

SLS Blogs: Spain and the U.N. Sustainable Development Goals By: Abhita Moorthy and Caroline Kajzer

Introduction

About Us

¡Hola! ¡Bienvenida de España! Our names are Abhita Moorthy and Caroline Kajzer, and we are rising second year students at Georgia Tech currently studying abroad in Spain. We are both engineering majors with Spanish minors and have a deep passion for travel, language, and culture. When we heard about the Serve, Learn, and Sustain (SLS) initiative at Georgia Tech, we were thrilled to have the opportunity to investigate sustainability on a global level with fellow Georgia Tech students who are also spending the summer travelling the world. We can't wait to explore sustainability in Spain and how we can not only maintain but also improve our world for future generations to come.



Image 1: Caroline Kajzer (Left) and Abhita Moorthy (Right) in El Retiro in Madrid

The Spain LBAT

The Spain Language for Business and Technology (LBAT) program is a study abroad program in two major Spanish cities. The twenty students on the trip take two courses, one in Madrid about Spain and the European Union and the other in Granada on Sustainability in Spain. The program is led by two Georgia Tech faculty, Dr. Cecilia Montes-Alcalá and Dr. Kelly Comfort, teaching the courses we described above respectively. Over the duration of the five-week program, students take part in many excursions on different cultural immersions to experience Sustainability in Spain, the Spanish culture, and the Spanish society. Some of these include excursions to a solar power plant, an “invernadero,” or a greenhouses under plastic, and a cave hotel. During the weekends, students have the opportunity to travel to different cities throughout the country. In our case, we traveled to Barcelona, Pamplona, San Sebastián, Tarifa, Algeciras, Gibraltar, Málaga, and Lisbon. These trips helped us encounter the cultures of the different regions of Spain and experience how each practice sustainability.



Image 2: The 2017 Spain LBAT group touring the Santiago Bernabéu Stadium

About Our Blog

We decided to work together to create blog posts addressing sustainability in Spain. SLS plans on holding a series on the United Nation's (U.N.'s) Sustainable Development Goals in the fall, so we thought it would be fitting to use the seventeen different goals as a basis for our blogs, trying to explore as many goals as possible and how they relate to Spain. Most of the goals correspond to the two courses we will be taking. We have broken down our investigation and have created 18 "mini-blogs" to address the seventeen Sustainable Development Goals. The European Union (E.U.) and the European Environmental Bureau (EEB) had partnered up with Umwelt Bundesamt, "Germany's main environmental protection agency"¹, to create the Sustainable Development Goals Toolkit (SDG Toolkit) to ensure that E.U. members are held accountable and put a true effort into meeting the U.N.'s Sustainable Development Goals. The E.U. and the EEB has even published a full report discussing the goals and how they relate to Spain on their SDG Toolkit website². This report is put together annually by the Observatory of Sustainability or OS which is a government independent agency who's...

...initiative [is] to create a reference center for Spain and Latin America on environmental and socioeconomic sustainability. The goal of OS is to extract an independent, reliable and realistic X-ray of the situation in Spain and the South American Subcontinent, a predominantly Spanish-speaking area with which Spain maintains important relationships of economic and cultural cooperation³.

Throughout our blogs, we compare their findings with what we learned abroad and/or what locals believe in regard to Spain's progress on achieving the Sustainable Development Goals. We have linked the document below and frequently refer to it throughout our blog as we compare our findings with those of the OS's, E.U.'s, and EEB's. We recommend that you look through their investigation to familiarize yourself with the goals and obtain a strong basis to compare to our findings on our trip through Spain. You can also refer to the document to learn more about the goals themselves and track country's progress. Whenever we address "the report by the SDG Toolkit/OS" or state any specific statistics, they are taken from this document, unless cited otherwise.

Link to the SDG Toolkit Report: <http://sdgtoolkit.org/wp-content/uploads/2017/02/Sustainability-Report-in-Spain.pdf>

¹ Meunier, Corinne. "About Us." *Umweltbundesamt*. Umweltbundesamt, 06 Sept. 2013. Web.

² "SDG Toolkit – to Engage European Environmental NGOs at National and European Level on the Sustainable Development Goals." *SDG Toolkit – to Engage European Environmental NGOs at National and European Level on the Sustainable Development Goals*. European Environmental Bureau and The European Union, n.d. Web.

³ *SUSTAINABILITY REPORT IN SPAIN 2016*. Rep. Observatory of Sustainability, June 2016. Web.

UN Goal #1: No Poverty

While we were walking around the different cities of Spain, we realized we saw more homeless people on the streets than in Atlanta. There were beggars at most of the street corners. In Granada, one man even pretended to fall out of a wheel chair. With the man lying on the ground, a money collection cup in his hand and his legs hanging off his tipped-over wheelchair, tourists would be stunned and walk over trying to help, only to find that the man had set up the scene to collect money. We saw him and his set up for multiple days. We also noticed that countless of the houses throughout the country were vacant and falling apart since many Spaniards could not pay for their mortgages during the economic crisis and were forced to leave⁴. With this first-hand experience, we perceived the poverty level in Spain to be higher than that of the U.S.

The Economic Crisis: An Overview

As a result of the worldwide economic crisis of '08, the unemployment rate in Spain shot up to 26.3 percent in 2013⁵. The unemployment rate for the population between the ages of 18 to 25 was almost double that number⁶. Spain has not yet fully recovered from the crisis, leading to a high rate of poverty throughout the country.

For one of our activities, we had to interview the residents of Granada to find out how the crisis affected them and their families. We met a group of five boys who appeared to be in their early twenties. They explained that many people in the city lost their jobs and houses. Many residents went back to school in order to obtain higher degrees in hopes of finding jobs in the future. Others left Spain completely expecting to find a more reliable economy elsewhere. We talked to Abhita's host mom⁷ in Granada about how the crisis affected her. She told us that she worked for Telefonica, one of the largest companies in Spain, for 25 years. However, in 2008, she was laid off because of the crisis. For the past nine years, she has been unemployed and has not been able to find any sort of employment. This situation describes a first-hand experience of the results of the economic crisis. Everyone, including those of the upper middle class, were affected.



Image 3: The logo of the company at which Abhita's host mom had worked at

⁴ Montes-Alcala, Cecilia. "Spain and the EU." 2017, Madrid, International House

⁵ "Your Key to European Statistics." *Statistics Illustrated - Eurostat*, Eurostat, ec.europa.eu/eurostat/en/web/lfs/statistics-illustrated.

⁶ Montes-Alcala, Cecilia. "Spain and the EU." 2017, Madrid, International House

⁷ Moorthy, Abhita, et al. "Interview of Abhita's Host Family." July 2017.

For another one of our class assignments, we watched a clip from the documentary, *Españistán*, which explained some of the reasons and effects of the economic crisis in Spain. One of the major points it elaborated on was how, before the crisis, many loans were given out to people who really could not afford the purchases they were making. When the economy crashed, a large portion of the Spanish population was left homeless and in poverty. Not only did they lose everything to their names through foreclosures, but they were still forced to pay their loans and mortgages back to the banks without any money to do so⁸.

Rebuilding and Rebounding

As indicated by the numbers published in the OS's document, the economic crisis greatly affected the poverty levels in Spain⁹. However, in the last couple of years, the situation has been improving. The Spanish economy has begun to rebound, and as explained by our host families, people are starting to find jobs again. There is a new sense of optimism throughout the country.

UN Goal #2: Zero Hunger

One of our excursions was to El Ejido, a municipality of Almería, close to Granada. This area is covered in invernaderos, which are greenhouses under white plastic. This region of Spain produces most of the country's crops and exports food throughout Europe. Spain's climate and location are perfect for this form of farming since the temperatures rarely drop below freezing, and the location receives copious amounts of sunshine throughout the year. With the implementation of new farming techniques, which utilize the sand from the coast and the region's natural climate, some invernaderos can consistently produce up to three harvests a year, much of which are exported to help support the Spanish economy¹⁰.

⁸ Saló, Aleix, director. *Españistán*. YouTube, 25 May 2011, www.youtube.com/watch?v=N7P2ExRF3GQ.

⁹ *SUSTAINABILITY REPORT IN SPAIN 2016*. Rep. Observatory of Sustainability, June 2016. Web.

¹⁰ Comfort, Kelly. "Sustainability in Spain." July 2017, Granada, Universidad De Granada: Centro De Lenguas Modernas



Image 4: Inside a cleaned invernadero

Invernaderos: Farming of the Future?

We talked with invernadero and *Clisol* company owner Lola Gomez, who explained to us many of the new techniques being utilized in Almería to create a new form of sustainable farming. She explained how they are using less pesticides/herbicides and instead implement biological control, which uses forms of mainly indigenous organisms, like spiders and other insects, to fight against pests and diseases that may hinder crop yields. Concerning irrigation, Lola uses special troughs in which she plants her crops to minimize water loss. She also reuses

much of the water that drains from the soil and out of the containers. In addition, in accordance to Spanish law, all of the plastic used to build the invernaderos must be recycled. Finally, local invernadero owners have cooperated together in order to form a type of farming network in which sustainable farming techniques can be shared to proliferate the sustainable agriculture sector in Spain¹¹.

The Economic Crisis and Hunger

According to the E.U. and the EEB, despite the rise of sustainable agricultural methods, the number of pesticides and fertilizers being used in Spanish agriculture has increased. This has led to a deterioration of sustainable agriculture in Spain and an increase in environmental contamination. Throughout the country, hunger and malnutrition have been increasing. According to the OS's report, 17.2 percent of the E.U. food aid goes to Spain, which represents the severity of the hunger problem in the country¹². In addition, Dr. Comfort pointed out that when pesticides and other chemicals are used in farming, the workers on the farms are often forced to inhale these substances, putting them at risk for serious health complications¹³.

With our personal experience, we noticed a much more optimistic point of view regarding the issue of hunger in Spain. The increase in the prevalence of invernaderos exemplifies an expansion in sustainable agriculture. We did not notice any significant hunger problem or malnutrition issue in the areas



Image 5: Organic, freshly squeezed juice

¹¹ Gomez, Lola. "Invernaderos." Tour of Crisol Invernadero. Spain, El Ejido. 12 July 2017. Lecture.

¹² *SUSTAINABILITY REPORT IN SPAIN 2016*. Rep. Observatory of Sustainability, June 2016. Web.

¹³ Comfort, Kelly. "Sustainability in Spain." July 2017, Granada, Universidad De Granada: Centro De Lenguas Modernas.

we visited. This is probably because we visited cities rather than rural towns and villages; therefore, we cannot be confident that our personal experience is a proper representation of the whole country.

On the bright side, Spain is considered a leader by the E.U. in terms of organic farming and exporting organic crops; therefore, there are many positive aspects of Spanish agriculture, but there are many areas where they can improve in order to create a country with zero hunger.

UN Goal #3: Good Health and Well-Being

Although we did not study this topic specifically in class, we were able to discuss it with our host families and other locals. We quickly realized that the cost of medical services in Spain seem lower compared to their cost in the U.S.

When Half the Class Got Sick...

After returning from a trip to Morocco, nine of the ten students who went had fallen ill and were coping with a plethora of nasty symptoms which included headaches, diarrhea, and vomiting. Seven of the students left class that day to go to the doctor, and within an hour, they were all back with medication in hand. It was mind-blowing how fast they were able to get in and out of the doctor's office with prescription antibiotics. All had paid relatively little for their visits and medications without insurance (don't worry, they were later reimbursed by their insurance companies when they returned to the U.S). In the United States, the same type of visit would have normally required an appointment and would have been followed by a hefty bill.

Earlier in the trip, Abhita went to the clinic because she had a sinus infection, and, without insurance, the total cost of the doctor's visit was 40 euros and the medication cost about 11 euros. Abhita was on the Peru LBAT before the Spain trip, and even there, people who visited the clinic had to pay about \$70 just for the doctor's visit. Compared to Peru and the United States, the costs were very low for someone without Spanish insurance, and some people were even able to buy antibiotics for as low as three euros. In the U.S., this visit would have cost at least \$200 out of pocket.

When we asked Caroline's host sister about the healthcare system in Spain, she explained that when a Spanish citizen becomes sick or injured, he or she can visit the public hospital and receive a wide variety of treatments, tests, and screenings all free of charge. If your situation is not dire, it may take a while to receive treatment; nonetheless, it is free and available to all Spanish citizens, ensuring that all Spaniards have easy access to health services when they need it. In addition, if someone prefers faster and more personalized treatment, there is the option to visit private clinics and hospitals. This preference is far more expensive but is apparently becoming more popular. Some worry that this could cause a widening of social classes, while others prefer the faster and more elaborate service¹⁴ .

¹⁴ Kajzer, Caroline, et al. "Interview of Caroline's Host Family." July 2017.

According to the OS's report, medical treatment in Spain is expensive. About 15 percent of the Spanish population cannot afford to buy medication. There has also been a decrease in the amount of government spending on healthcare and pharmaceuticals. For example, in 2014, the budget for state investment in health, and welfare was decreased by almost 36 percent. Spain is also one of the industrialized countries that spends the least on health care relative to GDP¹⁵.

Once again, our personal experiences seem to differ from the actual statistics regarding medical care in Spain. We originally thought that the healthcare system in Spain was better than that of the U.S., but the statistics from the report seem to describe a different story. At the very least, both countries seem to be struggling to meet this specific sustainability goal.

UN Goal #4: Quality Education



Image 6: The 2017 Spain LBAT group in class in Madrid

Education was definitely one of the lighter topics we touched on in Spain. Neither of the classes we took specifically addressed this aspect of sustainability, yet we were able to get some information on this topic from local friends who were currently studying at Spanish universities. We talked to two medical school students who were studying in Madrid and Granada. Both told us that the Spanish equivalent of K-12 education was free and some schools even provided free laptops to every student, which were paid for by the government. Higher forms of education, like medical school or an undergraduate degree, did require some out-of-pocket pay, but the tuition they paid was practically nothing compared to what students pay in the United States. According to our 22-year-old local coordinator, the amount he paid for his entire university degree was slightly less than what we pay per semester as in-state students with the Zell Miller Scholarship at Georgia Tech, which is about \$6,000. When comparing the price of medical school with Caroline's host sister and Caroline, both pursuing medicine, the host sister was

¹⁵ SUSTAINABILITY REPORT IN SPAIN 2016. Rep. Observatory of Sustainability, June 2016. Web.

planning on paying about \$5,000 total¹⁶. Meanwhile, Caroline is expecting to have to pay about a \$250,000, a quarter of a million dollars, for post-secondary education. In addition, each university student in Spain is allowed to study abroad in any E.U. member country for a year for free under a scholarship called ERASMUS. For example, Caroline's host sister is planning on studying medicine in Germany for a year and her family will not be required to pay for her travels. Abhita's host sister¹⁷ is studying education in Austria for a year and she will not have to pay any extra fees as well. In comparison to the American university system, the Spanish education system is far more affordable and more accessible to its citizens, providing low-cost yet quality education to all Spaniards.

Education and the Economic Crisis

We also realized from talking with locals that before the economic crisis, public spending on education was very high. Unfortunately, after 2008, there were many cuts on spending due to the large national debt. Yet much of the Spanish population went back to school after the crisis in hopes of getting a higher degree and finding jobs, and the early drop-out rate of Spanish students has also decreased. Since 2015, government spending for teachers has increased. However, public spending on education has decreased, and the levels of math and reading of Spanish students are below the E.U. average, all according to the OS report¹⁸.



Image 7: The street sign for the school we studied at in Granada

Judging off our own observations, it seems as if the Spanish population is well-educated. Both of our host sisters spoke at least three languages fluently. We also participated in an interchange where we spoke with Spanish students learning English. All of them are studying the language in order to have better job prospects in the future. Also, since many young adults went back to school when they could not find jobs during the economic crisis, the education level of the country seems to have increased within the last few years.

UN Goal #5: Gender Equality

¹⁶ Kajzer, Caroline, et al. "Interview of Caroline's Host Family." July 2017.

¹⁷ Moorthy, Abhita, et al. "Interview of Abhita's Host Family." July 2017.

¹⁸ *SUSTAINABILITY REPORT IN SPAIN 2016*. Rep. Observatory of Sustainability, June 2016. Web.

Like the last two goals we explored, gender equality was not mentioned often in class, but we observed it in Madrid just by walking through the city. Furthermore, through personal experiences, we noticed that men and women had almost equal rights throughout Spain and it was definitely a goal the country was working on improving.

World Pride



Image 8: Puerta de Alcalá adorned in the Pride rainbow in Madrid during the World Pride Festival

While we were studying in Madrid, the World Pride Festival was in full swing. The entire city was completely adorned in decorations to celebrate. Rainbow flags were everywhere, from the bakeries to the billboards to the historic Cybele Palace in downtown

Madrid. It seemed as if people were more comfortable expressing their pride and their sexual orientation. During class, we read a few statistics about this topic to support our personal findings. In Spain, homosexual marriages were legalized in 2005, which was more than a decade before the United States¹⁹. Overall Spain has been very progressive in fighting for gender equality.

Diminishing Discrimination

Furthermore, while we were studying in Granada, there was a story frequently mentioned on various news channels regarding how employers will no longer be allowed to see first names, gender, or photos on the resumes of job applicants in order to reduce various forms of discrimination, including gender, when employing workers.

Women's Rights Throughout Spanish History

In our class about Spain in the E.U., we also learned that, during the 1930s, Spanish women enjoyed many rights. Unfortunately, these rights disappeared during Francisco Franco's rule, and women did not gain the right to vote until 1975. During his regime, women had almost no power. They were ordered to take care of the house and children while their husbands had control over practically their entire lives. Franco exiled the Spanish feminists from the country.

¹⁹ Marcos, Marcelino, and Pedro Muñoz. *España: Ayer y Hoy*. Pearson Prentice Hall, 2010.

Fortunately, after Franco's fall, there were massive social changes, and women regained many of their previous rights and progressively became equal to their male counterparts²⁰.

Currently, according to the OS's document we have been referring to throughout this blog, there is still a 19.3 percent wage gap between genders in Spain, which is three percent higher than the E.U. average, and there is a high level of gender-based violence throughout the country²¹. We did not witness this when in Spain, but this was probably because we spent most of our time in large, urban cities around students and not around working professionals or families.

UN Goal #6: Clean Water and Sanitation

During our time in Spain, our experience with water was similar to that in the U.S. We were able to drink from many street water fountains. However, our host moms warned us not to drink the tap water from small towns and villages because it would not be as purified. There were also many signs in bathrooms saying that the sink water was not potable because of the use of gray water. Spain is the number one country in the E.U. to reuse sewage effluent, according to the OS's investigation²². Moreover, restaurants would only serve bottled water which did not come free of charge. When we traveled over the weekends, we ended up buying bottled water to drink since our host mom's told us to be careful drinking from water fountains, so our expenses for water were much higher than we expected. Clean water is accessible throughout Spain, but it often comes with a cost.



Image 9: A water fountain in San Sebastián... this may or may not have been for dogs... we never really figured out.

5 Minute Showers

In regard to water conservation, the majority of the class stayed with host families that limited their shower time or at least made the effort to save as much water as possible. In Spain, it is normal to turn off the water while showering or using the sink and only turn it back on when absolutely necessary. Some students only had five minutes to take showers even if they were turning the water off during while doing so. This was probably motivated by the families' efforts to save money, but it does also greatly help the water conservation initiative throughout the country. For example, in Andalucía and other southern regions of Spain, there was a massive drought, and although it wasn't severe enough while we were there, the government was already beginning to talk about extra actions to conserve water if the situation were to worsen. These actions include, but are not limited to, only allowing water use during certain times of the day and limiting the amount of water consumed for watering outdoor plants. Similar actions were taken in Georgia when we had a massive drought back in 2007.

²⁰ Marcos, Marcelino, and Pedro Muñoz. *España: Ayer y Hoy*. Pearson Prentice Hall, 2010.

²¹ *SUSTAINABILITY REPORT IN SPAIN 2016*. Rep. Observatory of Sustainability, June 2016. Web.

²² *ibid.*

Las Ramblas



Image 10: La rambla surrounded by white invernaderos

In addition, southern Spain has a slight irrigation problem because it is typically a very dry area that experiences spontaneous floods when it rains. The affected regions have built canal-like routes called “las ramblas” in attempts to redirect the massive amounts of water into the ocean. Unfortunately, the violent and rapidly moving water often overflows these structures and destroys local infrastructure.

Sanitation

According to the OS, the sewage treatment in Spain is not very good and only 84 percent of urban wastewater is treated²³. Spanish agriculture has been depleting the water from aquifers faster than it can be replenished and the watersheds are not very sustainable²⁴.

UN Goal #7: Affordable and Clean Energy

Spain has been doing well in terms of clean energy. Renewable energy sources, including solar and wind energy, have increased over the last few years, and the economic crisis actually improved the amount of clean energy in Spain. We obtained copious amounts of information on this subject during our class in Granada and our excursions, so we were able to have many hands on experiences with this topic.

Solar Energy

In Spain, there are many solar power plants, one of which we visited with our class and found out about how solar power plants function in Spain. There are three different types of solar energy utilized in Spain, including photovoltaic, thermosolar with a tower, and thermosolar with a parabolic cylinder. The positive aspects of solar energy are that it is clean, renewable energy. The installation of solar panels is simple, and the panels last for a long time. Solar energy is also weather-resistant. Unfortunately there are a few negative aspects which include that their construction is expensive, solar power plants need a lot of land, and the energy must be transformed in order to store it²⁵.

²³ *SUSTAINABILITY REPORT IN SPAIN 2016*. Rep. Observatory of Sustainability, June 2016. Web.

²⁴ Comfort, Kelly. “Sustainability in Spain.” July 2017, Granada, Universidad De Granada: Centro De Lenguas Modernas.

²⁵ *ibid.*



Image 11: Thermosolar power plant with parabolic cylinders

Wind Energy

When we were driving through the countryside in Spain, we saw a lot of windmills along the side of the road. We learned that Spain produces one of the highest percentage of wind energy in Europe. Since the economic crisis, the investment in wind energy in Spain has increased tremendously to find an alternative to nonrenewable forms of energy. The positive aspects of wind energy are that once a windmill plant is installed, it is very cheap to maintain. It creates many jobs for the country, which has also helped the unemployment rate. Since it is a renewable energy source, it will not run out, unlike fossil fuels. However, there are also some negative aspects of wind energy. The installation costs of wind energy are extremely high. It cannot be the only source of energy in case there is a lack of wind on a specific day. The change in air pressure around windmills is harmful to birds, and windmills can be extremely noisy. In addition, this form of renewable energy needs a large amount of space to function, so a great deal of land is required. Finally, some people believe that windmills are not aesthetically pleasing for the landscape, but that is subjective²⁶.



Image 12: Windmills used to produce wind energy

²⁶ Comfort, Kelly. "Sustainability in Spain." July 2017, Granada, Universidad De Granada: Centro De Lenguas Modernas.

The Effect of the Economy on Energy

Energy is expensive in Spain. For this reason, many people conserve it as much as possible, especially after the beginning of economic crisis. In class, we argued that the crisis actually helped Spain with sustainability. The question was, were Spaniards conserving energy because it was better for the planet or simply because they couldn't afford to pay for large amounts of energy? The answer, from our experience, seemed like it was more of a money saving technique. Most host families had rules limiting the usage of lights, appliances, and let's not forget air conditioning. Many families didn't even own an A/C unit, and those who did often made its use off-limits. It was 112 degrees Fahrenheit one day in Granada and we still did not turn on the air conditioning! One of our fellow students got sick one night with a fever and was sweating in her room. She turned on the A/C for three hours in an attempt to fall asleep. The next day, she received a text from her host mom reprimanding her for turning on the unit, explaining that what she had done was a large economic burden on the family. As we said, energy is expensive in Spain and in the population's attempt to minimize energy bills, they implement a variety of sustainable habits.

Siesta Time!

We highly respect the Spaniard's ability to live using such little energy. It truly is impressive; their lives literally revolve around the concept. In southern Spain, during the summer, everything shuts down during the middle of the day since it is so hot. This is called a Siesta and it usually lasts from about 2:00pm to 5:00pm in the afternoon, when one would usually consume a lot of energy. Instead, most businesses shut down and people go home to eat lunch and take a nap. The city later reopens once temperatures have dropped and it is more comfortable to carry out daily functions. Although this tradition is primarily practiced to avoid the horrid heat, it also helps with regulating energy consumption and living a more sustainable lifestyle.

In regards to the document published by the OS, E.U. and EEB, between 2007 and 2017, energy consumption dropped 16.7 percent, most likely due to the economic crisis²⁷. In class, we discovered that the crisis promoted more sustainable lifestyles, as exemplified in the paragraph above. In addition, our professor explained that wind and solar energy became far more popular, yet the government did decrease spending on renewable energy in an effort to save money and aid in paying for the enormous national debt²⁸. One statistic from the OS report that caught us off guard stated that the use of coal energy had increased 23 percent between 2014 and 2015²⁹. We had studied in class that non-sustainable forms of energy usage were on the decline, but the OS's investigation seems to claim otherwise. Simply stated, what we studied in class was far more optimistic regarding energy sustainability than what the OS published. More investigation would need to be done in order to address this discrepancy, but like in the other

²⁷ *SUSTAINABILITY REPORT IN SPAIN 2016*. Rep. Observatory of Sustainability, June 2016. Web.

²⁸ Comfort, Kelly. "Sustainability in Spain." July 2017, Granada, Universidad De Granada: Centro De Lenguas Modernas.

²⁹ *SUSTAINABILITY REPORT IN SPAIN 2016*. Rep. Observatory of Sustainability, June 2016. Web.

goal analyses we have made, although Spain has made some major steps in addressing clean and renewable energy, there is still much work to be done.

UN Goal #8: Decent Work and Economic Growth

In Spain, the unemployment rate, especially long-term, is very high. This is one of the major results of the economic crisis. However, within the last few years, the situation has been improving and the unemployment rate dropped from almost 27 percent in 2013 to about 20 percent in 2015³⁰. For example, Abhita's host mom has been unemployed for almost a decade³¹. Many of the students in our class also mentioned that their host families faced unemployment.

In our class in Madrid, we discussed Spain's young adults and their work situations. The youth unemployment rate in Spain is more than double the E.U. average. Many of the young adults in Spain are known as "ninis," which means that they are not studying or working. It is normal for the youth to live at home with their parents rather than moving to their own house³². There is a popular belief throughout the country that renting is not economical and purchasing a home is preferred. Therefore, since houses are so expensive, the majority of the young adults in Spain stay at home with their parents causing many to criticize the Spanish youth for lacking independence. Moreover, many of the young people in Spain are going back to school because they cannot find jobs. Even during college, they continue to live at home and attend a university in their hometown. Although this may seem strange to an American, in Spain, it is completely normal, and when they hear that in the U.S., kids move out at the age of 18, they are shocked. What we uncovered in class and during our interviews with local people is very similar to what the OS published in their report.

UN Goal #9: Industry, Innovation and Infrastructure

In class, we learned that one of the reasons for Spain's economic crisis was the massive amount of wasteful public spending, which included a great deal of "investments" in industry, innovation, and especially infrastructure³³. This is easily seen when traveling through Spain. Many of the country's cities have brand new airports and an elaborate network of new highways, railroads, and metro systems, making traveling, especially for cheap college students like us, ridiculously straightforward and fast. Although transportation is easy, it came with a price. Dr. Comfort



Image 13: A newly constructed bridge in Spain

³⁰ "Your Key to European Statistics." *Statistics Illustrated - Eurostat*, Eurostat, ec.europa.eu/eurostat/en/web/lfs/statistics-illustrated.

³¹ Moorthy, Abhita, et al. "Interview of Abhita's Host Family." July 2017.

³² Marcos, Marcelino, and Pedro Muñoz. *España: Ayer y Hoy*. Pearson Prentice Hall, 2010.

³³ Comfort, Kelly. "Sustainability in Spain." July 2017, Granada, Universidad De Granada: Centro De Lenguas Modernas.

explained to us that many of these new forms of infrastructure are rarely used, and although they look visually pleasing and impressive, they may not help the Spanish population as much as the government had intended. The colossal amount of spending has not produced enough revenue and has created a massive national debt, being one of the major causes of the economic crisis. This has induced a hefty cut in spending on *I+D(+i)* (the Spanish equivalent to *R&D*, or Research and Development), which has curtailed spending on renewable energy, recycling, and other investigations into sustainability. After the economic crisis, the focus of the government was placed on saving money through budget cuts rather than sustainability³⁴. The OS seems to agree with the majority of our findings, stating that Spain is falling behind in the development of their industry, innovation, and infrastructure. This is especially true when comparing their investments in Research and Development now to their investments before the crisis.

UN Goal #10: Reduced Inequalities

It was somewhat difficult to analyze inequalities during our time in Spain simply because we were surrounded by students or our host families most of time. From talking to locals, we learned that those with money do have access to more personalized healthcare and education since they can pay for private services. These can be of a higher quality than that of their public counterparts. In our class on Spain in the E.U., we examined that the average income dropped substantially with the economic crisis. Even afterwards, with inflation rising, incomes did not change, making it hard for many families of lower social classes to afford basic goods. On top of that, Spain uses the Euro; in retrospect, its strength does not properly represent the Spanish economy, making it even harder for Spaniards to afford goods³⁵. Our experience and analysis of inequalities agree with those of the OS's report, which state that after the crisis, the inequality gap has grown, meaning the country has a lot more work to do in order to meet this specific goal³⁶.

UN Goal #11: Sustainable Cities and Communities

From our observations, it seems like the residents of Spanish cities were focused on maintaining sustainable lives. Our host families seem to find sustainability very important and stated that the cities had special initiatives set to promote sustainable living.

Smart Cities

One of the topics we mentioned in our class on Sustainability in Spain was Smart Cities. This is a concept growing in popularity around Spain. There are several Smart Cities scattered throughout the nation, including Málaga, Barcelona, and San Sebastián, all of which we visited during our weekend excursions. Smart Cities are cities that employ new strategies and

³⁴ Comfort, Kelly. "Sustainability in Spain." July 2017, Granada, Universidad De Granada: Centro De Lenguas Modernas

³⁵ Montes-Alcala, Cecilia. "Spain and the EU." 2017, Madrid, International House.

³⁶ *SUSTAINABILITY REPORT IN SPAIN 2016*. Rep. Observatory of Sustainability, June 2016. Web.

technologies to improve sustainability and the well-being of the city. In fact, Dr. Comfort explained to us that Málaga has created an advanced sector in the city where certain sustainable trends are monitored through algorithms to track the region's sustainability performance, which include statistics on activities like waste management³⁷. The number of sustainable cities throughout Spain is growing and this new trend could be a major game changer when fighting for a sustainable future.



Image 14: Trains waiting at a train station in Madrid

Transportation

In terms of development of transportation, progress in this sector has slowed down in the past several years due to the economic crisis. Regardless, Spain's public transportation system is far more developed than that of the United States'. Spain is filled with a new network of railroads, highways, and metro tracks. There are multiple new airports along with numerous forms of public transportation connecting cities within Spain and throughout Europe, including trains, buses, and more modern options like BlaBla Cars, a new taxi-like company that has digitized carpooling to travel long distances in an affordable and safe manner³⁸. That

being said, sometimes public transportation is not reliable due to a number of strikes. While we were in Spain, we experienced a metro strike in Madrid and a train strike in Granada. We quickly realized that unions in Spain have immense power and strikes are very common and frequently utilized to fight for workers' rights. Yet, even with those few hurdles, it was very simple and affordable to travel within and between Spanish cities.

Homes Sweet Homes...

Unfortunately, in class we revealed that after the economic crisis, many people were left homeless. Living in a Spanish city is expensive and most people have resorted to living in the suburbs and commuting into metropolitan areas. In addition, we saw countless vacant houses in Spain that were probably abandoned during the crisis. From the documentary, *Españistán*, which we mentioned in the blog on sustainability goal #1, before the economic crisis, many people bought houses as an investment and took out countless loans that they really could not afford to pay back. The price of residential property skyrocketed, yet banks simply continued to hand out mortgages. When the housing bubble popped, a large portion of the Spanish population was left homeless with several mortgages to pay back³⁹.

³⁷ Comfort, Kelly. "Sustainability in Spain." July 2017, Granada, Universidad De Granada: Centro De Lenguas Modernas

³⁸ "About Us." *BlaBlaCar*. BlaBlaCar, n.d. Web.

³⁹ Saló, Aleix, director. *Españistán*. YouTube, 25 May 2011, www.youtube.com/watch?v=N7P2ExRF3GQ.

Coastal Land

Much of the coastal land in Spain is used for tourism and has been developed. While driving along the coast of Spain, we saw large areas filled with hotels and other touristy sites. The regions without tourism were filled with invernaderos, plastic greenhouses mentioned in detail in our blog on sustainable goal #2. To say the least, although there are some protected areas on the Spanish coast, like the National Park Cabo de Gato, much of the coast has been transformed and exploited for economic gain. Our observations seem to agree with those of the E.U. and EEB, which state that Spain's progress in protecting coastal land is minimal if not deteriorating.



Image 15: The Spanish Coast



Image 16: Garbage found on the street in Pamplona during the festival of San Fermín

UN Goal #12: Responsible Consumption and Production

During our class in Granada, we did a project on responsible consumption and production. We focused on recycling and reusing products and realized the situation has been improving over the last decade throughout the country. Responsible consumption in Spain is much better than in the U.S. because it is easier to find areas to recycle trash, reuse materials, and compost organic waste.

Recycling

Throughout the cities of Spain, there are different bins for different types of waste. Blue bins are for paper and cardboard, green bins are for glass, yellow bins are for plastic, and orange bins are for used cooking oil. This separation of waste is beneficial since it makes it easier to recycle items; all of the trash is properly separated, unlike recyclables in the United States, so people actually know what can and cannot be recycled. There are also areas to throw away batteries so that the liquid can be correctly disposed of without damaging the environment. Additionally, these sites are numerous. We saw locations to recycle all the types of waste



Image 17: The different types of bins used to separate recyclables

mentioned above in many of the cities we visited, meaning Spaniards have easy access to proper recycling techniques. To be brutally honest, the United States does not compete with Spain's sophisticated yet easy to use recycling system. Recycling is simply a required part of life for the Spanish population.

Compost

In Spain, there are many areas to throw away organic waste. This waste is then composted and used as fertilizers or biodiesel. Caroline's host family even had a special bin where leftover food and other biodegradable items were properly disposed of in order to minimize waste⁴⁰.



Image 18: A location to dispose of organic waste in a Spanish city

Reusing



Image 19: A jar to collect used cooking oil in our hotel room in Guadix, Spain

Many people reuse items rather than just throwing them away or recycling them. This is better for the environment because no resources are needed to repurpose items. One substance that is commonly reused in Spain is used cooking oil. It is frequently repurposed as soap or as biofuel; this process protects the environment since cooking oil that is not properly disposed of poses a threat to local ecology. Clothing is also frequently reused. Many stores in Spain, such as Zara and H&M⁴¹, have bins where people can leave their old clothes. The companies then reuse and recycle the old clothing to ensure that none of the garments end up in landfills.

Landfills

When you can't recycle, reuse, or compost an item, you have no other option but to throw it in the landfill. Spain had been trying to reduce the amount of waste disposed of into landfills and has been somewhat successful over the past few years, but there is still a lot of work to be done. Spain is struggling with meeting the regulations of the E.U. for its landfills, and many have failed inspections in the past⁴². In addition, landfills are affecting local bird populations. Some stork species have even stopped migrating north during the summer since there is plenty of

⁴⁰ Kajzer, Caroline, et al. "Interview of Caroline's Host Family." July 2017.

⁴¹ Jones, Jessica. "Zara Goes Green with Cast-off Clothing Recycling Bins." *The Local*, The Local, 12 July 2016, www.thelocal.es/20160712/zara-goes-green-with-recycling-bins-for-cast-off-clothes.

⁴² *SUSTAINABILITY REPORT IN SPAIN 2016*. Rep. Observatory of Sustainability, June 2016. Web.

food in the landfills; unfortunately, this food does not meet their nutritional needs, harming the bird populations in the long run⁴³.

Effects of the Economic Crisis

During the economic crisis, the production of waste decreased in Spain. Abhita's host mom gave us one explanation for this trend. Before the crisis, many people and supermarkets threw away food at the "Best Before Date," even though the food was still safe to eat until the "Expiration Date." However, during the crisis, people realized that they could save money by eating the food products until they were expired. Due to this change in consumption, the amount of food waste in Spain has decreased⁴⁴.

Overall, Spain has been doing well with responsible consumption and production. People have been recycling, composting, and reusing more over the years, so the amount of waste going to landfills has consequently decreased.

UN Goal #13: Climate Action

Regardless what the OS may say about Spain in terms of climate action, if we learned anything from our experience abroad, it's that the climate in Spain is becoming far more extreme than in the past, and the population is very concerned.

Wacky Weather

During the five weeks we spent in Spain, we encountered some crazy weather. The night we landed, we experienced a thunderstorm in Madrid, which is very unusual for that area during the month of June. In the following week, temperatures stayed in the 70's, which again, is very odd for that climate, which normally consists of

temperatures in the 90's during that time of year. When we arrived to Granada, we faced quite the opposite. We lived through the hottest day on record in Granada. It reached 46 degrees



Image 20: A SnapChat taken by Abhita, showing the temperature in a rural area in southern Spain

⁴³ Bawden Environment Editor, Tom. "Storks Give up Migrating to Binge on Junk Food in Landfill Sites." *The Independent*. Independent Digital News and Media, 15 Mar. 2016. Web.

⁴⁴ Moorthy, Abhita, et al. "Interview of Abhita's Host Family." July 2017.

Celsius, or about 114.6 degrees Fahrenheit. There were several consecutive days where temperatures climbed above 110 degrees Fahrenheit. Our host families kept telling us how crazy the weather has been and how temperatures that high are NOT normal.

So What Are They Doing About It?

To be honest, we did not see much direct action from the state to battle climate change when we were in Spain. The nation has taken moderate action to combat global warming with the use of public transportation, renewable energy sources, and the conservation of water, but never did it seem like the country was directly addressing the conflict. When talking with locals, they all seemed to agree that climate change was a major issue. In fact, many told us that the United States is crazy for leaving the Paris Agreement. When Caroline told her host family that there are plenty of people in the United States that don't believe that climate change is real, they were astonished and peeved. They told us that they were watching Spain's climate change right before their eyes and that it was absurd that people refuse to believe in events that are happening right now and that have scientific proof. The U.N. predicts that the temperature of the coastal waters around Spain will rise anywhere from three to five degrees Celsius by the end of the 21st century, which would be detrimental to ocean life and coastal communities⁴⁵. The news sources in Spain preach it and the Spanish population seems to believe that it is critical to take action, but honestly, from what we saw during our stay, it seems like the Spanish government could take stronger action to fight climate change.

In terms of carbon emissions, the Spanish lifestyle, especially in cities, relies heavily on walking, and if one has to travel long distances within a city, the public transportation system is very well-developed. However, most families have a car if needed. Many industries still emit a large amount of carbon emissions, as we observed passing through the Spanish countryside. Overall, it seems like climate change is a topic taken seriously by the Spanish population, but it appears that the government could take more steps to combat it.

UN Goal #14: Life Below Water

We did not learn much about fishing in our classes, but according to the OS, the sustainability of fishing in Spain is decent. When we were in San Sebastián, we observed many kids fishing in the estuary, so it seems like there are plenty of fish in the sea. Furthermore, the conservation of coastal and marine zones has increased in Spain. There is a Network of Marine Protected Areas of Spain (RAMPE), according to the report⁴⁶. We visited many of the coastal areas of Spain, including the beaches of San Sebastián, Barcelona, Calahonda, Malaga, and Tarifa. In all of these cities, the coastlines and facilities were extremely clean, even with the hordes of people on the shorelines. The water was also extremely clear, which indicates low levels of water pollution at the beaches. Although enjoying the Spanish oceanfront is extremely popular

⁴⁵ SUSTAINABILITY REPORT IN SPAIN 2016. Rep. Observatory of Sustainability, June 2016. Web.

⁴⁶ *ibid.*

around the nation, there is still a high level of conservation to protect these areas through the implementation of sustainable tourism.



Image 21: La Concha: San Sebastián's main beach

UN Goal #15: Life on Land

Spain in Ashes

During our time in Spain, forest fires flourished around the region, one of which even threatened La Alhambra, which is the most significant attraction and monument of Granada. There was also a forest fire in Portugal that killed about 60 people. The drought in the southern part of the Iberian peninsula is major catalyst for these forest fires and is believed to be bolstered by climate change. Moreover, in our class on Spain and the E.U., our professor told us that sometimes, forest fires are started intentionally for economic gain. It is prohibited to build new buildings on protected areas, but if a plot of land burns down, then people can build and develop there. This has led to widespread incidents of arson in order to gain permission to build on once-protected land⁴⁷.

⁴⁷ Montes-Alcala, Cecilia. "Spain and the EU." 2017, Madrid, International House.



Image 22: La Alhambra

In our class on Sustainability in Spain, we studied the different types of protected areas. The E.U. and EEB published in their report that the quality and management of the protected areas of Spain is not very good; however, based off our adventures, it seems like Spain has exerted a great effort to protect more areas of the country that are unique or are in danger. We studied the differences between the classifications of the different protected areas. The first is a *National Park*, which represents a principal Spanish ecosystem and receives protection from the state. A *Natural Park* represents the coexistence of humans and nature and is often a mountainous area. Rural tourism is usually important for the area's economy. A *Natural Reserve* is protected because of its uniqueness and rarity. It has the highest level of protection because its size has been reduced due to human activities. A *Natural Monument* is a geographic formation that is considered beautiful and/or unique. The last type of protected area is a *Protected Landscape*. This area has aesthetic and cultural value and represents the relationship between culture and nature. It has the lowest level of protection because its preservation depends on human inhabitants⁴⁸. Although many of these classifications seem very similar, it is important that Spain differentiates among and maintains these different types of protected areas. It demonstrates that they are trying to protect their unique landscape for future generations to come.

UN Goal #16: Peace, Justice, and Strong Institutions

Corruption

Many Spaniards believe that there is a high level of corruption among the political institutions in Spain. During our interviews with locals in Granada, we noticed that many blame corruption as one of the causes of the economic crisis; therefore, the Spanish population lacks trust for its government. While we were in Spain, we watched a story on the news concerning a government official who was charged with corruption. He knew he had no chance of winning his case, so he committed suicide. We complain about corruption in the U.S. government, but after

⁴⁸ Comfort, Kelly. "Sustainability in Spain." July 2017, Granada, Universidad De Granada: Centro De Lenguas Modernas.

spending time in Spain, the corruption in the United States seems minimal. Caroline's host family claims that the corruption stems from the Franco regime, and although it is getting better, the progress is slow⁴⁹.

Environmental Awareness

The level of environmental awareness is very high in Spain; however, according to the OS, Spain is one of the countries that recycles the least. Nonetheless, in class, we determined that it has a very high recycling rate. We even did a project on recycling and reusing, and we identified Spain as one of the best countries concerning this topic. Therefore, we have to disagree with the OS's report since we found Spain's environmental awareness to be far more sophisticated than in other countries we have visited/lived in.

Is Spain Happy?

According to the OS, the Better Life index and the World Happiness Report data have fallen in Spain⁵⁰; however, based on our personal experiences, people seem extremely happy. We heard a saying that people in Spain work to live, while people in the U.S. live to work. This phrase really captures the Spanish way of life. Spaniards work long hours, but they always make sure to enjoy their free time. Like all of us, there are definitely times when they complain, but from our experiences, every Spaniard we met knew how to have a good time and really enjoy the life they were living.

UN Goal #17: Partnerships for the Goals

In 2015, Spain allocated 0.13 percent of its GDP to investment aid and cooperation, which is very low. Instead, it seems as if Spain is the one receiving aid from others⁵¹. One of our guest lecturers in Madrid told us that the E.U. is like a family and that everyone must help each other in times of need. So, other countries have helped nations such as Spain and Greece in order to improve their economic situation. Whether it truly is the responsibility of other strong nations in the E.U. to support struggling countries within the union is still a highly controversial topic.

⁴⁹ Kajzer, Caroline, et al. "Interview of Caroline's Host Family." July 2017.

⁵⁰ *SUSTAINABILITY REPORT IN SPAIN 2016*. Rep. Observatory of Sustainability, June 2016. Web.

⁵¹ *ibid.*

Works Cited

- "About Us." *BlaBlaCar*. BlaBlaCar, n.d. Web.
- Bawden Environment Editor, Tom. "Storks Give up Migrating to Binge on Junk Food in Landfill Sites." *The Independent*. Independent Digital News and Media, 15 Mar. 2016. Web.
- Comfort, Kelly. "Sustainability in Spain." July 2017, Granada, Universidad De Granada: Centro De Lenguas Modernas.
- Gomez, Lola. "Invernaderos." Tour of Crisol Invernadero. Spain, El Ejido. 12 July 2017. Lecture.
- Jones, Jessica. "Zara Goes Green with Cast-off Clothing Recycling Bins." *The Local*, The Local, 12 July 2016, www.thelocal.es/20160712/zara-goes-green-with-recycling-bins-for-cast-off-clothes.
- Kajzer, Caroline, et al. "Interview of Caroline's Host Family." July 2017.
- Marcos, Marcelino, and Pedro Muñoz. *España: Ayer y Hoy*. Pearson Prentice Hall, 2010.
- Meunier, Corinne. "About Us." *Umweltbundesamt*. Umweltbundesamt, 06 Sept. 2013. Web.
- Montes-Alcala, Cecilia. "Spain and the EU." 2017, Madrid, International House.
- Moorthy, Abhita, et al. "Interview of Abhita's Host Family." July 2017.
- Saló, Aleix, director. *Españistán*. YouTube, 25 May 2011, www.youtube.com/watch?v=N7P2ExRF3GQ.
- "SDG Toolkit – to Engage European Environmental NGOs at National and European Level on the Sustainable Development Goals." *SDG Toolkit – to Engage European Environmental NGOs at National and European Level on the Sustainable Development Goals*. European Environmental Bureau and The European Union, n.d. Web.
- SUSTAINABILITY REPORT IN SPAIN 2016*. Rep. Observatory of Sustainability, June 2016. Web.
- "Your Key to European Statistics." *Statistics Illustrated - Eurostat*, Eurostat, ec.europa.eu/eurostat/en/web/lfs/statistics-illustrated.

*All photographs were taken by Caroline Kajzer and Abhita Moorthy

**Many of our experiences consisted of quick interchanges with locals. Names of the members of our host families and other individuals we talked to have not been mentioned for privacy reasons.