12-C-4

A value chain analysis of the sea cucumber fishing industry in Sri Lanka

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The value chain for the sea cucumber fishing industry in Sri Lanka was analyzed using the data collected by interviewing the main actors of the chain from February to December 2014. Divers, buyers, processors and exporters are the main actors in the value chain. Divers are the key upstream players and exporters are the key downstream players. Around 3,500 divers engage in sea cucumber collection and about 6-7 hours takes per one fishing operation. High fuel costs, declining of the quantity of wild catch, lack of financial assistance and health problems are the main issues faced by divers. Buyers directly purchase the sea cucumber harvests from the divers and declining of catches and highly variable market price are the main obstacles faced by buyers. Evisceration, boiling, salting and drying are the major steps involved in sea cucumber processing and whole processing may take 3-7 days. Poor processing practices, high level of post-harvest losses (10 -12%), declining of sale prices and increasing of all input costs related to processing are the major threats to processors. Processed products are mainly exported to Singapore and Hong Kong and poor understanding of current market structure is the main drawback for profit maximization. It is suggested to develop standard processing protocols for each species, build up a direct relationship between key players in the value chain, improve product quality, develop efficient ways to get market and price information, implement minimum landing size for sea cucumbers and facilitate culture activities to upgrade the existing value chain

12-D-1

The influence of network properties on the agility of seafood supply chains

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The fisheries supply chains integrate multiple and heterogeneous agents linked through commercial (buyer/seller) relationships. In a large and competitive trade market, every agent can choose his/her partners, but the functioning of the supply chain depends on the aggregation of every agent's decisions that configures the global network of relationships. In particular agility (the ability to quickly re-adjust to changes in the supply and demand conditions) is out of control of any particular individual, but depends on the specific structure of the supply chain network as a whole.

In this study, we analyze how the agility of the supply chain can be characterized by some trade network features, such as the degree distribution (the number of partners of every agent). We show a theoretical stylized case with three classes of agents (producers, wholesalers and retailers), where the number of upstream and downstream linkages in every class follows a certain probabilistic distribution. The numerical results assuming a big number of agents (around 4000) show that the agility of the supply chain decreases assuming high-tailed distributions. We also present an empirical study of the seafood supply chain in Mercado del Mar in Guadalajara, Mexico, sampled from interviews to fish wholesalers in 2015. The agility of the empirical supply chain is discussed based on the theoretical findings.