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Philippines: Developing a limited diet into a nutrient rich one.

The archipelago known as the Philippines is home to over 100,000 people. The country is located in Southeast Asia and has about 4,000 islands inhabited by humans. Out of the all 7,107 islands that are The Philippines, only about half are lived on because not all of the islands have the recourses for survival. Food is a major issue in The Philippines. Another issue is the Filipino people faces a problem of an incredibly fast growing population with a 20 precedent increase was seen from 2000 to 2010 in the 2010 Census of Population and Housing. That's about 15.8 million people more in 2010 than in 2000. Having to produce enough food for such a high number of more people has made many Filipinos go hungry as well (www.cencus.gov). The scary part is that citizens are continuing to not be undernourished, with the exclusion of protein in their diets the normal diet turned out to be very short of nutrients and energy (ww.fao.org). Almost half of all deaths reported of infants and children before the age of four are related to malnutrition, according to the Philippine Ministry of Health (www.ncbi.nlm.nih.gov). In addition to malnutrition the people are living in poverty, therefore they do not have enough money to buy better food for their families and themselves. Half of the country's people are living in rural areas, where the poverty is the most extreme and where about eighty percent of The Philippines poor live with in rural areas where unemployment is high (www.ruralpovertyportal.org).

Farming employs thirty percent of the population in The Philippines. The most popular crops to grow for farmers are coconut, rice, maize, and sugar Cane. These farmers also do some exporting with tuna, pineapple, coconut oil, bananas, tobacco, and seaweed being top exports. The size for a typical small farm would be 1.0 to 3.7 hectares, equivalent to 3 to 9.5 acres, opposed to a larger farm where they have 10 to 20 hectares, equal to 25 to 51 acres. The larger scale farms would be the ones making more money because of the larger yield to sell.

The households where the rural farmers live normally consist of 4 or 5 family members. The amount of rural children that get to have an education with free public schooling however is not all of the children in the family if any of them get to; almost 40 percent of rural parents do not get the privilege of sending their kid to school. The reason these children living in poverty are denied a free education by their own parents is because with the schooling itself being no charge these rural families cannot afford the uniforms, transportation, supplies, and other resources the child must need for school. The families that do get to send their children to school the child may have to walk 2 or 4 kilometers or more, one and a half to two and a half miles every day. In those many kilometers they have to cross rivers and climb large hills. The children that do not get to participate in school are expected to work in their family's fields when it is harvesting time for their crops. Then there is some children who do both, they get pulled form school for the harvesting season and when they are able to go back to school they are very far behind they may end up having to repeat that grade, and then the next harvesting season do the same thing again. By providing a transportation system by either bus or another way or transportation this would break down the barrier that is blocking a lot of these children from going to school. To help with the family farming situation the school could change class times to night, or other times that would not interfere with their working on their farm. This would create a way for the children to stay on track and to not fall too behind during this season.

Rural people's access to healthcare is very limited. Three in five people that die when illness strikes without even being able to see a doctor according to the University of the Philippines National Health Institute. Since the majority or the people living in the rural parts of The Philippines are poor that is

another factor of why they have such limited healthcare. The fact that some families live so far away from health care like some do for schooling plays into the limited access as well. The family children are born into also has a big impact on their survival with infant mortality rate of 42 per 1,000 births in poor families, opposed to 19 per 1,000 births among the rich, according to a concept paper presented at a UP forum on universal health 2009. With about 65 million people trying to live off of 96 pesos (2 dollars per day) or sometimes even less, it is obvious to say they could not afford medical bills even if it was more available to them.

Another potential problem for farming in the future is their income. Farmers average income for a year is p20,000 (490.00 American dollars) equaling out to 2,000 pesos a month (about 50.00 dollars) according to the Bureau of Agricultural Statistics. To be a farmer in The Philippines there is a lot to be asked from the farmer's labor wise as well. To the children growing up on these farms, continuing this life as a farmer is not very appealing to them. Having them growing up poor and the generations before them being poor it does not look like farming will make a good life for them. Many of the children raised on these rural farms are moving into the cities working in shops or other business to have more of a chance at not being poor for the rest of their lives, or at least not as poor. With the majority of famers and fishermen being in their post retirement age (50-75) the farming in the future for The Philippines are not looking so bright. "This is really a threat to our food security efforts" said Senator Francis Pangilinan. This situation holds The Philippines back even more on the way to getting rid of hunger and malnutrition in their country. The future loss of farming will reduce rice production and increasing the need to import more.

Malnutrition creates more problems than people expect. Malnutrition's role in everyday life for the people living in The Philippines is making their bodies not able to work at their best because it is missing many vitamins, minerals, proteins, and amino acids, the organs of the body cannot perform if they do not have them. The bigger problem with these people suffering from not getting enough nutrients would be the children not getting enough, while they are going through big developing periods whether it is their brains growing or any other part of them, it is vital they get adequately nourished. A lot of the Filipino children are acutely malnourished; meaning they are too skinny for their height. Acutely malnutrition can be caused by a decrease in food being eaten or illness resulting in sudden weight loss or both. If a child is acutely malnourished it means a lot more than how it appears; the child being extremely skinny for their height, the fact is that acute malnutrition goes much deeper than that by cause a person's metabolism to slow down, immune system to weaken, Thermoregulation (the ability of an organism to keep its body temperature within certain boundaries) can be disrupted, and the kidney function can be afflicted. An astounding 30 percent of children will die if not treated form acute malnutrition.

Malnutrition's state in The Philippines is very serious for the children five and under. The number of underweight children ages 0-5 years increased from 24.6 percent to 26.2 percent from 2005 to 2008, which are about 3.35 million children. The under height rate increased from 26.3 percent to 27.9 percent, representing 3.57 million children. In more recent studies as of 2012 it was seen that 30 percent of children under age of five were stunted about a two percent increase from 2008. With these numbers of under height children seedily increasing it is showing that the malnutrition is steadily getting worse very quickly and many more children are being malnourished. With having the population in the country increasing at high rates constantly, under height and underweight rates will also continue to increase at the same rate they are now or even more.

Having inefficient farm equipment is a large barrier to the Filipino ability to increase agricultural productivity. According to Philippine Center for Postharvest Development and Mechanization The Philippines has one of the lowest rates of mechanical equipment use in Southeast Asia. Most Filipino farmers use very little amount of energy, and most of their farming practices use animals or themselves to power their plows and other equipment, equaling out to work at about .5 horsepower per hectare. With

such a slow method it is more time consuming than other countries farming practices where they have more of the ability to own tractors and other higher efficient farm equipment. An astounding sixteen percent of all of the rice crops grown there are lost due to their inefficient farming methods and equipment according to the Executive Director Rex Bingeing of the Philippine Center for Postharvest Development and Mechanization. If the Filipino farmers had the more efficient equipment like the other Southern Asian countries they could reduce that sixteen percent loss into a much smaller amount, and would cause them to produce enough rice for their people without importing large amounts from fellow rice producing countries. Farmers would produce more without having to take up more land and without putting more labor into their practices but actually having to do less manual labor than before with their self and animal powered equipment. However these up to date machines can be pricy for a poor farmer, ways they could get the equipment could be to share one with the community and have someone be trained on the up keep of it, another way could be to get a loan for it, with the extra money from the yield that was lost with the bad equipment they would possibly be able to finance it until it is paid off.

Education is the big blockage with Filipinos acquiring jobs at a living wage. All going back to poverty, as children not all kids are able to be sent to school, refer back to paragraph three, because of their need for the children to help out with the farming. However this is hurting the children future more than one would think. With them missing more school and having to repeat grades if they even get to go is continuing to hold them back from getting these jobs that pay a livable wage. According to President Aquino there are many jobs available for the Filipino people, a large amount do not have the skills to do preform those jobs though. Job postings have risen to 230,000, up from 40,000 in June 2010; there were only 117,000 applicants on the Phil-job net website. With that being said it's obvious that if a family cannot provide their young children with supplies they need to go to school, that is free, they would not be able to afford to send or even help send their child to college or post high school education. Just like in America we have a similar problem with having enough good paying jobs but not enough citizens to fill them. To help fill the large gap the Filipino school system must help to get all children going to school, young to post high school, by providing more scholarships and financial support or for some schools just to get rid of the uniform required that would be too costly for the students family. The country helping the students pay for their schooling will help the country later by having the skilled workers they need for their jobs. Also helping the students by slowly getting a lot of them out of poverty and supplying them with stable jobs that can pay them enough to live off of without struggling for food or other necessities they may be not getting now.

If the malnutrition problem in The Philippines was resolved or even reduced it would help the country tremendously. The obvious reasons of being to improve the health of the Filipino people and their children in the future to not have to live in the struggle to get enough nutrients they need to live at a healthy state and for them to be able to grow more.

For malnutrition problems in the country to end the people must take action in steps. The country must take into consideration there needs to be long term ways of action. To satisfy the nutritional needs of the rapidly growing population and generations to come it would only make sense to start improving the crops that grow the food for the Filipino people to consumed, a way to go about this could be by Biofortification; improving a crops nutritional value by conventional selective breeding or by genetic engineering. This method of increasing the nutrients in crops have been used in many crops, but it would seem ideal for The Philippines large quantities of rice intake, which would be an excellent crop to add nutrients to. Like many other Asian countries rice is present in almost every meal for the Filipinos. The genetically modified rice, called *golden rice*, this rice has large amounts of β -carotene (an antioxidant converted into vitamin A in the liver). The vitamin A that is naturally in the rice is not on the part that is eaten, so for the families that don't have much variety in their diet are not getting enough amounts of vitamin A because it is absent in one of their largely consumed food. By starting to grow this kind of rice instead of the regular white rice they grow now it could decrease the amounts of deaths related to

malnutrition by up to 25 percent. The absence of vitamin A in a person's diet has a lot more negative side effects than it may appear; not getting enough vitamin A to benefit a person's eyes. Vitamin A actually plays a main role in maintaining the state of the immune system. Therefore if it is not in someone's diet regularly if at all (dietary vitamin A deficiency) it causes the immune system to become not as strong as someone who does get enough in their diet. It can cause the immune system to work up to 40 percent less productive than how it regularly should be working; causing illness, especially in children and elderly people, thus causing more deaths from a side effect of malnutrition. "Two recent studies in the American Journal of Clinical Nutrition show that just 50 grams (roughly two ounces) of golden rice can provide 60 percent of the recommended daily intake of vitamin A. They show that golden rice is even better than spinach in providing vitamin A to children"- Bjorn Lomborg. Supplementation programs cost \$4,300 for every life they save, fortification programs are about \$2,700 for each person. Golden rice would cost \$100 per person, along with the wonderful effects to the vitamin A deprived people in the Philippines; it is also the way to go looking at it in an economical view. To add to the economical pros using this life saving product, the seeds can be used every returning season by the farmers. However there is another thing to look at with the golden rice, will it be accepted by the Filipinos? The rice eaten in this country is white, not an orange tinted rice, and brown rice is thrown away or used for other things that are not eating it. With this problem there is a way around it; many Asian dishes are already colored yellow with saffron, annatto, achiote, and turmeric (herbs and spices) with these already added to rice the difference could not even be noticed to those eating it. Since the biofortified rice has no taste difference, just different in color it would not cause the Filipinos to be non-accepting of the rice. Along with rice many other plants could be enriched with other vitamins and minerals that are not included in their diet as well, they could enrich wheat, other grains, and vegetables (as scientists have already done with the sweet potato). The Biofortified rice would help the people, rural and urban in The Philippines tremendously.

The PINOY project to help malnutrition in The Philippines could help many more infants if it expanded to other regions. The Department of Science and Technology (DOST) has made an all-inclusive program to relieve malnutrition for kids six to 36 months. The program is based in the poorest communities of The Philippines. They feel it is very important to set their focus on that age group of children because it is "the most critical period in a child's life," according to Science and Technology Secretary Mario G. Montejo. Having inadequate nutrition at this period of one's life can cause side effects later in their life. The first thing done in this program is giving 20 gram packets full of food blends to the children that contain the nutrients they need immediately. There is constant feeding of these packets to the children and training sessions to parents to help improve how much nutrition is being eaten in their homes. Currently the program is in Leyte that is a part of Region 8. The success from this program has helped out the malnutrition for the babies living in that area. Spreading this program to other poor cities and towns would be able to help a very large amount more of infants living in the other poor areas.

In conclusion, the Filipino people would benefit tremendously from biofortification. In addition to the biofortification method the farmers would be able to produce more of the nutrient rich rice with efficient farm equipment. Addressing the malnutrition problem by improving the nutrition of the limited amount of variety in the diet of many rural Filipinos, it would not cause them to pay more for the food or have to change their daily diet and are still able to get the vitamins and other nutrients they need to maintain a healthy state. Also this farming technique will provide the future generations of The Philippines the nutrition they need and will not have to struggle as much with the problem of malnutrition if at all.

Works Cited

admin06. PINOY project of DOST to reduce malnutrition incidence for Filipino infants. Web. 28 March 2013.

<http://pcdsp.gov.ph/goodnews-article/pinoy-project-of-dost-to-reduce-malnutrition-incidence-for-filipino-infants-the-department-of-science-and-technology-dost-has-launched-a-comprehensive-program-to-alleviate-malnutrition-in-children-ag/>

Country profile - The Philippines. new-ag.info. web. 17 march 2013

<http://www.new-ag.info/en/country/profile.php?a=2551>

DAN CHARLES. "Saving Lives In Africa With The Humble Sweet Potato by". Web. 20 March 2013

<http://www.npr.org/blogs/thesalt/2012/08/15/158783117/saving-lives-in-africa-with-the-humble-sweet-potato>

The Human Development Index - going beyond income. Web. 21 March 2013.

<http://hdrstats.undp.org/en/countries/profiles/PHL.html>

Household Population of the Philippines Reaches 92.1 Million. Web. 20 March 2013

<http://www.census.gov.ph/content/household-population-philippines-reaches-921-million>

Janryll Fernandez. "Malnutrition among Filipino kids up". Philippine Daily Inquirer. Web. 20 March 2013

<<http://opinion.inquirer.net/inquireropinion/talkofthetown/view/20100724-282969/Malnutrition-among-Filipino-kids-up>>

Kirsten Bernabe. "Health care beyond reach of poor, say critics". Philippine Daily Inquirer. Web. 18 March 2013

<http://newsinfo.inquirer.net/inquirerheadlines/nation/view/20100413-263926/Health-care-beyond-reach-of-poor-say-critics>

Kristine L. Alave. "Philippine farmers among least mechanized in Southeast Asia". Philippine Daily Inquirer. Web. 20 March 2013

<http://globalnation.inquirer.net/41993/philippine-farmers-among-least-mechanized-in-southeast-asia>

The Philippines: Rural Families, Urban income. Web. 21 March 2013

<http://www.culturalsurvival.org/ourpublications/csqa/article/the-philippines-rural-f>

William Lambers. "Ending Child Hunger: School Feeding in the Philippines". Web. 22 March 2013

<[\](http://voices.yahoo.com/ending-child-hunger-school-feeding-philippines-2473789.html)>