

Exploring the link between small scale fish trade and local livelihoods in developing country near shore marine fishery

Abstract

The paper reviews critical findings regarding the influence of fish marketing on local livelihoods and resources in a near shore African marine fishery. Literature search was conducted using search engines google scholar, scopus, and web of science using the key words: Fish, fish trade, global market, livelihood, marine/coastal, with the objectives of exploring the relationship between fish markets, livelihoods (at the household level) as well as the resource itself. In addition, country reports from research organizations (both published and unpublished) as well as FAO reports were consulted. The search was undertaken in November 2019. Results from literature search were analyzed thematically based on livelihood indicators including fish marketing channels, determinants of income, occupations and fish price transmission. Linkages vary with respect to fish type, species and usage type, highlighting the need for disaggregated analyses to respond to specific objectives and market factors. The review points out that not all fish types are exported/linked to the tourism industry and that even for those linked to the global market, the benefits do not trick down. A strong interaction between fish and local staple is evident, an indication of that small scale fisheries are likely to have local benefits than benefits attributed to global market linkages.

Keywords: *Fish, fish trade, global market, livelihood*

Introduction

Since the Bronze Age, fish has been one of the most highly traded commodities in the world [1, 2]. Fish has been an important source of food, livelihood and economic benefits for those involved in harvesting, processing and trading in it [1]. For instance, fish was one of the important items in the diets of sailors who were involved in carrying commodities across the sea [3]. Although there has been a substantial trade with fish for a long time, in most places local fisher were the most important providers of fish (fresh) to the local market. Therefore, historically, the exploitation and trade of marine resources was commonly constrained by the inaccessibility of remote and offshore locations [4]. The implication of this was the existence of many separate markets [5], where prices were determined by local demand and supply. This meant that abundance of fish and low prices in one market was not reflected in prices on other markets, making seafood market highly segmented. In almost 40 years, global fish production from 40 million metric tonnes in 1961 to 142 million metric tonnes in 2001, a threefold increase [1].

Over time, with changes in preservation (particularly salting) technology and various methods of processing made it possible to transport fish over longer distance. Among the first foods preserved using simple technologies of salting and drying include cod of the New Found Land and herring of the Baltic Seas [1]. This led to the emergence of regional and an increasingly integrated world market where before there used to be many independent regional and local ones [4]. The evolution of fish markets and the desire for enhanced integration (through export for example) has however happened but with challenges particularly for developing countries. For example the European Union, which had traditionally been the main export market for fresh water fish from Kenya instituted a raft of stringent requirements for fish export in the mid and late 90s. More particularly, in 1997 and 1999, safety and quality conditions were imposed to various countries following reports of the presence of salmonella, cholera outbreak and the use of pesticides thereby seeing a decline in fish exports from Kenya by 68% [6]. The quality requirements included institution of stringent quality control measures like the Hazard Analysis Critical Control Point (HACCP). Currently, the industry is governed by a variety of standards including requirements for handling and marketing fishery products based on HACCP principles and the practices governing fish production such as the handling, processing, packaging, and transporting of fishery products destined for the EU [6]. Other standards include those regarding the construction of buildings, equipment, purification tanks, and storage tanks intended for holding fish prior to shipping, as well as on-premise laboratories, strict record keeping, and accurate labelling. These requirements notwithstanding, fish trade is at the heart of the debate regarding its role in livelihoods, particularly poverty reduction [7]. Although the role of trade is strongly advocated, its benefits for poverty alleviation and development is still highly debated [8-10].

Literature review

A desk top review of literature on published related fish, fish markets, livelihoods and resources was done in November 2019 by using a variety of search engines including google scholar, scopus, and web of science using the key words 'Fish, fish trade, global market, livelihood, marine/coastal'.

This paper reviews literature on the implication of fish trade on local livelihood. The focus is on local fish linked to global markets and influence on livelihood and resources. This is done by examining literature related to fish trade and local livelihoods. More specifically, literature search was done in November 2019 using google scholar, scopus, and web of science using the key words 'fish, fish trade, global market, livelihood, marine/coastal'. Peer reviewed published papers were reviewed. In addition, country reports from research organizations (both published and unpublished) as well as FAO reports were consulted. A sample of titles and abstract scans were the basis for identify papers that were then used in this review.

Views regarding fish trade and poverty

In the literature, there exist two broad opposing views regarding the impacts of fish trade (particularly liberalization) on economic development. The first view claims that fisheries development and trade are good for poverty alleviation [11]. This view argues that international trade leads to access to and diversification of overseas markets with a resulting increase in incomes in the fisheries sector [12]. Consequently, fish export can act as an engine of growth for developing countries [13, 14]. The main argument advanced here is that international fish trade can contribute to economic growth in developing countries by providing an important source of foreign exchange [11, 15]. The revenue can then be used to service international debt, pay import bills and fund operations of national governments [12, 16] apart from contributing towards job creation and incomes [12].

The opposing view argues that international fish trade impacts negatively on food security and local economies [17, 18] and that fisheries trade-oriented policies are harmful for local populations as they often lead to decline in local fish supply and livelihoods options for the poor [19, 20], particularly in the absence of strong regulatory institutions. In addition, fishing agreements often take advantage of the developing coastal states without providing fair returns [21], based on minimal economic benefits that developing countries have so far managed to derive from such agreements [19, 21]. It is also argued that trade – oriented fishery policies lead to losses in local jobs and adversely affect the development of the domestic fishing industry [18, 19, 21] by for instance driving away fish for human consumption. This view suggests that high value fish are essentially satisfying the demand of the rich, urbanized consumers (in developed and developing countries) while low value fish is becoming the only fish available for the poor [7].

Perspectives regarding fish markets and local livelihoods

Several ways have been advanced through which global markets link to, and affect, local livelihoods and resources. In agricultural systems for instance, global markets have been reported to provide increased market access and change market structures and prices. In Kenya, this has not happened without state interference. For instance, the National Cereals and Produce Board (NCPB), for a long time controlled maize prices [22]. Elsewhere, such interference has negatively affected livelihood strategies by changing incentive structures for resource users [23]. In fisheries, through increased market integration, global fish markets have been reported to affect production decisions [24], for example by encouraging fishers to intensify production [25], and shifting from traditionally produced, locally consumed fisheries products to high-end fish types [26]. Globally, most studies looking at how global markets affect local systems have had a conservation focus. They for instance examine impacts of global markets and/ or market access on wildlife and endangered species, spread of exotic species, and alteration of physical and chemical environments [27]. In East Africa though, several studies have looked at the impacts of international trade on fisheries by focusing on the export industry for Nile perch in Lake Victoria [18, 19, 28-32] and only recently marine fishery [33]. Most of these studies have however focused mostly on food security (e.g. [1, 19, 34]) but less on price transmission between export and domestic markets as well as interaction between market actors and effects of market integration on livelihoods apart from a few (e.g. [33]).

Interplay between fish market, livelihood (including through local staple interplay) and resources

Recent literature shows that there exists interplay between fish, respective prices with local livelihoods [33]. Indeed, emerging trade system benefits local livelihoods in terms of food prices [33]. However, no evidence exists of global fish prices trickling down to the mostly locally consumed fish types [33].

Literature also shows that trading in fishery products linked to different markets (local, national and global) may have different implications on local livelihoods. Wamukota and McClanahan use time series data to determine the potential influence of global fish trade on prices, food security and resource sustainability at three market levels - local, national, and global, over time and found no evidence for price transmission from export to nonexport fish products implying lack of evidence of direct negative effect of international fish trade on the poorest consumers as has previously been reported [35, 36]. Research has also shown that, over time, the value of fish relative to a local staple has been on the rise, thereby benefitting local resource users in terms of low prices and access to a key staple [33]. In addition, there has been an increase in income to fishers from locally consumed fish and increase in value of exported fish, an indication of positive association between international fish trade and livelihoods of the

poorest fishers.

Previous studies have highlighted the low level of price transmission from international markets to African food markets too [37-40]. The lack of price transmission is attributed to lack of value addition by upstream actors, which is common in African fisheries [41, 42]. The lack of value addition is partly attributed to the fact that importing countries (particularly EU, USA) which favors raw materials trade rather than exports of value added products [42]. This realization has led researchers to advocate for improved fisheries management and development of social capital through education, training and enforcement. These are hoped to provide an opportunity for fishers to continue engaging in the fishery sustainably and at the same time ensure that even the marginal increase in prices do not lead to increased fishing pressures and threaten the sustainability of the resource [41].

Increasing the abundance of fish through improved management can provide high prices and direct economic gains to fishers and fish traders [43]. However, prices taken by fishers and traders are depended on a variety of other factors for example the relationship between fishers and traders as well as socio-economic and resource characteristics [33, 44, 45] important particularly in influencing prices and income distribution, but which is beyond the scope of this review.

Conclusion

Global fish markets present opportunities for local small-scale fisheries although little evidence if any is available to date regarding the contribution to local livelihoods. Recent research shows that in servicing global fish markets, traders who control distribution may capture increasing benefits at the expense of fishers [45, 46] at the same time making fish less accessible to the poor [46]. Indeed, there is no strong evidence that gains generated in distant markets in terms of prices and associated income rarely trickles down to benefit local fishers and those most in need [47, 48].

At a local level, even for similar near shore fisheries market scales, consumer preferences, and dynamics and resultant implications are varied. This is because not all fish types are exported and that even for those linked to the global market, the benefits to local actors are varied, an indication that small scale fisheries are likely to have local benefits than benefits attributed to global market linkages.

References

1. Kurien J. Responsible fish trade and food security. Towards understanding the relationship between international fish trade and food security. Trivandrum, India: Centre for Development Studies, 2004.
2. Thompson SJ. Durable food production and consumption in the world-economy. In: McMichael P, editor. Food and agrarian orders in the world-economy. London: Praeger; 1995.
3. Braudel F. The structure of everyday life. New York: Harper & Row; 1979.
4. Berkes F, Hughes TP, Steneck RS, Wilson JA, Bellwood DR, Crona B, et al. Globalization, roving bandits, and marine resources. *Science* 2006;311:1557-8
5. Munro GR. Approaches to the economics of the management of high seas fishery resources. In: Gordon DV, Munro GR, editors. Fisheries and uncertainty: A precautionary approach to resource management. Calgary: University of Calgary Press; 1996.
6. Kamau EC, Wamukota A, Muthiga N. Promotion and management of marine fisheries in Kenya. In: Winter G, editor. Towards sustainable fisheries law. Gland, Switzerland: IUCN; 2009. .
7. Bene C, Lawton R, Allison EH. "Trade matters in the fight against poverty": Narratives, perceptions, and (lack of) evidence in the case of fish trade in Africa. *World Development* 2010;38(7):933–54.
8. Goodman D, Watts M, editors. Globalizing food: Agrarian questions and global restructuring. London: Routledge; 1997.
9. Madeley J. Hungry for trade: How the poor pay for free trade. London: Zed Books; 2000.
10. Wade R. Is globalization reducing poverty and inequality? *World Development*. 2004;32(4):567–89.
11. Valdimarsson G, editor International fish trade. . Expert consultation on international fish trade and food security; 2003; Casablanca Morocco 27–30 January 2003: Food and Agriculture Organization
12. Kurien J. Responsible fish trade and food security. Rome: Food and Agriculture Organization, 2005.
13. Cunningham S, editor Fishing agreement: trade and fisheries management. International relations and the Common Fisheries Policy – Proceedings of the fourth Concerted Action workshop on economics and the Common Fisheries Policy; 2000; Portsmouth: Center for the Economics and Management of Aquatic Resources.
14. Schmidt C-C. Globalisation, industry structure, market power and impact of fish trade. Opportunities and challenges for developed (OECD) countries. Paper prepared for the FAO industry and expert consultation on international trade; 3–5 December 2003; Rio de Janeiro, Brazil 2003
15. Bostock T, Greenhalgh P, Kleih U. Policy research –implications of liberalization of fish trade for developing countries. Chatham, UK: Natural Resources Institute, University of Greenwich, 2004.

16. Thorpe A. Growth and equity: Grounds for inserting the sector in PRSPs and NDPs. In *Mainstreaming fisheries into national development and poverty reduction strategies: Current situation and opportunities*. Rome: FAO, 2004.
17. Kent G. Fisheries, food security and the poor. *Food Policy*. 1997;22(5):393–404.
18. Jansen EG. Rich fisheries - poor fisherfolk: The effects of trade and aid in the Lake Victoria fisheries. Nairobi: IUCN Eastern Africa Program. The World Conservation Union, 1997.
19. Abila RO, Jansen EG. From local to global markets: The fish processing and exporting industry on the Kenyan part of Lake Victoria - its structure, strategies and socio-economic impacts. Oslo, Norway: Center for Development and the Environment (SUM), University of Oslo 1997.
20. Abgrall J-F. Fisheries, food security and trade: governance a key to success. Paper prepared for the FAO expert consultation on international fish trade and food security; Casablanca Morocco, 27–30 January 2003: Food and Agriculture Organization 2003.
21. Alder J, Sumaila UR. Western Africa: A fish basket of Europe past and present. *Journal of Environment and Development*. 2004;13(2):156–78.
22. Jayne TS, Myers R, Nyoro J. The effects of NCPD marketing policies on maize market prices in Kenya. *Agricultural Economics* 2008;38(3):313–25.
23. Bond M. Agricultural responses to prices in Sub-Saharan African countries. 1983.
24. Jacoby HG. Access to markets and the benefits of rural roads. *Economic Journal* 2000;110:713–37.
25. Geist HJ, Lambin EF. Proximate causes and underlying driving forces of tropical deforestation. *Bioscience* 2002;52:143–50.
26. Ochiewo J. Harvesting and sustainability of marine fisheries in Malindi-Ungwana Bay, Northern Kenya Coast. WIOMSA/MARG-I/2006 – 03, 2006.
27. Trombulak SC, Frissell CA. Review of ecological effects of roads on terrestrial and aquatic communities. *Conservation Biology* 2000;14:18–30.
28. Mitullah WV. The Lake Victoria's Nile Perch industry: The politics of joint action. Nairobi: Institute of Development Studies. University of Nairobi, 1998.
29. Henson S, Brouder A, Mitullah W. Food safety requirement and food export from developing countries: The case of fish export from Kenya to the European Union. *American Journal of Agricultural Economics*. 2000;82(5):1159-69
30. Bokea C, Ikiara M. The Macroeconomy of the export fishing industry in Lake Victoria (Kenya). Nairobi: IUCN Eastern Africa Regional Program, IUCN, 2000.
31. Stefan G. Market integration and ecosystem degradation: Is sustainable tourism development in rural communities a contradiction in terms? . Germany: Institute of Geography, Freiburg University; 2002.
32. Bryceson I. Coastal aquaculture development in Tanzania: Sustainable and non-sustainable experiences. *Western Indian Ocean Journal of Marine Science*. 2002;1(1).

33. Wamukota A, TR M. Global Fish Trade, Prices, and Food Security in an African Coral Reef Fishery. *Coastal management*. 2017;42(2):1-18.
34. Abila RO, editor Fish trade and food security: are they reconcilable in Lake Victoria? . Paper prepared for the FAO Expert Consultation on international fish trade and food security; 2003 27–30 January 2003; Casablanca, Morocco Rome: Food and Agriculture Organization.
35. Kurien J. Responsible fish trade and food security. Rome: Food and Agriculture Organization of the United Nations, 2005 Contract No.: 456.
36. Smith MD, Roheim CA, Crowder LB, Halpern BS, Turnipseed M, Anderson JL, et al. Sustainability and Global Seafood. *Science*. 2010;327(5967):784-6.
37. Quiroz J, Soto R. International Price Signals in Agricultural Prices: Do Governments Care? Santiago, Chile: Georgetown University, 1995.
38. Conforti P. Price Transmission in Selected Agricultural Markets. Commodity and Trade Policy Research Working Paper No 7. Rome: FAO, 2004.
39. Minot N. Transmission of World Food Price Changes to Markets in Sub-Saharan Africa. Discussion Paper No. 01059. Washington, DC: IFPRI, 2011.
40. Baquedano FG, Liefert WM. Market integration and price transmission in consumer markets of developing countries. *Food Policy*. 2014;44:103-14.
41. Gudmundsson E, Asche F, Nielsen M. Revenue distribution through the seafood value chain. Rome: FAO, 2006.
42. Hempel E. Value Chain Analysis in the Fisheries Sector in Africa. INFOSA/AU/NEPAD program, 2010.
43. McClanahan T, R. Effects of fisheries closure and gear restrictions on fishing income in a Kenyan Coral Reed. *Conservation Biology*. 2010;24(6):1519-28.
44. Mignot S, Tedeschi G, Vignes A. An agent based model of switching: The case of Boulogne S/mer fish market. *Journal of artificial societies and social simulation*. 2012;15(2):3.
45. Wamukota AW, Crona B, Osuka K, Daw TM. The Importance of Selected Individual Characteristics in Determining Market Prices for Fishers and Traders in Kenyan Small-Scale Fisheries. *Society & Natural Resources*. 2015:1-16. doi: DOI: 10.1080/08941920.2015.1014600.
46. Purcell SW, Crona BI, Lalavanua W, Eriksson H. Distribution of economic returns in small-scale fisheries for international markets: a value-chain analysis. *Marine Policy*. 2017;86:9–16.
47. Béné C, Arthur R, Norbury H, Allison EH, Beveridge M, Bush S, et al. Contribution of fisheries and aquaculture to food security and poverty reduction: assessing the current evidence. *World Development*. 2016;79:177–96.
48. Wilson JR, Boncoeur J. Microeconomic efficiencies and macroeconomic inefficiencies: On sustainable fisheries policies in very poor countries. *Oxford Developmet Studies* 2008;36:439–60.