Project AquaRevive by, Mahmudur Rahman

Introducing the Changemaker Behind Project AquaRevive

My name is Mahmudur Rahman, from Dhaka, Bangladesh, and I study Environmental Sciences at Jahangirnagar University. I hope for a future where our coasts flourish—not suffer—through sustainable and inclusive practices. I hope you find this summary of my project informative and reflective of the dedication we've poured into addressing this critical issue.

Overview of my CAP Project

As a student of Environmental Sciences, I often get to go on research activities across different regions of Bangladesh. While working in the coastal areas, I repeatedly encountered the challenge of rising salinity. Some regions are naturally saline, but in the case of southwestern part of the country, I noticed a worrying trend — salinity levels are rising due to unsustainable shrimp aquaculture practices. This observation inspired me to focus my CAP Project on the effects of shrimp aquaculture especially at the southwestern part of the country.

"**Project AquaRevive**" is the initiative to tackle this growing water salinity crisis. The project's focus is on mitigating the harmful effects of shrimp aquaculture, which contributes significantly to seawater intrusion and salinity, disrupting livelihoods and ecosystems. Our aim is to promote eco-friendly shrimp farming practices, alternative livelihoods, and sustainable agriculture solutions. Promoting sustainable agriculture is the main priority of this project.

Initial Project Goals

1. Compare traditional shrimp farming, polyculture, and modern agricultural practices and explore alternatives.
2. Promote a complete shift from shrimp aquaculture practice to sustainable, salt-tolerant agriculture practice.
3. Reach out to educate farmers with informational workshops with the outcomes of this project.

Revised Project Goals and Adaptations

At first, I formed a team of 5 individuals who will be helping me throughout the project. In early December, we consulted **Md. Jamal Uddin**, Chairman of the Department of Environmental Sciences, JU, who agreed to guide our project. Md. Uddin advised us to conduct a field survey to better understand local challenges of our project area and set realistic goals. Following his suggestion, we managed to survey **91 individuals** across 5 villages, including both shrimp farm owners and workers. This helped us reshape our project objectives. Find detailed survey responses here.

While we initially aimed to promote a complete shift from shrimp aquaculture to sustainable, salt-tolerant agriculture, survey responses revealed a complex reality. Some farmers favored shrimp farming for its profitability, while others felt forced into it due to policy pressure and a lack of knowledge about alternatives. And most farmers were ignorant of how much yield they can expect from their land area.

We also came to know that, there were 2 farming seasons at our project area,

High Salinity Season (February to August): Elevated salt water intrusion due to monsoon rain supports shrimp farming, and farmers stock their ponds with shrimp fry for cultivation.

Low Salinity Season (September to January): With lower salinity, farmers can still do shrimp aquaculture practices or switch to grow rice and other crops, depending on local conditions.

We finally reached a conclusion on farmers can engage into shrimp aquaculture on high salinity season, but they should shift to crop farming practice in the low salinity season. While doing our survey, we found that most of them have past experiences of farming crops and it will greatly help decrease the salinity problem of this area. To make people understand and raise awareness, we conducted some scientific tests that later happened to be a huge success for our overall project. Our revised goals adding these scientific tests are:

1. Take water and bottom sediment samples from different shrimp fields to analyze the physio-chemical parameters that will help to assess the suitability of land for shrimp aquaculture and its impact to the farmers.
2. Conduct a 90-day paddy experiment to test the feasibility of genetically modified (GMO) crops for saline-affected land as most farmers failed to grow traditional non-GMO well due to salinity issue.
3. Develop a farmer's guidebook to inform them about crop yields and suitable plants for different seasons.
4. Establish an exclusive marketplace for women to provide them with equal economic opportunities and support their shift to agriculture. Currently no opportunities for women involvement in marketspaces there.

Timeline and Workflow Overcoming Challenges

Phase 1: Initial Data Collection and Experimental Setup (December, 2024)

In December, we conducted the questionnaire survey and initiated our 90-day paddy experiment using BRRI Dhan 110, a saline-tolerant variety developed by the Bangladesh Rice Research Institute. Additionally, we collected bottom sediment and water samples from various shrimp ponds to compare salinity levels.

Phase 2: Developing a Farmers Guidebook Collaborating with Government (January, 2025)

We analyzed survey responses and reached out to key individuals for guidance. We managed to contact **Md. Jahidul Islam**, Managing Director of the Fisheries Development Board in Bagerhat, who connected us with **Anjan Kumar Biswas**, Senior Fisheries Officer, Bagerhat. During our meeting, we learned that there was no updated guidebook for farmers on crop selection and yield expectations since the last edition was developed before the covid pandemic. We aim to collaborate with the **Ministry of Food** and **Ministry of Agriculture** to develop this new guidebook.

Phase 3: Engaging Women Workers and Addressing Gender Discrimination (February, 2025)

During my initial survey, I faced religious barriers preventing me from learning the stories of female shrimp workers, who are vital to the industry. To overcome this, I brought a female colleague and learned the local dialect to gain their trust. I discovered significant discrimination and forced involvement in shrimp farming. Through this, I connected with the grassroots NGO "**Nijera Kori**", where I spoke with environmentalist **Khushi Kabir**. This led to the idea of creating a dedicated market space for female vendors, a concept previously unseen in the area.

Phase 4: Final Evaluation and Community Outreach (March - April, 2025)

On March 22, we revisited the site and found great success with our salt-tolerant paddy, confirming its suitability for the area. We are now identifying other crops that can thrive there and we'll be including them in our farmers' guidebook. As this involves a significant shift from current practices, we needed government approval to share our findings. Finally, we the permission and planning our final seminar with local farmers — scheduled for April 14, that is also the first day of Bengali New Year, meeting another initial goal of our CAP project.

Project Impacts and Outcomes

During our survey we found that there are significant number of farmers who are willing to shift to farming practices. Project AquaRevive is bringing real hopes to hundreds of farmers looking for better alternatives to harmful shrimp aquaculture. Although it typically takes around 130-150 days for full Paddy growth, we analyzed the harvest after 90 days that is enough to see how the total harvest will look like. So far, we got a positive result from our experiment. Our successful trial with salt-tolerant paddy shows that farming is possible even in high-salinity lands. This opens the door for others to experiment with different crops, vegetables, and fruits. By working with the government, our message is reaching more people, and the guidebook we're developing will help farmers choose the right crops and plan their farming better. Mostly women are deprived from market access and so we are creating a women-only marketplace to promote equal opportunities, giving them a strong role in the local economy. As more farmers move to sustainable practices, we expect less destruction of mangrove forests and better protection for the coastal environment. This project is just the beginning. It brings new hope, and a better future for the environment.

Future plans and goals

1. We plan to collaborate with the **Ministry of Food and Agriculture** to ensure our farmers' guidebook is updated annually with the latest crop innovations and remains easily accessible.
2. We aim to launch the separate market space for women soon collaborating with "**Nijera Kori**" NGO.
3. With $160 remaining from our project funds, we aim to build a **Rainwater Harvesting System (RH System)** that will help a large community. We've secured additional funding from two local businessmen. They were willing to help us as this RH System will be built for a mosque, ensuring that most people enjoy its benefits.

I'm most proud that our project truly impacted people's lives and will continue to do so in the future. We listened to the farmers, supported women, and worked to protect the environment. Creating the farmers' guidebook and starting a separate market space for women were big steps that gave real hope to the community.

I'm also deeply thankful to **Turning Green** for choosing me as a changemaker among thousands of participants. This journey pushed me out of my comfort zone and made me believe that I, too, can do something meaningful for the environment. I even got the chance to work with government officials—something I never imagined I could accomplish. Thank you, Turning Green, for helping me find my purpose.