



## Biogas production from Sargassum seaweed in Grenada

### Before departure

I applied for MFS because I wanted to learn more about sustainable development in low- or middle-income countries. I specifically wanted to get a deeper understanding of the possibilities and challenges in relation to a country's specific conditions. I also wanted to apply my knowledge practically, get to know a new culture and do a project that had a positive impact on the community that I would be in. Me and my project partner Wed knew of two degree projects that had been conducted in Grenada the previous year, so we talked to the students behind those projects. They had arranged the project with a start-up business run by two KTH alumni, so we reached out to them. They announced an application in the beginning of the fall semester, and after an interview we got the project.

Before travelling to Grenada, I got vaccinated against typhoid fever and cholera. Vaccinations against Hepatitis A and B were also recommended, but I had already taken those shots. Moreover, I didn't take any language course as English is the spoken language in Grenada. However, I did take the course "Intercultural competence" to learn more about potential differences in communication and culture. I'm happy I took this course as I believe it helped me navigating Grenada's culture. Lastly, we didn't need to apply for a visa. All in all, the preparations before departure were uncomplicated and went on smoothly.

### Project

The purpose of the project was to investigate the potential of using *Sargassum* seaweed for biogas production. The study consisted of two parts: An experimental part and a market analysis. The experimental part focused on how mechanical pretreatment affects the methane content in biogas derived from *Sargassum*. We used a small-scale biogas plant at a hotel in Grenada to conduct the experiment. The market analysis delved into the prerequisites for electricity generation with biogas from *Sargassum* in Grenada. For the analysis, we conducted several interviews with relevant stakeholders in the country.

I have no concrete plans on continuing this project, but learning about *Sargassum* and the energy system in Grenada has piqued my interest in the field, and I hope to learn more about it. However, the owners of the biogas plant, the two KTH alumni and our contact person, are planning on initiating new projects coming years, so hopefully the work won't end with our study.

A typical day during the field study started with going to the hotel to feed the biogas digester. We collected food waste from the hotel kitchen and seaweed from our storage place. During part of the field trip, we also did our experiments at the hotel. Additionally, around once a week, we went to the east coast of Grenada to pick up fresh *Sargassum* from the beach. We collected the seaweed and transported it on a truck to the hotel. On some days we would also conduct interviews. On those days we usually had to travel to meet with our interviewees.



### **Upon arrival**

We were four students travelling to Grenada to do MFS. We arrived on March 23<sup>rd</sup> and started our project a week later. During the first week, we did a lot of preparatory work: First, we met with the staff at the hotel where we conducted our project. We bought and borrowed the tools that we needed for our everyday work. We also arranged a storage place for the seaweed and at last we brought the *Sargassum* to the hotel. Our work, feeding the biogas digester, conducting experiments and interviews, continued until the 24<sup>th</sup> of May, less than a week before returning to Sweden.

### **Financials**

Grenada is dependent on imported goods, which makes the general price level high. Food is expensive as well, however locally made products are generally a lot cheaper. Some examples are papaya (called paw paw), mango, melon, banana, plantain, local eatable roots (including dasheen and tania) and callaloo (spinach-like vegetable). You can also find cheap produce at the local markets in St George's, however you have to be ready to haggle. The MFS scholarship and the CSN loan covered all of my expenses.

### **Accommodation**

We found housing through the students who did degree projects in Grenada the year before. They stayed in a hotel owned by a Swedish woman for a very reduced price. We were fortunate to get an affordable offer as well. The hotel had a good standard, it had a pool and we were able to cook meals in their outdoor kitchen. What was also positive was that we were very close to the beach, and we had grocery stores, ATM:s and bus stations in walking distance. The only negative thing about the housing situation was that we had to switch rooms several times, and even hotel once, due to other bookings. In total we paid 19 000 kr for 67 days. This sounds expensive, but it was cheap compared to all other alternatives in Grenada.



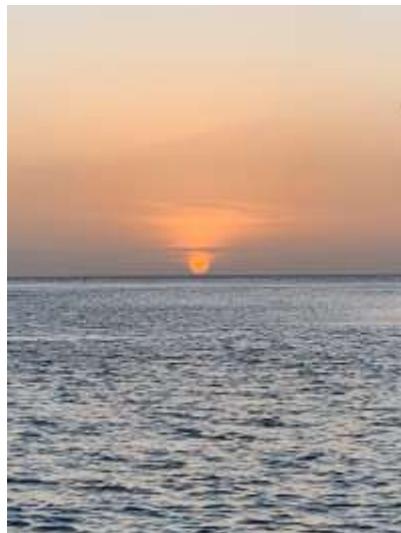
### Country

Grenada is a small country with a population of roughly 100 000 people. It had a small-town feel to it, it was easy to get to know people and I felt very safe wherever I was. The people that we met were very helpful, generous and kind to us. People were interested in getting to know our group and a lot of people invited us to do activities with them.

Furthermore, Grenada is a beautiful country with beaches, jungles and mountains. There are many diving and snorkeling opportunities around the island. In addition, there are several waterfalls and pools where you can go swimming. There are also many trails around the country and peaks that you can climb.

In terms of culture, one difference from home was how lively and loud the surroundings were. Cars, buses, bars and restaurants were playing loud music (usually soca) at all times, even in the middle of the night. The food culture was also different. There was a large variety of local fruits and vegetables, some of which I had never heard of before (like callaloo, breadfruit, bluggoe). The local dishes were also new to me. Some things that I had never tried before was oil down (the national dish), curry lambie and fried bake.

However, it was not uncommon that some produce was out of stock for weeks. Moreover, grocery stores usually sold fruits and vegetables that were in season, especially if local. Another interesting thing was the unpredictable water supply. We conducted our field study during dry season and since Grenada has a lot of tourism that time of year, there is a water shortage. As a result, the water was turned off sometimes, which was especially challenging if you were in the shower... 😞



### **Leisure and social activities**

As we lived very close to the beach, we spent a lot of time there. We also did a few hikes in the weekends, exploring waterfalls, peaks and the jungle. There were also a lot of different restaurants and bars in the area, and we had fun trying the local foods. In addition, we got to know some locals and did some of these activities with them. In the end of the field study, we volunteered in Grenada's chocolate festival, helping out at different events such as chocolate yoga, painting and visits to rum distilleries.

### **Sustainability**

To get to Grenada, we had to travel by airplane. In terms of transportation in the country, we were often able to walk or use the local buses. The local buses operate in certain parts of the country and we were able to use them travelling to the hotel, where we worked, and going into the town of St George's. However, we also rented a car, for part of the stay, to be able to do interviews. In addition, the possibilities to bike were limited as traffic was really intense and roads were bad. In terms of food, we ate a lot of local produce and vegan meals. This was also the cheapest alternative for us. Lastly, there were no possibilities to recycle and separate waste as there were no practices of this in Grenada.

### **Other recommendations and observations**

I'm so glad I got the opportunity to do MFS and to live in Grenada. MFS gives you the opportunity to explore a new culture, to develop as a person and to work with a meaningful project. You're able to meet a lot of people and exchange perspectives and knowledge. You also get a chance to deepen your knowledge about sustainability and how sustainable solutions can be implemented in your host country. Lastly, you get to practice problem solving and facing challenging situations.

Some specific recommendations and observations:

- Use the local buses. They're cheap (around 10 kr per ride) and it's a fun experience.
- Grenada is big on spices, rum and chocolate, so try some of the local products. They can usually be found in the grocery stores.
- Visit chocolate factories and rum distilleries, for example Belmont Estate and Westerhall Estate.
- Attend or volunteer in Grenada's chocolate festival, which takes place in the middle of May.
- Visit the waterfalls, for example the Seven Sisters Falls and Concord Falls.
- Hike to Mount Qua Qua.
- Try nutmeg ice cream.
- Visit the Blowhole on Petit Calivigny.
- Visit Grand Anse Beach and BBC Beach.

Mixed pictures:

