



Improvement of a Vermicompost Sieving Machine for Smallholder Farmers in the Philippines

Before departure

When I started at KTH, I found out about MFS (Minor Field Studies) and thought it sounded interesting. But I never thought that I would be one of those who would have the **opportunity** to go abroad to write my bachelor's thesis. About a year before departure, my classmate mentioned that she would like to go on such a trip and asked me if I wanted to join. And of course, the answer was yes. We also managed to convince a third classmate to join us.

Since I can speak fluent Spanish, the primary idea was to find a project in South America. We contacted about 20 different universities without any luck. By chance, one of us in the group wrote to a former professor in the Philippines, who then connected us with a government-owned organization that was very positive about hosting us and providing us with a project. After several meetings with our contact person, we decided that the Philippines was the country where we wanted to write our thesis.

The Philippines has many different languages spoken, but the two official languages are Tagalog and English. This made our stay much easier as communication would not be a problem since the majority speaks English, and all public texts such as signs, products, etc., are in English.

Before departure, we needed to visit the Philippine embassy to obtain a visa valid for 59 days from the day you land in the country. The process was smooth and took about a week. Since we planned to stay longer than 59 days, it was possible to extend the visa in the Philippines for a fee of about 1000 SEK. No vaccines are legally required to enter, but we took vaccines against rabies, Japanese encephalitis, hepatitis A+B, and typhoid as they were recommended. I was already vaccinated against Covid, which meant that I didn't have to take a PCR test before departure.

Upon arrival

We were warmly welcomed by the former professor, our contact person, at the airport in the capital city of Manila. We were given a ride to a nearby mall where we met several people from our future office department for a traditional Filipino dinner. The next day, we had a half-day welcome tour of the organization's operations and buildings, followed by a coffee break with department colleagues. We could start with our project within 3 days upon arrival.



Financials

Approximately 20,000 SEK went towards the round-trip airfare and vaccines, which meant that I had 7,000 SEK left to use on-site. Everything is cheaper in the Philippines compared to Sweden. Accommodation and food, depending on the location within the country, could be up to 5 times cheaper. Getting around locally was very inexpensive, as you could either take a smaller version of a bus or a motorcycle with a sidecar called a tricycle, for just a few SEK. However, flights between islands could be quite expensive, ranging from 500 to 1,200 SEK.

Accommodation

During the first month, we rented a small villa from a department colleague's aunt at a very cheap price compared to Sweden, approximately 2,000 SEK per person. The following month, we had the opportunity to travel around the Philippines while working on our report, and during that time, we stayed at various smaller hotels with private rooms or hostels with dormitories. The prices ranged from 70 to 200 SEK per person per day, depending on the location.

Project

The Philippines primarily has an agriculture-based economy, with many rural areas relying on farming as their source of income. Small-scale farmers earn an average of about 60 SEK per day and have an average of 5 cows that are used for food, milk, and labor. Through vermicomposting, there is an opportunity to convert the cow manure into fertilizer that can be sold for an additional source of income. However, in order to sell the fertilizer, it needs to be sieved to remove unwanted gravel and worms. Currently, larger and cumbersome motorized sieving machines are used, which are too expensive for individual small-scale farmers. The aim of the project was to come up with a concept for a new sieving machine that is smaller, cheaper, and more accessible to low-income small-scale farmers.

During the first week, we visited the organization's own sieving machine used for their large-scale operations. There, we interviewed the man who works with the machine on a daily basis to understand the existing needs. We also went on a small trip to visit and interview the man who manufactures the

machine. Throughout the project, we had smaller presentations for our supervisor within the organization to update them on the progress. Due to transportation complications, the final presentation was held via Zoom for the supervisor and our contact person instead of in person.



Country

During the first month, we stayed between two smaller towns, with one of them, San Jose, being slightly larger. It's not common for tourists to visit these towns, so the locals were very unaccustomed to seeing people who were not Filipinos. Wherever we went, we attracted a lot of attention, with people staring at us, attempting to take sneaky pictures, and sometimes wanting to take selfies. The locals were quite shy, but once we got to know them, they were extremely friendly and helpful. There weren't many attractions in these towns, except for a small mall. Surrounding the towns were vast fields and numerous rice paddies.

The following month, we were able to work remotely and had the opportunity to visit other parts of the Philippines. From a gigantic capital city with a stark contrast between poor and wealthy areas to smaller islands with the most beautiful beaches I've ever seen, each island in the Philippines had its own vibe. My favorite was Siargao Island, a surf island popular among backpackers, where everyone was laid-back, chill, and friendly. It wasn't difficult to make friends there, and we ended up forming a larger group of 7 people who took day trips around the island.



Leisure and social activities

During the first month, we worked on the project during the day, and in the evenings, we would usually go to San Jose to eat at cafes or restaurants with friends from the organization we were working with. When we returned home, we would watch movies or series together.

During the second month, while we were traveling around, we got to see many beautiful beaches and nature. We engaged in activities such as surfing, snorkeling with whales and sardines, wakeboarding, boat tours, and more.



Sustainability

During the first month, we always tried to take the bus to get around as it was cheaper and more sustainable. But when it wasn't possible, we took tricycles, sometimes sharing them with other passengers. We also mostly ate at local restaurants. As for inter-island transportation, we tried the more sustainable option of taking ferries, but it took too much time that could have been spent on the project. Therefore, most of the time, we ended up taking airplane trips.

The improvement of the sieving machine and making it more accessible for smallholder farmers, contributed to the first SDG, which is about ending poverty in all forms and the 3rd SDG about ensuring healthy lives. As the machine enables a source of income for rural communities, it also contributed to the 8th and 11th SDG summarized as promoting economic growth for all and making human settlements more sustainable. This machine is a main part of a waste management process, which turns agricultural wastes into organic fertilizer, making it align with the 12th SDG about ensuring sustainable production patterns in which waste management is a big part of.

Other recommendations and observations

If you're considering traveling to the Philippines for an MFS trip, it's advisable to go no later than the end of March or the beginning of April. This is because the rainy season begins towards the end of May, and it allows enough time to complete your work before then. It's important to find a balance between studying and leisure. Agree on the schedule early on and try to stick to it.

Going on a trip like this has been very educational. It's not just academically enriching, but you also learn a lot about yourself and life in general.