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Philippines: Mission-Got Milk?

Water and food are the top two resources that a population needs in order to sustain itself, and without it, not only will the economics crumble and the government go corrupt, but the population would diminish. Bringing food and water to such vulnerable populations is in the hands of those who have its abundance and unselfishness in their power and wealth. The Philippines is a country where some of the food stocks do not reach the demand and imports or foreign aid help in the hunger crises. The Philippines has a large population for their small land size, thus it is quite dense and hard to maintain enough farmland to sustain a growing country where large families are traditional and multiple children are the highest wishes from the grandparents. To feed such a dense population on mountainous islands is difficult when mountain sides offer little area to harvest anything but rice in the carved patty fields. Although rice is the main staple in the Filipino diet, milk and other dairy products also contribute as drinks, ingredients in desserts, and snacks. Currently about 75% of raw milk is imported from dairy-strong countries, increasing the price of these product to Filipinos and decreasing the amount received to poor and hungry families (Gamboa). Because of its high nutrient value and its role in supporting growing bodies, milk and other dairy products should be increasingly produced and processed locally in order to lower the local prices and feed the local community with its valuable nutrients and bone-healthy foods. Increasing the production of dairy goods in the Philippines by growing the quantity of Filipino dairy farms, families will have easier access to nutritious food, the local pricing of dairy goods will decrease and the local economy and money flow will surge.

In the culturally wrapped Philippian islands one of the most important pieces of their unique culture is their family relationships. Unlike the separated family units in America, the Philippines bundle their close family and distant relatives under the same rooftop, participating in everyday activities and lavish cultural celebrations together. The close family usually consists of two parents and multiple children, but because of the extension of family ties to distant members, there may be a larger number of individuals in one Filipino house (*Cultures of the World: Philippines* 62). These individuals are usually not seen as separate beings, but rather as parts of the whole family. An aspect of the home life that is savored is the family's shared meal times. These occasions are great times to catch up on the family's affairs, invite friends or neighbors to socialize with or just a wonderful time to connect with one's soul, for the Filipinos believe that: "food not only feeds the body but the soul as well" (*Cultures of the World: Philippines* 121). Most Philippian cuisine consists of rice, fish, other assortments of meat, vegetables, coconuts and coconut milk, fruit, and sweets. Overall the Philippian diet is quite bland except for the occasional salty dish or sweet dessert (*Cultures of the World: Philippines* 117). For their drinks, Filipinos drink mainly milk, fruit juices, spirits (mostly at celebrations) and water. Filipinos drink so much milk that their annual import is over 300 million kilos! (Gamboa). Apart from the home life, Filipinos place high standards on their education and literacy. Elementary education lasts six years before students receive secondary educations after the age of 12 and even later, a college education (Sexton 41-42). 95% of Filipinos are literate and are able to write and a total of 80% of Filipinos above the age of 13 attend secondary schooling (Sexton 41-

42). Aside from education, rural families in the Philippines are receiving a growing amount of reachable healthcare. Paramedics are sent to rural areas to treat and educate the rural populations; some specialized doctors are even trained to work in rustic, farming communities (Sexton 42-43). Generally, the rural population in the Philippines has adequate healthcare, high rates of education and large family sizes.

Farming takes up the largest portion of the Philippine labor force and exports because of their unique tropical harvests (Sexton 60). Utilized farming land covers approximately 25% of all of the land in the Philippines, and 66% of that portion is used to cultivate rice and corn. This self-abundance of rice is an important staple to the Filipino diet and to the sustainability of the country, for it was only recently they relied on the imports of rice (Sexton 60). The divided agricultural land has multiple plot sizes from the large robotic plantations to the small family farms. On such fertile land there are multiple crops grown for both export and self-sustenance. Most of the successful crops include: rice, corn, sweet potatoes, cassavas, bananas, mangoes, coconuts, sugarcane, rubber, tobacco and pineapples (Sexton 60). Agricultural practices include small family farms with wide ranges of crops, large plantations specializing in profitable crops and livestock and land divided among several families wishing to grow harvests for the family (Sexton). Only about 1/5th of the croplands is irrigated because of the landowner's lack of funding and pesticides and fertilizers are also used on the dependency of financials ("Philippines-Agriculture"). Of the fertilizers used, most are chemical based, with an ever-growing awareness of the importance of organic fertilizers vs. the chemical ones ("Philippines-Agriculture"). These financial limitations and the lack of opportunities to practice sustainable and environmentally-friendly systems limit the improvements of agricultural productivity and larger wages or profits. Generally, without the abundance of fertile lands, intensely populated ocean reefs and unique tropical crop yields, the Philippines would not have as static of profits in exports and the sustenance of its rice yields.

In the Philippines the largest portions of agricultural profits are in the realms of aquaculture and crop production ("Philippines-Agriculture"). Although there can be successful harvests with abundant yields, this profit is not always guaranteed or static to the farmer and his family, but, on the other hand, there are other agricultural practices and implements that are more stable and year-round compared to the harvest's annual yielding. Animal agriculture can be one such stable agricultural practice. Presently, animal agriculture is not revered as a highly-profitable implement of the agricultural land in the Philippines, and thus is less common than the revered rice or staple crop farming (Lagman). Although it is a necessary component of the Philippine agricultural community, the products of animal agriculture are primarily import-based. For example, at one point three out of four glasses of milk (75% of the milk purchased) originated out of the country, and although today that number has decreased the imports of dairy products are still in the majority (Gamboa). Because of the importation of this milk and other dairy by-products, the prices of such commodities may increase past the family's budget. On the other hand, presently there has been a slight increase on the use of animal agriculture in the form of dairy production but there are still areas for improvement, new and efficient ways of management and higher nutritional bonuses to be gained from the Philippine dairy industry. If practices are enhanced then there may be a larger draw toward this industry and thus the dairy sector will grow even faster than previously so. When the importation of dairy products is dropped due to high in-country production, the costs will decrease and budgets can afford such pleasures and dairy farmers will gain more stable profits.

Dairy farming is a form of husbandry that provides “harvests” of milk year-round, culled beef when the cows are aged, yearly stocks of replacement heifers, bulls and steers, and an easy translation from pasture grasses to meat, milk, milk by-products, hides and calves. Overall, if a select amount of farming families switch over to this industry, then they will receive more stable incomes, an increased variety in the products produced (i.e. milk, meat, hides, etc.) and quality milk straight from the cow for a healthier, growing family. If these farmers raise their dairy cows efficiently and sustainably, then there will be a steady cycle of milk, calves, and fresh pasture. One of the largest pieces of raising these dairy cattle is their grazing lands and the sustainment of them in the environment. Philippian land is highly fertile because of its volcanic ash so growing quality pastures should not be too difficult (*Cultures of the World: Philippines* 34), but the practice of pasture rotation should be highly encouraged in order to keep all of the grazing land healthy. If pastures are rotated then the grass in separate pastures will be given stress-free time to grow back, large herds can be separated to organize certain cattle by age, health or lactation cycle (or lack of), and the ground on hills or preferred resting locations will not be eroded as quickly or as easily. Thus, theoretically, when the Philippine farmers use these efficient and environmental methods, then their farms will have less of an impact on the local environment and the farm cycle itself can be renewed easily.

The next largest factor in considering the implementation of a dairy farm (or a growing number of such) is how they will impact the economics and poverty levels in the Philippines. Recently, the Philippines was importing 300 million kilos of milk and milk by-products a year and three in every four cups of milk purchased were imported (Gamboa). Increasing the amount of productive dairy farms in the Philippines will increase the amount of locally produced dairy products and decrease the quantity imported, thus lowering importation spending and increasing local profits to the dairy farmers and production staff. The milk will then be local and less will be spent on its transportation, thus the prices for the direct products will decrease for the common consumer. According to Vivien Knips, who studies global dairy industries, countries with highly fertile land such as the Philippines and Australia have larger quantities of natural pasture lands, and thus expensive cereal grains will not be needed to feed the cattle, thus lowering the cost per head and further lowering the price of the products (13). When the prices are lowered, more consumers will be able to purchase the goods to feed their family with nutritious food that help to sustain healthy growth and body maintenance. The consumers, producers, and manufacturers will all be within the Philippines, and when a country holds a monopoly over its personal industry, then the money flow within will flourish and help to diminish poverty and other dismal conditions.

Although animal agriculture is a large piece of the health of a country, other issues also affect the country as well, like: its climate change, pollution, malnutrition, etc. These factors also mix into and indirectly control, or are controlled by, the animal agriculture portion of the community. Presently, the largest booming issue around the world is climate change and the effects of greenhouse gases in the atmosphere on urbanized populations and on the climate around other populations. In relation to animal agriculture, climate change can alter its full course by depletion of grazing lands in droughts, lack of natural streams in droughts, flooding of pastures, damage to fencing, and the lack of grain due to flooding or droughts. If the climate changes this drastically, then portions of the animal agriculture in the affected communities will plummet and the price of the products skyrockets. Pollution acts under the same principles as climate change, except it may directly affect the drinking water, pasture grasses, hay and grain that are fed to the livestock. Polluted waters in pasture streams can lead to infected or diseased animals and the spread of

supposedly “quarantined” and fatal diseases to other large herds downstream. Pollution, whether it be disease related, fertilizer runoff related, or waste related, can and will directly affect the health of the entire herd of livestock, and in extreme or un-supervised cases, the human population as well. Malnutrition also is in close relation to the animal agriculture because a large part of the animal agriculture sector is its edible products like dairy, meat and eggs. If the animal industry has strong roots, healthy animals, and natural practices, then the products consumed by the population will nourish them. Also, if the country holds the monopoly over a sector like the dairy industry, the prices of such local products decline and families in poverty will be able to afford more to feed their families.

In order to reach the goal of feeding more Philippine families on a better budget, multiple tasks should be addressed in order to heighten the success of the Philippine dairy industry. The first point to begin toward the industry’s growth is educating those that will maintain the industry like: veterinarians, dairy farmers, hay and feed suppliers, product manufacturers and animal reproductive specialists by providing extension programs from our own successful universities. Once they gain enough support and plenty of educated staff, then the next phase is to set aside fertile land to the farms or, if the farmer is interested, set aside older crop fields, both for lush pasture land, barns and milking parlors. Because cattle are generally indiscriminate eaters and we can provide technologically modified seeds, forests can be equipped with shade-adapted grass which may be used without deforesting the area. With land received, careful planning of the farm and pasture’s layout should be considered before building on (or remodeling) the land. Although spacious barns with tiled milking parlors would be spectacular, the starting architecture should, at a minimum, be sturdy and able to protect and carry out the basic needs of the farm. Finally, the livestock are the last portion of the “production” side to fulfill. Currently there has been intense work on the artificial insemination (AI) of or transferring of embryos into surrogate mothers in beef cattle lots (although this could possibly be used on goats and carabaos too), this should be continued in order to provide the base population for the dairy herd (Gamboa). Because the Philippines are tropical islands, careful planning should be considered when planning which breeds to use in these processes. One example would be to cross a Brahman and a Holstein so that a) The product produces a lot of milk, b) If it is a bull/steer it’s meat is still valuable, and c) the Brahman blood it will have helps it to remain healthy in humid and hot conditions.

This last piece is essential to the dairy business in that simply; if there are no lactating livestock then there will be no milk. Training people in embryo transfer or AI will help to spread the talent far enough around the country in order to initiate the growth of small dairy herds. Surrogate mothers in beef herds should be identified and utilized before their culling date, or, if possible, they could be removed from the feedlot and used in the cow and calf crop services. In this part, it is vital that current beef and dairy farmers, along with AI and embryo transferring specialists, and new dairy farmers cooperate and combine their practices to jump start the new dairy herds.

In addition to the farmers and their families, other families in the community and other elite groups are also crucial contributions to this goal. In the local community, emphasis should be placed on buying locally produced milk and dairy products in order to financially support the farms. The farms should also place importance on buying local feed and hay to support the rest of the cycle of consumers and producers. In every situation the main key in starting is money, and thus the elite communities shall be enrolled in financial support and educational aid; the Philippine government could place some of the

money towards the growth of local farms instead of large imports. Lastly, as the Philippines may not have the physical resources of successful embryos or semen for AI, the dairy savvy countries like the United States, Japan and Australia could contribute a starting stock of embryos and semen to kick off the dairy herds and produce genetically and productively sound herds of dairy cows in the Philippines.

Although dairy is not the main staple in the Filipino diet like rice, it is an important part of raising healthy, growing children and maintaining healthy bones and teeth. The Filipinos use milk and dairy products in multiple dishes, desserts and drinks so although it isn't the main course, it is a valuable resource in every other dish. Some families, though, are not receiving the nutritious bonuses of milk because of how expensive it is due to its importation, thus it is essential that we increase the number of local dairy farms in the Philippines. When the number of farms is increased and the transportation of milk and other dairy products is decreased, the price of the goods depletes as well, providing a gate for the poor and undernourished families to purchase the valuable food. Overall, the growth of dairy farms in the highly fertile lands of the Philippines will economically stabilize families, provide healthy resources to the hungry, and raise the economic flow around the Philippines.

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