

Chapter 19

Zanzibari Seaweed: Global Climate Change and the Promise of Adaptation

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ABSTRACT

Well before island nations began to consider rising ocean levels, a feature of global climate change (GCC), they have been concerned with the allocation of water resources. The purpose of this chapter is to examine the efforts of universities, in the Tanzanian cities of Zanzibar and Dar-Es-Salaam, to promote environmentally responsible entrepreneurial projects, which sustain women's economic empowerment, while advancing the general development of the broader community, in which they live. The object of this discussion is to examine the history of sea-weed production, and to examine how Zanzibar's sea-weed farmers, who are largely women, have responded to adversity, and what, if anything, they can do to address current difficulties.

INTRODUCTION

Recently, Zanzibar's sea-weed farmers have reported that their plants are dying, and a sector that used to employ over 20,000 persons, ninety percent of whom are women, has experienced a recent and sharp decline. In 2012, exports reached an all-time high of 15,000 tons, falling in one year, by four thousand tons, to 11,000 tons export in 2013. This research seeks to answer whether global climate change (GCC) could really be to blame. According to British Broadcasting Corporation/BBC analysis, the water temperature around Zanzibar harbor *has* increased steadily. It is thought that climate change, which has incremental, pernicious and recorded effects on coast waters, is responsible for the 'seaweed mortality.' Meanwhile, BBC indicates that researchers at the Zanzibar's Institute of Marine Sciences, believe a heat-loving invasive plant, or epiphyte, which is killing the seaweed, may also be a factor (Msuya, 2011a; BBC, 2014).

The current situation is ripe for analysis and this analysis must begin by asking how the government, the universities, local NGOs/large multinationals, plan to work together to assist the Institute of Marine

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Science Seaweed cluster and the Zanzibari women it promotes ‘adapt’ sea-weed farming to GCC. As it stands, the market for Zanzibari seaweed is significant, as algae is exported to Asia, where it is used as food, and to Europe and the US, where it is used in cosmetics and health supplements. It has contributed close to eight million dollars to Tanzania’s GDP. The government, concerned about GCC, and seaweed disease, that has followed, has ‘commissioned more research,’ in a search for a cure to this ailing crop (BBC, 2014).

This effort, like all other aqua-culture initiatives, will have to be an urgent and collaborative effort. So far, there are suggestions that farmers harvesting seaweed in deeper, cooler water, where many are unable to swim. This is, as yet, a new strategy, important because it signifies two significant developments in the GCC debate. The first is that community leaders, universities, NGOs and the governments of vulnerable nations are tabling discussion of GCC in favor of proceeding with proactive mitigation/adaptation strategies. Secondly, these ‘real world’ experiments are bolstering the findings of researchers whose GCC projections are conceived, tested and analyzed largely in laboratories. Again, the real world observation of the impact of GCC on aquaculture, and in this case Zanzibar, is vital to a larger understanding of food and water security.

Ultimately, the study of seaweed farming in Zanzibar is important because this ‘red algae’ is used as a food in some regions of the world. Due to the fact that it is very sensitive to variations of weather, seaweed may be a harbinger of how food supply and food security, will define not only science, but also politics. As far as Zanzibar is concerned this vegetative ‘dying off’ may lead to a slow extinction – which has political implication. The last time Zanzibaris experienced a crop blight, the ruling government, would not or could not intervene. Ultimately, plant blight and crop failure, led to political instability, revolt and finally a coup which routed the sitting monarchical government.

For rather practical reasons mitigation strategies that are small, and focus on cultivating adaptive strategies in both vulnerable vegetation and in the ‘farmers’ which harvest these plants, may be where time, energy and resources are increasingly and best spent. As this paper will suggest, larger mitigation strategies, those involving infrastructure are often expensive and may not be politically viable or sustainable. Where governments in developing world countries have undertaken these efforts, they have often stalled. That may be because as in the case of Nordic countries they are so large they must be planned and implemented over decades, or as in the case of New York City, after tropical storm Sandy, can only be considered when massive structural rebuilding is required. The study of Zanzibar’s Seaweed cluster, is a case of a small mitigation/adaptation effort, which is a reasonable approach, as some of the nation’s larger and past projects ultimately proved disappointing.

Today, the very prescient approach of the University of Dar-es-Salaam Institute of Marine Sciences, or USDM-IMS, Seaweed cluster, suggests that mitigation, adaptation and other interventions will go a long way towards maintaining the peace while quite possibly promoting long term conservation. In order to properly examine how the Seaweed cluster is navigating “risk-related decision making characterized by high levels of uncertainty and disputed values” it is necessary to examine Zanzibar’s history in the arena of cash-crop exporting, and what role, if any, Zanzibari women played in this industry (NRC, 1996, 2010; Webler, 2014). Ultimately the history of Zanzibar’s women, long before the initiative of women in the Seaweed cluster suggests they are accustomed to fostering adaptation and mitigation strategies into their daily economic and political lives.

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