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South Korea, Climate Action

South Korea- Moving Forward with Development but Leaving Behind a Carbon Footprint

Climate change, it's what everyone has been talking about in the recent decades, all due to the increase in factories, Greenhouse gases (GHG) and many more factors. But as nations continue to develop, there's no stopping them from emitting more and more CO2 into the atmosphere when they are trying to develop and have the technology and industries other developed countries have. But recently, many countries have come up with plans and reforms so that they could have alternatives to the machinery they have now that causes the greenhouse gases and hopefully inspiring other countries to follow their lead. Organizations and agreements such as the Paris Agreement is a deal between the United Nations to reduce the emission of greenhouse gasses and other environmentally harmful wastes in the atmosphere by 2020 which was signed and agreed upon by many countries. South Korea is way behind with this trend though. Even though they are part of the agreement, they fall short with what they are doing and how they are taking action.

South Korea, east of China, west of Japan and south to North Korea. A country that is a home to over 51 million citizens and governed by a democratic government with Moon Jae-in as president. With an area of 38,691 miles squared, 47.4% of the total population lives in urban areas while 52.6% live in the rural areas (Britannica, Trading Economics). Now with the basic info, the capital and most popular city is Seoul. The language spoken in both the North and South is Korean and writing is Hangul. With recent holding of the 2018 Winter Olympics, many visitors came and saw the amazing country and were able to experience a culture like no other. The country has a tie with tigers, the shape of their country on a map is said to resemble a tiger, and have adapted it as their national animal just like America has the bald eagle. South Korea has shown to be a stable country with some problems here and there with North Korea, but besides that can carry themselves fine without the need to be unified with its sister country from the north.

In South Korea, less than a quarter of the land is cultivated and used to grow many crops (Britannica), some of the most popular being rice, Korean pears, persimmons and other popular Asian vegetables. One of the highly-exported item out of the country is its ginseng and has high value quality. The farm sizes however are on the smaller size compared to how much farming and agriculture they do in this country. As of now each farm is at a maximum of 3 hectares or around 7 ½ acres (FFTC). Just like China, South Korea has many rice paddies, all done and harvested with manual labor. South Korea doesn't use machinery to harvest their crops, they would rather use their hands than use something that they would have to buy or fix. Not only are they saving money and not relying on machinery, but hey it helps keep people active, fit and have something to do.

South Korea's climate in the summer time can be described as very hot and humid, temperatures can range from 73 degrees to 75 degrees Fahrenheit (World Weather and Climate Information). The winter on the other hand can be described as very cold and dry, temperatures ranging from 23 degrees and 27 degrees Fahrenheit. The climate is otherwise temperate with summer monsoon seasons that are three-fifths of the annual precipitation when in total year-round they could get 35-60 inches of rain (WWCI). During the spring, they have an amazing showcase of cherry blossoms in bloom and in fall they celebrate a massive harvest holiday called Chuseok. But recently Japan has had their iconic Japanese cherry blossom trees bloom in October instead of late March early April. This is due to warm temperatures that come with typhoons during typhoon season in the summertime but came a little later due to climate change and "confused the trees" with the warm weather (Livni). Since both South Korea and Japan are relatively close regionally, why can't the same events happen to the cherry blossoms in South Korea in the future? Not only should we be concerned about our environment, but also our farms and how climate change affects our food in a negative aspect.

When you look at the average family in South Korea, the typical family size is three or four per household. The typical family diet is kimchi, a well-known popular Korean dish, vegetables in many different varieties, and fish, making the country number one for most consumed fish in 2017(Undercurrent News). Just like here in America, families go to super markets and food markets for their food, or for the farmers, they grow and or raise it themselves. Some of the popular ways of cooking in steaming the vegetables and grilling the meats. However, as climate change increases global temperatures, food production is impacted and so will the diets of everyone.

From an interview from my Grandma who was born and raised in South Korea, she told me that where she is from, Busan, they have a huge fishing industry. I mean on an average day, they could catch up to 880 tons of fish, that's a lot (Busan Metropolitan City). She grew up having a farm and raised chickens. Recently in September, she went back to visit her hometown and had explained to me that Busan was now the second most popular city in the country, unofficially the second capital. Now looking at Busan, it has become a huge tourist attraction and busy city just like the capitol Seoul. She described her town with having a huge nuclear power plant right on the shore and as mentioned before, has a lot of seafood.

With all this advancement in life and how the people live, makes you wonder how they are still a developing country. But when it comes to actually saving the Earth and helping give back to Earth without farming, they fall behind the other countries. The country them self had greenhouse gas emissions up 137% from 1990 to 2015 (Pulse). Even though it doesn't affect everyone directly and suddenly, imagine being a farmer, relying on your harvest every season for money and food then all of a sudden, your crops aren't growing correctly or worse don't grow at all. Even worse case scenario when your crops don't even grow because of the weather so the local markets you supply can't get food to then provide customers with food, you see the domino effect? Luckily it wasn't till recently in July of 2018, did the president, Moon Jae-in come up with new plans to go along with the Paris Agreement and before that December of 2017 had

plans to increase the use of renewable energy in the country (Climate Action Tracker). But their July plans are still low projections for the agreement. Their commitments towards climate action are labeled as highly insufficient and if all policies follow theirs, then global temperatures would rise by 35 degrees Fahrenheit to around 37 or 39 degrees (Climate Action Tracker). Now is this making sense? By 2020, Moon Jae-in wants the countries emissions to peak and not go over their projections, he wants the country to start reducing their CO2 emission and other harsh wastes so that, just like other countries, they can start to resort to more renewable and cleaner energy by using their new and advanced technology.

One way we could help prevent CO2 and GHG emissions is learning to use a less gas required form of transportation (Brave New Climate). Public transportation in South Korea is a big thing, just like in Japan. The amounts of oil that is used to power cars is both costly to obtain the material and a pollutant to the air. South Korea has however stopped imports altogether from Iran of crude oil in November of 2018, which they used to get 300,000 barrels of it that costs around $16,188,000 when each barrel costs $53.96 (Index Mundi). The average gasoline car emits about 404 grams of carbon dioxide per mile (EPA), and multiply that by the distance it takes from your home to your work/school, then multiply it again by everyone who is also on the road and going the same places you are, also causing more traffic. Let's face it, using gasoline fueled cars aren't the best solutions when it comes to transportation but is a huge factor to how we can reduce CO2 and Greenhouse gases if we simply substitute them out for cleaner options. The less we use them, the better South Korea is to reaching their plan with the Paris Agreement, even if it means sharing rides and carpooling, anything to reduce the use. We all have co-workers or friends who you most likely wouldn't mind carpooling with if you guys are going to the same place and at the same time. Using electric cars can be better for the environment since they don't always emit all that nasty CO2 (Smarter Energy) but they do however are sometimes costlier to buy than a standard gasoline car. Prices can range from $22,490 USD for a Nissan Leaf to $72,000 for a Tesla Model X (Energysage). An electric car is powered through electricity that is then transferred to the car's battery when plugged into a source. The electricity can be sourced back to a type of energy plant like nuclear, hydro or even solar (Just Energy) and hopefully in the future all traced back to a cleaner energy plant. Even though public transportation still uses some gas, especially buses, taking a train or the subway also helps tremendously. Subway is the most used form of transportation in South Korea (Railway Technology). Subways are powered with electricity that just like the electricity used for electric cars, is used to power subway systems but on a higher voltage of 625 volts (How Stuff Works). Think about it this way, imagine each car on a train can have a 150 people limit, and all those people ride the train every day to work, but that's not the only car on the train, there's 5 more. So, all together there is around 750 people riding the train every day, saving a ton of money on gas and helping to reduce our carbon footprint. Then with gas prices being $1.24 USD per ¼ gallon in South Korea (Global Petrol Prices), you can save a lot of money by switching to green public transit for a small fee of $1.02 or 1150₩ per subway fare. The easiest way for this solution, you could always just ride your bike or walk if your job is relatively close. That way you not only burn some calories, but help your planet as well and saving some money, especially if you live an urban area like Seoul, biking and walking would be easier.

Another way to reduce carbon emission in this country is to is to focus less on oil and coal and more on renewable. Coal technology releases 888 tonnes of C02 (WNA Report) while wind energy releases 26 and hydroelectric releases 26. Wind turbines releasing some emissions with its power grid to help generate the turbine and hydroelectric emits these gases from the man-made dams that help generate the electricity besides the water itself. South Korea uses a lot of fossil fuels, which include coal, petroleum, natural gases and oil, to provide electricity for their citizens, heating for their homes and to power machinery throughout the country (Help Save Nature) which was up to 82.04 in 2015% (Trading Economics). In 2015 before Moon became president, the government had plans to build and operate 13 new nuclear reactors across the country and had even built one right in the hometown of my Grandma, Busan. The country uses way too much fossil fuels, ranking 5th for most emission in 2015 of 585.99 million metric tons of CO2 and GHG (Union of Concerned Scientists). But ways to change would be to introduce renewable energy in different forms. Since they are a peninsula, they can use more hydroelectric energy to power the subway systems, public transit and even the charging ports for electric cars, and because they have so much water surrounding their country, running out of this type of energy is unlikely. The electricity that will be generated from the hydro energy, will be converted so that the electricity the subways currently run on, can be substituted. The cost to install the plant can range from, when converted to USD, $1050-$7650 for a large plant, and a continuing payment for maintenance and additional space after the instalment fee (IRENA). They could use another form like solar energy, they aren't like Washington state where they get cloudy weather for the majority of the year so why not use solar panels on top of building and even make solar panel farms in areas that aren't used. In 2017, Seoul city government was promoting to paying, in USD, $363 for a solar panel on the residents' house, just having the resident pay the difference (Kim Da-sol). If more governmental officials promote greener technology in a way the citizens themselves would want to participate, then can we help reduce the amount of GHG and CO2 emission and reduce climate change.

As South Korea develops into a technologically advanced nation, consideration for their environment and planet should always be included with these developments. With having a highly-advanced subway system, greener forms of transportation is a step in the right direction, even if it does include investing in a electric vehicle, riding a bike, and yes walking. By switching the type of energy transportation is run on now, would save South Korea, in USD, over $16 million that could be put towards funding more cleaner projects. Not only will the money be saved but the amount of car emission will go down tremendously from 404 grams of carbon per mile to hopefully close to none by 2030, if all citizens decide to change their type of car. Another way to reduce CO2 and GHG would to focus on switching to green energy instead of relying on coal, oil and other fossil fuels to fuel and power the country. Many renewable resources include hydroelectric, wind energy, and of course solar. With dedication and hard work towards a cleaner, greener country, South Korea will be able to achieve their projections with the Paris Agreement and help lead other nations into following their footsteps of switching. With South Korea, also being huge on exports and imports, they could influence their partners into doing the same positive change they are doing, to reduce their carbon footprint.

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