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Honduras: The Need for Agricultural Teaching and Reforms

Honduras is the second largest Central American republic, with a total area of about 112,000 kilometers. Though, most of Honduras is mountainous and not being used. The triangular shape of the main part of the country borders Nicaragua on the south-east side, and both El Salvador and Guatemala on the south-west side. To the north of the country lies the Caribbean Sea with the islands of Roatán, Utila, and Guanajana forming the Islas de la Bahía. These islands are controlled by Honduras and are part of the 18 departments it's comprised of. This archipelago also has smaller islands that include the islets of Santa Elena, Barbareta, and Morat. Other islands that are not as close as the archipelago of the Islas de la Bahía, but still under Honduran control are the Islas Santanillas, known formerly as the Swan Islands. A few islands and keys that are closer to the Honduran mainland are Cayos Zapotillos and Cayos Cochinos. Honduras also controls islands in the Golfos de Fonseca, in which the main islands are Zacate Grande, El Tigre, and Exposición. (Merril, 1995)

The population in Honduras in 2010 was 7,600,524; among these, 60% were below the poverty line. (The World Bank, 2012). The poverty line has been defined as living on less than \$1.25 per day. (The World Bank, 2012) The poor conditions the Honduran population experiences are amplified even further because 14% of their population is affected by AIDS/HIV. The Honduras population seems to be well educated for the amount of poverty it has, and this is shown through their literacy rate of 84%, yet this statistic may be inaccurate due to the inconsistency of testing in the rural population and the fact that more than 970,000 students drop out to work with their families. (Organization for Youth Empowerment, 2012) Of the total population of Honduras, approximately 50% is rural. Based on these statistics, a typical subsistence family would be living on less than \$1.25 a day in the country's rural places while only having a minimal or nonexistent education.

Based on surveys and soil data collected from Honduras, only 9.2% of their land is arable, and even that land does not produce high yields due to its low quality. (Merril, 1995) This small amount of land is increasing, but it is causing deforestation at a dangerously high rate that is not effectively using the lumber gained from the forests that are being deforested. This deforestation is affecting the health of their environment negatively by causing ecosystem destruction and more soil erosion, decreasing further the grade of productivity. (Merril, 1995)

The crops they are growing in Honduras mostly revolve around exotic exports that include bananas, coffee, and sugar products. This is due to the large landowners in the country choosing the more profitable exotic exports that sell for more than simple crops like corn and grain in today's market. These large profit crops create employment for people because the exotic crops are higher maintenance than maize or other grains, yet, with the modernization of the agriculture industry, the employment these exotic crops create are quite limited. In contrast small subsistence farmers will usually grow maize or other grains as their main crops. This dichotomy is causing the need for agricultural land reforms. Unfortunately, the reforms that have been promoted have been strongly favoring the exotic export-making corporations and causing difficulties for the subsistence farmers by pushing them out onto the steep hillsides in order to have enough land to support their families. The first reform was in 1960, when the

National Agrarian Institute gave about 1,500 acres of government to the rural population. This land reform was abruptly ended in 1963 when a military coup stopped it. This led directly to illegal squatting which was considered to be the main way that the peasant farmers gained land due to their inability to purchase it legally. These events occurred again in 1972 and 1975, though the second time through these events the amount of land they gave was larger. However it still wasn't suitable for the family size and population of rural farmers that were present at that time. Around 1989 and 1990 the cycle repeated itself again, but this resulted in violent uprising against government officials. And then in 1992, a new agricultural reform allowed peasant farmers to break up their plots and sell them, causing many poor and failing farmers to sell their plots to bigger banana plantations, thus causing a great exodus of peasant farmers from their only arable land. (Merril, 1995)

In the present, more land reforms have been made, but these reforms have caused peasant farmers to be relocated to the mountainous, steep parts of the arable land, while the banana and coffee plantations have most, if not all, of the valley land, which is considerably better and more effective at growing both basic and exotic crops. The most probable reason for these land reforms is because of the big plantation owners' fear of the flooding of the valleys that they use to grow their exotic crops. By placing the peasant farmers on the steep hills and mountainous regions, they have given them a need to terrace their land in order to grow safe and sustainable crops. This causes the rainwater coming off the hills and mountains to flow at a slower and more controllable pace, which lessens the chance of flooding of their plantations. (Botts, 2012) But the cost of this outweighs the benefits that they gain because the farmers they have forced up into the hills and mountains have little to no education in agriculture, which means that a normal farmer wouldn't use sustainable agricultural techniques normally, which not only causes great amounts of soil erosion and degradation of farmland, but also make the yields of their crops become smaller and less plentiful as time goes on resulting in a poor and underfed subsistence family.

Placing the peasant farmers on the hills and mountainous regions wasn't only done unscrupulously; it was done without care for the environment too. By placing the peasant farmer on the hills and mountainous regions has caused extreme deforestation as mountainous and hilly regions of Honduras are mostly forested. Similar to the 1960's and 70's, Honduran farmers have resorted to illegal squatting, but this time they are using slash and burn tactics in order to remove the forestation from the land, so that they can expand their farming area in hopes that they will make ends meet. This tactic of deforestation is the worst form, since the wood that could be gathered is literally burned to ashes and not used in anyway, and also doesn't expand their earnings in the long run. (Merril, 1995)

A few solutions to these problems include influencing agricultural reforms in Honduras, which is fully supported by the United Nations itself, because the corrupt reforms of Honduras are failing to meet all the human right standards set by the United Nations. (United Nations, 2012) By pushing the peasants off their land, they have broken the human right of food security, because these families do not have the necessary training or land that they need in order to feed themselves with their agricultural pursuits on the hilly and mountainous land they have been forced on to. This breakage of human rights has caused the United Nations to write a Global Campaign for Agrarian Reform in Honduras. This campaign clearly states the goals of the agrarian reforms in Honduras and benefits that it would have, these include reducing poverty, strengthening their government, and overall improving both the lives of these people and the general economy of the world. (United Nations, 2012) To influence something like this the UN could use its ability to suspend a country's membership in the UN or use other methods like lobbying or influencing their leadership for these reforms. Another method would be using a program similar to the Campesino-a-Campesino agroecology movement, which would capitalize on the collaboration of the Honduran farmers

banding to gather in such a way to support their voice in their government, such as a union or farmers association. Campesino-a-campesino movements have developed in other countries such as Cuba with positive results. (Rajiv, 2012) Another, more immediate solution to fix hunger in Honduras, is to target funding for teaching the sustainable agriculture techniques to the Honduran peasant farmers, so that their lives, while not improving drastically by gaining land in the Honduran valleys, will improve by simply gaining better yields and making their land much more sustainable. Now, normally, one would expect for groups of non-profit organization volunteers or other groups along those lines to teach farmers about these techniques, but the barriers and drawbacks of these would be great. For example, the main spoken language in Honduras is Spanish, so all volunteers would most likely need to speak Spanish in order to be effective, thus dropping many volunteers from eligibility. A more effective way of teaching these techniques would be using programs similar to the Campesino-a-Campesino movement. This would unite the peasant farmer's together too, as I said before, which would help create a political voice for themselves. One of these techniques that need to be taught, which is arguably the most effective among them, is crop rotation. This technique would not only improve the yield of their crops, but it would also reduce the amount of pests and diseases that their crops could get. This is because switching between crops year after year makes it certain that a vital nutrient in a crop isn't completely used up, reducing the yields of that crop, but it also remedies the soils loss of that nutrient because the next crop will put that nutrient the other crop needs back into the soil, while the other crop does that for the crop that does that for it. This creates a circle of life that both makes sustainable farming possible but also reduces the pests and diseases that could potentially ruin a crops yield. This happens because most pests and diseases are specific to only one crop and will leave or be terminated if the crop isn't present the next farming season. (Union of Concerned Scientists, 2012) If this simple technique could be taught to even only a few Honduran farmers, it could circulate around their communities and improve their quality of life.

Another technique that can be used that is similar to crop rotation is using a cover crop, which is a crop that drastically improves soil for the next crop. Cover cropping is similar to crop rotation because it suggests using a different crop to improve conditions for another. But in this case they would use the crop they plant as a sort of "green manure". This is because the crops that the technique of cover cropping uses nutrients from the air to mature into their harvestable forms, but turning the crop into a fertilizer by plowing over it before it matures, this takes these nutrients and places them in the soil. (Union of Concerned Scientists, 2012) The most common crops that farmers use to do this are the from plant family Fabaceae, which means that they all set pods, like peas, beans, lentils, lupins, and alfalfa. Using this cover crop will definitely increase the soils potential for high yields and while improving the life of Honduran farmers if it can be effectively taught to them, even though it is more advanced than the simple crop rotation technique. This technique would not be implemented right away, but teaching the Honduran farmers about this technique with the others would help them sustain their soil when they would have the financial resources to purchase the seed.

These two techniques combined still do nothing to stop erosion however, so, even though it's what the plantation owners wanted the Honduran farmers to do, I also suggest that the world target funding on the rural infrastructure of terracing the farmers land, this would improve the soil conditions dramatically if safe terracing techniques are used in an effective way. If we teach, and possibly help, the Hondurans to terrace their land, it would improve their lives considerably because while increasing the total land that the peasant farmers have to plant, also improves the quality and sustainability of their soil by stopping the process of rapid erosion. (Botts, 2012) Those two benefits are great, but one the greatest benefits of terracing is that It also gives the Honduran farmers a stable place to create foundationally sound housing, because making proper housing on a slope is very hard and complex given the common Honduran farmer's access to resources. Lastly, terracing is a fundamentally inexpensive infrastructural

improvement since it is primarily manipulating the soil. This makes it so that even if a small amount of money was targeted towards terracing it would make a big difference in how long it would take to terrace the land these peasant farmers have, making it an achievable and effective way of improving the living conditions of the typical Honduran. A barrier to this might be the lack of physical manpower to terrace, but if the Campesino-a-Campesino like programs were used, it is possible that the farmers would work together on projects like these, thus getting through this barrier with teamwork. If terracing were funded and taught and used in combination with the sustainable agricultural techniques the typical Honduran farmers life would be greatly affected for the better, and will mostly likely increase the number of Hondurans living above the poverty line. Lastly, terracing increases the agricultural safety for the Honduran farmers in the case of a tropical monsoon or hurricane, as was experienced when hurricane Mitch reached Honduras, and practically destroyed all the Honduran farmers had, which wasn't much to begin with. (National Climatic Data Center, 2012)

In closing, what my research has shown is that this is a very solvable problem considering that most of the solutions only need to be taught and have already been thought of, just not placed into action. The good thing about these solutions is that if even one of them would work, it doesn't need to be in conjunction with another to be effective, because they are all effective on their own. However, if they were all utilized it would create an exponential effect on the improvement of the quality of life for the subsistence farmer in Honduras. I also find that these solutions would be almost resistant to things such as structural shortfalls, (except for the agriculture reforms), lack of capacity, conflicts and natural disasters, and several emerging challenges because they are mostly simple and easy to teach, especially through campesino-a-campesino type movements or programs for the Honduran farmers. These changes can be made by simply spreading the word about them, and that if one of these things would happen, the teaching done would not be destroyed since people themselves would pass the information down through generations. If the small farmers in Honduras come together to teach each other they may find a collective political voice to help make changes in land reform. As the Chinese proverb goes, "Give a man a fish and he will eat for a day. Teach a man to fish and he will eat for the rest of his life."

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