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# **Study of the Catch and Market Chain of Low Value Fish along Tonle Sap River, Cambodia- Implications for Management of Their Fisheries**

## **A preliminary study**

Consultancy Report

For

WorldFish Center's Greater Mekong Region

By

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## Executive Summary

The Tonle Sap dai fishery plays a crucial role in providing seasonal employment opportunities to many rural people and enhancing food and nutrition security of millions of the rural poor, especially towards the end of dry season when fish is scarce and during closed fishing season. The dai fishery yields its highest ever catch of 28,300 tones in 2005-2006, contributing an estimated 9 percent of the total inland catch in Cambodia and generating an estimated 720 million riel (US\$ 176,000) in revenue from license fees. The estimated value of catch was 25.3 billion riel (US\$ 6.2 million), accounting for an estimated 4 percent of the total value of total inland catch in Cambodia. It also employs tens of thousands of rural people and other relevant actors actively involved in the supply and market chain for the trade of Tonle Sap dai low value fish.

To examine the current conditions under which Tonle Sap dai low value fish are caught and marketed, this study assess the catch and market structure of dai low value fish at Tonle Sap landing site, the largest landing site of low value fish in Cambodia. Findings are based on nearly 70 semi-structured interviews carried out with dai operators, traders/middlepersons/collectors, wholesalers, local and international fisheries experts, and government fisheries officials.

A methodology is designed, through extensive literature reviews and consultations with all relevant stakeholders at different levels in the market chain for low value fish trade, followed by testing in the field, and used for this study. The method will hopefully be beneficial for future studies in the future.

The total catch of combined 61 dais is estimated around 18,000 tones in the 2006-07 season, while the average catch of each dai is around 300 tones, varying from 59 tones to 603 tones. More than 95 percent of total dai fish catch is low value or small-sized fish. Of which, the most dominant species is *trey riel* (*Henicorhynchus spp.*, 52%), followed by *trey slak russey* (*Paralaubuca typus*, 20%), *trey khnorng veng* (*Dangila spp.*, 12%), and *trey bandol ampeou* (*Corica laciniata*, 5%). The size of low value fish species is declining, over the past six years, representing a decreasing rate of 5% per year.

Tonle Sap dai low value fish is supplied to both internal (nearly 85%) and external (around 15%) markets to use as human food (84%), and fish and other animal feed (16%).

The market chain for low value fish trade is complex, involving tens of thousands of actors/stakeholders, many different trade routes and methods (e.g. by road and waterway), and many intermediaries (e.g. dai operators, traders, wholesalers, exporters, processing operators, and many others). Most of these intermediaries are in debt to formal or/and informal existing financial/credit systems.

Prices are set at Tonle Sap landing sites through negotiation between dai operators and buyers relying on knowledge of the previous day's fish price and catch, and 'word-of-

mouth' information on prices from other dai operators. Different types of buyers bought low value fish from dai operators with different prices. Over the past ten years, the prices of low value fish and fish products at Tonle Sap land sites gradually increase.

Tonle Sap dai fishery operation business is generally profitable. The average amount of profit earned by each dai operator is Riel 31,097,558 (US\$ 7,678) in 2006-07 fishing season.

In the supply and market chain of Tonle Sap dai low value fish, the intermediaries encounter several major problems: (1) lack of capitals to operate the business, (2) difficulty managing laborers, (3) difficulty recruiting laborers, (4) natural catastrophe (i.e. strong river water flows/currents and waves, and strong winds), (5) plenty of wastes trapped in their dais (i.e. plastic bags and tree stumps); (6) limited spaces for drying fish under the sun, and (7) gangs and poaching.

There are several suggestions/recommendations proposed by the above intermediaries in order to improve as well as stabilize their businesses. Those suggestions include (1) cracking down illegal fishing activities/gears, (2) provision of loans with a low interest rate, (3) protection of fish sanctuaries in Tonle Sap Lake, (4) implementation of dai burden book, and (5) lifting the ban on snakehead culture.

As this is a preliminary or exploratory study, at the end of this research, many applicable research needs and activities are proposed to in-depth analyze marketing structure, fees, costs and constraints, importance and flow, utilization and its impacts, diversity, stocks and dai catching efforts/catchability of low value fish species in Tonle Sap River as well as other rivers and their floodplains in Cambodia. The detailed primary information and data will be useful for developing policy and business decisions concerning the use and management of low value fish species, including trade-offs between aquaculture/animals and human consumption.

## Acronyms and Abbreviations

AFTA	ASEAN Free Trade Agreement
ASEAN	Association of South East Asia Nations
FEVM	Fisheries Ecology, Valuation and Mitigation
FiA	Fisheries Administration
GDP	Gross Domestic Product
IFReDI	Inland Fisheries Research and Development Institute
Kg	Kilogram
KSFRS	Kandal Stung Fisheries Research Station
LVF	Low Value Fish (small-sized fish species)
MAFF	Ministry of Agriculture, Forestry and Fisheries
MEF	Ministry of Economics and Finance
MoC	Ministry of Commerce
MRC	Mekong River Commission
NGOs	Non-Government Organizations
R/Rial	Cambodia currency (Riel 4,050 = US\$ 1)
RGC	Royal Government of Cambodia
US\$	US dollars
WTO	World Trade Organization

### ***Khmer words***

<i>Dai</i>	Bagnet or stationary trawl
<i>Prahok</i>	Fermented low value fish paste
<i>Trey bandol ampeou</i>	Small cyprinid (carp, <i>Corica laciniata</i> )
<i>Trey khnorng veng</i>	Small cyprinid (carp, <i>Dangila spp.</i> )
<i>Trey riel</i>	Small cyprinid (carp, <i>Henicorhynchus spp.</i> )
<i>Trey slak russey</i>	Small cyprinid (carp, <i>Paralaubuca typus</i> )

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