



“Bolivia es Bolivia - algo así”

This was my response when my supervisor asked, describe Bolivia in five words. Translated in English as: **Bolivia is Bolivia - something like that.**

Before arrival

I've always loved traveling and exploring the world, and I've long wanted to use my experience and knowledge from the mathematics and physics area to develop something meaningful for a country in need.

Why I specifically chose Bolivia is still a bit of a mystery to me. I knew I wanted to go to Latin America – it has been a dream for me a long time now – but preferred to avoid areas affected by drug-related gang violence. That narrowed my options down to Argentina and Bolivia. Eventually, I connected with people at UMSS (Universidad Mayor de San Simón), and things fell into place from there. I realised the great potential of solar power and other projects; it all went well from there!

To even begin understanding what I could do, I had to conduct extensive research on the country. I went in with very few expectations, aside from knowing that Bolivia was relatively poor but had an incredibly rich and unique culture – especially with the cholitas, who take great pride in their traditions.

In preparation, I had to get vaccinated against yellow fever, along with Hepatitis A and B, to ensure I was protected for my travels around the country.

Upon arrival

I arrived in Bolivia on the 15th of January after leaving Sweden on the 14th and started my project straight away (I even did some preparation work). However, my field study, didn't take place until about two weeks after my arrival, when I travelled to Raqaypampa (where I executed the main study). After that, I spent addition time at another greenhouse, closer to Cochabamba – about an hour away – where I had to repeatedly validate my data.

I received a warm welcome from my supervisor, Jhonny, who, despite of the crazy dealys of my Boliviana de Aviaciones flight, patiently waiting for me at the airport until 3 AM to make sure I got to my accommodation safely – and he had to wake up early the next morning. So if you're reading this Jhonny – thank you ever so much again for waiting and taking me home in your car... and I'm sorry you had to wake up so early the next morning!

The day after I arrived, I caught up on some sleep before heading to UMSS (Universidad Mayor de San Simón) where I was warmly welcomed, given a tour of the university, and introduced to people and places by Jhonny, which I really appreciated.

I officially spent three days in Raqaypampa conducting field studies, followed by several days working on data validation in the greenhouses. Altogether, my field study in Bolivia lasted approximately nine weeks.

Financials

The cost of living here, especially at the uni, is unbelievably cheap to me. Lunches are insanely affordable – just 7 BS (~11 kr) for a hearty soup packed with meat, vegetables and carbs. Though, if you are looking for something more filling, you can get huge plates of various dishes, with the most expensive ones only costing 20 BS (~30 kr).

Speaking generally, everything here is much cheaper compared to Sweden. For example, a 10-15 minute taxi ride costs about 10 BS (~15 kr), while the main public transport, trufis, is only 2,5 BS (~4 kr). I even took a guided tour to Tunari Peak (5030 m), which included a guided tour, round-trip transportation (2,5 hours each way), breakfast and lunch – all for just 100 BS (~150 kr) per person.

My tip? Make the most of your time here, don't be thinking about the money too much! Everything is great value for money here (almost), so don't hesitate to explore and enjoy whatever you want to partake. If you're looking for cheaper accommodations, try connecting with locals (make through TikTok or other social media) and booking their apartments through WhatsApp, instead of using Airbnb or Booking, as those tend to be slightly more expensive.

Accommodation

I booked my accommodation (an upper-tier apartment for being Cochabamba) through Airbnb, but according to my supervisor, it was quite expensive for being what it was. About a week later, while in Cochabamba, I discovered on Tiktok that many similar apartments were available at lower prices through their private Whatsapp's. As I mentioned earlier, I believe a great way to find even more affordable accommodation here is by connecting with locals or searching through social media platforms instead of relying on the traditional booking sites.

I ended up paying almost 6000 kr per month, which included all utilities, in a very central and safe area. The apartment itself was fantastic – super modern, spacious, and well-equipped. It was a 40 m2 studio with a dedicated study area, making it perfect for both work and relaxation. Everything functioned flawlessly here, and unlike the usual unreliable Wifi in Cochabamba, the internet here was exceptionally fast and stable – a huge plus for me!

Project

My thesis/project mainly focused around modeling the performance of *carpas solares*—the simple, traditional greenhouses commonly used in the Altiplano region of Bolivia. In the first part, I built the simulation and model - simulating internal conditions like temperature, humidity, and CO₂ levels using historical climate data (easily accessible online), along with integrating a basic crop growth model.

In the second part, I worked with data specific to the Raqaypampa region to optimize design parameters such as wall thickness, construction material, and greenhouse dimensions (including roof size). The goal was to determine the best combination of these factors to maximize crop yield for specific crops; and from here I delivered some results.

Ultimately, I proposed two optimized greenhouse designs, including details like size, wall thickness, and even the use of water bottles suspended from the ceiling to help regulate temperature. For crops

like carrots, these designs showed the potential to produce 2.5x - 3x more yield compared to optimal open-field conditions -- and most likely even more, considering some conservative assumptions made in the model.

I'm planning to continue refining the model and making it more user-friendly, so it can be applied in future research or practical use by others. But overall, I'm very happy with how the project turned out.

A typical fieldwork day consisted of a tiny breakfast for me (mainly because the food over here is super-sized – massive! I can only manage about two meals a day). I'd head to the university around 9:00 and have a lunch there around noon, and then usually wrap up the day around 16:30.

After work, I often hung out with colleagues or new friends I met during my stay. I spent a lot of time at the outdoor climbing gym with a group of Spaniards, and we'd sometimes prepare some dinner at their house together and then watch a movie. On other days, I'd meet up with friends for dinner, go out parting, or join in on sports or games, or other fun activities.

While I did get support from my supervisors when I really needed it, I'm quite a self-driven person and like handling most of the things on my own, and so I handled most of the project independently. But for the few times when I felt very stuck, I of course asked them.

Toward the end of my stay, I gave a presentation at the university (but over Zoom together with my supervisor in Sweden) for my colleagues to showcase the model I had developed, explain its potential for future research, and guide them on how it could be used in their future research.

Country

Arriving in Bolivia was both exciting and eye-opening for me. Generally, the culture felt very warm, proud and deeply rooted in many intertwined traditions, which you got to know eventually. Especially in the rural areas or less central areas, there were some major differences in accommodations and general life. But other than that, there were definitely moments of adjustments. Everything is different in a way – there are not pedestrian walks, some cars purposely try to hit you, pace of life is a bit slower, a lot of paperwork, and people do not wear seatbelts here. There are many things that I will miss, that are inherently Bolivian, like the *trufis* - never knowing when they will come and always be able to stop almost wherever you want. I will miss the exotic fruits, chocolate, some dishes like *Charque*, *Pique Macho*, *Salteñas*, *Tucumanas*, and many, many more. The nature is also incredible in Bolivia; so, if you are there do NOT miss out! I will not only miss the nice things; the crazy roads in Bolivia (though happy to be back) and crazy adventures/experiences will be remembered too. However, generally people were incredibly welcoming, and the strong sense of community was something I deeply appreciated.

For someone coming from Sweden, the contrast in infrastructure, food customs, and daily routines could feel surprising at first. Maybe others before me might have felt a bit overwhelmed in the beginning, especially with the language barrier or different standards over here. But for me, these differences quickly became a part of the charm, and I found myself adapting and enjoying the experience more and more each day. So, I am super grateful to have experienced this; thanks Bolivia and everyone making this trip so amazing!

Leisure and social activities

During my stay in Bolivia, I really tried to explore as much as possible and immerse myself in the local culture. Most dinners, I went out to try different restaurants- sampling a wide variety of Bolivian dishes became a bit of a personal mission, sometimes alone and sometimes with my friend. From

salteñas and pique macho to anticuchos and freshly grilled trout, I tried to experience the full range of traditional food, and also as many different restaurants I could, that I found interesting.

I spent a lot of time with a group of Spanish friends, and we often went to the outdoor climbing gym. It became a bit of a weekly/daily routine - climbing together in the evenings around 18:00, then heading back to their place to hang out, eat and cook dinner, and finally watch movies until one or two in the morning. (Sometimes I even slept there, to not wake up my door man; but I probably did this at least 15 times during my stay, and every time I felt really bad). It was a great way to unwind and socialize for me.



At the university, I also got to know some local students. We'd often play games together or join in on casual sports activities like badminton or some board games in a local café. They were welcoming and friendly and also wanted to show me around and show me different things.



I also took a few unforgettable trips during my stay. One was a hike to Laguna Iphilla, about three hours from Cochabamba. The hike was roughly 8 kilometers and took place at maximum 4680 meters of altitude - breathtaking in every sense of the word (incredible views). Altitude sickness hit me pretty hard though - with having to breathe a lot and always feeling quite dizzy - and I'd definitely caution others who aren't acclimated to take it seriously. I had a similar experience on another hike to Pico Tunari, the highest peak near Cochabamba at 5030 meters. The views were absolutely worth it, but again, the altitude can be brutal.



Another highlight was a trip to Angostura Lake, a local getaway spot not far from the city (just half an hour or so). It's known for its fresh fish restaurants, especially fried fish (eg. cabañitas), and also offers fun activities like ziplines, paddle boats, and lakeside lounging in the place we ate. We also took a boat tour on the Angostura Lake!



In Cochabamba itself, I visited several museums and cultural landmarks like Palacio Portales and Plaza 14 de Septiembre, Plaza de las Banderas, Correos, etc... One of my favorite hidden gems was Villa Albina in Vinto - an elegant historic villa with beautiful gardens with lots of beautiful plats, and a tranquil atmosphere. Though it's about 1.5 hours away by trufi, it was well worth the trip.



The city's main attraction also does NOT disappoint. I visited Cristo de la Concordia, the towering statue of Christ that stands at 33,44 meters, making it even taller than the famous Christ the Redeemer in Rio. It sits on a hill overlooking the city and requires climbing nearly 2,000 steps - but the panoramic views from the top were so stunning, I ended up going back six or seven times during my two-month stay.



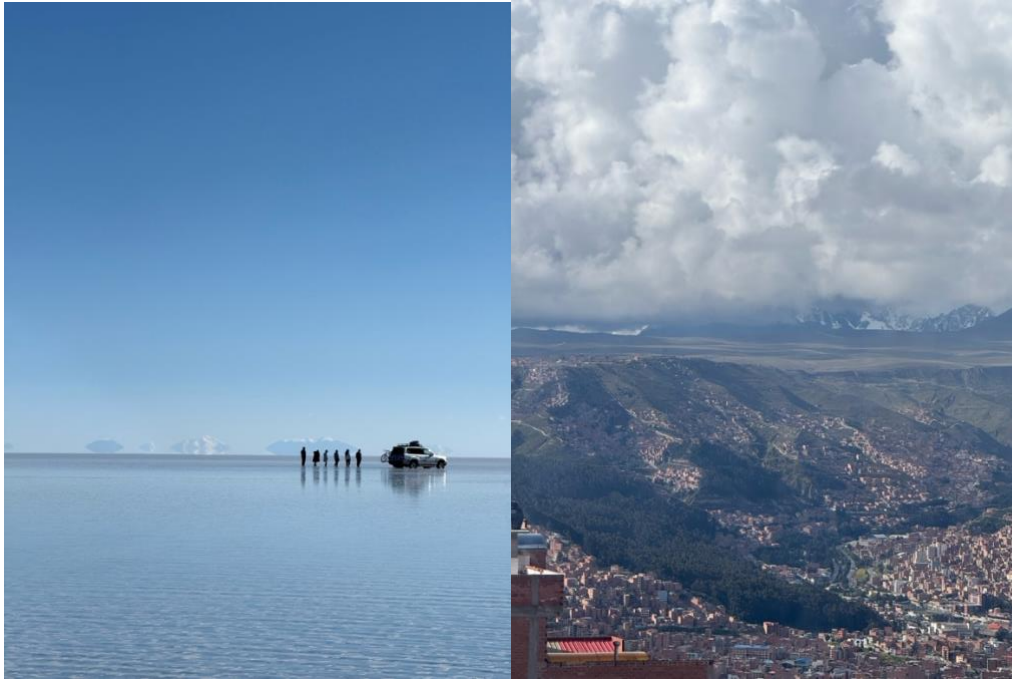
One of the highlights of my entire trip was flying to Tarija; Bolivia's famous wine region. I took a private tour and managed to visit around ~10 wineries in four days, tasting a wide range of their local wines - some of which were surprisingly excellent (never ever thought of Bolivia as a place of wine – but now it is on my map!). This experience was one of my personal favorites, not only because of the wine (which I am taking certificates in as a sommelier) but also the peaceful atmosphere, tranquil city life (in Tarija) and scenic landscapes.



I traveled to Raqaypampa for my field study - a remote rural area about 6-7 hours by car from Cochabamba. For the data validation part, I visited greenhouses in Suticollo two times, around 1.5 hours away by truck. And I also did some more minor trips like these.



Of course, I also made it to some of Bolivia's most iconic destinations. I visited the legendary Salar de Uyuni, the world's largest salt flat - an absolutely surreal and unforgettable experience for me; this you can NOT miss out on if you are in Bolivia. I also had the chance to explore La Paz, the administrative capital, with its dramatic landscape of densely packed houses stretching through mountain valleys and incredible panoramic views, which can be seen from many Miradores (viewing points of the city). Lovely nature around the city too, but also incredible city itself!



Sustainability

Obviously, traveling to Bolivia from Sweden traveling is probably the most reasonable option - even with flight it is quite a crazy long ride. To fly here one has to take a flight to Madrid (I chose the only direct flight) and then do a self-transfer to a direct flight with Boa to Santa Cruz, and finally a domestic flight to Cochabamba. One can take the direct flight to Cochabamba from Madrid, but it is weekly, and I could not make it to the direct flight back since my exam period overlapped. Domestic flights are often the most practical option due to the country's vast distances and mountainous terrain. Unfortunately, most forms of transportation within Bolivia still rely heavily on gasoline or diesel, and sustainable alternatives are limited.

That said, Cochabamba does have a growing tram system, which connects certain parts of the city (Cochabamba is super large!!!). For example, when I traveled to Suticollo for greenhouse visits, I used the tram as part of the journey, which was a nice break from the usual minibuses or taxis. Super quiet and quite modern too – I really liked them other than they were slow!

I was lucky to live quite close to the university - just a 25- 30 minute walk each way - so I was able to commute by foot all the days, which I really appreciated both for the exercise and, I suppose, for reducing my own environmental impact as well.

When I traveled to Tarija, I opted for a domestic flight due to time constraints - the bus ride would have taken around 18 hours, which just wasn't feasible for my schedule. Still, it's worth noting that long-distance buses are a more economical and sustainable option for those with more time to spare (and I even heard the long-distance night buses can be quite comfortable!).

While Bolivia is still developing its infrastructure when it comes to green transportation, it's definitely possible to make more sustainable choices!

Other recommendations and observations

Generally speaking, about the MFS program. Use this opportunity, it really is not just a free ticket to travel, but rather an opportunity of a lifetime! This is NOT just a study vacation – it's rather an amazing chance to grow, contribute and learn in ways that few experiences allow. I cannot emphasise this enough, but, this is such a unique way of growing, contributing and learning about a country – please do not miss out!

During my time in Bolivia, I had the privilege of spending several months immersed in a culture completely different from my own. I improved my Spanish, worked on real-world development challenges, supported and learned from communities that are often overlooked. I helped local students with math, collaborated with both students and faculty, and gained insights into the complex relationships between many things within the country -- local governments and rural communities in development efforts, the economic situation and cultural roots!

Beyond the academic – I shared so many countless grateful moments and conversations with friends – from the locals in Cochabamba, to the Spaniards to the local people, to the doctors I met during my hospital visits, to the university colleagues, to the strangers, to the people I hiked with, to the climbing gym friends, to the loveliest uni friends! I hiked mountains, danced at parties, went to local cultural hubs, shared meals, listened to stories and had so so sooo many crazy experiences that will forever and ever stay with me! Super thankful for this, truly.

It was of course challenging at times, but the experience was so rewarding in the end, that I already miss everything (just came back yesterday, when writing this), and I would do this over again if I could! Truly an experience of a lifetime for me!!!

MFS is an opportunity to not miss out. If you approach it with curiosity, respect and an open mind, I truly believe that this is an unforgettable and incredibly meaningful opportunity to not miss out on.

Best regards, Filip Dannevik.

PS. And if you wish to ask me anything, please feel free to send an email to me at filipdannevik1@gmail.com.