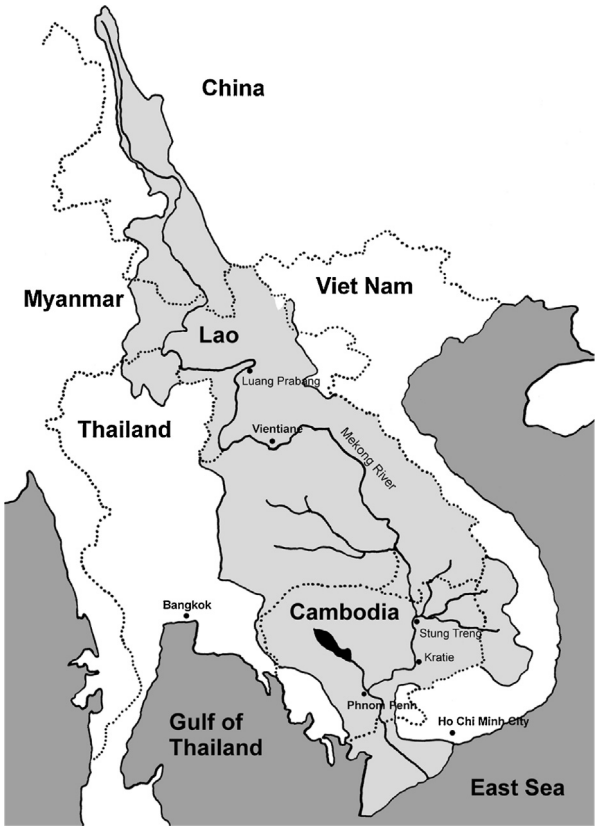

Fig. 1. Map of the Mekong River Basin, indicating its relationship to riparian countries, and the location of the long term hydrological monitoring sites mentioned in the text.

extent in the Southeast Asian wars following World War 2. Fighting occurred in Laos, Cambodia and Viet Nam. China supported the North Vietnamese with supplies, engineering, troops and anti-aircraft artillery (Chen Jian, 1995), whilst Thailand supported South Viet Nam providing bases for the United States (Kislenko, 2004). During the same period Myanmar was a closed country that shared borders with China in the communist bloc and with India and Thailand in the western bloc thus placing it in the frontline of the confrontation between the communist and western powers in southeast Asia.

Finally the Mekong supports an extraordinary diversity of fish and aquatic snails, as well as a population of rare river dolphins. There have been various estimates made of the number of fish species occurring in the Mekong system, but Valbo-Jørgensen et al. (2009), record 898 indigenous and 26 exotic species. The full number is higher because their count does not include species from areas upstream of Yunnan or from Myanmar, and because new species, and species previously not known from the river continue to be described. It is clear that the diversity of fish in the Mekong is comparable to that of other rivers noted for their fish diversity, including the Amazon and the Congo, and far exceeds that of some other large river systems such as the Nile and the Murray-Darling (MRC, 2003). The fish fauna is especially diverse at the family level, with 91 families of fish recorded from the Mekong system compared with only 47 listed from the Amazon by Gèry (1984).

The Mekong also supports a very diverse assemblage of aquatic gastropod snails, with 90 endemic species from a single subfamily known from the area around the junction with the Mun River (Attwood, 2009). Knowledge of the taxonomy and biogeography of the aquatic snails is still quite limited with much of what we know arising because triculine snails are important hosts of digenean blood flukes – which are parasites that infect humans. The most widely publicized of these flukes in the Mekong Basin is *Schistosoma mekongi*, a parasite which infects people and other mammals and is endemic to the Mekong (Attwood, 2009).

There are a number of iconic species amongst the aquatic fauna of the Mekong. These include a number of giant fish species including the giant Mekong catfish (*Pangasianodon gigas*), Pla Thepa (*Pangasius sanitwongsei*), the thicklip barb (*Probarbus labeamajor*) and the giant barb (*Catlocarpia siamensis*). All four of these species have declined in abundance and are now rare, probably mainly due to fishing pressure (Mattson et al., 2002). Similarly the Mekong River dolphin (*Orcaella brevirostris*), while not a species restricted to the Mekong, has also undergone a substantial decline in population over the past 20 years and is now in danger of extirpation from the river (Beasley et al., 2009).