

Comparing economies of dried fish in Asia: what the literature on six countries tells us

Derek Johnson, Jonah Olsen, Eric Thrift, Ben Belton

Abstract

Despite its importance for nutrition, food security, and cuisine, the literature focusing on dried fish makes up only a small fraction of the much larger fisheries and aquaculture literature. This review provides an overview of the shape and themes of the internet-accessible literature in English on India, Sri Lanka, Bangladesh, Myanmar, Thailand and Cambodia. We begin by presenting the distinctive definition of dried fish that guides the research. We then summarize the results of our analysis, with a focus on our findings in relation to two guiding hypotheses. First, we hypothesize that the literature on dried fish is dominated by reports on the results of technical analyses of products or processing practice. Second, we hypothesize that the literature is both larger and more diverse in geographical areas where dried fish has greater economic and cultural importance.

Preface

This document is the first written synthesis of the literature review research the project *Dried Fish Matters: Mapping the Social Economy of Dried fish for Enhanced Wellbeing and Nutrition* has conducted. The analysis of the literature is ongoing, and what we have written here is a first broad brush analysis for the purposes of presentation in the Fish as Food panels at the MARE conference. Our draft should not therefore be seen as a near to publication work, but rather as a rough draft of the current state of our analysis that we are putting forward for constructive feedback.

Introduction

The Social Science and Humanities Research Council of Canada funded Dried Fish Matters project (DFM) seeks to use a social economy lens to guide research on patterns of production, processing, trade, and consumption of dried fish in six countries in South and Southeast Asia. It is guided by the idea that the dried fish sector has been neglected in research and policy, despite its great economic, social, and cultural importance to the region. The project adopts a holistic and transdisciplinary perspective in order to generate the first overall picture of the shape of the dried fish economy in the region. It seeks to depict the social economy of dried fish in multi-dimensional ways, including through stories, maps, and visual imagery, in order to give life to the rich, complex, and diverse ways in which dried fish contribute in material and symbolic ways to the large populations that consume it and depend on it.

A first baseline task of DFM has been to assess the contours of the literature on dried fish. We do so here in relation to the six countries of focus of the project, although our long-term intent is to expand the scope of the review to the global level. In this review, we have been interested to see whether the shape of the literature matches our expectations. Thus the first hypothesis which has guided the research is that the literature on dried fish is dominated by reports on the results of technical analyses of products or processing practice. We anticipated that confirmation of this hypothesis would provide justification for the DFM project. As our findings below show, our literature review does confirm that initial supposition. Nonetheless, a careful reading of the technical literature reveals interesting asides and casual observations that speak to the relevance of the more fully rounded approach that we are taking. Additionally, the literature does contain a number of rather overlooked yet interesting outliers: contributions that look at some of the broader social economy feature of dried fish that we are

Draft only – not for circulation or citation without authors' permission

interested in such as historical accounts, cultural analyses, and culinary reflections. We suspect, as well, were we to explore the vernacular gray literatures that we would probably turn up considerably more work that addresses these subordinate themes.

Our paper's abstract contains a second hypothesis that the density of the literature reflects the cultural importance of dried fish. For want of time, we have only been able to assess the hypothesis in the broad terms laid out at the beginning of the findings section. The general observation there is that the literature on India stands out in terms of overall size, but there are reasons to question whether that preponderance actually flows from cultural origins. We will enrich our preliminary assessment of this hypothesis in a subsequent draft once we have had time to take a systematic comparative look at the global dried fish literature.

What is dried fish for DFM?

During a series of project inception meetings in June 2019, project participants agreed to an expansive definition of dried fish: any processed fish that can be stored without artificial cooling. As such, dried fish includes sun-dried, smoked, salted, and fermented products. We include fish sauce in our definition, but not canned fish. Dried fish can be eaten whole or, more commonly, is integrated into food preparations as a component or condiment to enhance flavor and nutrition.

Methods

Collation and analysis of the literature on dried fish has followed a two-stage process. In the first stage, we conducted a Google Scholar search using a variety of search terms that concerned dried fish. These were combined in the ways listed in Appendix 1 in order to narrow down the total pool. We triaged results to emphasize South and Southeast Asia. References were then downloaded to a DFM Zotero project database with the associated search terms as tags.

The second stage of the process has been to add further tags that relate to the holistic interests of DFM. Tagging of the total literature set was undertaken by Olsen, Thrift, and Johnson over a period of year based on an agreed-upon set of definitions for the tags (Appendix 2). We forced what we considered the most important tags to the top of the tags list in Zotero using numbers, colours, and hashtags. All but two of these tags appear on the vertical axis in Figures 2 through 7. Coding in this manner has allowed us to organize the literature thematically.

The two top-level tags that do not appear in the vertical axis in our tables are coded as 1. Direct and 2. Indirect. These are the broadest distinction that we have made to organize the literature. References coded as direct are ones where the focus subject of the article is dried fish. Those coded indirect are where dried fish is mentioned in passing or on topics pertinent to a broader contextual understand

We analyze the quantitative result of the tagging process in the first section of the findings below. We then show the latent depth of the literature by performing two illustrative analyses of the Myanmar and Bangladesh sub-literatures. A more systematic comparative analysis of the region, and then globally, will have to wait for later in the analysis.

Findings

As noted above, the findings we present in this section are preliminary. First, the literature that we have compiled so far is biased towards the six DFM focus countries, so we cannot yet make broader statements about the literature or inter-regional comparisons. Second, while an initial tagging is complete, a second round of tagging is needed to refine the analysis already done. The tagging had

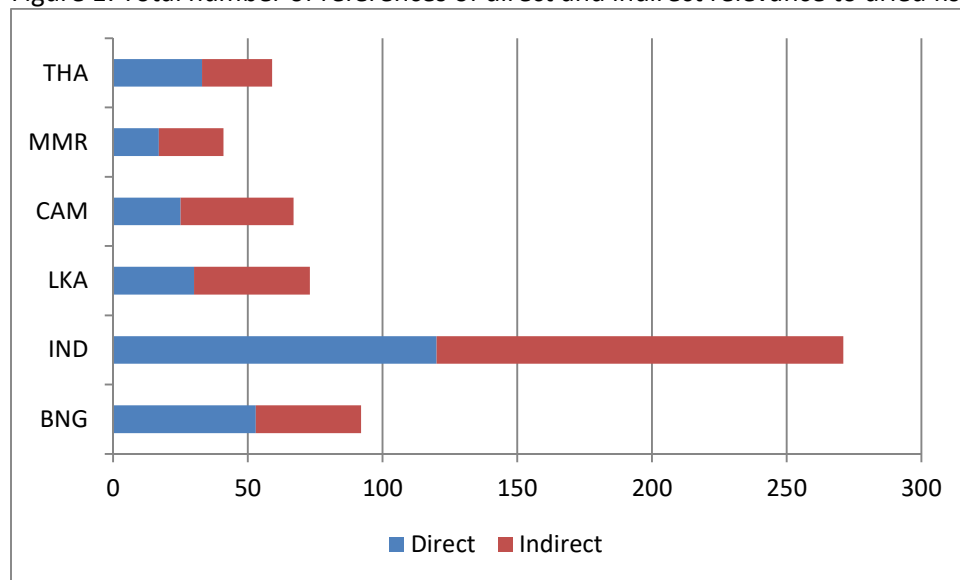
degree of iteration to it; as the authors became more familiar with the data set, some tags were refined and others added. The second round of tagging will ensure consistency across all of the entries. Third, we have only just begun the qualitative assessment of the literature that will complement the quantitative analysis that is the primary focus of our presentation below. Once we have more carefully examined the literature, we will be able to make a much more finely nuanced analysis. Despite these three methodological caveats, we are nonetheless confident that, in gross, our analysis holds up.

Quantitative analysis

At the broadest level, as shown in Figure 1, our literature search shows a marked bias in the literature towards India, with more than double the number of references of the other countries. This trend is true as much for the literatures that directly as indirectly address dried fish. An important part of the explanation for India's preponderance in the literature is likely simply the proportionately larger size of India as a country and its proportionately larger pool of fisheries specialists. Much of the Indian literature, for example, comes from its state research institutes. As we conducted additional sub-country searches in India on coastal states of particular project interest (Gujarat, Kerala, Andhra Pradesh, and West Bengal), that extra step may have generated additional references as compared to the other countries. This is something that we will check to see whether we can control for in future analysis. We can also control directly for population by looking the number of references as a proportion of total population. When we do this we will find the ratio of literature to population to be greater in the non-Indian countries as, for example, the population of India is roughly six times that of Bangladesh, but the literature only a little more than twice as large.

The literature directly on dried fish in Bangladesh is ranked second to India. Given that all other countries aside from India are an order of magnitude smaller in terms of population, this finding does seem to support the possibility that the cultural place of dried fish in Bangladesh may have driven relatively more research on it than in the other comparably sized countries.

Figure 1: Total number of references of direct and indirect relevance to dried fish by country



Figures 2 and 3 are the core of the tagging results. They show the relative proportion of tags in the direct and indirect literatures on dried fish, with the country composition of tags shown by the different colours in the horizontal axis bars of the figures.

We will say little about Figure 3, the summary report of the literature indirectly relevant to dried fish, as our main interest is in the literature that is directly about dried fish. The indirect literature may provide some occasional glimmering nuggets of insight, but its primary purpose will be to provide context for our understanding of the dried fish sector in historical, economic, cultural, and other conditions. The overall contrast between the two tables is, however, striking. It suggests that the dried fish literature, even more than the general, primarily fisheries, literature that provides context is technical¹ in orientation.

The top two tags are distinct from the others in that they indicate spatial origin of fish. These codes need more systematic application to the literature set, but they nonetheless indicate not unexpected results by showing the relative inland orientation of the literature on Cambodia and the relative coastal/marine orientation of Sri Lanka. Thee Bangladesh literature, as is characteristic of the origin of the country's fish, is divided between inland and coastal/marine.

Among the other tags in Figure 2, the technical tag clearly shows the dominance of that theme in the dried fish literature. These references are entirely concerned with technical interventions in processing either in terms of the development of new fish products, more hygienic or efficient processing techniques, or nutritional and contaminant analyses of dried fish products. This practical emphasis on improving production for economic or human health purposes is reflected in the second and third most highly ranked areas of focus: value chain analysis and nutrition. It is surprising how few references link interventions to improve the dried fish economy to policy or governance, even if the number of tags for that theme make it, along with history/change the next ranked theme. This latter theme owes its place primarily to the recognition that change is taking place in the dried fish sector and broadly frames the importance of adaptation. This theme and those that remain are crucial to the more holistically framed social economy approach on which DFM is premised. That reference to these themes is incidental in relation to the overall orientation of the broader literature, as the data show, is strong evidence for the need for research in these areas. We analyze these social-economy relevant references in the qualitative section that follows after the next discussion of value chain segments.

¹ Rather than clutter the text with how we defined each of our tags, we have separated the definitions of our tags out as Appendix 2.

Figure 2: Count of directly relevant primary tags by country

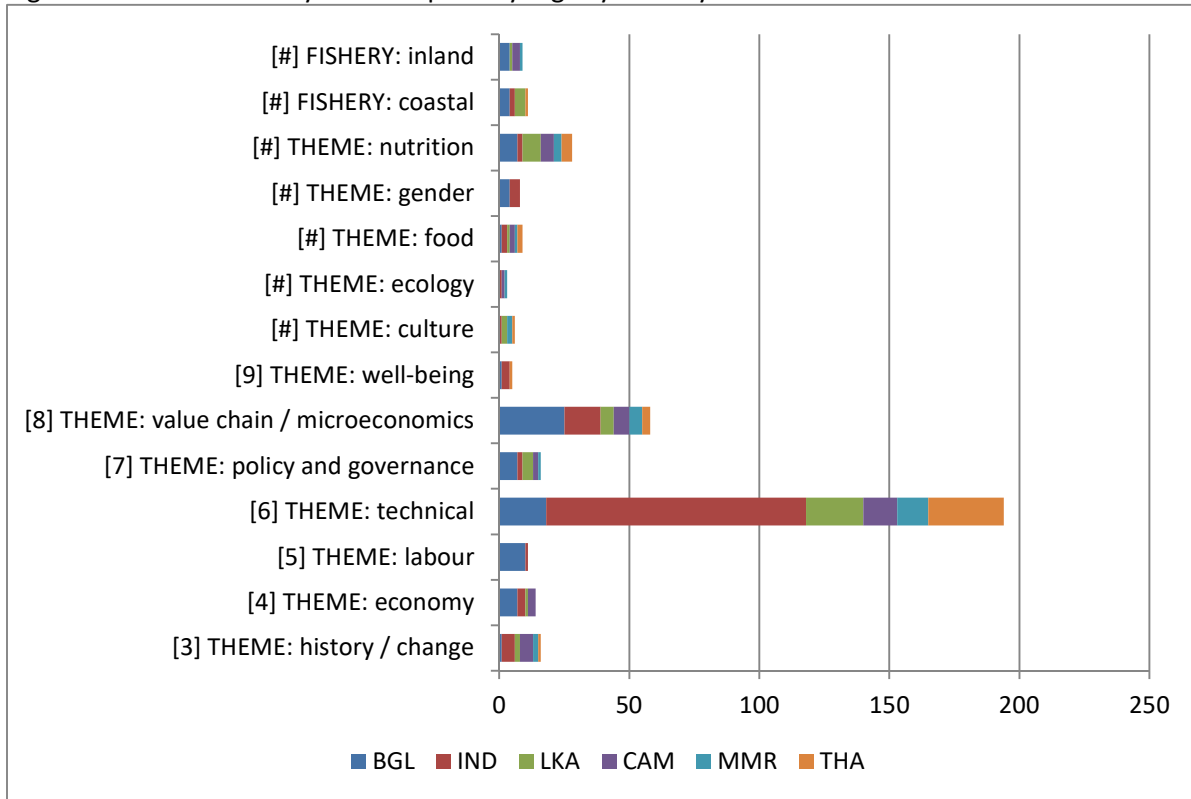
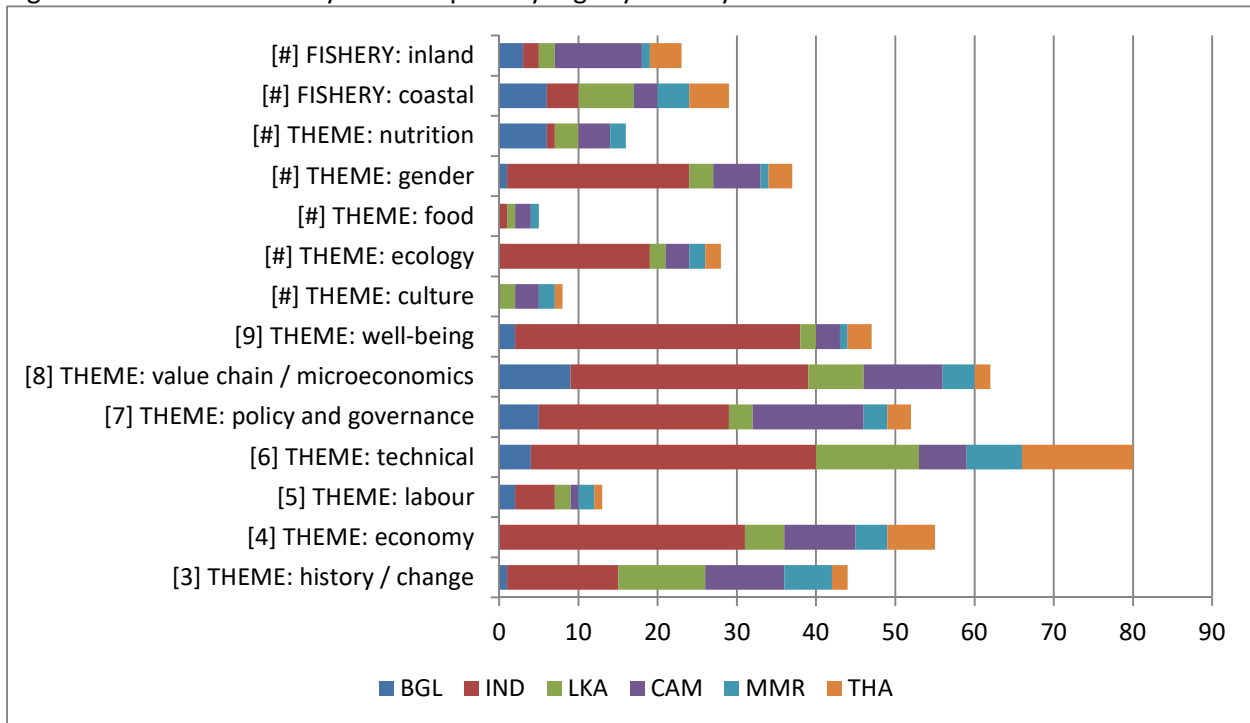


Figure 3: Count of indirectly relevant primary tags by country



Figures 4 and 5 are summaries of a sub-set of tags related to the broader value chain tag. Each of these tags relates to one value chain segment. References may of course deal with more than one segment but, as the technical references are focused particularly on quality control in processing, the directly relevant value chain segment tags are dominated by processing. This is in contrast with the broader fisheries literature, where the dominant weight is typically on production. The point about the skew within the dried fish literature is reinforced when looking at the indirectly relevant value chain segment tags, where attention is evenly spread across the five segments. Of note in the directly relevant value chain segment data is the relatively little attention to value chain concerns in the Indian literature and disproportionate importance and relatively balanced contribution of the Bangladeshi literature.

Figure 4: Count of direct value chain segment tags by country

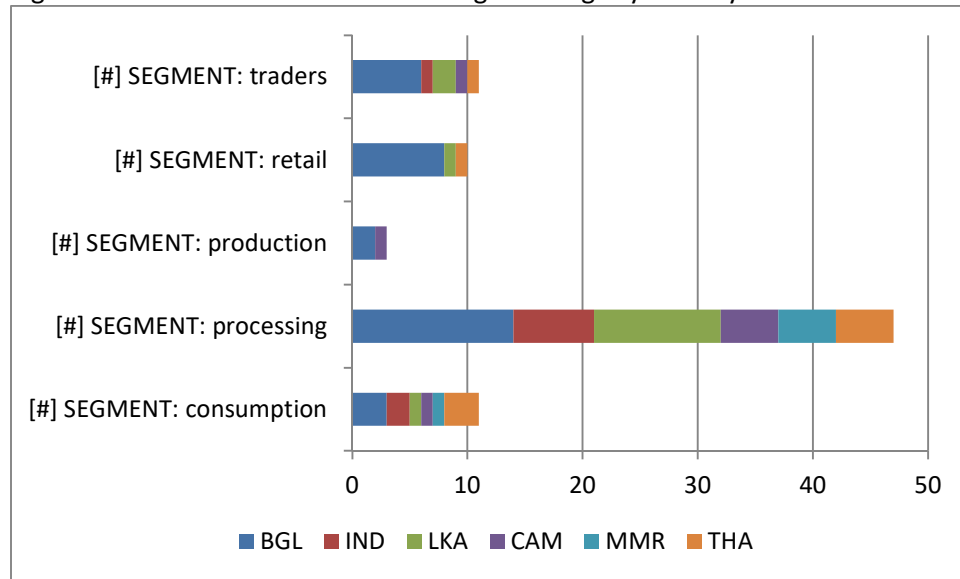
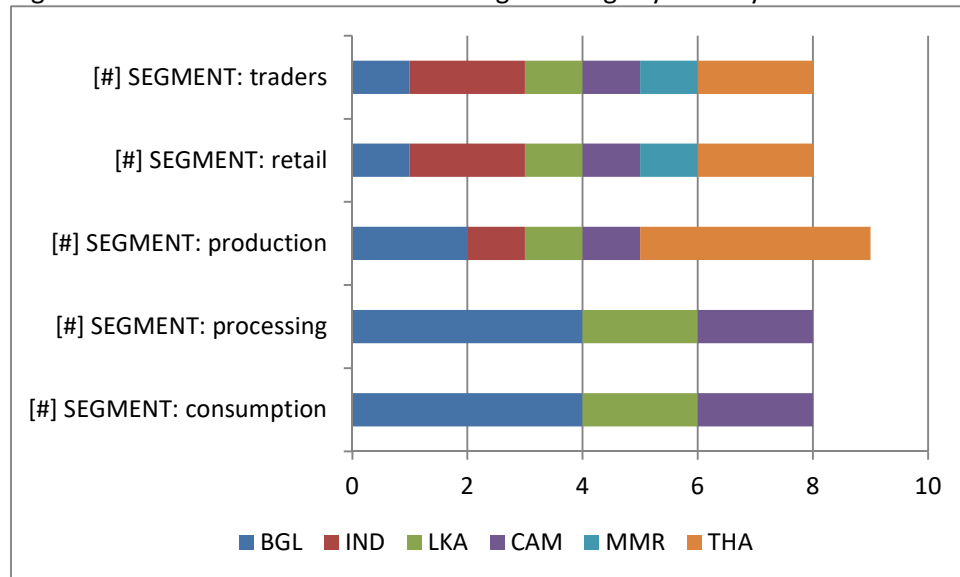


Figure 5: Count of indirect value chain segment tags by country



Draft only – not for circulation or citation without authors' permission

Supplementary illustrative qualitative assessment (to be added)

- Myanmar and Bangladesh to be analyzed first, followed by other focus countries and then global comparative data

Discussion

- Our estimation of the shape and gaps in the literature were accurate, but there are nonetheless many promising clues in the existing literature that can be the basis for further more holistic research on dried fish
- Despite an overall similarity in broad shape of the literature, there are country-specific variations that merit closer attention and provide the possibility of comparative insights
- Our interest in value chains is consistent with an important secondary theme in the literature, but our holistic emphasis is different

Conclusion

- The value of a broad scale comparative country-level approach like this is evident
- Shape of literature and gaps summary
- Going forward: intention to scale analysis up to global level

Reference list (to be added)

Appendix 1 – Search Terms

Keyword 1	Keyword 2	# of Results
"Dry fish"	N/A	2,242
"Dried fish"	"Dry fish"	247
Dried fish	N/A	>235,000
"Dried fish"	N/A	<10,000
"Dried fish"	Asia	1,776
"Dried fish Asia"	N/A	0
"Dried fish"	South Asia	1,233
"Dried fish"	"South Asia"	188
"Dried fish"	"Southeast Asia"	413
"Dried fish"	India	1,820
"Dried fish"	Myanmar	115
"Dried fish"	Burma	205
"Dried fish"	Bangladesh	399
"Dried fish"	Cambodia	194
"Dried fish"	Thailand	637
"Dried fish"	Andhra Pradesh	49
"Dried fish"	Gujarat	75
"Dried fish"	Sri Lanka	260
"Dried fish"	Kerala	82
"Dried fish"	West Bengal	212
"Dried fish"	Community	2,765
"Dried fish"	Local	4,107
"Dried fish"	Regional	1,639
"Dried fish"	Region	3,293
"Dried fish"	Continent	836
"Dried fish"	Value	4,531
"Dried fish"	"Value Theory"	5
"Dried fish"	"Value Chain"	70
"Dried fish"	"Value Chains"	33
"Dried fish"	Network	1,257
"Dried fish"	Economy	1,928
"Dried fish"	"Political Economy"	331
"Dried fish"	"Political Ecology"	39
"Dried fish"	"Diverse economies"	1
"Dried fish"	Gender	871
"Dried fish"	Women	3,415
"Dried fish"	Woman	2,162
"Dried fish"	Feminist	140
"Dried fish"	Feminism	65
"Dried fish"	Class	2,387
"Dried fish"	Labour	2,392
"Dried fish"	Technology	2,326
"Dried fish"	Health	3,646

“Dried fish”	Food	6,728
“Dried fish”	“Food security”	391
“Dried fish”	Trade	2,959
“Dried fish”	Wellbeing	106
“Dried fish”	Nutrition	1,619
“Dried fish”	Ecology	899
“Dried fish”	Supply	2,739
“Dried fish supply”	N/A	1
“Dried fish”	Demand	2,191
“Dried fish demand”	N/A	1
“Dried fish”	Survey	2,221
“Dried fish”	“Fisher wellbeing”	1

Appendix 2 – Tag list with Definitions

Theme tag (keyword)	Description
[1] RELEVANCE: Direct	Items that primarily or substantially concern dried or fermented fish, possibly in combination with other topics.
[2] RELEVANCE: Indirect	Items that provide information about the social economy of dried fish, but that primarily concern a broader or distinct topic.
[3] THEME: history / change	The history or evolution of the dried fish economy. Historical documents included in this category.
[4] THEME: economy	Macro-economic analysis. Dried fish production, consumption, or marketing at the regional or national scale.
[5] THEME: labour	Labour relations, the social organization of work practices. (Contrast the “value chain” category which applies to works that may approach the same practices from a microeconomic focus.)
[6] THEME: technical	Development of processing technologies; nutritional analysis; contamination; etc. This is a catch-all category that can later be disaggregated.
[7] THEME: policy and governance	Analysis or theoretical discussion of policy or governance institutions: fisheries, economic development, resource management, poverty-reduction, price controls, etc. (This category <i>excludes</i> empirical research that identifies “policy applications” in its conclusions.)
[8] THEME: value chain / microeconomics	Microeconomic analysis: Empirical study of dried fish value chain segments as economic activity. Includes fish drying, marketing, consumption practices; household food preferences. (Contrast the “labour” category which includes works that may approach the same practices from a social focus.)
[9] THEME: well-being	Subjective well-being; practices to sustain and promote dried fish for cultural objectives; social relations (caste, class, ethnicity, and kin groups – any social organizational categories that are distinct from gender or occupational categories). Cultural understandings of health in relation to food consumption, etc.
[#] THEME: culture	Sources that are attentive to matters of not just taste, ritual, and cuisine, but also the social aspects of food such as food sharing or kinship and food.

Theme tag (keyword)	Description
[#] THEME: ecology	Natural resource management; fisheries ecosystems. (This tag will not generally apply to resources that directly concern dried fish.)
[#] THEME: food	Qualities of food; social place of food; fish as food in relation to other kinds of food; food categorizations. Closely related to [#] THEME: culture.
[#] THEME: gender	Women's role in fisheries / dried fish production. This theme will overlap with others (e.g., "value chain" and "well-being") but should indicate a specific gender focus if apparent.
[#] THEME: nutrition	Studies of the nutritional composition of dried fish products or the nutritional importance of dried fish at group or population level.