



Fibers of Change Case Study



Disclaimer

This document is made possible by the generous support of the American People through the United States Agency for International Development (USAID). The contents of this report are the sole responsibility of its authors and do not necessarily reflect the views of USAID or the United States Government.

This publication was made by Global Mamas for the *Fibers of Change* project. All rights reserved.

Mallory Savisaar Project Manager Akuse, ER-Ghana Tel.:+233 556 760 920 Email: mallory@globalmamas.org

About



This study is aimed at exploring how Global Mamas, in collaboration with Nature Conservation Research Center (NCRC) and the communities along the Lower Volta River, have worked together to combat the invasive water hyacinth species with the aim to increase biodiversity and sustain livelihoods of people in the affected areas.

This publication aims to inspire other affected communities to explore ways to economically gain from the water hyacinth plant and other natural resources while supporting biodiversity conservation efforts.





The Challenge

Ghana has seen the proliferation of the water hyacinth plant (*Eichhornia crassipes*) in its waters ever since the 1960s, around the time the Akosombo Dam was built. While the dam led to the increase of hydro-electric power and other economic gains, it has also led to negative ecosystem changes, such as the growth of water hyacinth. In turn, this has affected the communities around the dam who depend on the natural resources therein.

The plant can be found in the Lower Volta and Upper Volta among other water bodies in Ghana (Hauser et al., 2014). Experts believe that the plant, originally from South America, was introduced to Africa and used for its beauty (Gopal, 1987). However, it has caused more harm than good in the lives of people in Ghana and around the world. The water hyacinth is considered to be the worst aquatic invasive plant in the world, with the ability to reproduce rapidly and with broad environmental tolerance (Zhang et al., 2010).



Water hyacinth's dense growth makes it difficult to navigate water bodies, leading to the blockage of canals and rivers and causing flooding and blocking waterways. The water weed is a threat to electricity generating hydro-electrical dams as it can clog turbines, causing costly damages. Aquatic plants and life are also denied exposure to sunlight, which in turn makes it very difficult for them to survive. This means fishermen struggle to catch enough quality fish, thus affecting their sources of income and causing additional charges on the cost to consumers. Water hyacinth also provides a favorable environment for the spread of malaria and in some cases schistosomiasis (Patel, 2012). Additionally, it reduces the quality of fresh water used by many communities for drinking, cooking, and cleaning. The thick mats formed by the water hyacinth hides dangerous animals like crocodiles and snakes, which attack people who depend on water bodies for their transport and livelihood.

Over the past few years, various control methods have been implemented to tackle the problem. These include biological control methods such as use of weevils, moth, and fungi that feed on the plants; manual and mechanical removal; and chemical control using herbicides. Though most of these methods have been implemented in Ghana, they have not had lasting effects (Akpabey, 2012). However, Global Mamas have taken the initiative to find creative ways to solve this problem through the handcrafting and selling of useful products that make sustainable use of the water hyacinth fiber. From papermaking, weaving of baskets and mats, to fertilizers, the indomitable floating weed has found many uses in the world today.



The Global Mamas Approach

For the past 16 years, Global Mamas, an NGO operating in Ghana, has been working to enhance the socio-economic lives of women across the country through the production and sale of fair trade products. Global Mamas is a guaranteed member of the World Fair Trade Organization (WFTO), a status that assures consumers that Global Mamas' products are made responsibly– environmentally, socially, and economically. Global Mamas' manufacturing is guided by sustainable principles. One of these is working directly with rural producers to ensure an ethical supply chain that is traceable to provenance and working towards a circular, closed-loop production, where waste from manufacturing is re-used as much as possible. Sixty percent of the current product line is made of up cycled or recycled materials.

Global Mamas looked to extend this approach by working with communities living around the Lower Volta River who are economically challenged and rely on the now severely depleted natural resources. The communities that collaborated with Global Mamas on this project were Akordum, Atsavanya, Dormeliam, Kadjanya, and Tenya. The project, titled *Fibers of Change*, was a 1year project funded by the generous support of the American people through the United States Agency for International Development under the West Africa Biodiversity and Climate Change (WA BiCC) Program. The objective of this project was to mitigate the spread of the water hyacinth across the river and create sustainable livelihood alternatives for the affected communities.



Implementation & Process

The first step in the implementation of this project was to engage community traditional and opinion leaders to sensitize them on upcoming project activities. One key issue tackled at this stage was debunking the local myth that the water hyacinth is poisonous. While in the process of getting the community buy-in on the project's objectives, consultants were engaged from Kenya, Nigeria, and the United States. At the time, the commercial making of products from water hyacinth was not common in Ghana, so the consultants were instrumental in transferring the knowledge of using water hyacinth to create marketable products to Global Mamas' staff.

The next stage was to build the capacity of the beneficiary communities in areas such as natural resource management and biodiversity conservation. This crucial stage was carried out in collaboration with the Nature Conservation Research Center (NCRC), as they are experts in implementing communitybased resource management through the Community Resource Management Area (CREMA) model. This model works on the following principle: if small communities are given full authority to control the natural resources in their locale, and economic benefits result from this, then these communities will have an incentive to not only manage these resources sustainably but also partake in conservation efforts.



After the CREMA model was introduced to the beneficiary communities, capacity building trainings on CREMA management and governance structure were carried out in these communities. Community representatives were selected in all beneficiary communities to run the operations of the harvesting cooperatives. These communities report to an executive council, which runs the everyday operations of the whole CREMA. Technical support was also provided to the communities in developing a constitution, by-laws, and a management plan to provide a backbone for running the day-to-day activities of the CREMA. Training sessions were also held on the sustainable harvesting and processing of water hyacinth and composting.

The newly formed Osudoku CREMA were tasked with the harvesting and processing of water hyacinth fibers from the Volta River. Harvesting cooperatives were established across the beneficiary communities. The teams were to consist of a majority of women-in line with Global Mamas' mission to empower Ghanaian women-and local fishermen with knowledge of the Lower Volta River. Alternative livelihood opportunities were created for the harvesting cooperatives through the sale of these fibers to Global Mamas, who would in turn make useful and saleable products like paper and other woven items out of them. More livelihood opportunities were also created for the community members outside the harvesting cooperatives. A group of 34 community members were included in a 6-month training on sewing, weaving, or papermaking.



The total number of direct beneficiaries (i.e., people receiving direct cobenefits) of the Fibers of Change project were 68 (64 from beneficiary communities while 4 were new recruits on the project). During the course of the project, over 350 community members were reached through community mobilization and advocacy campaigns. One important campaign was improving the capacity building of community leaders, members of harvesting cooperatives, and other community beneficiaries on addressing sustainable landscapes, natural resource management, and partaking in biodiversity conservation efforts. A total of 150 community members were trained. Training materials were developed and shared to the beneficiaries; these included manuals, videos, and presentations.

Products made during the skill acquisition training program included woven trivets, woven coasters, table runners, note cards, paper bags, and ID card holders. The products made from the invasive hyacinth plant also contained scrap from used fabrics and beads made from recycled glass—in line with Global Mamas' practice. These products were sold both locally and internationally in the United States and in European Union countries. The products were also featured in the *Sustainability Design for a Better World* display at the *New York NOW* fashion show, which took place February 1–5, 2020.



Conclusion

The invasive water hyacinth is a worldwide conundrum that has plagued water bodies for years. While so much has been invested by governments to rid their waterways of this weed, no permanent solution has been employed. Most of the existing solutions either create secondary pollution or have adverse effects on the ecosystem. More research and knowledge sharing among affected regions are essential to finding more viable alternatives to handle this problem.

The sustainable harvesting and use of water hyacinth, however, though not a conclusive fix, provides a consistent and sustainable approach. It provides the affected communities—who are wholly dependent on these water systems—with an opportunity to actively engage in the removal of the weed and in turn benefit from it economically. This two-fold solution motivates these communities to desist from activities like dumping trash or defecating in the water systems, which can create systems that encourage reproduction of the weeds. Another benefit is the empowerment of communities to learn new skills as alternative sources of income.

The water hyacinth holds potential to provide solutions to various problems, from providing biomass for generating energy to sewage treatment. Up-scaling the CREMA model will lead to large-scale utilization of the water hyacinth and provide more opportunities to empower the communities most affected by its infestation.



References

Akpabey, F. J. (2012). Quantification of the cross-sectoral impacts of water weeds and their control in Ghana (Doctoral dissertation), Rhodes University, South Africa.

Gopal, B. (1987). *Water hyacinth*. Amsterdam, Netherlands: Elsevier.

Hauser, L., Wernand, A., Korangteng, R., Simpeney, N., & Sumani, A. (2014, July 25). *Water hyacinth in the Lower Volta Region: Turning aquatic*. Retrieved from https://www.academia.edu/8766399/Water_Hyacinth_in_the_Lower_Volta_Region_Turning_aquatic_weeds_from_problem_to_sustainable_opportunit y_by_fostering_local_entrepreneurship

Patel, S. (2012). Threats, management and envisaged utilizations of aquatic weed Eichhornia crassipes: An overview. *Reviews in Environmental Science and Bio/Technology*, 11(3), 249–259. doi:10.1007/s11157–012–9289–4.

Zhang, Y., Zhang, D., & Barrett, S. C. (2010). Genetic uniformity characterizes the invasive spread of water hyacinth (Eichhornia crassipes), a clonal aquatic plant. *Molecular Ecology*, 19(9),1774–1786. doi:10.1111/j.1365294x.2010.04609.x







GLOBAL MAMAS GUARANTEED FAIR TRADE Follow Global Mamas Online

Web: <u>www.globalmamas.org</u> Instagram: <u>@global_mamas</u> Pintrest: <u>@global_mamas</u> Facebook: <u>@globalmamas</u>

