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Policy Brief

Towards enhanced competitiveness and export diversification of the seaweed industry along the Zanzibar-Pemba Export Corridor

Key messages

- There is a looming collapse of seaweed exports along the Zanzibar-Pemba Export Corridor due to a combination of unsustainable production methods, weak production and export capacity, and slow progress in transforming and diversifying the sub-sector.
- Zanzibar's potential in seaweed value addition remains untapped. It produces less than half of the 100 by-products from seaweed due to poor postharvest handling and limited capacity for processing, packaging, storage and failure to meet product quality standards for export markets.
- Weak and incoherent policy and regulatory frameworks are undermining competitiveness and growth of commercial seaweed farming.
- A separate seaweed development policy framework with specific mechanisms, concrete actions and resources for implementation is required. Based on the framework, a comprehensive implementation and capacity-building strategy geared to build the production and trade capacity of seaweed value chain actors towards enhancing their competitiveness, diversification, standards compliance and value chain upgrading should be developed and implemented.

Overview

This policy brief examines recent developments in seaweed value chains, particularly the constraints undermining and opportunities for enhancing the competitiveness of the seaweed sub-sector along the Zanzibar-Pemba corridor. The policy brief proffers recommendations and measures to resolve the constraints and improve the competitiveness of the seaweed sub-sector as well as diversify its export base to take advantage of global trade opportunities in the sub-sector. It is based on both desk research and field visits to Zanzibar between May and July 2017.

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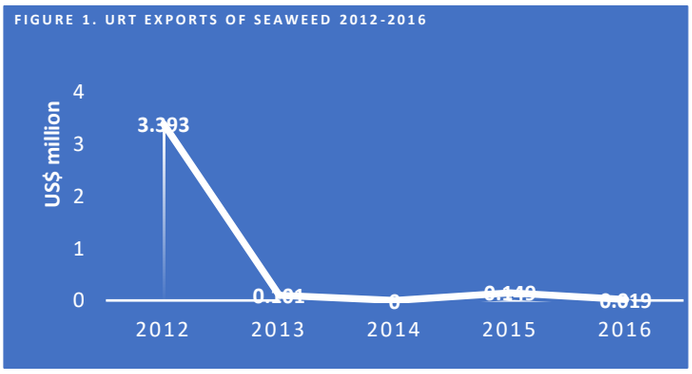
Zanzibar's seaweed industry depends largely on the regional and global export markets; hence understanding some of the drivers that shape the seaweed value chain and the global context is essential for informing the competitiveness and diversification of the sub-sector. Seaweed is one of the most important commercial marine living renewable resources. In some parts of the world edible seaweed has traditionally been used as a staple diet thanks to its nutritional and health benefits. Nutritionally, seaweed is used as a bioactive antioxidant and anticancer agent because of its high content in soluble dietary fibres, proteins, minerals, vitamins, phytochemicals and polyunsaturated fatty acids. Seaweed is also used to reduce adipogenesis – the degeneration of healthy cells.[i] The annual global production of seaweed stands at 25 million tonnes – with China and Indonesia accounting for four-fifths of the entire stock, which is worth some US$6.4 billion (2015).

Industrial and commercial seaweed production began in Zanzibar in 1989, and its annual production volumes currently stand at about 11,000 tonnes (*Ministry of Agriculture, Livestock and Natural Resources, 2016*). There are 23,650 seaweed farmers in Zanzibar, of whom 80% are women. This presents great potential for the economic empowerment of women as well as a guaranteed pathway towards rural development, poverty reduction in Zanzibar and achieving the Sustainable Development Goals 1, 2, 8, 10, 12.

Findings

There is looming collapse of seaweed exports along the Zanzibar-Pemba Export Corridor partly due to production methods that mainly focus on seaweed harvesting without concomitant replenishment (the common pool problem), diseases such as epiphytes colonisation, continued decline in export prices caused by monopolistic behaviour of a few international buyers coupled with surges in seaweed supply from Indonesia and China.

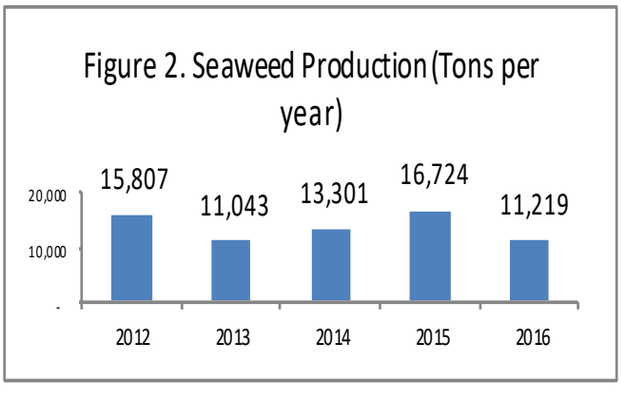


Available data suggest that Zanzibar (which is the main centre of seaweed production in Tanzania) has failed to sustain the production and export of seaweeds despite increased global demand. In 2016, for example, its seaweed exports recorded a mere US$19,000 (78 tonnes) compared to US$3.4 million in 2012, (14,400 tonnes dried weight – see figure 1 above.[ii]

The seaweed value chain involves a number of activities that include input supply (ropes, pegs, boats, seedlings), land preparation, planting, harvesting, use of drying methods, cleaning of foreign matters, processing, packaging, collection and bulking of the packaged seaweed, supplying, wholesaling, retailing, domestic consumption and exporting to overseas markets.[iii]

The seaweed value chain remains fragmented and uncoordinated due to institutional and organisational weaknesses. As such, production data is not reliable but available data (*Department of Marine Resources, Zanzibar, 2017*), indicate that seaweed production has fluctuated with relatively high production levels recorded in 2012 and 2015 and comparatively low production in 2013 and 2016 (see figure 2). Seaweed growers produce on average from 15 to over 20 tonnes per annum, providing a reasonable income for farmers (€5,600 per annum for a limited outlay). The decline in production in 2016 has partially been blamed on climate change impacts, e.g. changes in water temperature, rising sea level, storm intensities, poor governance and environmental degradation of seaweed habitat; diseases such as die-off and epiphytes colonisation; low prices offered by buyers and conflicts between seaweed communities and other sectors; poor postharvest handling, packaging and storage; and weak support institutions.

Seaweed production is mainly done by individual



smallholder farmers, some of whom are organised into farmers' groups, namely the Seaweed Farmers Associations for Zanzibar and Pemba (JUWAMWAZA and JUWAMPE). The existence of farmers' groups is imbued with varied dynamics largely explained by organisational ability to coordinate farming activities. The Zanzibar Ministry of Natural Resources, Livestock and Fisheries (MANRLF) has implemented three major initiatives to help strengthen the governance and, indeed, the existence of farmers' organisations. These are the Marine and Coastal Environment Management Project (MACEMP), Zanzibar Seaweed Cluster Initiative (ZaSCI) and Seaweed Centre Zanzibar, which mobilise farmers in different villages to form groups to access technical, financial and other related entrepreneurial support. Seaweed farmers' associations and cooperatives have evolved, disappeared and re-emerged over time in every farming village.

Seaweed production and harvesting is largely a family business affair driven by women and children. The main challenges in seaweed production include: stealing of seaweed during cultivation and drying; loss of seaweed in water during cutting, presence of seaweed disease such as fungus/fungal disease; conflict between seaweed cultivators and other marine space users (fishermen and tourism investors); lack of basic farm inputs to enhance the production; and poor knowledge of competitive prices of seaweed in the global market.[iv]

There is huge untapped potential in seaweed value addition during postharvest management and processing. Globally, there are over 100 seaweed by-products, yet Zanzibar produces less than half of them (mainly seaweed shampoo, lotion, liquid soap, coconut oil, caustic soda, essential oil – and still in small quantities).[v] Postharvest handling is poor, processing capacity is limited, and packaging and storage are done in unclean sheds or by road sides. Seaweed growers harvest/catch the seaweed, dry it and sell it to dealers for a historically low price at around $0.27 per kg. To facilitate diversification of seaweed production, the Zanzibar Ministry of Trade, Industries and Marketing (ZMTIM) and MANRLF, in partnership with the private sector, need to provide a platform for the creation of more value-added products such as seaweed powder to make soaps, body oils and shampoos. For example, there is a seaweed centre in Paje, a small village on the south-eastern coast of Unguja, where ZaSCI are adding value by producing soaps, body scrubs and skin care products, which they market and sell to hotels.

Marketing and retailing of seaweed products for domestic and export markets is respectively dominated by individual women and private foreign companies operating in the Zanzibar-Pemba Export Corridor. Women rely on informal community relations between farmers, aggregators and buyers but access to finance credit facilities is their main challenge. With the increasing number of value-added seaweed products, there is a rise in the number of mini-stores and other retailing outlets with diverse types of processed seaweed products. However, domestic retailing is undermined by limited product standardisation and quality certification.

On the other hand, private seaweed companies[vi] operating in Zanzibar employ thousands of people engaged in the farming of red algae, and downstream value chain activities such as rope making, cockling and shell gathering. Each exporting company operates a buying office in the farming villages, and employs a local villager as a buying officer to buy seaweed during peak harvesting seasons. The companies buy and store seaweed in the village until sufficient quantities accumulate to make a truck trip to Zanzibar Town and onward to its multinational sister companies abroad.

Value addition and diversification are the most appropriate responses to declining seaweed exports prices

Dried seaweed can be stored for 6 months when in good storage conditions and good packaging. The seaweed growers sell their crop as individuals through commission agents. Although associations and clusters exist there are no group sales. The market prices are determined by the Indonesian and Philippine seaweed industry. In recent years the prices for dry seaweed have been depressed from TZS700 (US$0.3) to TZS400 (US$0.17) per kg. With value addition the prices rise; for example, for seaweed powder at $4.50/kg, local female entrepreneurs that process seaweed soap can sell the product for TZS30,000 ($13.3) per kg. Processed products include soaps, body cream, juices, jams and cakes; powder is also produced locally. Seaweed jam has been sold in exhibitions in Uganda and Burundi. Unfortunately, most of the processed seaweed products are not exported to the EU or other developed markets because ZaSCI is still processing the certification and standardisation of the products with Zanzibar Bureau of Standards (ZBS) and Zanzibar Food and Drug Agency (ZFDB). A further export permit is yet to be processed. ZaSCI hopes its members will commence exporting to EU markets this year (2018).

The huge decline in seaweed prices in the export market in recent years has attributed to monopolistic behaviour, and the surge in seaweed supply from Indonesia and China has had a devastating impact on the sector. For example, the price of *spinosum* seaweed was previously around TZS700 ($0.31/€0.28) per kg (2.2 pounds), but is now less than half, selling for TZS300. The price for *cottonii,* another type, has tumbled from around TZS1,100 to TZS700. Economic rent due to farmers has been eroded as average price of seaweed has been declining for many years (around TZS300–400/kg). However, with value addition, seaweed products can be sold at up to TZS10,000/kg, which would constitute a 2,400 percentage increase. It is estimated that a farmer gets about 0.26% of world price (COSTECH, 2015)[vii] – to get more income from seaweed products there is a need to increase value addition to about 50% by 2020. A thorough diagnostic analysis in this area is warranted.

Procedures for exporting spices are cumbersome and costly. National export procedures require that all seaweed be compacted into bales and containerised in 12 metre dry containers each holding 45 tonnes. Packing the container is done at the exporter's store in the presence of police and customs officials to ensure no smuggling/fraudulent activity is undertaken. The exporter is charged for the monitor's time at US$20 per hour. Other costs include weighing at the port (US$100) and transport to the port (US$104). The Zanzibar Bureau of Standards (ZBS) carries out testing and certification using the certification systems management process ISO 17065 and the inspection process under ISO 17020. Charges include application fee TZS10,000 and inspection TZS50,000, annual certification costs TZS100,000 plus testing and inspector costs and subsistence; two licence extensions at TZS50,000 each and two testing fees. A phytosanitary certificate (that

costs TZS10,000) must accompany each consignment but some countries in the EU do not recognise certificates issued in mainland Tanzania. And only China recognises a phytosanitary certificate that is issued on the mainland. The ZBS has no laboratory, and only very few ZaSCI members have been able to certify their products with both ZBS and ZFDB.

Gaps in seaweed policy environment and regulatory framework continue to undermine the competitiveness, growth and sustainable development of the sub-sector. Neither Zanzibar nor mainland Tanzania have specific legislation for the sub-sector. The current seaweed policy strategy is covered slightly within the larger fisheries policy strategy.[viii] It emphasises value addition through increased investment supported by wider national macroeconomic liberalisation. Stakeholders lament that while development strategies exist within the fisheries development policy, specific mechanisms, concrete actions and resources for implementation and progress are either weak or absent. In addition, there is weak macroeconomic support and regulatory institutions to enforce quality standards. Less supportive business environment, multiple levies and taxation, complicated logistics and weak trade support institutions further exacerbate the situation. In addition, making informed policy decisions for the development of seaweed production is undermined by serious gaps that exist in official statistics for the sub-sector.

Competitiveness of the seaweed sub-sector is also hampered by weak business linkages among value chain actors including farmers, processors, traders, exporters and ineffective marketing systems. Direct business networks – especially with exports market and market information service systems customised to meet the different needs of the value chain actors – are inadequate.

Recommendations

- standards compliance and quality issues along the seaweed value chain for the seaweed players to meet export market standards;
- Providing market information service systems customised to meet the different needs of the value chain actors, to enable them to directly access international markets, especially in Europe. There is a need to prepare and disseminate training manuals/posters, specifically tailored to seaweed farmers;
- Vocational education and extension services for farmers and primary producers, especially a special empowerment package for women seaweed farmers to be conducted at local level to provide opportunities for on the job training.

2. Developing a public private partnership approach especially in establishing globally standardised processing centres where farmers can dry their seaweed, add value and sell locally rather than export in its raw form at unattractive prices.

The analysis has revealed that the three main hurdles facing the seaweed sub-sector include (i) weak production and trade capacity; (ii) decline in seaweed production and prices; and (iii) policy gaps and weak capacity to meet product quality requirements for export market. As one of the mariculture products with huge growth potential supported by sustained growth in global demand, Tanzania needs to re-direct more efforts towards implementing quick-win capacity development strategies (production and trade policy strategies) to reverse the current downward trend in sea weed exports and maximise opportunities in the sub-sector. To reverse the downward trends, the following recommendations are made:

1. As a starting point, a separate seaweed development policy framework is required with specific mechanisms, concrete actions and resources for implementation. Based on the framework, there should be developed and implemented a comprehensive implementation and capacity-building strategy geared to build the production and trade capacity of seaweed value chain actors towards enhancing their competitiveness, diversification, standards compliance and value chain upgrading. The strategy should include clear actions, time frames, deliverables, outputs and outcomes. In this regard the capacity building should, inter alias, focus on:
   - Targeted client or stakeholder-based and customised trainings to respond to the specific challenges of farmers groups, producers, processors, marketers, retailers and exporters;
   - Training and transferring knowledge to farmers regarding farm management practices, expanding output, disease prevention, and securing independent credit access;
   - The establishment of a quality and productivity policy programme to provide support to ZMTIM on the enforcement and analysis of

3. Adoption and implementation of innovative financial policies and programmes for promoting the seaweed agribusinesses. Such a programme could be a well-customised package based on a Memorandum of Understanding between ZaSCI members, ZMTIM, Tanzania Agricultural Development Bank, CRDB and People's Bank of Zanzibar.

4. Strengthening the institutional structure of the sub-sector to address the weak business linkages among value chain actors including farmers, processors, traders and exporters on the one hand, and ineffective marketing system to stimulate production on the other.

5. Improving necessary agribusiness support services to enhance the seaweed-processing activities and export readiness of seaweed-processing firms and their products.
6. Establish an effective sub-sector body along the lines of TAHA is recommended.
7. Finally, development partners need to collaborate with local institutions such as REPOA, ZaSCI, University of Dar es Salaam, and SMZ to develop a training manual on seaweed farm management, and BASICGap compliance trainings to farmers.

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[ii] https://www.trademap.org/(S(sdiwsvwbnmkskc12po0rezus))/Product_SelCountry_TS.aspx?

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[iv] Msuya (2017). Available at http://www.wiego.org/sites/default/files/publications/files/Msuya-Zanzibar-Seaweed-Farming-OHS-2012.pdf (accessed 12 July 2017).

[v] Dry seaweed, seaweed bar soap including with cinnamon, lemon grass and lime, Seaweed desserts (Cold process products, Maha Blanca, Gulaman, *Halua ya mwani*), seaweed body creams (seaweed only, seaweed with lemon grass, seaweed with cinnamon), seaweed puddings with fruit chops, seaweed gels and with fruit concentrate.

[vi] As at August 2017, the private exporting companies include: Kai Trading, SM Rashid, C-Weed Company, Zanque Aqua Farms, Zanzibar Agro-Seaweeds Company Ltd (ZASCOL), Zanzibar East Africa Seaweed Company (ZANEA) and Zanzibar Shell. The three biggest buyers in decreasing order are C-Weed, ZANEA and ZanQue/ZaSCOL.

[vii] COSTECH. (2015). Zanzibar Research Agenda 2015–20. Available at http://www.costech.or.tz/wp-content/uploads/2015/03/Zanzibar-research-agenda1.pdf

[viii] Two regulations that guide the seaweed agribusiness along the corridor are the Fisheries Act No. 8 of 1988 and the Zanzibar Trading Act No. 4 of 1989, Section 17.

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