



Enhancing Competitiveness of Seaweed Industry in Zanzibar

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Key Messages

- Seaweed is Zanzibar's a second leading export crop after cloves and, her third-most earner of foreign earnings after tourism and cloves.
- Production, exports and earnings of seaweed in Zanzibar have fluctuated over time undermining the exploitation of natural comparative advantages.
- Up scaling the competitiveness of the seaweed sector calls for targeted incentives for increased productivity with special focus on cottonii and strengthened value chain linkages.

Introduction

Seaweed is perhaps the single most important aquacultural sub sector in Tanzania, playing a significant role in the development of the blue economy particularly in Zanzibar where it employs nearly 26,000 people with almost 80 percent of them being women (Brugere *et al.*, 2019). At the micro-level, the seaweed industry has increasingly become a source of livelihoods for Zanzibar citizens especially women, through enabling them to meet their own and household needs including food, housing, healthcare, education and other regular consumption. At the macro level, seaweed is recognized as the third contributor to foreign earnings in Zanzibar after tourism and cloves (FAO, 2016) and it is the second leading export commodity after cloves (URT, 2020).

Historically, Tanzania commenced commercial seaweed farming in 1989, and production has since then focused on the two species of *Kappaphycus alvarezii* commercially recognized as *Cottonii* and *Eucheuma denticulatum* commercially recognized as *Spinosum* (Msuya, 2012). However, early seaweed farming was largely informal with little technical support from the Government which gave rise to low and unstable production, little value addition, and low prices. In 2006, the Zanzibar Seaweed Cluster Initiative (ZaSCI)

established to promote innovative farming and production of value-added seaweed products particularly food and cosmetics through trainings. ZaSCI focused on training seaweed producers on better production and marketing techniques (Msuya, 2006). Hence, this has motivated to the production of valued added seaweed products including soap, body creams, massage oils, seaweed powder, and some food products such as cakes, cookies, puddings, jam, and salads.

The importance of adding value to seaweed products is underscored by its increasing ecological and survival utility which have helped create a global market worth US\$ 16.7 billion this year (Markets and Markets, 2020). In terms of ecological advantage, seaweed is utilized as a source of food to some marine organisms while, in addition to human being advantage of the manufacture of food, medicine, cosmetics, and fertilizers. Essentially, the increasing demand for seaweed products is highly driven by the growing market demand for skin care products in the world which is expected to increase to 180 billion dollars in 2024 from US\$ 128.4 billion in 2020¹.

¹<https://www.bbc.com/news/av/world-africa-26779933>

This policy brief analyses recent trends in seaweed production and trade in Tanzania. It aims to appraise contemporary understandings of market dynamics which are key to informing competitive trade policy practices as well as implementation of Zanzibar’s Development Vision 2050 which among others, prioritizes the development of a competitive blue economy in the transformation of livelihoods. This brief draws information from fieldwork conducted in 2020 and 2021, supplemented by a comprehensive review of relevant literature.

Seaweed production

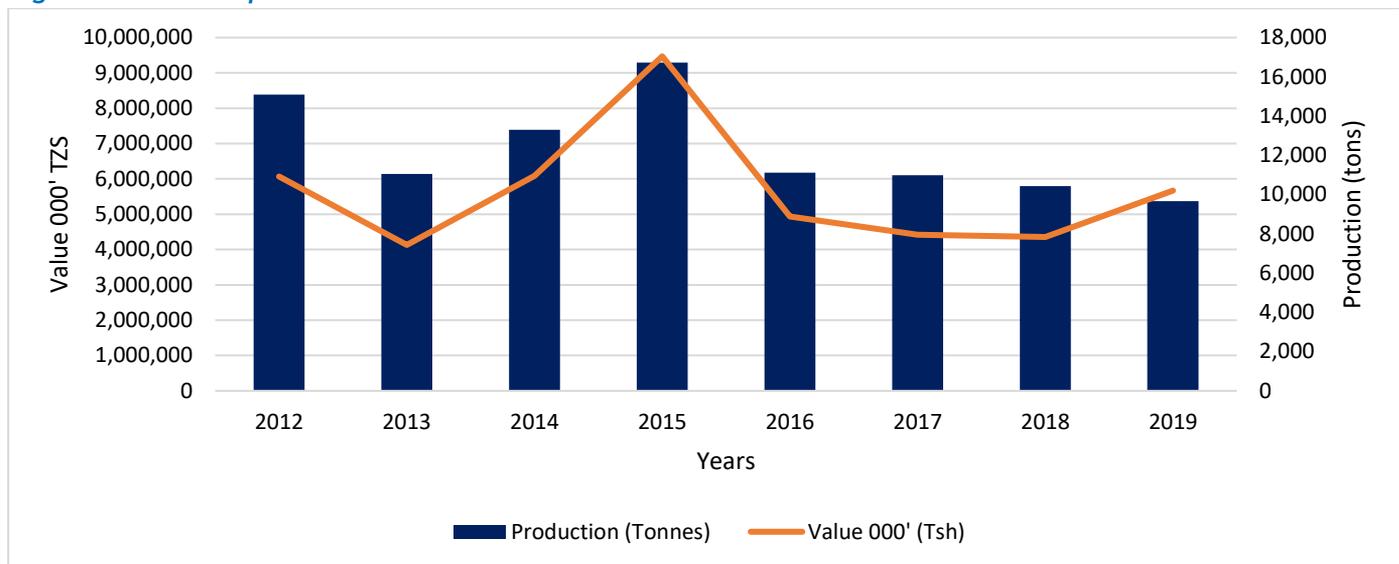
The global seaweed industry is estimated to be worth 6 billion dollars per annum (FAO, 2018). Zanzibar is identified as the third largest producer of the red

Eucaumoid seaweed in the world after the Philippines and Indonesia (Brugere *et al.*, 2019; Largo, *et al.*, 2020).

However, Zanzibar’s total seaweed production has fluctuated in the last seven years as illustrated in figure 1 below. Seaweed production increased to 16,724 tons worth 9.5 billion TZS in 2015 from 11,044 tons worth 4.1 billion TZS in 2013. Then production declined from 11,116 tons worth 4.9 billion TZS in 2016 to 10,425 tons worth 4.3 billion TZS in 2018.

Fluctuations in seaweed production are associated with the monopsonic nature of the seaweed market which involves control of the market by the multinational companies, and by the prevalence of the die-offs problem brought about by *ice-ice* disease, as well as epiphyte infestation (Largo, *et al.*, 2020).

Figure 1: Seaweed production



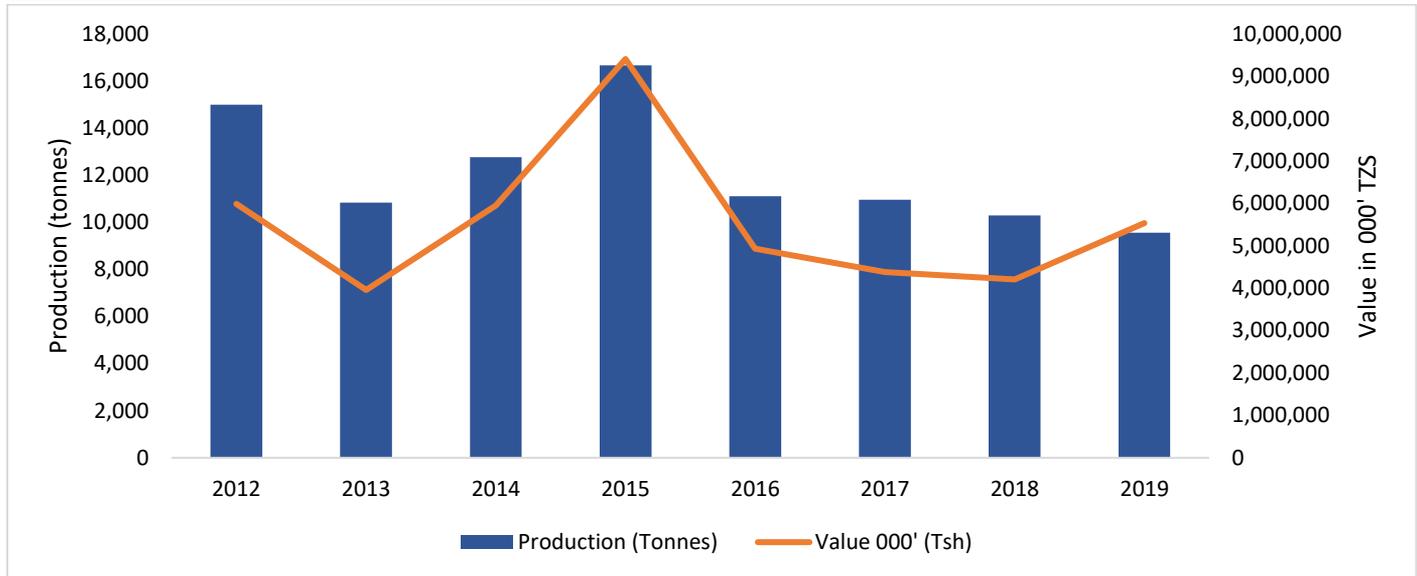
Source: Office of the Chief statistician, 2019

Further, the volume of seaweed production varies substantially between species cultivated. The *Eucauma cottonii* is noted to have lower production compared with *Eucauma spinosum* as demonstrated in figure 2 and figure 3 below. Over the past seven years, the volume of *Eucauma cottonii* has been relatively low compared to *Eucauma spinosum*.

Notably, in terms of value and demand in the world market, *cottonii* is more preferred and fetches higher prices hence more profit than *spinosum* due to its presence of high carrageenan content which provides higher yields.

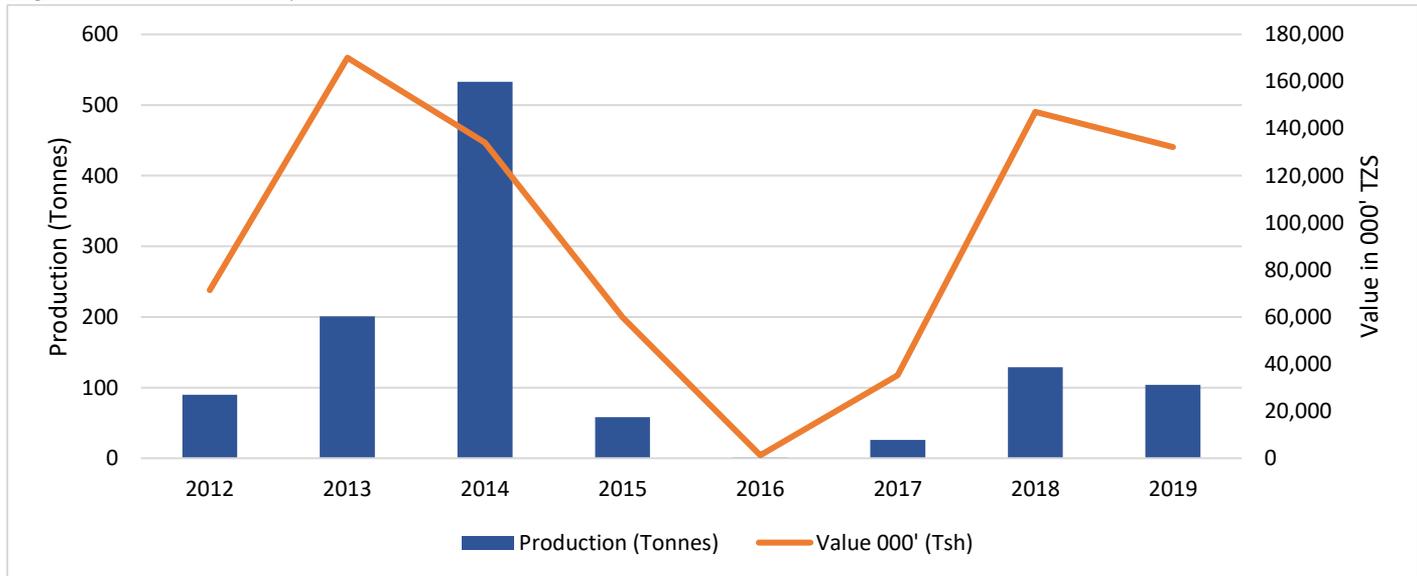
Unfortunately, the production of *cottonii* has been low in Zanzibar for years and it has been constrained by seaweed disease known as *ice-ice*, unfavorable climate change associated with increased seawater temperatures as well as the elevated magnitude of ocean waves that cut and wash away the seaweed (Msuya *et al.*, 2014). As result, many farmers have engaged in the production of *spinosum* despite its low market value. Better production outcomes of *cottonii* are more likely to be achieved if its farming is carried in tubular nets.

Figure 2: Production of *Eucheuma spinosum*



Source: Office of the Chief Government Statistician, 2019

Figure 3: Production of *Eucheuma cottonii*

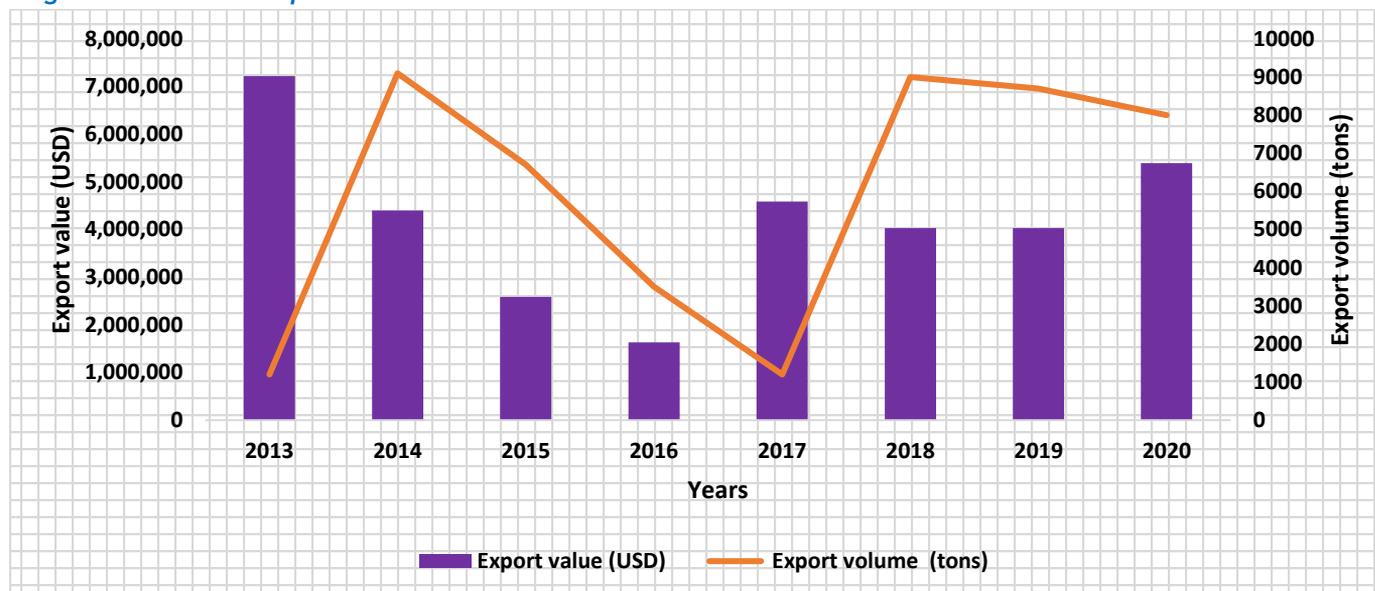


Source: Office of the Chief Government Statistician, 2019

Figure 4 below shows the trend of seaweed export volume and value for the past seven years. Export value declined sharply from 7.2 million USD in 2013 to 1.6 million USD in 2016. But export values increased to 5.4 million USD in 2020, up from 4 million USD in 2019 which was equivalent to 35 percent increase. However, export volume also experienced fluctuation over years where a sharp decline was noted between 2014 and 2017. Despite a notable increase in 2018, export volume declined from 8700 tons in 2019 to 8000 tons in 2020.

Fluctuations in seaweed export volume are linked to fluctuations in production which is hindered by various problems such as occurrence of ice-ice disease which have been a source of production shrinking. Zanzibar has a huge market potential to widen its export base as the quantity of seaweed produced is higher than the quantity exported, and it can produce more if the identified constrains are addressed. Notably, Zanzibar already has a huge market base for seaweed from Denmark, China, the Republic of Korea, USA, Spain and France (RGOZ, 2019).

Figure 4: Seaweed export value and volume



Source: BOT, 2020

Table 1 presents the comparison of seaweed export prices between Tanzania and other top global performers. The results show seaweed prices in Zanzibar have undergone fluctuations over time. Comparing Tanzania with large exporters of seaweed in the world, its seaweed export prices are still relatively low. Statistics in table 1 below portray there is a wider disparity of export prices between top global producers and that of Zanzibar.

Conclusively, Zanzibar fetches lower seaweed export prices compared to other top producers in the world.

However, lower seaweed prices fetched by the Zanzibar seaweed are more likely to be attributed by the limited seaweed processing and value addition as most of the seaweed is exported in raw form compared to top producers who export value added seaweed products, which earn better prices.

Table 1: Seaweed prices at international market

Exporting country	USD/Ton		
	2015	2016	2017
Indonesia	1039	716	916
Philippines	956	801	906
Malaysia	1236	739	977
Japan	3307	5404	2965
Chile	3179	2043	3683
Taiwan Province of China	3938	7657	7576
Zanzibar	386	471	389

Source: FAO & BOT, 2018

Constraints hindering seaweed market and trade competitiveness.

Despite significant contribution of seaweed industry to the welfare of the citizens and national development, the industry is constrained by various constraints which threaten its trade growth and competitiveness. Major constraints are outlined below;

Low value addition growth

Before the initiation of the Zanzibar Seaweed Cluster Initiative in 2006, most of the seaweed exported was raw. The ZASCI was established to motivate and scale up production of value-added seaweed products which fetched higher prices in the market than raw seaweed. According to Msuya (2011), 1 kg of raw dry seaweed was sold at between 300-500 Tanzanian shillings while 1 kg of processed seaweed (powder) was sold at 10,000 Tanzanian shillings. Despite efforts of the ZASCI, Zanzibar is still dependent on commercialization of raw seaweed which makes its market and trade sluggish in terms of competition.

Limited market information

Seaweed farmers are constrained with lack of enough market information for their produce. Seaweed farmers lack a platform to obtain market information. Findings from a study Songwe *et al.*, (2016) conducted in Zanzibar show very few farmers could identify new market opportunities within and outside the country. This leaves the farmers with limited option other than selling their produce at lower prices to the exporting companies that buy directly from them. Consequently, this situation leaves farmers with weak bargaining powers due to monopsonic nature of the market.

Limited seaweed distribution channel

The seaweed trade of Zanzibar relies mostly on the interaction between the farmers and exporting companies. Farmers lack a well-coordinated linkage with other important actors in the distribution channel such as manufacturers, processors, cooperatives, financial institutions that play important role in driving the sustainable growth of the seaweed industry. Hence, the seaweed market distribution has a short chain based on the producer-exporter model which in most cases makes the farmers to be price takers unlike for Indonesia where the market system is comprised of many actors in the market chain, where it involves farmers, middlemen, district traders, and manufacturing companies or whole sellers which gives farmers various selling options (Zamroniet *al.*,2011).

Low seaweed enterprise development

The seaweed industry is limited to few enterprises working specifically in different value chain activities such as storage facilities, financial services, manufacturing facilities as well as input supply facilities. Finding from (Songwe *et al.*, 2016) show majority of farmers store raw seaweed in their homes where they have limitations of space and moisture control. Further, seaweed producers are still face limited financial services such as loans. Unlike Tanzania, Indonesia and Philippines have achieved superior seaweed sectoral development due to specialization of various actors such as banks, research institutions and other private sector actors in the seaweed value chain.

Conclusion and recommendations

Notwithstanding huge potential provided by the seaweed industry in the Zanzibar economy, it is still not fully tapped. Towards bringing hope and a sparkle to the seaweed industry, various strengthening measures need to be considered to spur market competitiveness of the industry from the domestic level to international level. Failure of the government to effectively address seaweed challenges that hinder the competitiveness of the sector, seaweed production is more likely to be discouraged thus negatively affecting the livelihoods of many people that depend either directly or indirectly on it. Based on the above analysis, it is hereby recommended that efforts to enhance the competitiveness of the seaweed industry focus on the following:

One, development of Seaweed Development Policy and Strategy are essential for identifying prospects, challenges, and policy actions needed to tap the opportunities in the seaweed industry. This will provide

a roadmap and action plans for a competitive and sustainable development of the seaweed industry.

Two, research and development are highly important in the transformation of the seaweed industry. Since seaweed industry is a dynamic industry which demands technical and innovative farming techniques, as well as improved linkages between production and market intelligence data, investment in research and development is highly required to support productivity increases with special focus on cottonii, efficiency in value addition, and diversification of products and markets. Therefore, the government in collaboration with the various stakeholders such as research institutions and marketing agencies needs to carry out various kinds of research on better modernized production techniques and product marketing.

Three, seaweed enterprises development is important in boosting seaweed production and trade competitiveness. The contribution of enterprises development is inevitable towards linking the industry to important facilities such as finances, market access, etc.

Four, scaling up more trainings and education programs for seaweed farmers and entrepreneurs to foster better farming techniques on production, storage and control of diseases; better marketing strategies for their products. This can be done through technology transfer to impact the producers with better innovation and technology for production and value addition. In so doing, seaweed producers will be enabled to come up with better quantity and quality of seaweed produce, essential in promoting sustainability and competitiveness of the industry.

Finally, more investment in seaweed processing industries is highly encouraged. The Revolutionary Government of Zanzibar needs to create a conducive business environment for both local and foreign investment by providing them with incentives such as tax reliefs and other feasible exemptions to cut costs and reduce risks. This will motivate investors to establish seaweed processing industries essential in shifting from exporting raw seaweed to value added seaweed products which is more likely to boost government earnings.

Zanzibar has huge potential of benefiting from the seaweed industry as it is part of the blue economy. The government is more likely to harness huge dividend from the industry if and only if the seaweed industry is considered as a priority matter.

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