

# IMBeR West Pacific Symposium

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OCEAN: SCIENCE AND  
SUSTAINABILITY

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Event  
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# Dried Small Fish

Ecology, Value Chains  
and Nutrition



futurearth  
research for global sustainability



# Towards a social economy of small dried dish in South Asia



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**IMBeR West Pacific Symposium on “Dried Small Fish: Ecology, Value Chains and Nutrition”**

# Introduction

- Drying - oldest fish preservation techniques and has economic, social and cultural dimensions.
- 'Dried' fish includes all forms of preserved fish like salted, fermented, smoked, pickled etc. in various local and regional contexts.
- Synthesis of findings - scoping phase of the Dried Fish Matters project - from three South Asian countries, Bangladesh, India and Sri Lanka.

## ecology

/ɪˈkɒlədʒi, ɛˈkɒlədʒi/

*noun*

the branch of biology that deals with the relations of organisms to one another and to their physical surroundings.

## process

/'prəʊses/

*verb*

gerund or present participle: **processing**

perform a series of mechanical or chemical operations on (something) in order to change or preserve it.

## trade

/treɪd/

*noun*

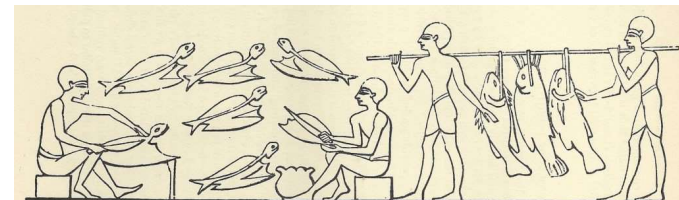
the action of buying and selling goods and services.

## nutrition

/njuːˈtɪʃ(ə)n/

*noun*

the process of providing or obtaining the food necessary for health and growth.



By courtesy of John Murray (Publishers) Ltd.

FIG. 1.—Ancient Egyptians cutting up fish for salting and drying. Note the receptacle for offal.

Source: <https://www.herripedia.com/salt/>

# Key Questions

- What are **important small fish species**?
- How have **biophysical and species-related ecological changes** affected small fish supply?
- What are **dominant processing practices** and products?
- How are small fish products **economically, nutritionally, and culturally** important?
- What **roles do men and women** play in dried small fish value chain segments?
- Have **changing consumer preferences** influenced dried small fish value chains?
- What impacts are evident on the **vulnerabilities of processors** and consumers of dried small fish?
- What **role has policy** played in addressing or exacerbating the ecological and economic influences shaping dried small fish value chains?



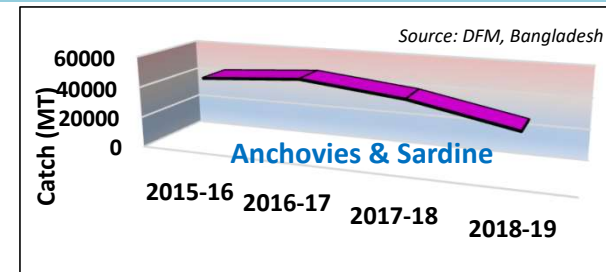
# Main species



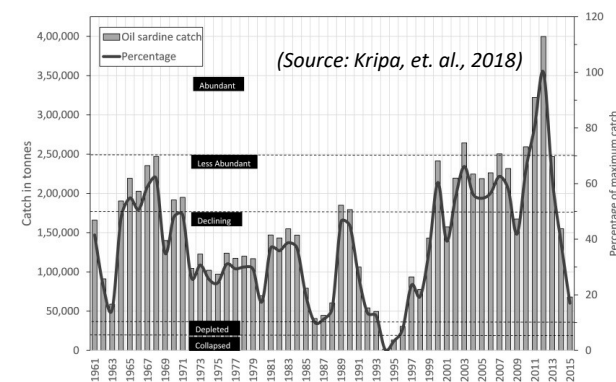
- Several species of fish are dried India, Sri Lanka and Bangladesh,
  - Major ones are anchovies, sardines, mackerel
  - Ribbon fish, Bombay duck, hilsa shad
  - Juveniles of bigger fish are also dried

# Ecological changes and small fish supply

- Fluctuating catches
- Declining CPUE
- Changes in availability due to
  - Overfishing
  - Increase in gear sizes
  - Pollution
  - Climate change induced factors



Availability of fish for drying



# Policy regulations

- State regulations
  - Registration of vessels
  - Effort – vessel sizes, numbers
  - Conservation – gear regulations, mesh regulations, seasonal bans, ban on destructive fishing, sanctuaries
- Multiple agencies
- Traditional arrangements
- Tenancy rights
- Traditional community-based practices

# Methods and products

- Sun drying on beaches, coir or bamboo (Bangladesh) mats, plastic sheets, wooden, metal or concrete sheets/ platforms
- Curing in concrete tanks (India), barrels (Sri Lanka)
- *Jaadi* is fermented in cement tanks or terracotta pots.
- Bigger fish - salt cured and dried
- Drying using solar driers is also being seen of late.



Shrimp being dried on plastic sheets



Sardine cleaned and ready for drying



# Gender roles and benefits in dried fish value chains

Women	Men
sorting, cleaning, salting, drying, storing	transportation, loading, unloading, trading
Wage labour, unpaid family labour	Owner, Wage labour
Micro scale	Bigger scale
Gender differentials	
Only 60% of the wage men earn	
women work more days and longer hours per day than men	
Most wholesalers who purchase from processors are men	
Very few women, even in retailing	

Woman retailer with a banner in her small shop – ‘Good quality dry shrimp available here’ Kerala, India



# Consumer preferences



- Consumer preference
  - changing lifestyles
  - availability of other options chicken, meat etc
  - Season (monsoon)
  - Perceptions of safety
  - Value added, convenient dried products

Source: <https://www.thehindu.com/life-and-style/food/dried-fish-with-its-versatility-is-popular-across-the-country/article32437505.ece>

# Evident impacts on vulnerabilities

- Uncertainty in catches due to effort and weather changes
- Women
  - 50% of workers
  - Older women vs younger women
- Small fish processors bound by advance sales agreements
- Declining coastal land, space restrictions, beach tenure
- Multiple uses, policy shifts, encroachments
- Hygiene and safety
- Humidity, unseasonal rains, flash floods
- COVID-19



*Male retailer in a wholesale market, Kerala, India*

# Economic, nutritional and cultural importance

- Source of income
- Nutritional security – dried fish is nutrient dense
- Cultural attachment to fishing/dried fish
- South Asia's diaspora – aspirational or nostalgic food
- Key element - disaster preparedness and climate change mitigation
- Customary significance



Parassinikadavu Muthappan temple , Kerala, India, where dried fish is a customary offering

# Conclusion

- Dried small marine fish important economically, socially, culturally and nutritionally in South Asia
- Ecological changes will have a long term impact on fish available for drying as there are competing uses
- Several methods of processing – mostly traditional which needs improvement
- Women play significant roles but remain largely voiceless and vulnerable



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**THANK YOU**