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### **Philippines: Improving Education to Strengthen Farming Practices**

The Philippines are composed of 7,107 islands spanning over 115,000 square miles situated in between the Philippine Sea and the South China Sea. Its main commodities are electronic goods, clothing, coconut oils, and fruits. Farming, fisheries, livestock, and forestry together employ 39.8 percent of the labor force and contribute 20 percent of GDP, according to Encyclopedia of the Nations. Their main agricultural commodity is rice, accounting for 13 percent of the CPI (Consumer Price Index), and 3.5 percent of the GDP (Gross Domestic Product). Because of its large role in the Filipino economy, rice has become the center of agricultural policies. The expansion of the rice industry has slowed down and almost come to a complete halt due to the lack of increased yields and poor farm management; such poor agricultural practices it has led to a large yield gap.

The average family size in the Philippines is just under five members. Traditionally men and women may live with their parents until nearly the age of 25, as children are nearly powerless under the authority of this patriarchal society. Family constructs, however, change in rural versus urban areas. Most farming families will consist of only the nuclear family—father, mother and children; whereas urban families see the extension of many generations of family members living under one roof—grandparents, aunts and uncles. Education is highly regarded in the Philippine culture, mainly because of the difficulty in access to quality schools and materials. A Filipino adult has had only an average of 8.2 years of education, and in most cases shared only one textbook among the nearly 40 students in just one classroom. Those that can afford better education are seen as an elitist and often find themselves overeducated and unemployable for standard jobs. A typical day of meals for a Filipino family would be based around their main staple of rice. Most underprivileged, rural households would supplement the rice meals with fish, shrimp paste and vegetables, making their noon meal the largest. Urban dwellers will also use rice as a staple, eating their main meal later in the day. Consumption of beef and some fruits and vegetables has decreased significantly in the last decade among all classes, most notably in poverty stricken areas. A large number of households do not own refrigerators, so eating habits revolve around fresh foods and those purchased at local markets or home grown.

Farming practices have not changed much in the Philippines in recent decades, creating a threat to the country's food security as well as the GNP. Nearly 50% of the Philippines' land mass of 30 million hectares is in agriculture production. Rice and corn make up more than half of crops, with coconuts taking up another quarter. Rice is the most important food crop, yet the country imports more rice than any other country in the world. Many elements factor into this, but part of the dilemma with the decrease in land production is the Filipino farmer. The average age of the farmer is mid-50s to late 60s. Farm sizes are split between large, medium and small, with 85% of farms only 10 acres (5 hectares) or less. Lack of able farmers—including able farmers with little or no skills—coupled with minimal or no education in good farming practices is a threat to food production. Many farm children are abandoning the family practice, choosing urban living

because they know the likelihood of making any kind of living on the farm is disappearing. The departure of the farmer not only hurts the rice market itself for the Philippines, but makes the task of feeding nearly 100 million Filipinos impossible.

One major barrier to the success of the Filipino farmer is their inability to mechanize farming practices. The Philippines use an average of .5 horse power per hectare compared to Japan's 7 horse power per hectare. Japan's ability to mechanize rice production translates to higher yields and less manual labor; thus, more money in the farmer's pocket. Sixteen percent of total rice output was lost due to poor equipment and inefficient farming methods. Farmers feel reluctant to mechanize farm practices, however modernizing systems can increase production to the points of surplus crops, extinguishing the need for importation while boosting economy and GNP.

A major problem to the quality and quantity of rice production is seed quality. Even though most farmers are using modern seed varieties, they are not using certified seeds and are recycling their own seeds and those from neighboring farms. Only 15% are using high quality seeds, with proven higher yield outputs. The bottom line comes down to cost. If farmers were to use certified seeds, they could increase yield potential. Farmers with non-irrigated land are wary to buy more expensive, high quality seed because of the potential risk low rainfall amounts pose to their crop. Whereas irrigated farmers don't have rainfall concerns and are more prone to buying high quality seeds.

In 2008 the government launched a plan to boost rice productivity in both irrigated and rain fed areas throughout the country, with the view of farmers becoming self-sufficient in rice production by 2013. The goal was to boost yield through the use of small-scale irrigation systems and high quality seeds, better extension services and integrated crop management. Currently, rice does not contain enough micronutrients to sustain a healthy, productive life. Even if more rice was produced to feed the Philippine population, rice still lacks the nutrients sufficient to sustain on its own. The International Rice Research Institute (IRRI) is producing a new breed of rice that contains higher levels of iron, zinc and Vitamin A, which are highly prevalent in micronutrient deficiencies that are common in rice-consuming countries such as the Philippines. The IRRI is continuing research by combining high pest- and disease-resistant crops with high micronutrient content crops, creating a strain with high bio-fortitude that would be acceptable to both farmers and consumers.

Philippine farmers' lack of education not only prevents them from understanding the seed quality challenge, but they are not able to comprehend the importance of proper fertilizer management, improving balanced fertilization and determining the timing and application of fertilizers. Timing and placement of fertilizers are the most crucial factors to increasing yield; many farmers could learn when to apply by using the leaf color chart, proven to attain higher yields and lower their fertilizer cost at the same time. Not only does education inhibit this practice, but the factor of cost again comes into play. Farmers realize it's important, but don't have the money.

The economic restraints of raising production do not stop at seeds and fertilizers. Since most farming communities lack the infrastructure to dry and store rice, they must sell it during harvest time at a reduced price to rice wholesalers. If farmers are lucky they can sell it to the NFA,

where it is mixed with lower cost imported rice. It is then sold at a cheap price to poor families. The lack of high quality roads affects the transport of rice and hinders the rice trade.

Where does the cycle stop for the Filipino population to understand the importance of education and the relationship it has with success in the farming industry? Even after public schools announce that public education would be free, most schools still demand tuition even though poor students cannot afford to pay. The government allows those children to be forced out of the education system and into labor- intensive jobs, like those on sugar cane plantations, where they cannot progress in the workplace. These workers know advancement and any kind of education is out of their reach, yet they cannot afford to leave these jobs.

This is where the government has to step in and create programs in education that put an importance on, not only a model of academics for children, but a need for education standards to improve the quality of living: farming. Just as Franklin Delano Roosevelt did during the Great Depression, The Philippine government needs to implement a series of recovery programs like the WPA, the NFA, the AAA and the REA. The government needs to create places for farmers to meet and be instructed on how to improve their farming methods such as our local programs like Iowa State Extension. Programs like this could help boost the infrastructure, raise family annual income, lower the unemployment rate and give the country better transportation and control over the price of rice: cutting out the middleman, preventing wholesalers from establishing low prices and reducing the need for the NFA and imported rice.

The first step is to change the way the government views education. Education must be seen as a right and not a way to create division among the people. One way to begin this change is to take a serious look at countries that are models of education around the globe. Finland ranks among the top in education, where teachers rank in the highest of career fields alongside lawyers and doctors. Looking at new trends in teaching practices of hands-on and conceptual teaching, like in the United States right now can not only keep children in school longer in the Philippines, but can utilize schools to focus instruction on good farm practices, giving students the necessary tools to educate their own families in modern practices and new technologies. The government spends only 17% of their national budget in education. Increasing their spending in education, instead of importing rice from other countries can have lasting effects in the agriculture industry and the education system.

The gap between farming practices and the quality of education in the Philippines is remarkably small. Both rank among the lowest in economies across the globe. For the typical Filipino family, the struggle with getting a solid education and making money as a farmer become one in the same. Lack of money prevents the average family from going to school for more than eight or so years; that lack of education cycles itself into lack of knowledge of seeds, fertilizers, farm practices and modernization—all coming to a complete halt. The government needs to step in and take some ownership in the reasons for the failing economy, and the reason the country cannot sustain itself and has the need to buy and supplement its largest crop with imported grain. A country that was once a model of education for other farming communities is now in need of a model to keep the Filipino farmer from extinction. The education system seems to be the one in the line of fire, but it goes deeper than that. An entire classroom sharing one book? One teacher for as many as 40 or 50 students? Where are the standards set in place by the government to

oversee that children have a primary education and one that prepares them for global learning. It's clear that schools are in need of assistance and it's clear that the government is in need of assistance when it comes to regulating practices, that in the end, will make a better climate for the people of the Philippines. Food is a basic need. When Philippine farmers cannot even grow enough to feed their own people, a problem exists. When the country that is the world's 8th largest rice producer needs to import rice, mix it with their own substandard crop, then sell it back to it's own population, a problem exists.

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