

**THE PEOPLE'S HIGHWAY: PAST, PRESENT AND FUTURE  
TRANSPORT ON THE MEKONG RIVER SYSTEM**

Published in Phnom Penh in April 2004 by the Mekong River Commission

This document should be cited as Peter Starr, 2003. The People's Highway: Past, Present and Future Transport on the Mekong River System. Mekong Development Series No. 3. Mekong River Commission, Phnom Penh, 44 pages.

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Pictures: Jim Holmes, Mikkel Ostergaard, Chhoy Pisei, Lieven Geerinck, White Lotus, Independent Journalism Foundation (IJF), The pictures on page 15 are from a Chinese publication, " A Golden Waterway to the Asian and Pacific Area ", published by Sun Sai Kei, Kunming 1993.

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# Foreword

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The Mekong was always an international river, in the sense that foreigners were always interested in it. Since ancient times, people and goods have moved along this wide brown highway that preceded roads, railways and modern freight containers. As described in many historical accounts, it also provided access to the interior of the Mekong region to generations of conquerors, explorers and traders.

The years of turmoil in the Mekong region account for much of the neglect of this major inland waterway in the latter part of the 20th century. But in recent times there has been increased discussion of the Mekong as an inland waterway corridor linking the region, in part because of its opening to Chinese trade since the Upper Mekong Navigation Agreement of 2001 between China, Myanmar, Lao PDR and Thailand.

At the time of writing, the Mekong River Commission has formulated a four-nation strategy and programme for the development of navigation on the Lower Mekong. The programme, endorsed by the MRC member states of Cambodia, Lao PDR, Thailand and Viet Nam, consists of five components, covering socio-economic planning, establishment of a legal and operational framework, enhancement of human and environmental safety, regional coordination of information, and institutional development.

The programme is underpinned by the regional integration initiatives being promoted by the Association of Southeast Asian Nations (ASEAN) and the Asian Development Bank's Greater Mekong Sub-region (GMS) programme.

The development of navigation on the Mekong is not new but has a history spanning centuries. The discussion in this report aims to provide some context to the broader public discussion of current issues relating to navigation, including its enormous potential to improve livelihoods for some of the poorest people in this region.



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# Acknowledgements

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Information in the first chapter owes much to research carried out by the Australian historian Milton Osborne. Besides the author's own research, recent information on water transport in the Mekong countries has also drawn from the work of Mekong River Commission consultants including Peter Hodgkinson, who prepared information for the Mekong River Commission's State of the Basin Report 2003. Captain Lieven Geerinck, manager of the Mekong River Commission's Navigation Programme, provided valuable insights and suggestions drawn from his years of experience in water transport development in the Mekong region.

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# Navigating the past



Since the earliest recorded human settlements 6,000 years ago, the waters of the Mekong River have been vital transport corridors. For thousands of years, people and goods have moved along the navigable waterways found in various stretches between the steep gorges of southwest China and the warm tropical waters of the South China Sea. From the melting snows on the Tibetan plateau to the muddy delta some 4,400 kilometres to the south, the Mekong and its tributaries drain an area twice the size of Japan. Within this river basin, seafarers moved upstream from the south, where Indian influences were absorbed as early as 2,000 years ago followed by Islam in more recent centuries. From China, mass migrations took place as others moved downstream from the north, including those fleeing the Mongol invasions. Through the centuries, great civilisations rose and fell, including the Angkor kingdom, whose legacy remains in the Cambodian heartland to this day. And with extensive rice cultivation and a rich variety of plant and animal life, trade flourished along the inland waterways.



Writings by Chinese, European and Vietnamese visitors leave no doubt as to the importance of navigation along the lower stretches of the Mekong. There was so much water that an early Chinese visitor wrote of "sailing through" Cambodia almost 2,000 years ago. At that time, Chinese referred to the area, which included part of the Mekong Delta in modern-day Viet Nam, as Funan. Inhabited mainly by ethnic Malays, the people of Funan had absorbed Indian influences in religion, astrology and writing - probably through merchants and Brahmin priests, but possibly also from local seafarers who had sailed to India and returned. In addition to objects from India and the Middle East, excavations of a former port in the delta region near Rach Gia have uncovered Roman coins. Such ports were probably used to export forest products brought down the Mekong such as exotic feathers, semi-precious stones and bezoin, a resin used for incense. By the fifth century, Chinese accounts refer to an area known as Chenla which incorporated Khmer settlements hundreds of kilometres further upstream near Kratie and areas east of the Tonle Sap and the Great Lake which flow into the Mekong. Chenla is thought to

have extended into Lao territory as far upstream as Wat Phu, a mountain temple near Champassak dating back to the eighth century.

From the city of Angkor, Cambodian kings ruled over much of the Mekong Basin between the ninth and 15th centuries. Built around tributaries flowing into the Great Lake, the people of Angkor probably relied more on elephants and horses than boats for local transport. Chou Ta-kuan, a Chinese envoy, noted the presence of Chinese traders when he visited Angkor in 1296 and 1297, indicating the continuing importance of commercial navigation. Its proximity to the Great Lake meant that Angkor was susceptible to invaders from Champa, a state in central Viet Nam. At one stage, Chams sent huge war canoes up the Mekong and the Tonle Sap to attack the imperial capital. Naval battles between the Khmers and the Chams on the Great Lake have been vividly depicted in Angkor's temples. But the empire's ultimate demise came from Siamese kingdoms that emerged from Chiang Saen, located on the northern reaches of the Mekong where present-day Lao PDR converges with Myanmar and Thailand. Following a Thai attack in 1431, the Cambodian court abandoned Angkor and sailed downstream to establish a new capital in Phnom Penh, a trading centre located at the junction of two main branches of the Mekong.

Following the Portuguese capture of Malacca in 1511, European

Transporting the court of Southeast Asia's biggest land empire some 300 kilometres downstream was no small navigational feat. Based on the Chinese envoy's account of life in Angkor as well as pictorial evidence and descriptions in Cambodian chronicles, Australian historian Milton Osborne has tried to imagine the scene. "No doubt that this departure would have been a grand affair, with the king setting out in a royal barge, surrounded by a convoy of his troops and followers, and according to legend with specially-prepared vessels bearing Angkor's most sacred statues to be re-erected in the new capital. Drums and conch-shell trumpets would have sounded as the colourfully-dressed court sailed away with banners raised above the gilded hulls of their boats."



**"Like the sea crashing against rocks."**

- Dutch trader Gerrit van Wuysthoff's description of the waterfall encountered while sailing from Phnom Penh to Vientiane in 1641



references to Cambodia and the Mekong started to appear. The first European to offer a first-hand description was a Portuguese missionary called Gaspar da Cruz who visited Phnom Penh and the surrounding area between 1555 and 1557. He noted that merchants from a distant Lao kingdom used the river to trade with Lovek, just north of Phnom Penh. Portuguese missionaries returned about three decades later followed by a couple of adventurers from Portugal and Peru who played an active role in Cambodia's royal politics and brought the kingdom into contact with the Spanish empire in the Philippines.

At around the same time, Japanese were also making their way up the Mekong following various edicts against Christianity starting in 1585. The exodus of Japanese Christians to Southeast Asia was accompanied by an upsurge in trade by Japanese vessels under the vermilion seal of the Tokugawa shogunate. During the early 17th century, licensed vessels made 44 such voyages to Cambodia with large numbers of Japanese settling in Phnom Penh and Ponhealu, a river port near the old capital of Oudong. Similar Japanese communities sprung up in Viet Nam, Thailand and the Philippines before such trade was outlawed in 1635. During this period, Japan exported copper, silver, iron and sulphur to the region, sailing home with silk, spices and medicines.

In 1636, Dutch traders established themselves north of Phnom Penh. With new ship designs superior to the Portuguese, their lighter and more stable ships were soon exporting rice from the Mekong Basin to Batavia and resin to Nagasaki. Over the next few years, separate parties of Dutch traders and Jesuit missionaries sailed up the Mekong to Vientiane, taking overland detours around a major waterfall to reach the Lao kingdom. By the mid-17th century, British merchants and even a Spanish boatbuilder from Manila had spent brief periods in Cambodia. Around this time European interest in the Cambodian kingdom began to decline.



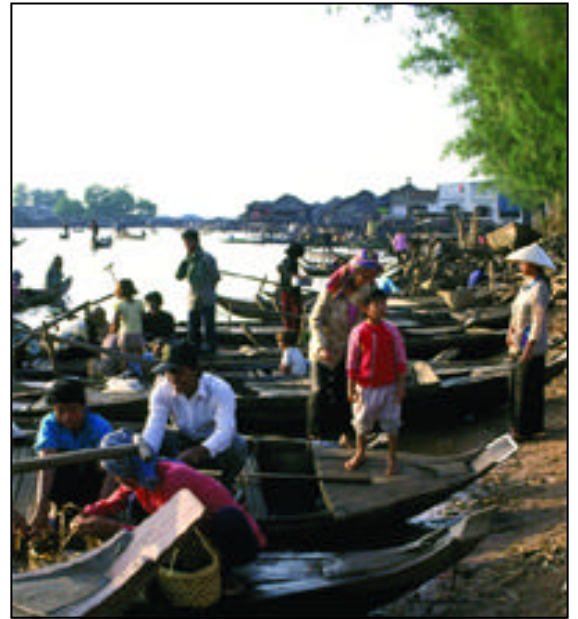
With French naval forces occupying Saigon in 1859, European interest in navigating the Mekong returned. While the Portuguese enclave of Macau had been trading with southern China for centuries, the new British colony in Hong Kong was prompting the French to seek access to China from the south.

At the urging of a young naval officer called Francis Garnier, the French colonial authorities decided on an expedition of the Mekong led by Ernest Doudart de Lagree, the colonial representative in Cambodia which by 1863 had become a French protectorate. In 1866, the expedition set out from Saigon on two steam-powered gunboats which were abandoned in Kratie for canoes. Making slow progress through the Sambor rapids, they reached Stung Treng and eventually the Khone Falls, where they concluded that "without gigantic construction work" the 11 kilometres of waterfalls and cataracts were indeed an "insurmountable barrier to navigation."

By river and overland, the party eventually crossed into China, rejoining the river at Jinghong in Yunnan province where the Mekong is known as the Lancang River. Although Doudart de Lagree died in China in early 1868, some members of the expedition including Garnier managed to head even further north to Dali, the last major settlement on the upper reaches of the Mekong.

Over the next two decades, further surveys of the Mekong were undertaken as France seized more Vietnamese territory and went to war with China. During this period of gunboat diplomacy, the French navy was testing the limits of steam navigation. In 1884, a small steam-powered vessel successfully navigated the Sambor rapids near Stung Treng. After blasting rocks from some of the channels, two steam-powered vessels reached the Khone Falls in 1887.

Various failed French attempts followed to navigate the Khone Falls. But by 1894, the first French gunboat got above over several kilometres of temporarily laid railway track.



**"No-one goes anywhere on foot ... The rich people use big boats, and the little people use small boats to go down to the sea."**

- Vietnamese scholar Phan Huy Chu's description of the Mekong Delta in the early 19th century.

**"The Cambodia River, with its thousand branches which are navigable throughout, with its gigantic course up which one can travel for a hundred leagues from the sea, will carry to the heart of the new colony all the products of the interior."**

- French naval officer Francis Garnier writing to his parents from Saigon in 1861.



**"The Lower Mekong has never been a wild river, untouched by human contact. It has always been a river for work, for travel and fishing, and not infrequently for war."**

- Australian historian Milton Osborne.

The railway was later extended further upstream with the construction of a bridge from Khon to Khet Island in 1920. More rocks were cleared, passages were marked and a channel was dredged through the Sambor rapids. Despite these developments, it still took 37 days and at least seven changes of vessel for passengers to travel from Saigon to Luang Prabang in 1935.

Following the French withdrawal from the region two decades later, the United States drew up a basic plan for the river's development. Published by the reclamation bureau of the Department of the Interior in 1955, the report stressed the need for data collection and studies on areas such as agriculture, fisheries and navigation. In 1956, experts from the United Nations Economic Commission for Asia and the Far East (ECAFE) as well as France, India and Japan carried out a separate survey on the potential for hydropower, irrigation and flood control. Under the auspices of the UN body, Cambodia, Laos, Viet Nam and Thailand formed the Committee for the Coordination of Investigations of the Lower Mekong Basin in Bangkok in 1957. France, Japan and the United States offered aid to the new "Mekong Committee", encouraging other countries to take part in the ambitious plans for development.

Until then, the only international agreement on Mekong cooperation had been the Bangkok Convention of 1926. Covering special relations between Siam and Indochina, it included references to a treaty of friendship, commerce and navigation between the two parties in 1925.

The Mekong Committee was set up at a time of great hopes for major dam projects. With the region destabilized by war for the next three decades, few of these got past the drawing board and those that did were on tributaries rather than the Mekong itself. As for transport, the committee adopted a navigation improvement plan in 1960 and significant work was carried out over the next five years including navigation charting based on aerial photography and hydrographic surveying carried out by

Canadian and other experts from the Mekong countries. During one survey in southern Laos, a sounding vessel was sucked into a whirlpool and lost. Along the more navigable stretches, beacons and lanterns supplied by Britain were installed from the South China Sea to Phnom Penh. Shore markers and steel buoys were put in place between Phnom Penh and Kratie, and bamboo floats were anchored between Savannakhet and Luang Prabang. By the time the war was raging in Cambodia in 1974, an estimated 90 percent of Phnom Penh's supplies were being transported upstream to the capital by ship. Within two years, however, most of the beacons were out of order, many shore markers had disappeared and most of the steel buoys were damaged - a combination of war as well as maintenance issues.

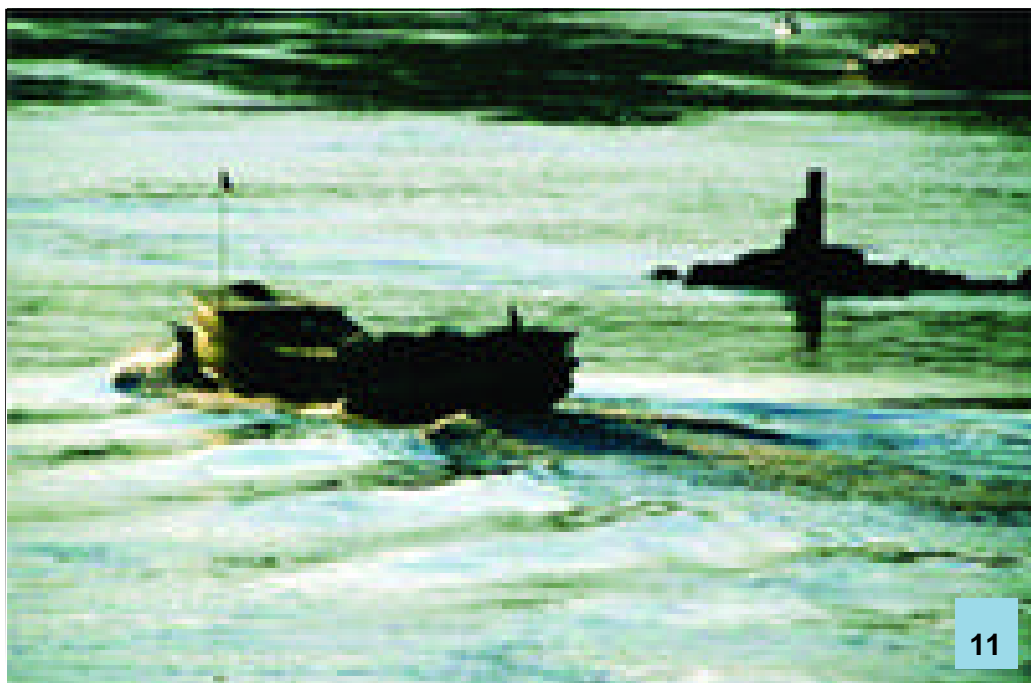
Today, roughly 600 of the original channel markers remain - huge concrete towers built by the French in Cambodia and Laos in the fairway channel. They are still used by skippers, but because of their restricted heights, they also form an additional navigation hazard when they become submerged during the high water season.

*Lieutenant-General Raymond A. Wheeler (at head of table) gives a press conference at the Ministry of Public Works, Saigon, December 1959.*

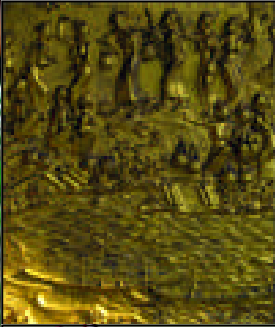


*One of the most influential documents to guide the Mekong Committee was named after Wheeler. Retired from the US Army Corps of Engineers, he headed a top-level team of water experts known as the Wheeler Commission, which operated under United Nations auspices.*

*Ship near old channel marker*







# Recent developments in water transport

Following America's withdrawal from Viet Nam in 1975, support for the Mekong Committee from the United Nations Development Programme dried up. With Cambodia descending into chaos under Pol Pot, an "interim" committee was set up by Laos, Thailand and Viet Nam in 1978. The committee's efforts to improve navigation were limited to Lao PDR, where a training centre was set up in 1980. Projects funded by the Netherlands and other donors such as Australia and the United States also established transit ports, built vessels and developed some cargo facilities, mainly in Lao PDR and Thailand. At this point, however, the Mekong Committee had been unable to carry out its task of mainstream development for more than a third of its life. The absence of peace in Cambodia remained the major constraint.

The turning point came in 1991 when the Paris Peace Accords between Cambodia's warring factions ushered in a new era of stability for the Mekong region. Both Cambodia and Viet Nam were finally able to normalise their ties with the Asian Development Bank (ADB), the regional financial institution that Cambodia had played a major role in launching in 1967. With China having joined the ADB several years earlier, all six countries sharing the river were now players in the multilateral arrangements. Recognising the potential for closer economic cooperation between 250 million people living in an area bigger than Saudi Arabia, the Manila-based bank launched a Greater Mekong Subregion program in 1992. Focussing on transport and energy infrastructure, the program approved a dozen major projects worth almost two billion dollars between 1994 and 1999. However, water transport did not feature prominently. Most of these funds went to road projects, notably in southern China but also between Phnom Penh and Ho Chi Minh City as well as in the southern Lao city of Champassak.

Inland waterways weren't completely overlooked, at least not by the Engineering Consulting Firms Association of Japan which dispatched an 18-member team of experts to Cambodia in early

*Signing of the Interim Mekong Committee statute, 5 January 1978.*







**"Although the entrances to both the Mekong and the Bassac Rivers have similar navigation limitations, various engineering and hydrographic studies suggest that the Bassac River has greater potential."**

- Mekong Secretariat in 1992

1992. The Japanese team spent almost two weeks in the country and produced a 470-page study on the country's reconstruction and prospects for medium and long-term development. It noted that Cambodia's ports and inland waterway system had been left in an "inefficient condition" after the prolonged civil war without money, qualified staff or new technology. "Nevertheless," the team concluded, "the nation's sea and river transport systems are expected to play a vital role in the reconstruction of her war-devastated economy and in economic development in the coming years."

Apart from stressing the need to upgrade Phnom Penh port and the seaport in Kompong Som, the Japanese team concluded that both Kompong Cham and Kompong Chhnang should be given "high priority" over the medium term. The existing port at Kompong Cham "will continue to play a role, to an even greater degree, in the collection and distribution of agro-based industry products when full-scale rural development gets underway." Noting the absence of port facilities at Kompong Chhnang, the engineers highlighted the city's proximity to the Great Lake and its abundant fish resources. Kompong Chhnang, the study said, "will likely become a strategically-important locality for the promotion of fishing activities in the lake."

Notwithstanding the ADB focus on roads, efforts to promote greater use of inland waterways accelerated during the nineties. In 1992, Cambodia and Viet Nam endorsed a four-point plan for the Mekong Delta which highlighted the need to do more in the area of transport infrastructure and to improve navigation between the South China Sea and Phnom Penh. At the same time, the Mekong Secretariat recommended improving the entrance channel to the Bassac River at Dinh Anh based on the findings of its integrated transport study for the delta. A separate Vietnamese study in 1993 called for the Bassac port of Can Tho to be developed as the delta's most important growth centre.

Efforts to encourage water transport were also taking place

further upstream as China began seeking new trade routes for its southwest provinces. Using five 50-tonne vessels, China had sent its first reconnaissance mission downstream to Luang Prabang and Vientiane in 1990. A Mekong Committee study the following year found that trade could grow rapidly in the hinterland area, and that waterways along the 700-kilometre stretch between Jinghong and Luang Prabang could complement road and rail transport. In early 1993, an associated survey team grouping Lao PDR, Myanmar and Thailand as well as China conducted detailed investigations into the Mekong's upper reaches. It found that the 300-kilometre channel between Lao PDR and Myanmar was largely unsuitable for transporting freight. Navigation aids barely existed along this stretch and vessels of no more than 60 tonnes could navigate safely, and even then for not more than eight months a year. Large-scale development of navigation was proposed, including the installation of 143 channel markers and 200 shoal markers. And for the first time since the war years, the subject of channel modification on the Mekong was discussed. In the meantime, the Mekong Committee began a high-profile exercise financed by Finland, to update the hydrographic atlas of the region. The project produced navigation charts for the Mekong, Tonle Sap and Bassac rivers, including the Great Lake.



*Crew members keeping the survey boat off sharp rocks*

*Chinese survey boat negotiating rapids at Tang Salum on the Upper Mekong on 8 April, 1993*



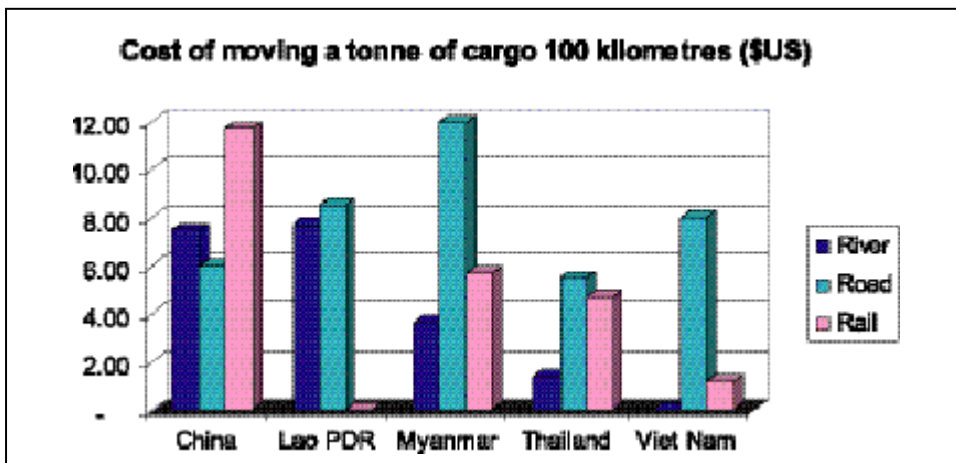
**"China is the only country who has ever favoured navigation over more budget-consuming road projects. Riverborne transport can handle large quantities of bulk over long distances, for which road transport is not competitive because cost is too high. Yunnan has a wealth of mineral resources to export to north Thailand."**

- French engineering consultants BCEOM in 1994

The charts covered more than 4,000 kilometres of waterways between the Golden Triangle and the sea. In each country, hydrographic offices were established.

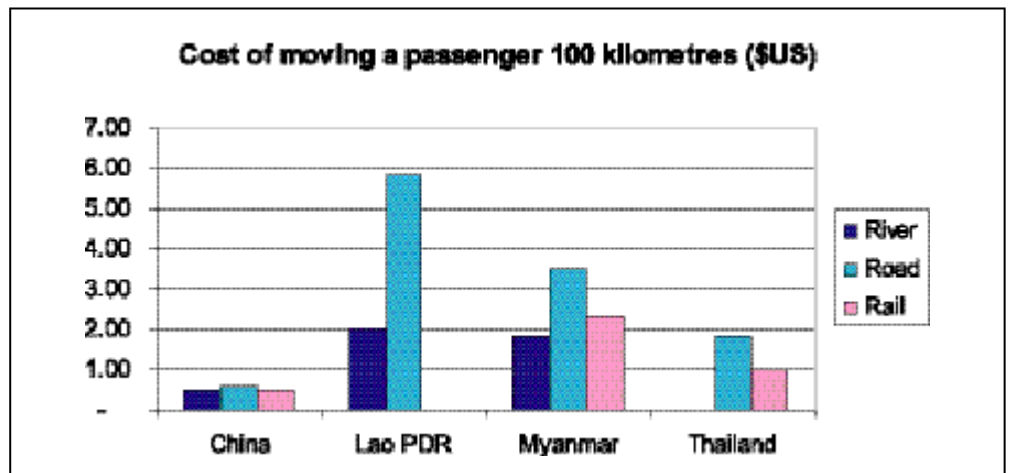
Encouraged by developments in areas outside its jurisdiction, the Mekong Committee also engaged French engineering consultants BCEOM to draw up a "basin-wide" strategy for developing navigation in the Upper Mekong. Terms of reference included an important question: could such development take place effectively without improvements of the navigation routes, facilities and equipment involved?

Published in mid-1994, the study reckoned that trade in the upper Mekong area could swell to as much as 1.5 million tonnes by 2010. But the river itself required "massive" work before it could handle large quantities of coal, other minerals and manufactured goods. Such riverworks could take time and have "important environment impacts," the study cautioned. But with booming tourism, especially between Thailand and China, passenger traffic was likely to surge regardless of any improvement in navigation. With the benefit of hindsight, the optimism expressed in the report seems typical of the investment euphoria sweeping the region three years before the Asian financial crisis. "Tourists aboard their jumbo rivercraft are soon expected to enjoy shooting the rapids once feared to be unpassable," the study predicted.



Source: BCEOM estimates based on mainly dry season prices in 1993

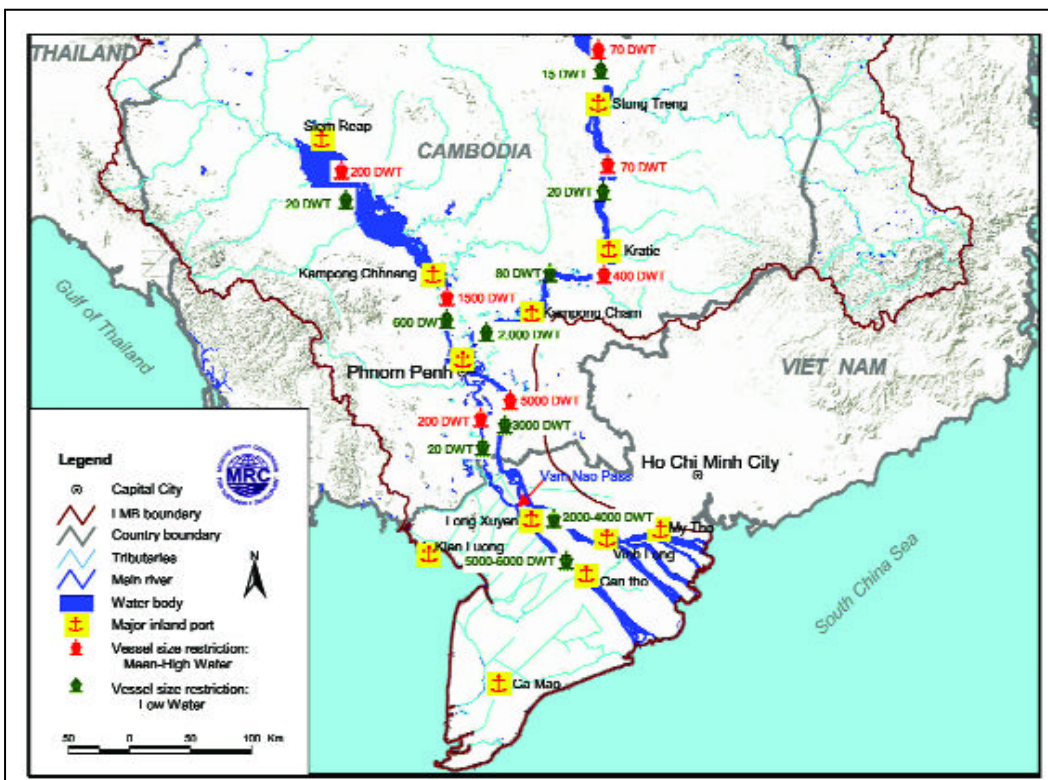




Source: BCEOM estimates based on mainly dry season prices in 1993

"Cruising on the Upper Mekong has bright prospects and the relating business is expected to be a booming one."

In addition to possible changes to the river and pollution, the engineers voiced concerns about the legal and regulatory





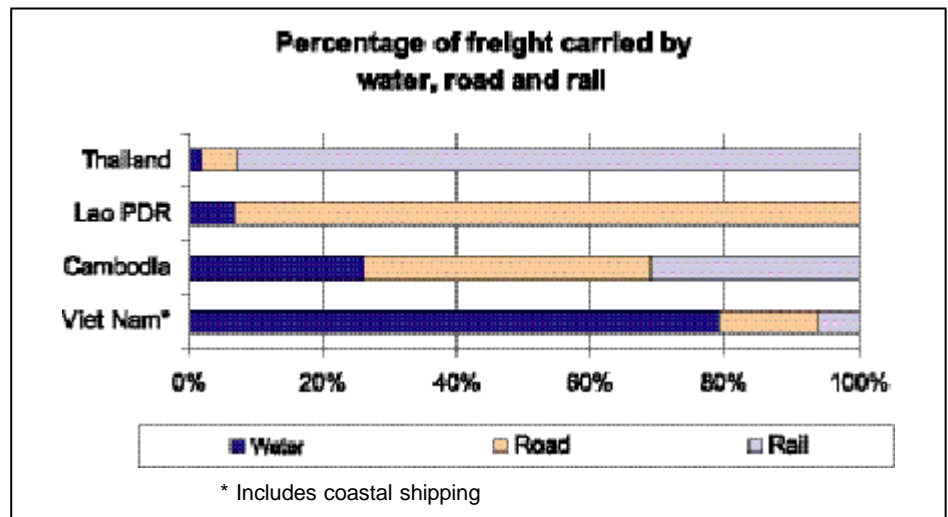
"On the basis of equality and right, freedom of navigation shall be accorded throughout the mainstream of the Mekong River without regard to the territorial boundaries, for transportation and communication to promote regional cooperation and to satisfactorily implement projects under this Agreement. The Mekong River shall be kept free from obstructions, measures, conduct and actions that may directly or indirectly impair navigability, interfere with this right or permanently make it more difficult. Navigational uses are not assured any priority over other uses but will be incorporated into any mainstream project."

- Article 9 of the Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin signed by Cambodia, the Lao People's Democratic Republic, Thailand and Viet Nam in 1995.

framework for navigation in the area. "In general terms, the effects on countries located downstream are regarded as a potential obstacle to the development of Upper Mekong navigation." France funded an environmental impact assessment soon after the report came out, carried out in 1994 by the Bangkok-based UN Economic and Social Commission for Asia and the Pacific (UN-ESCAP). The report stated that the environment impacts would be minimal but that detailed morphological studies at certain locations would be necessary to draw firm conclusions.

In other developments in 1994, China agreed with the Lao PDR, Myanmar and Thailand to set up an administrative committee on the navigational use on the Mekong along upper stretches of the river. And at a meeting in Yangon, all six countries of the Greater Mekong Subregion agreed to set up a subregional transport forum with the ADB. The scene was set for the escalation of multilateral development projects for water transport on the Mekong.

The following year, 1995, was a turning point with four separate initiatives involving the four lower basin countries themselves as well as the World Bank, the ADB, the Association of Southeast



Source: Asian Development Bank, 1995

Asian Nations (ASEAN).

Almost 40 years after its founding fathers outlined their vision for closer regional cooperation, the body known as the Interim Mekong Committee since 1978 was succeeded by a new inter-governmental agency called the Mekong River Commission (MRC). The Agreement on Sustainable Development of the Mekong River Basin signed by Cambodia, the Lao People's Democratic Republic, Thailand, and Viet Nam in Chiang Rai on April 5 marked the first time that the four countries recognised freedom of navigation on the Mekong mainstream. The 1995 agreement provided for a ministerial council to make policy and decisions as well a joint committee of senior officials from the four countries to make sure policies and decisions were carried out. A permanent secretariat staffed by experts from the four countries as well as donor nations would be responsible for technical and administrative support.

The agreement provided for cross-border cooperation to develop and manage water and other resources in the Lower Mekong Basin, an area drained by the 2,372-kilometre stretch flowing from the northernmost point in Thailand down to the sea. The scope of the agreement included navigation, flood management, fisheries and agriculture as well as energy and the environment,



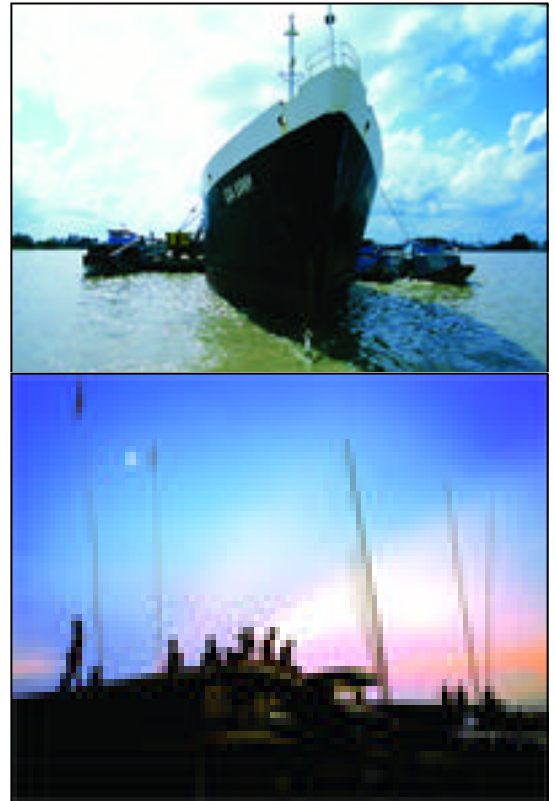




potential of the lower river system for international shipping. At the same time, the World Bank agreed in principle to help Viet Nam develop Can Tho port and rehabilitate inland canals off the main channels. The study was expected to form one of the cornerstones for developing international shipping to Can Tho and Phnom Penh. Because of the complex hydrodynamic forces in the Bassac Estuary, the experts concluded that maintaining a static channel was technically and financially not feasible. However dynamic dredging, which would follow the natural entrance channel and reposition the channel markers accordingly, was one of the optimal solutions.

In a related development, a new ADB-supported subregional transport forum held its first meeting in Phnom Penh in 1995. The six countries agreed on the need to address cross-border transport issues through "harmonization of rules and regulations (and) an approach to addressing these issues by considering internationally-accepted conventions." Later that year, the group published a report identifying four specific water transport projects including the revival of a 30-year old Japanese plan to upgrade the port in Phnom Penh. With the aim of tripling cargo-handling capacity to 1.35 million tonnes a year, the 95 million dollar project involved building six berths capable of serving ocean-going vessels of 5,000 tonnes.

Among the three other projects, the highest priority went to further studies to improve navigation in the delta, notably through possible dredging at the mouth of the Bassac and making Can Tho accessible to ships of 10,000 tonnes, up from 5,000 tonnes. A second project along the upper stretches of the river aimed for year-round navigation by vessels of between 100 and 300 tonnes in waters flowing through the Lao People's Democratic Republic, Thailand, Myanmar and China. Estimated to cost 82 million dollars, the project involved improving ports, dredging, realigning shoals and providing navigational aids along a 1,000-kilometre stretch including the Lao ports of Luang Prabang, Pak Beng and Ban Huey Xai, the Chiang Khong and Golden Triangle ports in Thailand and the Chinese ports of



**"Inland water transport, a traditional mode of transport in most countries in the subregion, is often cost-effective, especially for bulk commodities and those not requiring rapid delivery. However, the complex environmental and other issues ... point to the need for a particularly careful approach, with exhaustive studies and staged implementation."**

- the Asian Development Bank's Subregional Transport Sector Study for the Greater Mekong Region in 1995



Landing facility at Kratie, Cambodia

Guanlei, Jinghong and Simao. The ADB noted that China had already conducted surveys on sections of the river in its territory while a four-nation team had recently surveyed the section shared by China and Myanmar and the two sections the Lao People's Democratic Republic shared with Myanmar and Thailand. But it also said that a full-scale assessment of the project's impact of the environment was "absolutely necessary" as it could have a big impact on aquatic ecology further downstream in Cambodia and Vietnam.

A third project, accorded the lowest priority, involved navigation engineering to upgrade Cambodian and Lao stretches of the Mekong between Phnom Penh and Veune Khan, beyond the Khone Falls about 20 kilometres north of the border, as well as the Se Kong tributary from the Lao port of Attopeu Ban Phnon to Stung Treng in Cambodia. The ADB noted that rapids north of Kratie made navigation hazardous, and that only small craft of perhaps 20 tonnes could get through this section outside of the rainy season, albeit with a degree of danger. But it also noted that a regular high-water seasonal service was running about 100 years ago and that concrete navigational aids later built by the French allowed vessels of up to 200 tonnes. Restoring these would help to improve safety along this stretch.

The ADB said the three projects to improve the international river transport infrastructure could proceed as soon as technical, economic, financial and legal issues were resolved. "Economic benefits of the projects would include the development of international trade and tourism, increased economic activity in the kinds of bulk goods that can be hauled effectively by inland water transport, and time and operating cost benefits accruing to river traffic. Financial benefits of the projects would likely include increased revenue to port and river authorities, especially if user charges are increased," the report said. Generating enough traffic to justify investments and concluding a commercial shipping agreement were "critical factors" for the success of such projects. The ADB also highlighted the importance of reducing

or eliminating barriers to trade in bulk commodities - the type of freight most efficiently carried by river transport - and minimising adverse impacts on the environment.

ASEAN weighed in at the end of 1995, with leaders endorsing a Malaysian idea for an additional Mekong Basin transport initiative during a summit in Bangkok. The initiative was largely focussed on roads and railways, notably a proposed rail link from Singapore to Kunming, the capital of China's Yunnan province. It was nevertheless symbolic as it brought non-members into the ASEAN mainstream. At this stage, ASEAN membership was still 18 months away for the Lao PDR and Myanmar. Cambodia would have to wait another three years.

By 1996, the ADB'S four-year-old Greater Mekong Subregion (GMS) program had entered a new phase. The six countries endorsed transport as one of eight priority sectors and work on some projects finally began. In 1999, the Lao People's Democratic Republic, Thailand and Viet Nam signed an agreement to facilitate the cross-border movement of people and goods. Over the next three years, Cambodia and China would accede to the agreement which covered areas ranging from customs procedures and rights of passage to load specifications, insurance and transit fees. Although it applied to road transport, the agreement contained an article requiring the parties to "promote multimodal transport operations" and annexes to apply a uniform liability regime, minimum qualifications for multimodal transport operators and a special container customs regime.

Efforts to promote inland water transport accelerated in 2001 when China, the Lao People's Democratic Republic, Myanmar and Thailand signed a commercial navigation agreement to make the river navigable all year round and improve safety. The Mekong River Commission offered to assess the environmental impact of riverworks proposed under the agreement.





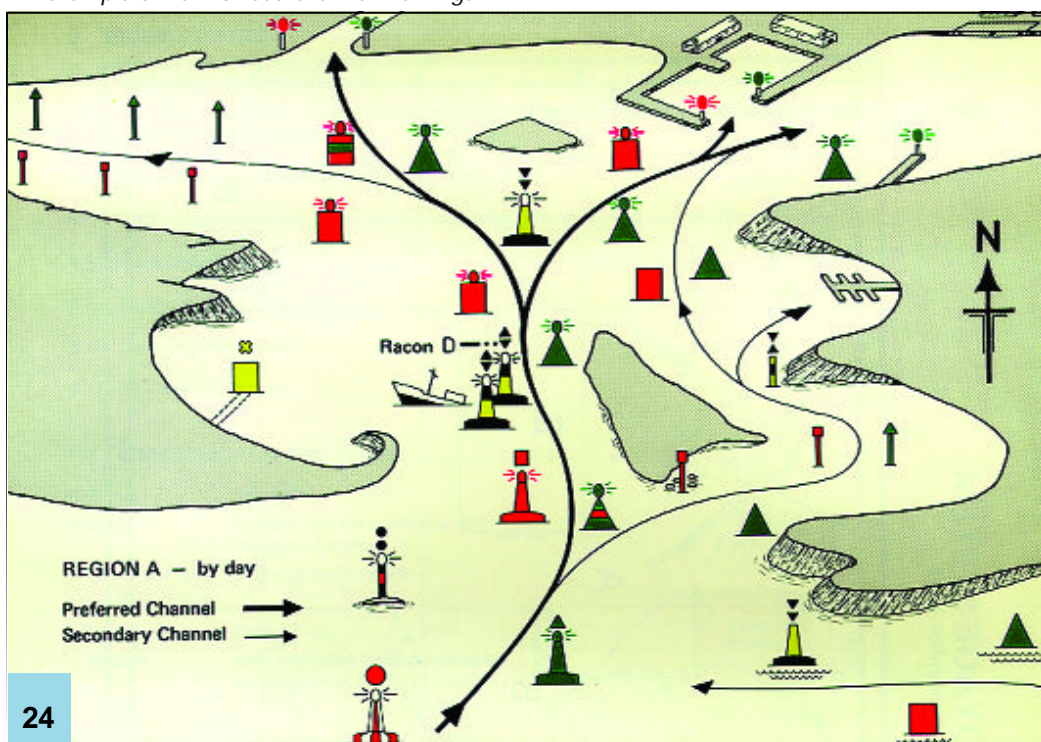


Ta Prohm ferry at Neak Leung Cambodia, funded by Denmark through the Mekong River Commission in 1997.

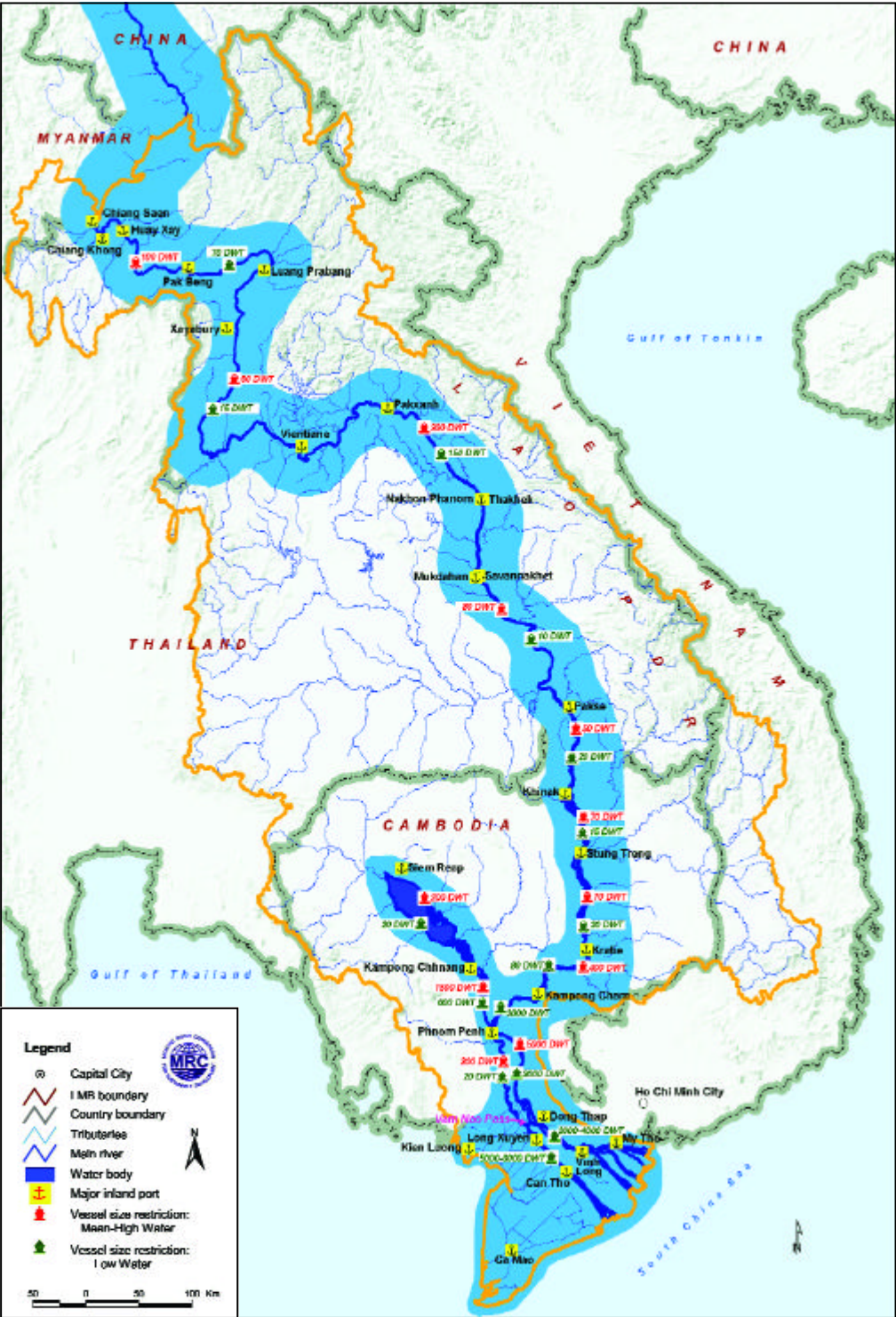
During this period, the Mekong River Commission carried out many other transport-related projects. They included the design and construction of Mekong river ports in the Lao PDR, various national and regional transport studies, building of emergency bridges in Cambodia, flood protection of the Vientiane Plain in Lao PDR, updating of the My Thuan bridge feasibility study, and the 20 million dollar upgrading of ferry facilities in Cambodia.

One of the most important projects, harmonising of aids to navigation, was carried out by the Mekong River Commission in cooperation with UN-ESCAP in Bangkok. Following recommendations by the commission and the United Nations, all six countries adopted two systems of navigation for waters north and south of the Khone Falls. Until 2001, the Mekong had six different systems for channel markers such as buoys and beacons. To improve safety and promote cross-border transport, the Lao People's Democratic Republic, Myanmar and Thailand approved aids to navigation based on the Chinese system at a meeting in Bangkok in late 2001. The countries below the Khone Falls, Cambodia and Viet Nam, agreed in principle to use the international navigation system.

An example of harmonised channel markings







Carrying capacity of the Mekong in terms of vessel size (Dead Weight Tonnage)

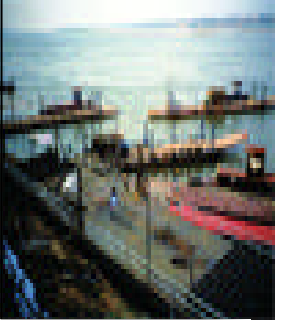
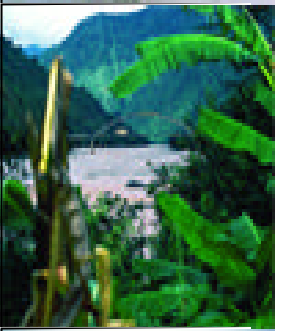
## River works on the Mekong

The Upper Mekong Commercial Navigation agreement gave rise to one of the most contentious river issues in recent times. Signed in April 2000 by China, Lao PDR, Myanmar and Thailand outside the bounds of the MRC's mandate, the agreement allowed for the free passage of shipping between the ports of Simao in China and the Lao port of Luang Prabang.

The agreement immediately boosted trade. In a single year, the value of trade in the Thai ports more than doubled, from US\$43.21 million in 2000 to US\$87.85 million in 2001. But the increased shipping, and a plan to remove 11 shoals or rapids and 10 reefs within a 331-km stretch of the river, raised concerns in the Lower Mekong countries as to environmental impacts.

In 2001, in response to a request from its executive body, the Mekong River Commission Secretariat commissioned independent studies by international experts in fisheries, geomorphology and socio-economics regarding the proposed river works. Their recommendations were for more thorough study to be made. The study results were later released and widely picked up by non-government organisations, particularly in Thailand.







# Outlook

**"For the sake of our common futures, we must implement a Mekong management strategy that ensures sustainability."**

- Cambodian Prime Minister Hun Sen at the inaugural summit of leaders from the Greater Mekong Subregion in 2002

When the Mekong River Commission moved to new headquarters in Phnom Penh in 1998, Southeast Asia's earliest concrete attempt at regional cooperation finally had a home on the banks of the river after four decades in Bangkok. The move was a recognition of Cambodia's new political stability and also coincided with the country becoming the tenth member of ASEAN the same year.

In a keynote address to the inaugural GMS summit in Phnom Penh in 2002, Prime Minister Hun Sen noted that the Mekong had great potential for transport and that "impediments to river transportation" were among several issues that "urgently require our unified attention." He stressed that "efforts of all agencies concerned with the development of the Mekong basin need to be well coordinated and strengthened." In a joint declaration, the six prime ministers agreed to "coordinate our strategies to ensure that transport corridors evolve into economic corridors, enabling agricultural diversification, industrialization and the creation of employment opportunities." The declaration also vowed to accelerate the implementation of "software" arrangements to link infrastructure and to start testing single-stop customs inspections.



Recognising the need to increase trade by promoting freedom of navigation and developing water transport, the Mekong River Commission began formulating a new strategy and programme for water transport in 2002. Following regional discussions in early 2003, members urged the commission to take concrete steps to implement the principle of freedom of navigation contained in the 1995 agreement. In addition, the commission was asked to draft a legal and operational framework to ensure effective, safe and environmentally-friendly cross-border navigation between countries. Member countries also asked the commission to explore the possibilities of cooperating with China and Myanmar and to promote water transport among potential users, investors and other stakeholders.

Despite the 1995 agreement, the legal framework for cross-border navigation is still not satisfactory after nine years. With different conventions existing side by side, the exact legal status of water transport on the river remains unclear, leading to

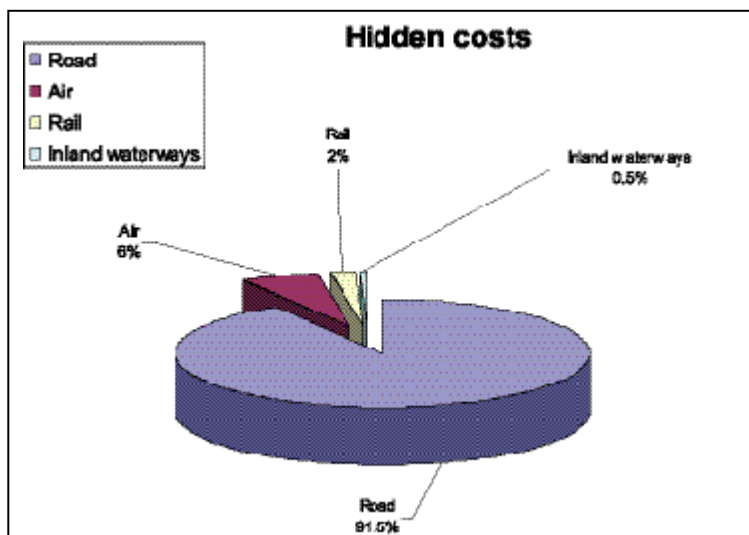
**"One 80-metre vessel = 60 trucks over 3,500 metres"**

- Belgian billboard

**"Together with rail and short-sea shipping, (inland navigation) plays a key role on the commission's strategy of shifting cargo to more environmentally-friendly modes. Inland waterways are often a cheaper, more efficient and ecological transport solution."**

- European Commission Vice President Loyola de Palacio in 2002

*Modal breakdown for EU spending on accidents, air pollution, climate change, noise pollution, congestion and other socio-economic costs related to transport*



Source: Directorate-General for Energy and Transport, European Commission

**"The carbon dioxide emission forecasts for the inland navigation sector could well meet, and probably even exceed, the Kyoto targets.**

- European Commission in April, 2003



fundamental policy problems. However, growing regional cooperation offers an opportunity for the Mekong countries to develop harmonised rules on technical, safety and environmental standards.

One of the most compelling arguments for a strengthened Mekong River Commission role is the continued absence of a regional legal framework to define common standards, procedures and rules for navigation. The absence of both a legal and an operating framework is a barrier to both trade and investment, and tends to force governments to focus on short-term national priorities at the expense of long-term regional opportunities. The absence of harmonised liability rules is a further impediment to commercial interests as shippers are unclear about their rights and obligations should disputes or accidents occur.

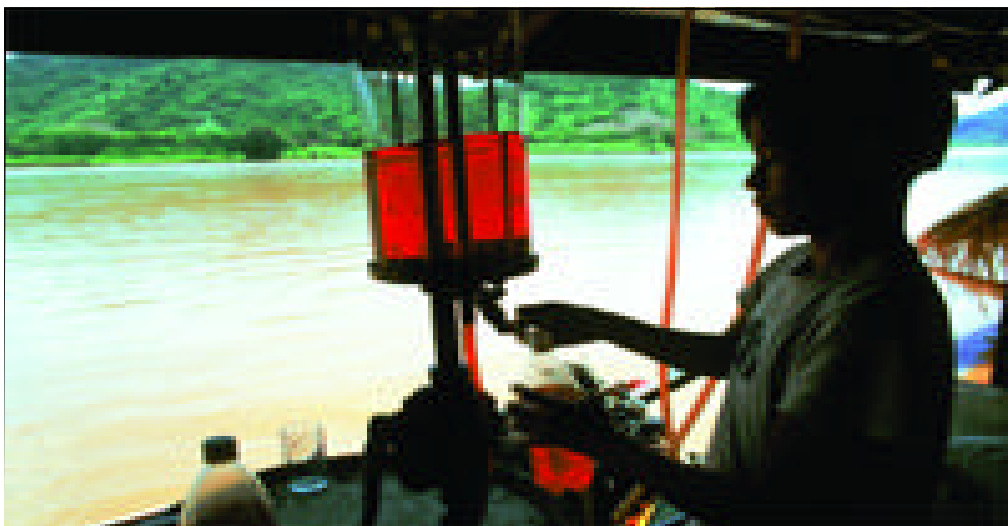
As for the inland waterways themselves, the network is insufficiently used and poorly integrated with other forms of transport, notably road and rail. Fleets need to be modernised, vessels certified and safety improved. Proper channel markings, accurate river maps and real-time information is required. In parallel with such improvements, the training of waterway operators, port managers, freight forwarders and river improvement engineers will be crucial. Traffic systems need to be developed and the role of water transport in reducing poverty needs to be addressed.

In many ways, the legal framework for navigation is the most pressing issue. Although Article Nine of the 1995 agreement gives the Mekong River Commission a powerful mandate to promote and coordinate water traffic, it is not enough to provide a comprehensive operating framework. Indeed, some experts feel it marks a step back from the Paris Convention of 1954, considered a model agreement on river navigation at the time. The failure to address navigation was recognised at a legal

## Waterways - an old tradition revived

Amid global concerns towards noxious emissions from trucks on increasingly congested roads, Europeans have recently started to see the relative benefits of using their inland waterways. The 21st century brought renewed recognition that these are often cheaper, safer, more reliable and better for the environment. In 2000, the European Union completely liberalised the inland waterway sector, paving the way for freely-negotiated prices, increased competition and accelerated innovation. By 2002, it was reported that the navigable network of 30,000 kilometres of rivers and canals accounted for 7.0 percent of inland transport in all 15 member states. In those states with inland waterways, the share was 12 percent. But in the Benelux countries and northern France, rivers and canals accounted for as much as 43 percent of inland transport. And in the Netherlands alone, inland waterways accounted for 60 percent of all transport in dangerous goods. "The general image of an old and traditional sector is outdated," said Luciano Caveri, chairman of the European parliamentary committee on regional policy transport and tourism.

The old image of coal barges was fading. According to the European Commission's Directorate-General for Energy and Transport, low fuel consumption and minimal socio-economic impact made inland waterways "one of the most sustainable" forms of transport. "Emissions in particular are dropping even further as newer vessels are introduced with more efficient engines," it wrote in a paper published in early 2003. "As a result, emissions caused by inland waterways have dropped by a quarter over the past 20 years."

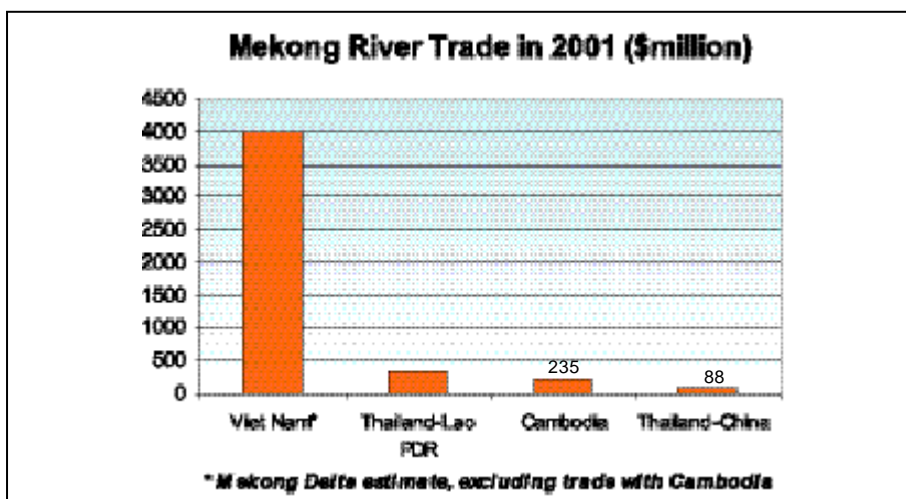




seminar held under the auspices of the Mekong Committee in Bangkok in 1969. It recommended a study to identify vague or conflicting treaty provisions, eliminate unnecessary provisions and suggest new areas for agreement. But the recommendations were never fully implemented. The brief reference to navigation in the agreement a quarter of a century later fails to mention existing conventions and has only added to the legal uncertainty, raising the possibility of amendments or a new legal instrument to deal with navigation.

One important activity under the current MRC Navigation Programme will be to strengthen the organisation with clear-cut responsibilities for waterborne transport coordination, including harmonised rules to implement Article Nine of the 1995 agreement. In the future, if the basin states were willing, such a commission could function with an autonomous regulatory mandate in the area of navigation policy and administration. For the moment, a high-level Navigation Advisory Body is to be established to advise the MRC Joint Committee and Council members on important decisions for guaranteeing cross-border transportation.

The legal uncertainties surrounding regional navigation are



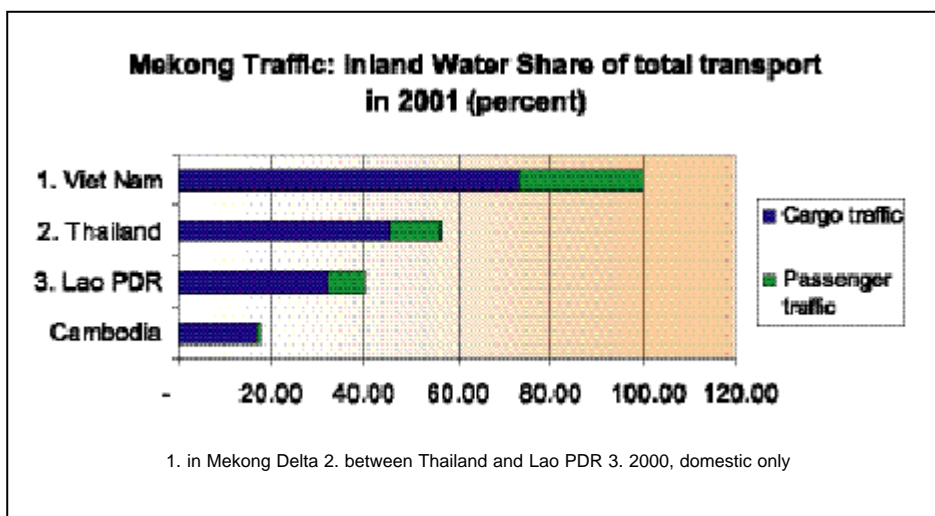
Source: State of the Basin Report 2003, MRC



compounded by a lack of knowledge among ministries and agencies responsible for the sector. At the same time, navigation tends to attract little political attention and is often overlooked when regional transport strategies are being drawn up. There is also limited expertise in the area of maritime law.

Among the most critical issues is inland water transportation between Cambodia and Viet Nam, and the transit of foreign maritime vessels through Viet Nam. Under a 1998 bilateral water transport agreement between Cambodia and Viet Nam, customs and immigration procedures would be reduced and some framework would be put in place for easier cross-border passage. With fewer interruptions to voyages, it was hoped that water transport between the two countries would become more competitive in relation to other routes. But the nature of the agreement and protocols did not really leave much room for improvement. The countries did not specify what water depth they could commit to maintaining themselves, the toll fees which are actually fairway dues are not linked to the actual services provided, and furthermore, the agreement does not include the Bassac River between the sea and Vam Nao pass - in fact a better navigation fairway than the Mekong via Vinh Long.

*Digitising of Hydrographic Atlas in Cambodia, Lao PDR and Thailand*



Source: Mekong River Commission

The case for a central database for Mekong navigation is illustrated by the limited picture of inland waterway fleets in the four countries, where data is incomplete, inconsistent or unreliable. In Cambodia, for example, the Ministry of Public Works and Transport had 593 vessels of more than 90 horsepower registered in 2001 but breakdowns by deadweight tonnage were unavailable, as were figures on boats with smaller engines registered by local authorities in the provinces. In Lao PDR, 1,098 vessels were registered in 2000 including 405 cargo or multipurpose boats of which more than two-thirds were less than 10 deadweight tonnes. In Thailand, 110 vessels were registered of which half were passenger boats. Most of the vessels were less than 30 deadweight tonnes. In Viet Nam, the Mekong Delta had 57,791 vessels registered in 2002, mostly barges of between 200 and 1,500 deadweight tonnes but also 7,519 passenger vessels. In addition, an estimated 350,000 "country boats" of between 10 and 20 deadweight tonnes were operating on delta waterways, although only 45 percent were believed to be actually registered.

A new water transport agreement with clear operational and financial assignments of responsibilities would generate a substantial increase in both inland water transport and river-sea transport. This would sharply reduce shipping costs to textile exporters in Cambodia.

In a region where hundreds of thousands of village people are reliant on inland waterways for transport, it is unclear why navigation is so frequently overlooked. It may be that water transport is not a prestigious policy issue for politicians. Another is that international donors may be more inclined to direct their assistance to social sectors such as health and education. The green lobby - and indeed some policy-makers - tend to judge the immediate impacts of waterway development more severely than the long-term consequences of road, rail and air transport projects.

Governments need to base their transport spending priorities on realistic assessments of the relative socio-economic benefits of different modes of transport. This would encourage funds to be allocated and other steps to be taken to ensure that water transport is fully integrated into national and regional development plans.



## Textile exports and water transport

Cambodia's garment industry employs 220,000 people and accounted for 96.5% of the country's official exports in 2002. So far, the country has benefited from the imposition of quotas by importers on some of its fiercest competitors, leaving excess quota for Cambodia, a relative newcomer to the trade. However the quota system, established under the Multi-Fibre Arrangement, is due to expire at the end of 2004 and Cambodia's garment industry will then be forced to compete with countries that have lower infrastructure costs and higher-skilled workers.

Transport costs at present make up a high proportion of overall garment export costs from Cambodia. Freight costs alone for Singapore to Phnom Penh via Sihanoukville are about US\$350 per shipping container. Freight costs for the same route via Ho Chi Minh City using the Mekong are US\$420 per container. According to figures released by the Mekong River Commission in 2003, freight costs using the Vietnamese route could fall to US\$270 per shipping container, boosting trade and increasing profits for entrepreneurs. A more direct route into Phnom Penh with sea-going feeder ships of up to 5,000 tonnes via Can Tho port in the Mekong Delta would reduce the price even further, to just US\$220 per container load.

Both Cambodia and Viet Nam would benefit from increased traffic and their efforts could also support Viet Nam's efforts towards accession to the World Trade Organisation (WTO).

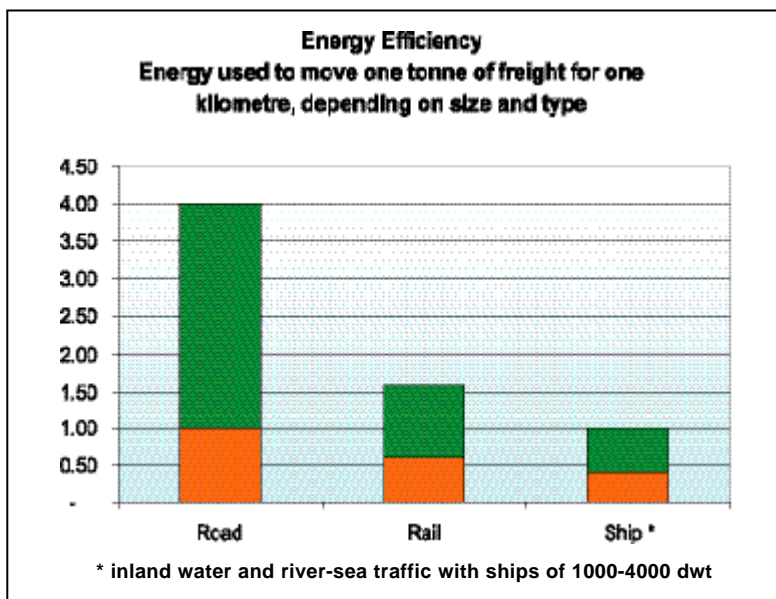




## Environmental issues

Heightened international concern about road congestion and pollution may be an opportunity for renewed political interest in water transport in the Mekong region as it has been in Europe. River transport is more energy efficient than road or rail (a study by the Congressional Budget Office of the United States in 1982 found that barges were at least three times more efficient than trucks and almost two times more efficient than trains). In considering how to shift freight away from increasingly crowded and polluted roads, there is an urgent need for a cost-benefit analysis on the prospects for an integrated "multimodal" transport system. Such a study could lead to a more coordinated approach to regional transport development and ideally steer investment into the most productive areas.

The sustainable development of Mekong navigation is a concern to all of the region's inhabitants, notably the millions who earn their livelihoods from the river. A basic rule of thumb is to adapt vessels and services to the waterways rather than the other way around and to limit physical changes as much as possible to measures that improve safety. Depth of the river channel is not a major transport issue in the Mekong-Bassac river system, which has a large unused natural capacity. By comparison, the average low-water depth of the Rhine River is only two and a half metres. Installing buoys and beacons to mark the deepest part of a river, for example, is cheaper and more environmentally-friendly than deepening the river bed to accommodate vessels. Low-maintenance projects with minimal impact are generally more sustainable than major riverworks such as rock-blasting and dredging. At the same time, efforts to use existing waterway infrastructure, rehabilitate old facilities and integrate ports with road and rail transport as much as possible generally make more environmental and economic sense than grandiose pork-barrel projects with dubious rationale. The 20th century is littered with horrifying examples of drastic river schemes that caused huge

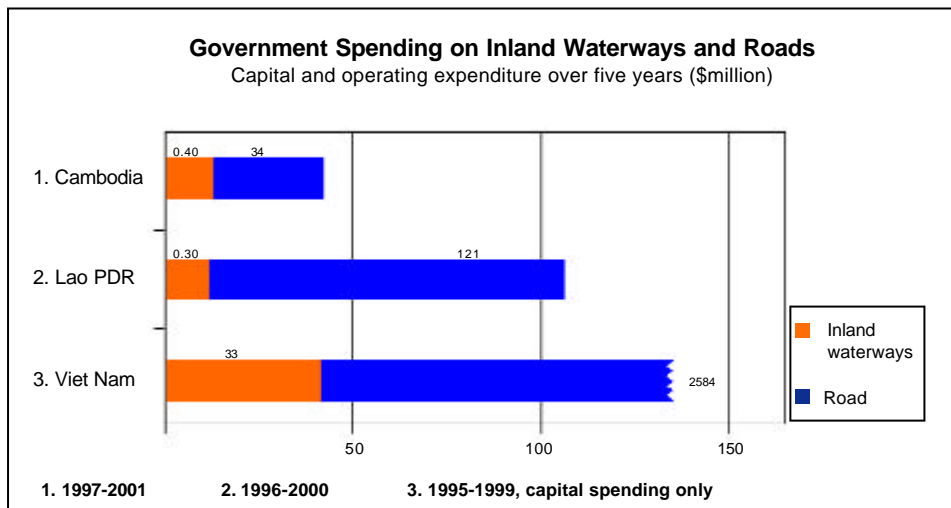


Source: International Navigation Association

environmental damage in the name of development, notably in Australia and the former Soviet Union. Such ecological disasters often resulted from planning errors where insufficient precautions were taken. For sustainable development in the 21st century, it is crucial that the morphology, hydrology, habitat and nutrient cycles of the Mekong be taken into account as navigation is developed.

One of the most urgent environmental issues facing Mekong navigation is the need for harmonised rules for carrying dangerous and noxious goods such as fuel which is being transported in single-hull tankers. There are currently no environmental protection measures to ensure the correct handling of dangerous goods. In some cases, tanker barges are still being beachlanded before loading or discharging their cargo. There are no provisions for pollution prevention, nor any contingency plans in case of accident.

While the International Maritime Organisation regulates the shipping of dangerous cargoes by sea, there are no international rules for inland rivers. The Mekong River Commission believes, however, that it would "not be very complicated" to adapt



Source: Mekong River Commission

European rules on the Carriage of Dangerous Goods on the Rhine to the inland waterways of the Mekong. The European regulations for navigation along the Rhine cover explosive materials, gases, flammable liquids and solids as well as toxic, infectious, radioactive and corrosive materials.

Although no major spills have been reported on Mekong waterways in recent years, the continued transport of fuel in single-hull tankers could be a disaster waiting to happen. During Mekong River Commission visits to member countries in 2002, it was clear that no agency could rapidly mobilise the trained personnel and specialised equipment needed to clean up after a spill. Only Thailand and Viet Nam had the necessary personnel and equipment but they were located at considerable distances from the main Mekong waterways in Bangkok and Ho Chi Minh City.

On issues such as cross-border pollution and ship sewage specifications for Mekong waterways, other international regulations and practices offer relevant comparisons. One notable example is a convention by the UN Economic Commission for Europe (ECE) in 1991. Within the ECE framework, member





states aim to harmonise different solutions on European waterways while adopting the "polluter pays" principle. In an attempt to settle the question in 1996, members of the Central Commission for Rhine Navigation signed a convention on the collection, discharge and reception of waste. This includes operational wastes as well as cargo waste and wastewater from inland vessels navigating on the Rhine. Under the convention, member countries prohibit the discharge of waste into the waterways and follow uniform definitions for waste disposal through an international network of licensed reception facilities. Garbage, slops and other hazardous operational waste go to inland harbours and other facilities.

Sustainable development of regional navigation also requires a more coordinated approach to environmental impact assessments in such areas as navigation improvements and port and harbour developments. In Viet Nam, such assessments have to be made for all new dredging and infrastructure projects located in or beside waterways. In Thailand, assessments are required only for port projects designed to handle vessels of more than 500 dead weight tonnes - which would appear to exempt all port development along the Thai stretches of the Mekong. In Cambodia and Lao PDR, national regulations may be applied to assess the environmental impacts of inland waterway projects. In



2002, the Mekong River Commission recommended that member countries hold formal discussions on a transboundary process for both environmental impact and strategic environmental assessments. It was felt that such a process would be a "major step forward" in promoting sustainable development of navigation across the Mekong basin.

## Social issues

Improved water transport has many social benefits that flow from better access to markets, schools and health facilities.

Among countries in the Lower Mekong Basin, only Thailand has a dense network of paved all-season roads. For many communities living along the Mekong in Cambodia and its tributaries in Laos, the river is the only means of transport. In Cambodia, dependence on inland waterway transport is high in areas remote from major roads such as the stretch of river from Kratie to Stung Treng. Some 1.36 million Cambodians living in 970 villages are estimated to be wholly dependent on inland waterways for transport. In Lao PDR, all-season roads have been built along most stretches of the Mekong but access is limited in villages located on tributaries, especially the Nam Ou and Se Kong rivers which pass through remote mountain areas. More than 300,000 people living in 915 villages are estimated to be totally reliant on water transport for most of the year.

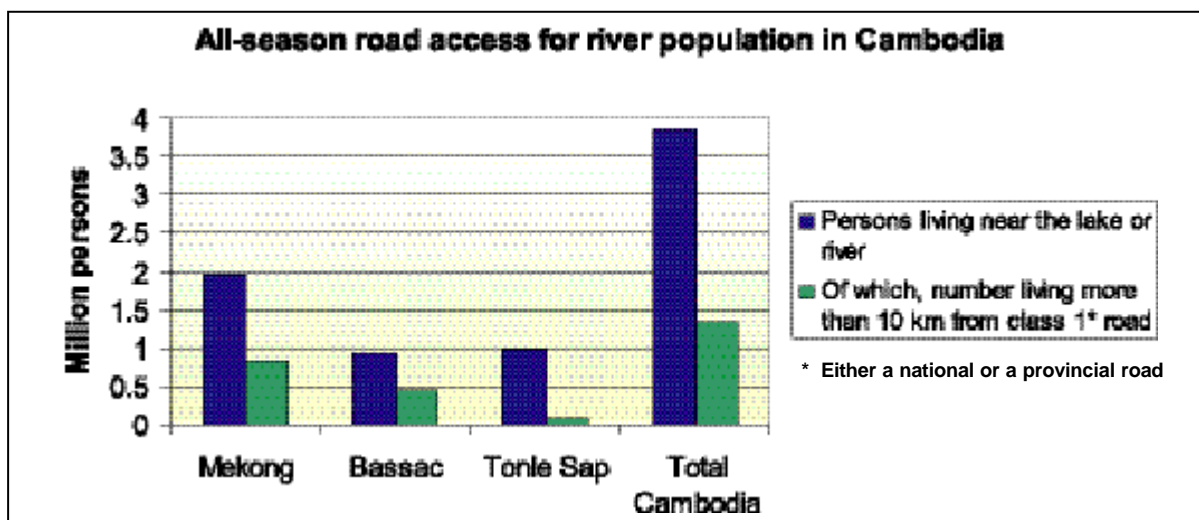
In Viet Nam, about 73 percent of cargo and 27 percent of passengers are carried by inland waterways in 12 provinces. Cargo is mainly rice and other agricultural products using high-capacity bulk transport and transfer facilities which are more competitive than those provided by road operators. Indeed, the Mekong Delta in Viet Nam has the most sophisticated port infrastructure of the basin with five maritime bulk-handling ports including Can Tho, located on the Bassac River some 80



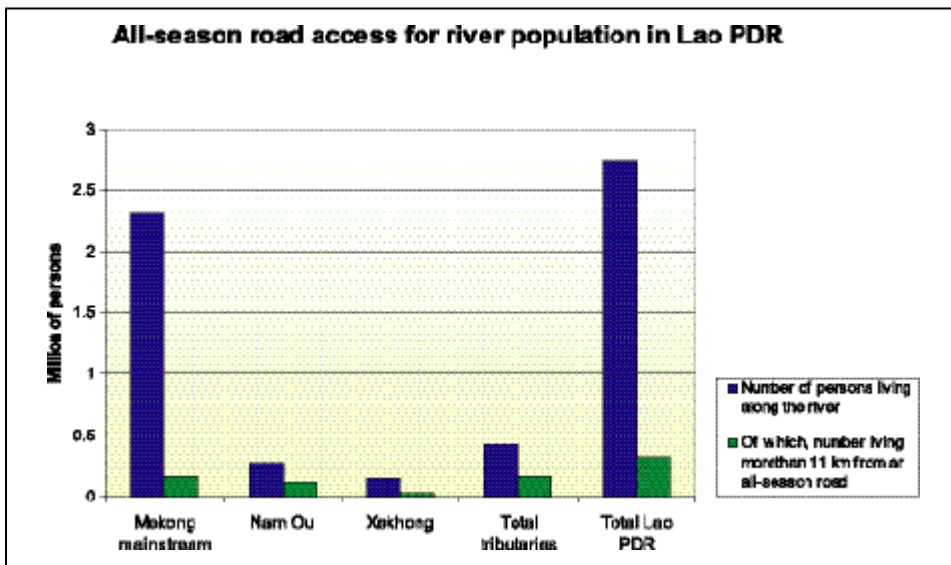


kilometres upstream from the estuary. As part of a World Bank project, Can Tho is being equipped with high-capacity cargo-handling equipment including mobile cranes for containers. The five bulk-handling facilities and Ho Chi Minh City ports handle 90 percent of the country's rice exports.

As the ASEAN Free Trade Area (AFTA) takes shape with newer members progressively cutting tariffs over the next few years, efforts to liberalise regional trade are starting to focus on services and the removal of non-tariff barriers such as complicated customs procedures. Under efforts to bridge the development gap in Southeast Asia, the newer members - Cambodia, Lao PDR, Myanmar and Viet Nam - have secured accelerated tariff-free access to the more developed ASEAN markets. At the same time, China is working towards establishing a free-trade area with the six older ASEAN members by 2010 and all members by 2015. As an initial step, it granted special and preferential tariff treatment to goods from Cambodia, Lao PDR and Myanmar in 2002. Amid growing talk of an even wider East Asian Community including Japan and South Korea, it appears almost inevitable that inland water transport in the Mekong region will compete with road and



Source: UN World Food Programme and Mekong River Commission, GIS data bases; Cambodia National Population Census 1998 and Cambodia Socio-Economic survey, 1999



Source: UN World Food Programme and Mekong River Commission, GIS data bases; Cambodia National Population Census 1998 and Cambodia Socio-Economic survey, 1999

rail operators for a bigger slice of the expanding trade pie - particularly if the existing obstacles to navigation could be addressed. If administrative procedures were simplified, for example, the navigation time from the Mekong estuary to Phnom Penh port could be slashed from two and a half days - about as long as it takes to sail to Manila - to 16 hours, which is only about twice as long as driving by road from Ho Chi Minh City.

With reduced sailing times come increased competitiveness. For shipping from the South China Sea into Cambodia, freight costs on the Ho Chi Minh-Phnom Penh leg could fall by half if there could be non-stop navigation. This could be achieved through simplifying administrative procedures, making night navigation possible by the installation of buoys and beacons, and carrying out limited dredging activities.

If expanding regional trade ties lead to more congested roads and increased pollution, it could be only a matter of time before the countries of the Mekong rediscover the potential of inland waterways which have been carrying goods and people for thousands of years.



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# THE PEOPLE'S HIGHWAY: PAST, PRESENT AND FUTURE TRANSPORT ON THE MEKONG RIVER SYSTEM



Mekong Development Series No.3  
April 2004



Mekong River Commission