TONLE SAP PROCESSED FISH
From Khmer Subsistence Staple to Colonial Export Commodity

———  Nola Cooke

The Tonle Sap Great Lake and River in central Cambodia together form one of the environmental wonders of the world, driving a unique natural regulatory system without which the Mekong Delta region would be entirely submerged for nearly half the year. As the Mekong rises, from May to June, fed by snowmelt in Tibet and then by monsoon rains, a huge volume of water hurtles downstream. At Phnom Penh, where the Mekong meets the Tonle Sap, the pent-up pressure overwhelms the smaller river, reversing its flow and pushing billions of cubic meters of water back up to its headwaters to create a huge inland sea. The dry season lake surface expands fourfold, to well over one million hectares, while its volume rises from about five billion cubic meters to an immense eighty billion cubic meters. Flooding twenty to thirty kilometers beyond the dry season shoreline, the rising waters inundate a highly adapted forested floodplain, taking with them innumerable fish eggs and fingerlings that fatten on its decomposing vegetation and algae. In the dry season, as the waters seep away, the fish follow, first toward the permanent lake bed and then later down the Tonle Sap River toward the Mekong. From December to June, fishermen from floating lakeside villages and neighboring provinces alike converge on the dwindling lake and river. Some seek only to secure their family’s off-season protein staple and a small excess to trade for other necessities, but others labor for months in large-scale intensive fishing operations that range from the deployment of seine nets several kilometers long to an ingenious array of traditional bamboo fish traps, great and small.¹

Cambodia is the fourth largest freshwater fish producer in the world, with an annual catch conservatively estimated at 400,000 tons.² Fish from
the Tonle Sap Great Lake alone currently account for about 60 percent of the total yield. While the vast bulk of the Tonle Sap catch is now consumed within the lower Mekong basin, especially by Khmer who live in nearby provinces, this was not always the case. From the late nineteenth century, fishing on Tonle Sap Great Lake and its river was transformed into a major export industry, only slightly less valuable than rice in the early twentieth century. Chinese played key roles at every level of the new export industry, whether as local traders, international exporters, or financiers who supplied the essential capital that funded large-scale operations. Without their input, it is unlikely that bulk commodity production of processed fish would ever have attained the scale that it did by the end of the nineteenth century. By then, fishing on the lake had been transformed. Although Khmer peasant subsistence producers had dominated Cambodian inland fisheries for centuries, by the early twentieth century they formed only “a tiny minority” on Tonle Sap Great Lake, where Vietnamese fishing masters using “Chinese, Vietnamese and Malay” laborers produced a cheap protein staple that was then exported by downstream Chinese firms to Southeast Asia and China. In the high-colonial era, Indochinese dried fish, overwhelmingly from Cambodia and thus from the Tonle Sap system, became a key commodity import that helped to feed the coolie masses of Java, Singapore, and Hong Kong: by the mid-1930s, Chinese businessmen in Cambodia were shipping 15,000 tons of dried fish annually to the Dutch East Indies alone. Newly emergent bulk commodity production in inland Cambodia thus played a silent but nonetheless significant role in sustaining the contemporaneous European colonial system in Southeast Asia.

In the following discussion I chart the remarkable career of Tonle Sap processed fish and fish products over the century in which they were transformed from a Khmer subsistence staple to an important colonial commodity consumed by tens of thousands of people beyond Indochina, in China and throughout the colonial Malayo-Indonesian world. I begin with what we know of the emergence and growth of market-oriented fishing in the nineteenth century, until about 1880, before considering the industry’s transformation in the new economic environment created in Cambodia by the royal revenue farming system. I conclude by outlining the disastrous impact on fish stocks of the essentially unregulated industry after revenue farming was abolished, and the 1920 establishment of the regulatory system that controlled fishing for the rest of the colonial era.
Fish has always formed the main protein component in the Cambodian diet. Over millennia, Khmer fishermen had devised an ingenious array of traps, nets, rods, and bamboo barrages designed to secure a good supply of this precious staple. So locally well adapted was this equipment that much of the traditional gear remains in use today. Cambodians also learned to preserve their catch by drying, salting, or smoking it, and to exploit even the tiniest fish by processing them into the national condiment, a thick, salted fish paste called prahoc. As Ian Mabbett and David Chandler recognized, “the technology of fishing, the taxonomy of species, the craft of fish cuisine and the science of garnishes and seasoning for fish dishes” had all long ago reached “a high pitch of refinement” among the Khmer.

Traditionally, however, fishing and fish processing were seasonal peasant sideline activities, with only a comparatively small number of long-resident Islamic (Malay and Cham) fishing villages engaged in it all year round. Every year, large numbers of Khmer families, even whole villages, would trek to the lake at low water, build temporary homes, and spend about six weeks catching and processing their subsistence protein for the coming year, as well as rendering fish oil for cooking and lighting. These perennial activities were undoubtedly identical to those witnessed in 1878 by the French official Jean Moura, who described these Khmer groups as living cooperatively, with individuals joining short nets to boost a catch that was later shared out according to long-established customary rules. By the late eighteenth century to the early nineteenth, however, things were starting to change.

In the nineteenth century, access to the Great Lake was free to all. Chinese junk crews, for instance, regularly went there to hunt marabouts for their feathers during the breeding season and paid only the customary 10 percent royal levy in kind on circulating commodities when taking their cargo back to China. According to a handful of early Vietnamese sources, another seasonal industry with regional ramifications was also taking shape there. From at least the early nineteenth century, if not before, itinerant fishermen from the Nguyễn realm were taking their boats upstream to catch and process fish for markets downstream. A late 1830s Vietnamese account of eastern Cambodia, for instance, noted that “Khmer boats and those from Lực Tỉnh [southern Vietnam] all gather [at the lake], often in their thousands. The fishermen dry the fish and boil the oil.” We also know from the 1901 recollections of a highly successful Vietnamese fishing entrepreneur, Lê Thượng Tiếng, that his father’s 1840s–1850s operation, the biggest mid-nineteenth-
century exploitation on the Great Lake, was averaging about 60 tons of fish per season. If Khmer peasant producers smoked much of their catch at the time, as many still do, to dry fish for export itinerant Chinese, Vietnamese, and Sino-Vietnamese commodity producers needed the greater preserving power of salt (as did Khmer who wanted to make prahoc). Lê Thượng Tiếng reported that it took one picul (60 kilos) of salt to process 2.5 piculs of fish (although later French observers cited one picul of salt per three to four piculs of fish), so that his father’s midcentury operation alone would have required about 400 piculs (or 24 tons) of salt, if all the catch was salted. Ready access to large quantities of salt was thus crucial for both commercial operators and subsistence producers alike. From a Vietnamese source of the 1820s we also know that a flourishing salt trade had long existed between the old “salt province” of former lower Cambodia—the Bassac region (modern Sóc Trăng and Bạc Liêu) at the mouth of the Hậu Giang or lower Mekong branch—and the rest of the Khmer kingdom. Chinese, Vietnamese, and Khmer in the Bassac area manufactured a red salt which, when sold upriver by Chinese and Vietnamese junk traders, realized good profits for all involved.

When French materials become available in the 1860s, we can infer the continuing growth of the inland fishing industry from the economic importance of salt in French Cochinchina, both in terms of its soaring production and the vast quantities being imported into Saigon for distribution throughout the local region, including to Cambodia. From the mid-1860s, cheaper white salt from other sources, especially from Bà Rịa in French Cochinchina, began outstripping traditional red salt in fish processing. After the 1862 cessation of hostilities between the Huế court and the French, salt production at Bà Rịa developed quickly. By 1868, its salines had expanded to 371.4 hectares, from a mere 13.2 hectares in 1836, soaring past Sóc Trăng’s 200 hectares in 1868. The real breakthrough came in 1865, however, when 2,504 seagoing junks traded between Bà Rịa and Saigon at the same time that thousands of other junks imported over 100,000 piculs of salt there from several small ports in the nearby Vietnamese provinces of Bình Định, Bình Thuận, Phú Yên, and Quảng Nam. According to one French source, salt imports in 1865 exceeded those of 1864 by a staggering 233,193 piculs (or nearly 14,000 tons).

It is hard not to connect the great local increase in salt production and its bulk importation with an expansion of the inland processed-fish industry around that time. From an estimated average total catch of about 30,000–40,000 piculs in the 1840s, Tonle Sap Great Lake’s estimated annual yield
had risen to around 60,000 piculs by the early 1860s, while important fishing and prawning industries were also emerging elsewhere, especially in the three western Cochinchinese provinces that remained under Vietnamese rule until 1867. Evidence of Cambodia’s share in a growing export-oriented fish-processing industry appears in early French records: according to one 1862 French observer, all 2,430 tons of dried fish exported from Saigon that year derived from the Great Lake, with access to more salt the main restraint on increased productivity. Between 1862 and 1865, the value of processed fish exports from Saigon doubled, from 1.2 million to 2.48 million francs, although the actual quantity fell to 1,358 tons. This might indicate that more valuable fish were being targeted by larger operators, who salted them for export to distant markets like Java, the Malay states, and Singapore. Certainly, the data show that the proportion of processed-fish cargoes transported by the large commercial ships that serviced such ports was rapidly rising at the time, from around 50 percent in 1863 to 70 percent by 1865.

By 1865, customs records show that bulk salt imports into Saigon had solved the problem of inadequate supplies downstream, and Chinese junk traders were quick to ensure this essential commodity reached Cambodia. Indeed, the trafficking of salt from Cochinchina was one of the earliest Chinese economic niches in the developing Cambodian fishing industry. Although Chinese fishermen worked in Cambodia, and Chinese businessmen also owned fishery operations there, the most common Chinese involvement in fishing during this period was as the indispensable commercial middlemen supplying the needs of the fishing communities.

By the mid-1860s, Louis de Carné of the 1866 Mekong expedition reported seeing “some thousands” of Vietnamese boats working the Great Lake. Vietnamese had been returning to Tonle Sap in increasing numbers from the mid-1860s, encouraged by the protectorate treaty with Cambodia that allowed all French subjects free access and settlement rights. In effect this opened the country to any Vietnamese or locally born Chinese from Cochinchina after 1867. However, of the thousands de Carné saw, only a handful of large-scale, well-financed operations could have hoped to take their whole season’s requirements with them to the uninhabited lake; the vast majority of fishermen had to rely on junk traders, overwhelmingly Chinese but also occasionally Malay, for daily necessities and vital industrial inputs like salt and net preservative. They were also often the main source of start-up capital for many fishermen. In 1869, almost all the vessels Jean Moura encountered heading upriver to the lake were chartered by Chinese, who took salt, rice, areca, betel nuts, tobacco, alcohol, and ritual items (fire-
crackers, paper money, joss sticks) to exchange directly for fish. Even Cambodian subsistence producers needed some salt, so profits were high in this classic sellers’ market. Other benefits were also available. In 1879, on his second tour of the lake, Moura reported that most fishermen were “generally” forced to sell their catch to itinerant traders at the lake, in many cases without even being able to add value by preserving it first. Only larger professional fisheries could afford to process their own catch and then wait to sell it, in order to benefit directly from post-seasonal rises in prices. Thus, even before Chinese financiers took control of the industry generally, the Chinese junk traders and middlemen who acquired fish cheaply at the lake, whether in return for loans on catches or in exchange for expensive imported items, were already making profitable inroads into small producers’ returns. But without these circulating junk traders the industry could never have expanded as it later did, since no other means existed to supply the 30,000 (or more) people, mostly Vietnamese, who worked the lake by the early 1880s.

In an industry marked by large seasonal fluctuations, the perennial scarcity of operating capital left the great mass of small to medium producers highly vulnerable. Fishing was an expensive business. At the time, only a few comparatively large-scale operations existed, employing about twenty-five men to operate a seine net averaging only about 1.5 kilometers in length, and with twelve women to process the fish, among a mass of subsistence and small-scale producers. (By the end of the century, in comparison, the largest operators employed seventy to one hundred men to deploy nets up to six kilometers in length, with forty women processing the catch.) These early professional operations were almost entirely Vietnamese. In 1859–60, Henri Mouhot had recorded a few “enterprising Cochinchinese” who were taking “literally miraculous” catches at the lake each year. The most successful of them was Lê Thượng Tiếng’s father. However, his miraculous results required a huge capital investment of about 3,000 piasters per season on hired help, nets, boats, salt, and so on, for a profit of 1,000 to 1,500 piasters. If this represented a fortune at the time, high start-up costs meant new operators effectively needed a fortune in order to make one.

In 1878, Moura calculated that a large operation employing forty men with a single big net (and excluding the cost of women to process the fish) would cost nearly 21,000 Vietnamese quan (or approximately 3,800 piasters). This figure was later confirmed by a Vietnamese fishing boss who reported spending 20,000 quan in his first year. He employed only men, and his busy workers threw away fish heads and entrails from which female em-
ployees might have extracted oil worth several thousand quan at comparatively little additional expense. But as it was considered too uneconomical to interrupt the fishing for any reason, the heads were cast into the lake to rot. So common was this practice that in 1869 Moura saw Vietnamese from Châu Đốc collecting the discarded heads, which they processed for their own profit.38 Although fish oil fetched 1.5 piasters per 30 liters in Phnom Penh in the early 1860s, undercapitalization restricted its production to a comparatively small area along the Tonle Sap River and the Mekong between Phnom Penh and Oudong.39

Open access to the Great Lake was protected by the Franco-Siamese convention of 1870, but elsewhere (including on Tonle Sap River) a patchwork of commercial fishing leases operated in traditional royal or apanage waterways. These leases were either auctioned annually to the highest bidders (usually Chinese), who might re-let them to others or operate them with their own equipment and crews, or they were granted to local governors or other officials to rent out in lieu of salary.40 In some respects, these lots offered better commercial prospects than the Great Lake: they could be completely blocked with fish traps before the water drained and everything within quickly harvested by a few workers; and certain valuable species inhabited them. They were also the main locations for fish oil production and later for extracting valuable fish bladders, although this activity became commercially important only from the 1880s (see table 1).41 Nevertheless, during this period, local villages with age-old customary rights to particular areas vastly outnumbered such leases, while less productive areas were not fished at all.

<table>
<thead>
<tr>
<th>Year</th>
<th>Dried/salted fish</th>
<th>Fish bladders</th>
<th>Fish oil</th>
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<tr>
<td>1873</td>
<td>128,628</td>
<td>83</td>
<td>233</td>
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<tr>
<td>1880</td>
<td>93,200</td>
<td>849</td>
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<tr>
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<td>183,266</td>
<td>787</td>
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<tr>
<td>1887</td>
<td>158,000</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Source: For the 1873 figure, see A. Bouinais and A. Paulus, L’Indo-Chine contemporaine (Paris: Challamel, 1884), 1, 549, citing Étienne Aymonier; for 1880 and 1882, see the customs figures in CAOM GGI, FA 11867; and for 1887 see the report of Resident General de Champeaux, dated 30 June 1888, in CAOM GGI, A 20 (27), carton 6.
Apart from these rents, and a small kingdom-wide customary tax levied by local officials on fishing gear, the only fiscal impost on fishing was the traditional royal customs duty on all commodities, payable at Phnom Penh. In 1862, Andrew Spooner reported these duties were collected only haphazardly, and mostly to the exporters’ advantage. From the early 1870s, however, matters changed dramatically, after King Norodom transformed his customs receipts into a revenue farm and auctioned the right to collect them. Successful bidders in the 1870s included local Chinese businessmen and some Cambodian courtiers, whose sub-farmers or agents, appointed as royal officials to mask their activities from the disapproving French representative in Phnom Penh, swiftly began to levy the full royal 10 percent, plus an extra 1 percent for their own expenses. It was a harbinger of things to come.

The Fishing Industry under the General Revenue Farm, 1879–1908

In the three decades during which revenue farming interests came to dominate the Cambodian fishing industry, the export value of its products boomed, thanks in part to the pursuit of new markets by downriver Chinese exporters. The pressing need to return a profit on increasingly expensive revenue farm investments and fishing leases also drove diversification into profitable secondary activities. One such valuable activity was the export of dried fish bladders to China, where they were processed and either used industrially, as a water-soluble glue added to liqueurs, wines, beers, and woven silk, or widely consumed in thickened soups. These secondary products became increasingly important over time. By 1910, Cambodia exported about 15,000 piculs (or 900 tons) of fish oil and fats, and 12,500 piculs (or 750 tons) of fish bladders, more than 15 times the derisory 1873 quantities reported in table 1, while by the mid-1920s, the combined export of fish oils and bladders had soared to over 4,000 tons. By 1910, too, the worth of the entire export industry had almost trebled. In 1873, Étienne Aymonier had valued processed fish and fish product exports—overwhelmingly from the Tonle Sap Great Lake and River—at 2,651,345 francs. Although dried and salted fish had not even doubled in quantity by 1910 (from 128,000 to 220,000 piculs), the value of fish-related exports had soared to 7,225,000 francs. Indeed, the total quantity of processed fish exports for 1910 was only about 30 percent higher than those in 1882 (see table 1), but while the latter had fetched 593,479 piasters, those of 1910 were worth 1.5 million piasters.

Large-scale operators were particularly well placed to benefit from the
export boom. They could negotiate equitable contracts with the mainly Chinese companies whose steam launches began plying Cambodian waters in the 1880s, and thus transport their products more efficiently to market, a change that occurred just as Chinese export networks downriver were also developing new markets and while the demand for cheap Cambodian dried fish in colonial Asia was increasing. In 1900, Cambodia and Cochinchina together exported nearly nine million francs worth of fish products to Singapore (6,357,930) and Hong Kong (2,296,577), about two-thirds of which probably originated in Tonle Sap waters. Lê Thường Tiếng demonstrated the vast fortunes generated by this expanding commodity trade when he compared his costs and profits to those of his father fifty years before. In 1901, capital costs were five times higher. The price of salt had doubled, to 3,800 piasters for 2,000 piculs, as had the wage bill for 120 employees (80 men and 40 women), who now cost up to 6,000 piasters annually, and the price of other necessary inputs had risen even further. Lê Thường Tiếng’s annual catch was also five times more than his father’s, on average 300 tons. His profits, however, were seven or eight times higher, thanks to new markets in Hong Kong, Singapore, and China, to the dramatic increase in the price of premium fish, and to his move into processing fish oil, fats, and bladders.

Perhaps just as important, well-capitalized fishery operators like Lê Thường Tiếng could now also take advantage of the new opportunities opened up by King Norodom’s creation of a general revenue farm on fishing leases and equipment taxes. The old Vietnamese fisheries entrepreneur was also exemplary in this respect, for at one stage he was also the general revenue farmer for Cambodian fisheries and thus the monopolist entitled to dispose of the largest area of fishing leases in the country. The benefits of such a situation for a fishing entrepreneur are self-evident. But in another respect Lê Thường Tiếng was quite unusual, for the position of general revenue farmer very quickly came to be dominated by big Chinese businessmen who were mostly speculative capitalists with few direct links to fisheries production. As investors anxious to recoup their outlays and make profits, they all quickly moved to share their risks with numerous layers of sub-farmers to whom general farmers sold shares in their monopolies. In fewer than two decades, the operational demands of this typical revenue farming financial structure would catalyze the Cambodian export-fishing industry into its long-standing twentieth-century form, in which Chinese financiers employing Vietnamese fishing masters would dominate export-oriented production on Tonle Sap waters and elsewhere.
In 1862, only two revenue farms existed in Cambodia, on opium and gambling. By late 1891, when Resident Superior Huynh de Vernéville persuaded Norodom to exchange the royal revenue farming system for an annual civil list, the king had converted almost every fiscal obligation in the kingdom, including ones not customarily paid to the crown, into revenue farm monopolies that he rented out to the highest bidders. Despite signing a convention in 1877 that forbade the creation of any new taxes and which only allowed revenue farms on opium, alcohol, and gambling, Norodom had managed to outrace a series of French officials and establish a voraciously expanding revenue farming system that, by 1892, had taken major steps towards rationalizing and modernizing the traditional Cambodian fiscal system. However, unlike the revenue farms discussed elsewhere in this volume, Norodom devoted almost none of the millions the system generated to the modernization of the Cambodian state. Instead, its profits went to him personally and to those favored businessmen, mainly but not exclusively Chinese, who secured monopoly rights to collect the various taxes, charges, and rents.

Two specific revenue farms affected the fisheries. The first was the general fisheries farm that came into effect in 1880; the second was a separate revenue farm on processed fish customs duties established in 1882. In operation, they significantly increased business costs in the industry. The general fisheries farm began in 1879, when the king secretly resumed the customary tax levied by Khmer officials on fishing gear, standardized it for all fishing equipment, and then farmed it out, initially for about 300 silver taels. In 1880, after the French failed to respond, Norodom combined the new farm with all preexisting royal fisheries leases into a single monopoly that immediately yielded him 2,000 silver taels (roughly 30,000 piasters).

Disgruntled Cambodian officials reacted locally to the loss of their ancient rights by making demands on waterways traditionally reserved for Khmer villagers, beginning the countrywide systemic encroachment on previously free waterways that would pose a major problem for fish conservation by the early twentieth century. By 1884, after two other Chinese businesses had bought the general monopoly—the second for 4,000 silver taels (or 48,000 piasters)—Norodom had doubled his profits. Thereafter, the bidding war for the general fisheries farm continued relentlessly. In 1890, the successful tenderer was the royal crony and Cantonese businessman Lưu Chap, who offered 90,000 piasters per year, plus several valuable secret secondary payments. In the final years of its operation, the annual rent soared even further, to 240,000 piasters.

Ever-spiraling costs urgently pressured general fisheries monopolists
to insure their huge investment by on-selling substantial shares to sub-farmers, who also usually followed suit by selling off parts of their shares. By the early twentieth century, one French official described the resulting pyramid of speculators as holding “five, six or seven levels of exploiters between the State disposing of the concession and the fisherman who was actually doing the work.”

While it was in the interest of every one of those many sub-farmers to pressure those below for timely payments, in order to cover their own commitments to those higher in the pyramid, the temptation for low-paid men at the base, who dealt directly with producers, to extract something extra must have been enormous. Reports of such behavior appeared right from the start of the new system. Late in the 1880 season, Aymonier met numerous angry Vietnamese fishermen who complained of being charged double, triple, or even quadruple the customary rate on their gear. In 1881, St. Sernin heard similar stories on the lake, where even small 300 meter nets had been assessed at twice the usual amount for the largest nets, even though it was a catastrophic season when an average operation that normally produced 200–250 piculs of processed fish could only manage 70. Instead of a 250 piaster profit on a 1,000 piastre outlay, these operations had little return on their fixed costs of 650 piasters, forcing many to borrow to survive. Then, in 1882, when the separate monopoly on customs duties on processed fish came into effect, producers and merchants alike discovered that Chinese sub-farmers, appointed as temporary royal officials, simply refused to allow their boats to pass until the amounts unilaterally levied in tax were paid in full. By 1884, a number of local fisheries operators had recognized the importance of controlling the general farm and combined to bid for it. However, not only was their offer too low, but several also fell foul of the new requirement to lodge bids personally in Phnom Penh. This early failure typified the difficulties producers experienced in bidding for the general farm, with Lê Thủ tướng Tiếng being the only one to succeed, to my current knowledge. Later that year, the French tried to take greater control of the kingdom’s finances and administration, but the ensuing countrywide anticolonial uprising forced them to tacitly accept Norodom’s revenue farming system for several more years. Protectorate officials did, however, manage to insist that its tender processes conform more closely to existing norms in Cochinchina. Ironically, the elaborate terms and conditions documents that ensued, with clauses stipulating tenderers had to be creditworthy and to provide contractual guarantors against failure, largely ensured that only Chinese business
interests would qualify. Ordinary producers were automatically disbarred from competing with speculative capitalists by the need for two solvent guarantors who agreed to cover any defaulting payments. The only such eligible individuals in Norodom’s Cambodia were a few favored courtiers, Chinese among them, and Chinese businessmen who appeared wealthy enough to guarantee repayments. Under Norodom it was also genuinely a matter of appearance: if a monopoly did fail, it was never in his interest to enforce his rights over the important Chinese guarantors, for fear of lowering future revenue farm bids. In fact, so secure were these personages that when the widow of the former Cantonese general fisheries farmer, Lưu Chap, sought to extend her husband’s rights to certain fisheries leases with the Queen Mother in 1894, leaders of the Teochiu, Cantonese, and Fujianese communities willingly acted as guarantors.67

This highly extractive revenue farming system, operating in an environment of perennial capital scarcity, increasingly squeezed out the small to medium independent fishing operations that St. Sernin and others had described on Tonle Sap waters in the early 1880s. By the end of the 1890s, they were largely replaced with bigger fisheries owned by Chinese, Sino-Khmer, or Vietnamese capitalists who employed specialist Vietnamese fishing masters to organize and superintend operations. By the early twentieth century, all but the largest operations were completely dependent on loans from Chinese financiers, whether revenue farmers or itinerant salt sellers, to even begin their annual operations.68

The nature of the workforce on the lake also changed in these years. Difficulties in attracting enough laborers into the expanding 1890s industry had led to the pernicious practice of providing advances that exceeded their total contracted salary, in order to bind workers through indebtedness. Some workers responded, however, by signing the following year for a higher advance with another employer and using this cash to repay the earlier boss. Several rounds of such juggling left workers hopelessly enmeshed in debt and prompted a substantial minority to abscond at the last minute with the final employer’s total advance. In such cases, local Cambodian administrators might refuse to act against the absconders; but if fishing bosses exercised their former age-old right to arrest and punish fleeing coolies, French magistrates now held them, rather than their workers, culpable. As a result, fishing masters who worked the Great Lake, where labor was at a premium, found it increasingly difficult to maintain their earlier authority over their workforce. Most were obliged to sacrifice several days of the fishing season
while their employees enjoyed the disreputable pleasures of Snok Trou, the only sizeable settlement between Kampong Chhnang and the vastness of the inhospitable lake.69 If, as Lê thượng tểng complained in 1901, it now required three times as much effort as in his father’s day for the same result, we might perhaps detect in this the impact of a sullen and demoralized work force on the industry’s productivity.

The general fisheries farm was abolished in mid-1908 and replaced by direct taxation on fishing gear and a system of fixed-term leases on fisheries lots. Published colonial documents claimed the general farm was scrapped because certain Chinese businessmen, who had conspired in 1906 to offer 100,000 piasters less than the administration wanted, had tried the same thing in 1908, as a deliberate attempt to undermine the French administration’s budget.70 Given the accumulating economic problems at the time, however, this seems unlikely. The low 1906 bid had followed two bad years that had visited severe losses on many fisheries outside the Great Lake. Unable to attract a higher Chinese bid, the protectorate had finally negotiated a contract with a Cambodian named Pean, but by then the fishing season was already six weeks old, and by late January 1907 Pean had still not finished organizing his sub-farmers.71 The large losses incurred by the initial delay were compounded by slow payments from Chinese and Vietnamese sub-farmers, all of which doomed the endeavor, forcing Pean to seek several delays on his scheduled payments.72 By November 1907, the frustrated resident superior, Paul Luce, was consulting residents about the future of the fisheries system, with a countrywide revenue farm covering all fisheries being one possibility canvassed.73

Low Chinese tenders in 1908 probably decided matters in favor of a system of defined fishing lots and direct taxation on fishing gear. The reform brought immediate productivity benefits, with the jump in exports suggesting the revenue farming system had ended by depressing fisheries’ productivity (see table 2). The new system was also profitable, with the protectorate treasury collecting 337,816 piasters in 1908, or nearly 100,000 piasters more than the general fisheries farm for 1907.74 While the premium Chinese speculators reaped during the life of the revenue farm is unknowable, this statistic suggests it was quite substantial.

However, if the abolition of the general fisheries farm instantly boosted export figures and protectorate tax yields, over the next decade it would have serious unintended consequences for the health of the Cambodian fish stocks on which both relied.
A Crisis of Fish Conservation, c. 1900–1920

From the 1890s, the French had repeatedly subdivided fisheries leases not included in the general farm, causing a huge proliferation in lessee numbers locally. After 1908, the abolition of the general fisheries farm, combined with the creation of contracted fishery lots for Tonle Sap Great Lake after the retrocession of Battambang and Angkor Provinces by Siam in 1907, saw leases multiply enormously. Under the former system, the general fisheries farmer, however ineffectually at times, had been legally responsible for the activities of the sub-farmers who leased waterways from him. Between 1908 and 1920, however, no effective regulation of fishing existed, and the impact on fish numbers was potentially catastrophic. If fisheries leases all contained start and end dates for fishing, and described the general locations of fisheries lots, no sanctions punished those who broke the rules. A solitary 1911 circular from the Residence Superior which stipulated that fishing must end no later than 15 June rapidly became “quite ineffectual,” in part because local Khmer often rebuilt leaseholders’ barrages as soon as they were dismantled, claiming a “traditional right” to fish out of season. Leaseholders also commonly pushed the geographical limits of their allotments without administrative penalty, while everyone shortened the off season, progressively reducing the number of spawning females that could lay their eggs before being caught. Within a few years, millions of fish disappeared.

Large-scale fisheries on the Great Lake were just as destructive on fish stocks as smaller fisheries on leased waterways. Spurred on by the booming export market, professional operations began to work year-round on the lake. In the nineteenth century, fishing with large nets had begun only in December or January, but by the 1910s fishing bosses were dragging the submerged forest with huge nets, joined end to end and six to seven meters deep, from September through to December, and again in June and July,

<table>
<thead>
<tr>
<th>Commodity</th>
<th>1909</th>
<th>1910</th>
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<tbody>
<tr>
<td>Processed fish</td>
<td>11,500</td>
<td>16,000</td>
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<tr>
<td>Fish oil or fats</td>
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<td>Fish pastes, sauces</td>
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</tbody>
</table>

when spawning females were often caught in large numbers. For the rest of the year, they used a variety of barrages and traps. In particular, they favored the destructive *samra* that lured fish to spawn within its confines but was nevertheless lightly taxed compared to other devices.⁷⁹

In less than a decade of intensive, unregulated fishing, the number and size of fish caught in the Great Lake and in Cambodia had visibly dwindled. Buoyant export statistics and rising treasury receipts saw initial reports of the situation dismissed. As late as 1916 one French provincial official claimed that “fish formed a resource . . . in no way about to disappear.”⁸⁰ But after the Council of Ministers officially requested an inquiry into fish stocks in 1917, French officials discovered that changes in fishing activities at all levels of the industry over the previous decade, from the use of dynamite through to the increasing height and narrowness of barrages, were indeed placing unsustainable pressure on fish numbers.⁸¹ After considerable internal debate, a reformed system combining detailed maps of local fishing boundaries with a properly policed non-fishing season came into effect in 1920, when all existing contracts were due for renewal. Although modified slightly in 1938, this system basically organized the Cambodian fishing industry for the rest of the colonial era and beyond, until the Khmer Rouge (1975–1979) abolished fishing lots and attempted to turn swaths of the submerged forest, so essential to fish reproduction in the Tonle Sap Great Lake, into rice fields.⁸²

Conclusion

From small beginnings, a processed fish industry developed in Tonle Sap waters and became a major colonial commodity exporter in the late nineteenth and twentieth centuries. Chinese played crucial roles in every phase of this development, whether as itinerant merchants who made large-scale fishing possible by supplying the everyday needs of tens of thousands of people along the inhospitable shoreline, as the owners or crew of the many vessels that shipped the fish or fish derivatives to markets downriver, or as the exporters whose networks opened new markets for Cambodian processed fish throughout colonial Asia. Chinese and Sino-Khmer also worked at every level of the industry, from fishing lot concession-holders down to coolies. However, it was as speculative financiers able to take advantage of the new opportunities created by the general fisheries farm that Chinese capitalists came to greatest prominence in the industry. By the twentieth century, revenue farming had enabled cashed-up Chinese financiers to squeeze out many small to medium operators on the lake and to monopolize the most productive fishing lots elsewhere. Overwhelmingly, they employed Vietnamese spe-
cialist fishing masters who preferred to hire non-Khmer labor. Unregulated overexploitation of fish stocks threatened the industry’s viability after the general farm was abolished in 1908, but after sensible conservation rules were finally imposed in 1920 the commodity export industry flourished for the rest of the colonial era. Within a few decades, Chinese capital and commercial networks had helped Vietnamese fishing bosses and their crews transform an age-old Khmer subsistence sideline occupation into an important bulk-commodity industry whose consumable products were available throughout colonial Southeast Asia, and beyond.

Notes

My thanks to the Australian Research Council for the funding that made this research possible, and to the staff of the Centre des Archives d’Outre-Mer, Aix-en-Provence, France, and the National Archives of Cambodia, Phnom Penh, for their assistance.

5. Both quotes from *Annuaire générale de l’Indochine* (Hanoi: Schneider, 1906), 786.
6. Figures in a letter of 15 May 1936 from the President of the Cambodian Mixed Chamber of Commerce to the Resident Superior of Cambodia [NSC], National Archives of Cambodia [NAC], R3129.
from the mid-1830s to 1847. For the tax system, see Étienne Aymonier, Le Cambodge: Le royaume actuel (Paris: Ernest Leroux, 1900), 77.


13. Adhémar Leclère, “La pêche dans le Grand Lac du Cambodge,” Bulletin économique de l’Indochine 38 (1901): 675. The quantity in the text was 1,000 piculs, or 60,000 kilos. For the longer, original version, see A. Leclère, report to RSC, 14 June 1900, NAC 11591.


19. It had been a major producer of cheap salt earlier in the century and had restricted Bà Rịa’s growth [Gia Định Thành thông chí 3: 40]. In 1865, 1,200 junks traded from here to Saigon, with a carrying capacity of 33,300 piculs, second only to the Bà Rịa junks’ capacity of 46,085 piculs. These two ports represented 65 percent of Saigon’s 1865 cabotage trade. Most of their cargo was probably salt.

20. The article says 508,798 piculs of salt, or more than 30,500 tons, were imported in 1865. This figure may be a misprint but the increase over 1864 was underlined in the text, as were the 100,000 piculs from Vietnamese ports. “Commerce et navigation de la Cochinchine en 1865,” Revue maritime et coloniale 17.1 (1866): 190, 192.


22. Rieunier, “Le Commerce de Saïgon pendant l’année 1862,” Revue maritime et coloniale 12.2 (1864): 224. In 1862, the quantity of dried fish exported from Saigon was topped only by rice.
28. De Carné reported loans could be as high as 100 percent (ibid., 39).
29. Moura to Governor of French Cochinchina [Govcc], 1 April 1869, CAOM GGI, FA 10127; and Moura, “Notes sur la pêche du Tonli-Sap,” 548.
31. Salt loans heavily discounted the value of the fish, so itinerant salt merchants doubled their outlays downriver. Petillot, Une richesse du Cambodge, 108.
33. Buchard described a fishery of this size as large in “Rapport à M. le Gouverneur sur la mission du Grand-Lac,” 252. The nets were often extended to two kilometers, according to Moura, “Notes sur la pêche du Tonli-Sap,” 537.
36. Leclère, “La pêche dans le Grand Lac du Cambodge,” 675. In 1848 15,000 to 20,000 francs (2,700 to 3,500 piasters) was regarded as a “colossal” fortune in southern Vietnam. Charles-Émile Bouillevaux, Voyage dans l’Indo-Chine, 1848–1856 (Paris: Victor Palmé, 1858), 45.
38. Moura to Govcc, report of 1 April 1869, CAOM GGI, FA 10127. A quan was a Vietnamese string of cash, called a ligature in French sources. It was worth about 90 French centimes at the time.
40. Aymonier, Le Cambodge, p. 77.
42. Ibid., 2.
43. Moura, letter of 5 March 1871 to Govcc, CAOM GGI, FA 10033.
44. The fish bladder trade began in the 1870s. See Moura, “Notes sur la pêche du Tonli-Sap,” 544–46; and Petillot, Une richesse du Cambodge, 102–3.
45. Under-Director of Customs, letter of 10 October 1929 to RSC, NAC 3081. The average for the rest of the decade was only about 3,000 tons.
46. In 1901, Lê Thượng Tiếng even estimated the Mekong contributed only 1 percent to the fish catch, with the rest from Tonle Sap waters. Leclère, “La pêche dans le Grand Lac du Cambodge,” 676.
47. All figures from Petillot, Une richesse du Cambodge, 138–40.
48. For the 1910 figures, and the value of the 1873 processed fish, see ibid.
49. For the export figures, see Leclère, “La pêche dans le Grand Lac du Cambodge,” 675. At the time, there were no separate customs figures collected for Cambodia, following the 1893 customs union with Cochinchna.
51. Petillot does not give a precise date, but it was likely to be after 1901 since Leclère never mentioned it (Une richesse du Cambodge, 92–93).
52. Spooner, “Rapport sur le Cambodge,” 2. Both in Chinese hands, they returned 150,000 piasters.
53. See essays by Carl A. Trocki and Wu Xiao An in this volume.
55. Aymonier to Govcc, 18 June 1881, CAOM GGI, FA 12694.
57. Ibid.
58. Fourès to Govcc, 1 July 1884, CAOM GGI, FA 13469.
59. A certified copy of the contract with the resident superior is at CAOM GGI, FA 9430. Other documents show he had acquired a partner in 1891, about whom no details were given.
60. Negotiated agreement between RSC and A. Pean, 1906–08, 19 October 1906, CAN 1343.
61. Petillot, Une richesse du Cambodge, 112.
62. Aymonier to Govcc, 14 June 1880, CAOM GGI, FA 12603.
63. In 1880 Moura reported the tax rate was 150 Viet quan, or about 1.5 silver bars, but without mentioning net size (“Notes sur la pêche du Tonli-Sap,” 552). St. Sernin, “Voyage au lacs du Cambodge,” 387.
65. Fourès to Govcc, letter of 7 July 1885, CAOM GGI, FA 10007; and also his letter of 26 April 1884, CAOM GGI, FA 10027.
66. Fourès to Govcc, letter of 2 September 1884, CAOM GGI, FA 12694.
68. This widespread dependence on loans from itinerant Chinese salt traders even caused the French to close the official Kompong Cham salt depot, for lack of patronage. Letter from the Under-Receiver of Customs, Kompong Cham, to RSC, 1 December 1908, NAC 8926.
69. All details from Leclère, report of 14 June 1900, NAC 11591.
70. For the official documentation, see Petillot, Une richesse du Cambodge, 118–27.
71. See the letters of 21 January 1907 from the Kratié Resident to RSC and to A. Pean, about the latter’s erroneous claim to rights in Kanhchôr and Chhlong, NAC 1343.
72. See the various documents on this subject dated 9 May, 13 May, 30 May, 13 June, 1 July, 24 December, and 28 December 1907, in NAC 1343.
73. Resident Jeannerat of Kandal to RSC, letter of 29 November 1907, NAC 1343.
74. Petillot, Une richesse du Cambodge, 129–30. This represented one-ninth of the protectorate budget, with rice only responsible for a little more (one-eighth).
76. Extract from Report No. 802, 29 July 1920, NAC 25719.
77. Both quotes from ibid. The circular of 12 August 1911 is also at NAC 25719.
78. Several documents address this matter in NAC 25719. For example, a request from the Cambodian naval minister, dated 23 February 1917, for RSC to inquire into fish stocks, or a report by the Resident of Kampong Chhnang dated 30 May 1918.
79. Pursat Resident’s report, 17 November 1917, NAC 37158. These devices are now prohibited in Cambodia.
80. Kampong Chhnang Resident’s report, 30 May 1918, in NAC 25719.
81. For instance, barrages that had previously been 2–2.2 meters high had reached 3.5 meters by 1917, allowing fishing to continue during periods of much higher water than had traditionally occurred, while the gaps between the bamboo poles from which the barrages were woven had reduced from 3 centimeters to almost half that width. In addition, these barrages were set up in December rather than late January. Pursat Resident’s report, 12 November 1917, NAC 37158. Fishing by use of dynamite or drugging the fish was officially banned in 1908. See NAC 34495 for the ban.