

# The Triple Helix in Indonesian Sustainable Crab Industry: Towards a Good Role Model

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## ABSTRACT

This article describes how the United States is often accused as a country that applies non-quantitative trading barriers by rejecting export from other countries. Indonesia is one such country which the products are often refused entry, with the reason that they do not meet quality standards, security and safety issues. This also happens in the fishing and marine industries. Using a case study of the crab industry in Betahwalang, Mid Java, this article explains how trading barriers on fishery and marine industry, can be overcome with triple helix between government, industry, and university, thereby creating a sustainable crab industry. This triple helix benefits not limited to the customers, but also the industry that the majority are small businesses. A model of sustainability practices based triple helix is developed that can be applied to other industries and or areas, particularly in small businesses for Indonesian Fishery Industry.

## KEYWORDS

Blue Swimming Crab, Small Business, Sustainability, Triple Helix

## INTRODUCTION

Food and Drug Administration (FDA) is the US government agency that determines the safety of food products and drugs, so that more effective and safer for the quality improvement of customer health care (Johnson, 2016). The institute acts as an authority to deny or to authorize exports of Food and Drugs from other countries. Indonesian fishery and marine products are products that often be rejected by the institution. There were 146 rejection cases in 2010 with majority reason of pathogenic bacteria, followed by excessive of chemical residue (Rinto, 2010). Particularly in the crab industry, there were 381 rejection cases during 2002 to 2013 which were caused by high levels of chloramphenicol (Fahmi, Maksum, & Suwondo, 2015). According to Hariyadi and Hariyadi (2003) Indonesian fishery producers have lack of basic food safety.

The role of government is needed to prioritize the issues of food safety regulation, to provide training for producers and customers, and to communicate these issues to relevant parties (Hariyadi & Hariyadi, 2003). The government role is necessary given that Indonesian Crab has the largest market share in the US. In addition, cooperation between sectors is also important to consider that fishery

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production in Indonesia is more than 50 percent of the total fish production. Revenue from fishery industries is significant, reaching US\$139 million in 2014, with 31.2 percent of total production for the export market (Indonesian Central Bureau of Statistic, 2014). Moreover, fishery industry contributes to higher growth of GDP than the growth of Indonesian national economy. Potential economy of the resources in fishery sector reaches US\$82 billion each year, which includes capture fishery, aquaculture, public waters, freshwater aquaculture, and marine biotechnology, and also renewable resources. (National Development Planning Agency, 2011).

However, there has been a variety of crab exploitation in crab producers-countries which was triggered by high economic value and export demand. A study by Hamid and Wardiatno (2015) in Central Buton, Indonesia has found that there has been overfishing of the blue swimming crab with the exploitation rate of males 0.61 and females 0.71. The fishing mortality rate is also high to be compared to the natural mortality rate, which is 1.90 compared to 0.98. A similar phenomenon happens in Kenya. The size of the exported Mud Crab decreased from 1 kg to 0.5 kg (Mirera, 2011). Likewise, there has been an exploitation of American horseshoe crab in American waters causing local crab extirpation (Smith et al., 2017). Hence, a lesson learned of Betahwalang crab industry in Indonesia is needed to describe how a triple helix works on business sustainability.

The success of the fishery industry could not be separated from the role of small business, especially fishermen and traders. However, the small businesses are assumed as un-environmentally friendly businesses, despite a fact that in Indonesia they have high concern towards their social environment but not to the natural environment (Prabawani, 2013) with its all limitations, that are resources and managerial limitations (Rammer, Czarnitzki, & Spielkamp, 2008). Moreover, in relation to the natural environment, small businesses do not get sufficient publication from the media and communities (Belu, 2009; Masurel, 2007; Werbach, 2009). This has made small business seemed to be ignorant and/or did not understand of business sustainability practices. In fact, small businesses which have low bargaining position actually have a significant contribution towards local and national economies.

The management of the Crab Industry in Betahwalang is a lesson learned to describe the success of small business empowerment through cooperation between sectors, and the involvement of various parties within the framework of a triple helix. Betahwalang is an area in Demak, Central Java, which the majority of its citizens are fishermen. This region is able to produce an average 253 tons/year of crab, mackerel 25 tons/year, cobs 20 tons/year, and also shrimp and milkfish. Even during the rainy season, crab as the flagship product is able to be exported to the US for up to 5 tons/day. (Putranto, 2015). The export volume of blue swimming crab from Indonesia to the US was 29.038 tons or US\$ 321.842 in 2015 (Chandra, 2017). Given the high dependence of the US on crab from the village, made Ambassador Robert O'Blake specially visited the area. Therefore, this study at the crab industry in Betahwalang is a good role model of the triple helix in a sustainable business.

## **TRIPLE HELIX IN A FISHERY INDUSTRY**

Triple helix is an interaction of university-industry-government which has become the key success of innovation in the knowledge-based society. Even the interaction of these institutions has evolved into a quadruple, even the N-tuple helix, with no limits on parties involved in the business innovation. (Leydesdorff, 2012). The parties develop the helix by including such as media and a culture-based public, also civil society. In addition, the triple helix context is not merely innovation, but also the natural environments of society. (Carayannis, Barth, & Campbell, 2012). This triple helix concept entails reciprocal relationship between government, industry, and universities, as a basic tuple helix, at various levels. Industry acts as the locus of production, government as a source of contractual relationships ensures stable interaction between sectors, and university acts as a source of knowledge and technology. (Etzkowitz and Leydesdorff in Etzkowitz, 2003).

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