



Mekong River Commission

Consumption and the yield of fish and other aquatic animals from the Lower Mekong Basin

MRC Technical Paper

No. 16

October 2007





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Published in Vientiane, Lao PDR in October 2007 by the Mekong River Commission

Cite this document as:

HORTLE, K.G. (2007) Consumption and the yield of fish and other aquatic animals from the Lower Mekong Basin. MRC Technical Paper No. 16, Mekong River Commission, Vientiane. 87 pp.

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Acknowledgements

This report was prepared with financial assistance from the Government of Denmark (through Danida) and technical assistance from staff and counterparts of the Assessment of Mekong Fisheries Component (AMCF) of the Mekong River Commission's Fisheries Programme, and other sources as acknowledged. The author wishes to thank the Water Studies Centre of Monash University, Melbourne, Australia, for providing office space and computer resources during the preparation of this report.

The following people are thanked for kindly providing data or reports and clarifying various aspects of their studies which are reviewed in this report: Ian Baird, Caroline Garaway, Hans Guttman, Simon Funge-Smith, Ubolratana Suntornratana and Joseph Garrison. Adele Crispoldi (FAO) kindly provided information about FAO conversion figures. Theo Visser, Gregory Cans and Nguyen Tanh Tung assisted with databases. Tim Burnhill prepared the maps. The report was reviewed by Chris Barlow, Tim Burnhill, Robin Welcomme, Simon Funge-Smith and Caroline Garaway who are thanked for their constructive comments.

Abbreviations and Acronyms

| | |
|--------|---|
| ADB | Asian Development Bank |
| Danida | Danish International Development Agency |
| DoF | Department of Fisheries |
| EIA | Environmental Impact Assessment |
| FAO | Fisheries and Agriculture Organisation of the United Nations |
| FWAEs | Fresh whole animal equivalent weights: the weight of animals required to make any final product, equivalent to 'live weight' as used by the FAO |
| IFF | Inland fresh fish |
| IPF | Inland preserved fish |
| LMB | The Lower Mekong Basin (within Cambodia, Lao PDR, Thailand, and Viet Nam) |
| MPs | Marine products |
| MRC | Mekong River Commission |
| OAAs | Other aquatic animals (than fish) |

Units used

| | |
|-------------|---------------------------------|
| HH | Household |
| capita | Persons, covers all people |
| capita AEUs | Persons, adult equivalent units |
| t | Metric tonnes (1,000 kg) |

Summary

The Lower Mekong River Basin (LMB), which includes parts of Cambodia, Lao PDR, Thailand and Viet Nam, supports a significant fishery that has been the subject of numerous studies on fish consumption that have been sponsored and implemented by various organizations. Unfortunately, most of the results of the studies are not generally available or synthesised, so views on the size and value of the basin's fisheries vary widely. This review attempts to estimate the yield (production) of the fishery based on data on consumption from 20 field surveys in the LMB, with some supporting analyses of complementary data.

Various adjustments were necessary so that data could be used to estimate province-level consumption and to extrapolate to provinces that have not been surveyed. Preserved fish amounts were adjusted to 'fresh whole animal equivalent weights' (FWAEs) and other adjustments were required to account for differences in coverage and units. Information on other animal products was also synthesised where available.

| | Cambodia | Lao PDR | Thailand | Viet Nam | Total |
|---|----------|---------|----------|----------|-----------|
| Estimated per capita consumption (kg/capita/year as actual consumption) of inland fish and other aquatic animals in the LMB, based on consumption studies (from Table 25) | | | | | |
| Inland fish | 32.3 | 24.5 | 24.9 | 34.5 | 29.3 |
| Other aquatic animals | 4.5 | 4.1 | 4.2 | 4.5 | 4.3 |
| Total inland fish and OAAs | 36.8 | 28.6 | 29.0 | 39.0 | 33.7 |
| Estimated yield (tonnes/year as FWAEs) of inland fish and other aquatic animals in the LMB, based on consumption studies (from Table 24) | | | | | |
| Inland fish | 481,537 | 167,922 | 720,501 | 692,118 | 2,062,077 |
| Other aquatic animals | 105,467 | 40,581 | 190,984 | 160,705 | 497,737 |
| Total inland fish and OAAs | 587,004 | 208,503 | 911,485 | 852,823 | 2,559,815 |

Based on the results of the 20 surveys, consumption of fish and other aquatic animals (OAAs) in the LMB is estimated to be about 2.6 million tonnes by a population of 56 million in the year 2000 as fresh whole animal equivalents. About one-fifth of this total comprises OAAs. About one-third of the fish is eaten preserved. Thailand and Viet Nam consume the most, about one-third of the total each. Cambodia consumes about one-quarter, and Lao PDR less than one-tenth. Per capita consumption of inland fish and OAAs averages 34 kg/year as actual consumption. Cambodia and Viet Nam have above-average per capita consumption, while in Lao PDR and Thailand per capita consumption is below-average. Inland fish and OAAs provide 47–80% (country range) of animal protein with an average intake of 18.3 g/capita/day of a total animal protein intake of 32.5 g/capita/day, a high intake compared with the recommended daily allowance.

Most consumption data were obtained during interviews in which people attempted to recall what they ate over extended time periods, and only two studies actually monitored consumption, both for limited periods. However, various other data tend to support the consumption-based estimates: results from one small monitoring study found very similar levels of actual consumption among some representative LMB people, catch data were generally consistent with consumption data, consumption data from elsewhere in the world indicate the LMB estimates are reasonable, and estimates based on yield per unit area provide a range of yield which supports the consumption-based estimate.

Estimates based on yield per unit area of aquatic habitat suggest a possible range of 0.7–2.9 million tonnes/year for the LMB. Consistent with the consumption-based estimate of 2.6 million tonnes/year, and allowing for additional wastage, exports and feed for aquaculture, it is most likely that actual yield is at the upper end of this range, because of the Mekong's high natural productivity and intensive fishing activity. Cambodia is a net exporter to the other countries, as it has a large area of productive wetlands, intensive fisheries and moderate population. The yield estimate indicates an enormous fishery which is vital in terms of nutrition, livelihoods, food security and culture. Various data show that most of the basin's inhabitants fish at some time, and that despite significant investments in aquaculture, about 90% of consumption is derived from the wild capture fishery, justifying an increased allocation of resources to its conservation and management.

As the accuracy of the consumption surveys is unknown, future studies should be carried out using established methods with appropriate attention to quality assurance and control; detailed recommendations are provided in this report. Surveyors should take care to cover all foods of interest; data are particularly poor or incomplete for some commonly-eaten foods such as other aquatic animals (OAAs) and marine products. Further studies on yield per unit area, especially of rice-field habitats in Lao PDR and Thailand, would also refine the overall estimate of yield from the basin. Land classed as rice-fields covers most of the LMB's wetland areas, so rice-fields and related habitats make a large but poorly-quantified contribution to the total yield.

This report also highlights the inconsistencies between different data sets that are widely quoted and used for various purposes. Official national data on the yield from inland fisheries generally exclude or under-report the artisanal and subsistence fisheries that make a major contribution to yield. Official 'apparent consumption' data as provided by countries and compiled by the FAO are based on questionable data on trade figures and do not account for subsistence and the large informal or unreported economy in LMB countries. A regular basin-wide consumption survey, supported by national statistics and fisheries agencies, would greatly assist in reconciling conflicting yield estimates and in institutionalising methodologies and results for basin-wide fish yield estimates.

KEY WORDS: Fish consumption, fish yield, Lower Mekong Basin, Cambodia, Lao PDR, Thailand, Viet Nam