

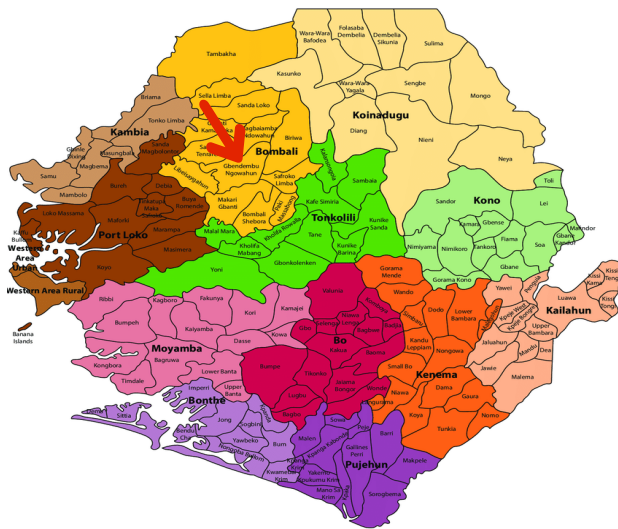
Combating Malnutrition in Sierra Leone through Aquaculture

By Joseph Stewart, UA Master's in Development Practice (MDP), November 11, 2018

With a Human Development Index of 179 out of 188 countries, Sierra Leone faces an abundance of health- and nutrition- related illnesses. Although the country is rich in natural resources, much of Sierra Leone's fish production has been reduced by illegal pirate fishing vessels off the coast, leaving Sierra Leoneans with a dearth of protein-rich fish. This issue is compounded by a lack of awareness of proper hygiene practices and rampant disease, all of which has left the country in disarray and less resilient to future challenges that are sure to come.



In summer 2018, I conducted my MDP field practicum with [WorldFish](#), an NGO that focuses on sustainable increases in aquaculture production to ensure that poor farmers, their families, and communities receive direct nutritional and economic benefits. “Aquaculture” refers to the breeding, rearing, and harvesting of fish, shellfish, plants, algae, and other organisms in all types of water environments. My work was conducted mostly in the Tonkolili District, which is centrally located within the country and has been hit particularly hard and annually ranks as one the poorest districts in Sierra Leone.





Although Sierra Leone’s national fish consumption per year is in-line with the global average, (17kg vs. 19.7kg), this isn’t necessarily the case in more rural, poorer areas. People in the Tonkolili District are consuming far less fish, and in its place rely on foods heavy in starch, such as rice and cassava. This leads to gross nutrient deficiencies, particularly in children where current estimates have shown the Tonkolili District as having a 28.2 percent childhood stunting rate (WorldFish, 2018).

By scaling up aquaculture production within the district, citizens would have better access to proper nutrition and improved livelihoods through the production and selling of Tilapia fish. Of course, even on a small scale, aquaculture takes capital, education, and proper management to be successful. Obtaining the required inputs, including fish feed and lime, are one of the biggest challenges facing new fish farmers. There is both a lack of availability as well as a lack of capital to purchase these inputs when they’re found.

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Policy Recommendations

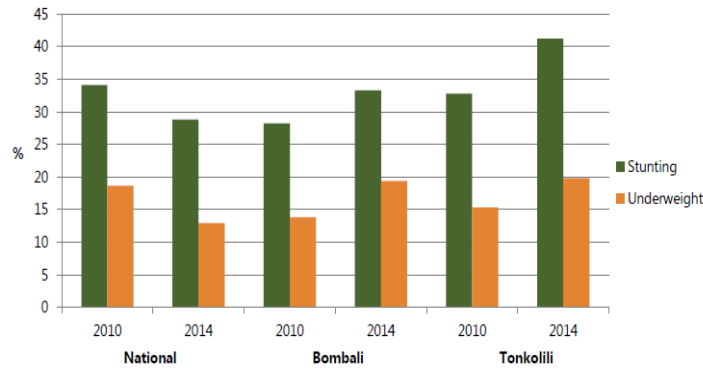
Tilapia production can be increased by creating a sustainable market chain, including agricultural traders, fish farmers and fish sellers and by utilizing micro-finance through both local institutions

and private donors. It is estimated that income among fish farmer households would improve by some 30 to 40 percent. In conjunction with increased awareness of proper nutrition practices and improved hygiene, household fish consumption in the Tonkolili District would be expected to increase from roughly 17kg per year to 30 kg.

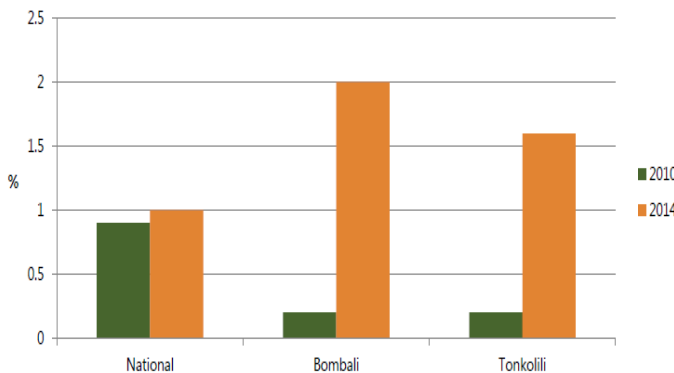
While many food security programs have been implemented in Sierra Leone over the years, few of those programs have effectively addressed protein deficiencies and livelihoods. At the moment, the price of fish inputs are out of reach for most small-scale fish farmers. By increasing access to micro-loans and subsidizing the purchase of inputs for local agriculture traders, both the buyers and sellers of fish inputs will benefit greatly.

In addition to providing subsidies for the purchase of fish inputs, access to better and consistent fish inputs in Tonkolili can be advanced by:

1. Creating more farm fish breeding and food preparation sites within fish farming clusters;



SMART Survey, 2010. "Report on The Nutritional Situation of Sierra Leone Nutrition Survey Using SMART Methods." UNICEF. SMART Survey 2014. "Sierra Leone National Nutrition Survey 2014." Freetown, Sierra Leone: MOHS and UNICEF Sierra Leone.



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Figure 1 (top): Stunting rates among children in Tonkolili
Figure 2 (bottom): Nutrition Status among Children 6-59 months, Severe Acute Malnutrition

2. Expanding the private-public partnership of land leasing for more fingerling production sites, as well as facilitating shared use of state fish farm sites; and
3. Partnering with companies to initiate fish feed production businesses.

By addressing market linkages for fish farmers and customers, increased profit margins can be expected. Currently, however, access is a challenge, both from a logistical standpoint and due to timing issues. To help bridge the gap and eliminate some of these challenges, future efforts must work towards:

1. Determining specific impediments experienced by small-scale fish farmers to their participation in markets;
2. Linking fish-farmers to both local and distant markets; and
3. Creating better on-farm preservation techniques, as well as more efficient fish processing techniques so that the fish could remain fresh and of high quality while being transported to the market.

Beyond issues of raising the capital needed for fish inputs, many of the Tonkolili farmers have never participated in fish farming before. Therefore, behavioral changes are also needed. These can be advanced first by collecting and reviewing current social and behavior materials about fish consumption, as well as other food preferences within the Tonkolili



District. Analysis of these materials can yield ideas for addressing gaps in nutritional behaviors. It can also be used to develop clear educational materials on effective fish processing and hygiene along the value chain. Such data can also help with the creation and promotion of palatable fish recipes.

Lastly, in order to ensure that the policies are implemented properly, a rigorous platform of monitoring and evaluation (M&E) will help fortify all stakeholders' understanding of small-scale aquaculture. This could primarily be attained through the use of participatory action research (PAR). In this, the program should be centered around learning through group reflections regarding the group's progress. Combined, these steps will enable any new developments in the program to be derived from the community and stakeholders themselves. This reliance on group members will also provide the highest chance of success.

Conclusion

Subsistence aquaculture has been the norm in the Tonkolili District for some time. Switching from that practice to a more profit-oriented practice takes external help, including fish input production, access to micro-loans, and knowledge of markets. This can be accomplished by increasing the capacity of both men and women on how to better manage the fish farms, which will lead to better fish yields and improved marketing of the fish when it's time to sell them. Ideally, this capacity building will extend to private investors as well, so that they may improve technical measures for a stronger value chain.

References

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