



Field Study on Agrivoltaic Systems at a Tea Plantation in Sri Lanka

Before arrival

I first heard about the opportunity to do a field study in the beginning of my studies at KTH, and from that moment I knew it was something I wanted to do. By the end of my second year at KTH, the spring semester 2024, I started looking for projects by contacting professors and teachers I had had at KTH, and by reading travel reports from previous years. I was soon lucky and found a contact person working at University of Peradeniya in Sri Lanka where they had previously done a pilot project in which an agri-photovoltaic system (solar power combined with agriculture) had been built, and my contact person could arrange for me to do my project about that.

After the summer I found my field study partner, and a supervisor for the project. The planning could then move to the next stage, and we wrote a project description and started looking at what vaccines we had to take and how to apply for a visa.

Upon arrival

We arrived right at the start of our project and kicked it off by participating in a workshop by the agrivoltaics system that had previously been built near the University of Peradeniya, that our project was about. The workshop took place during our first days in Sri Lanka and gave us a fantastic introduction to our project. We then continued working with our project for the rest of our 8 weeks in Sri Lanka, taking some breaks here and there to explore the beautiful country that Sri Lanka is.

Financials

Sri Lanka is generally cheaper than Sweden, thus the largest cost of our field study was the plane tickets. However, as we did not have a kitchen in our accommodation and also spent some time exploring the country during our stay, the costs did add up and, in the end, exceeded our usual costs of living in Sweden. But it was definitely worth it as it gave us a lot of really wonderful experiences that we would not have been able to have otherwise.

Accommodation

Our contact person helped us arrange accommodation in a research centre right by the University. The accommodation was quite newly built and thus modern and overall the housing conditions were good. We had our own rooms, with private bathrooms. The accommodation only cost around 2500 SEK per person for the entire stay. However, one thing that we did miss was a kitchen. There were some restaurants near the accommodation, so it was not any major problem, but we did find ourselves longing for homecooked meals.

Project

Our project was about agrivoltaics, which are solar power systems installed on agricultural land, thus using the same land both to produce electricity and to farm. As agrivoltaics are not yet established in Sri Lanka, our project was mainly an investigation into the potential of agrivoltaics and how it can be implemented at a larger scale. By developing a model of the system previously built on a tea farm near the University, we explored its efficiency in utilising the land for the two purposes. Furthermore, we compared the potential for agrivoltaics in Sri Lanka to its potential in Sweden. We gathered information by visiting the agrivoltaics system and by conducting interviews with people involved in the pilot project. Other than that, we spent most of our time writing our report and developing our model of the system. Our contact person arranged a place at the University where we could sit and do this. In this place we could also meet other students who also studied the agrivoltaic system.



Our contact person was always available to us at the University if we needed any help. We also shared our final report with him in the end.

Country

Sri Lanka is a beautiful country with very friendly people. People were always very helpful, and we always felt safe. We didn't experience any major cultural chock, although we did notice some differences to Swedish culture. One interesting thing about Sri Lanka is that, even though Buddhism is the biggest religion, they still celebrate public holidays related to other religions, mainly Hinduism and Islam, as a substantial part of the population follow these religions. This results in a lot of public holidays, and during our time in Sri Lanka there were public holidays almost every week. Sri Lanka also has a lot of temples, both Buddhist and Hindu temples, which were very beautiful.

We also got to try a lot of Sri Lankan food, some of our favourite dishes were kottu and biryani. The food was overall very good, although sometimes a bit too spicy for us, but we noticed that a lot of restaurants reduced the spice to suit our taste.



Biryani

Furthermore, Sri Lanka is a major producer and exporter of tea. We visited several tea farms and got a tour at a tea factory. It was very interesting to learn how tea is grown and processed into the form that's sold in stores.



Leisure and social activities

During weekends we travelled around the country and got to experience everything from Sri Lanka's beautiful nature to their temples and wonderful sandy beaches by the coasts. We got see both mountains, waterfalls as well as their busy larger cities, like Kandy and Colombo.



The University of Peradeniya, by which we stayed during most of our time in Sri Lanka, had a lot of beautiful nature that we spent many days walking through and admiring. They also had a large cricket- and football field and a gymnasium.

Sustainability

Overall, I found it more difficult to live sustainably during our stay in Sri Lanka than at home in Sweden. We mostly travelled by taxis or tuktuks between different places within the country, as we didn't quite understand the public transport, and also did not feel fully comfortable with it due to the traffic. The taxis were also really cheap, and thus this was definitely the easiest way for us to get around, although not the most sustainable. Furthermore, it was hard to find trash cans, especially bins in which you could recycle your trash, and thus we were not able to do so during our stay. We also had to buy bottled water, which generated a lot of plastic waste. One thing that made a sustainable lifestyle easier though, was the great availability of vegetarian and vegan food. All restaurants we went to had several vegetarian options out of which a lot were fully vegan as they generally use milk very sparsely in the Sri Lankan cuisine, and a lot of dishes were egg-free as well.

Our project has connections to several of the Global Sustainable Development Goals, the main one being goal number 7 "Affordable and clean energy" as agrivoltaics are a solution that can help increase the share of renewable energy in the energy mix without competing with agricultural land. It also touches on goal number 2 "Zero hunger", as agrivoltaics has the potential of increasing the income of small-scale farmers by providing an additional source of income.

Other recommendations and observations

Overall, I am very grateful I got to experience Sri Lanka. It is a beautiful country, and I learnt a lot about Sri Lanka during our stay and created lots of great memories. Doing a field study is a fantastic opportunity to experience new parts of the world and learn more about how our knowledge from KTH can be used globally.