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Burma: Agricultural Sustainability through Policy and Technology

Myanmar, a country in Southeast Asia with a population of 54 million, borders the Andaman Sea, Bay of Bengal, Thailand, and Bangladesh. With a total area of 676,578 square kilometers comparable to the size of Texas, Myanmar is also home to a bountiful number of natural resources including timber, petroleum, jewels and coal just to name a few. Located at 22 degrees N, 98 degrees E, Myanmar is very close to the equator and has a humid climate (World Factbook, 2012). Summers are rainy, hot and humid while winters are mild, less cloudy, and with scant rainfall. Because Myanmar has over 1930 km of coastline in addition to a very rainy season, it is high at risk for cyclones, floods, and landslides.

Myanmar has a number of ethnicities including Burman, Shan, Karen, Rakhine, Chinese, Indian, Mon, etc. Burman is the largest ethnic group totaling 68% of the population. Shan comprises 9% while Karen comprises 7% (World Factbook, 2012). Shan and Karen are the largest minority groups both concentrated in Southeast Burma. The official language is Burmese although minority ethnic groups have their own languages. In regards to religion, 89% of the population practice Buddhism followed by 4% practicing Christianity and 4% practicing Islam.

Healthcare in Myanmar is lacking in all aspects. With only 5 doctors per 10,000 people (World Factbook, 2012), it is no wonder why many of the sick travel for days, under dangerous conditions, to sneak across the Thai border to receive medical treatment. The few number of medical services offered in Myanmar is compounded by the fact that many are also too expensive for the common Burmese individual to afford. Hospitals will charge you various “fees” in a corrupt healthcare system. According to a local 70 year old Burmese man, “[The government] never think of improving health care. They only pull the trigger” (Mason, 2007). Huge discrepancies can be observed between health care and other aspects by the government through allocation of money. The government spends only 3% on health annually compared to 40% on the military (Mason, 2007). The situation in Burma causes it to have the world’s second worst overall health care system, according to the World Health Organization in 2000.

Myanmar has been under the rule of one of the world's most restrictive governments, the military junta. In 1948 Burma attained independence from the British, but was then dominated by General Ne Win from 1962 to 1988 as their military ruler and then as a self-appointed president (World Factbook, 2012). In 1988, the military established a new ruling junta. To play the role of a "democracy", multiparty elections were held in 1990 with a landslide victory for the National League for Democracy; however, the military junta did not uphold the outcomes of the elections and refused to hand over power to the winner of the election, National League of Democracy (NLD) leader Aung San Suu Kyi. Instead she was placed under house arrest for over 20 years (World Factbook, 2012). This outrage of injustice was only the beginning. The government has imprisoned over 2100 political prisoners (mostly democracy advocates), killed many protestors, and impeded humanitarian aid from other international countries during emergency situations. In 1988 in Rangoon, a major city, students rebelled and protested for democracy. Their futile efforts to change Burma’s corrupt system were met with gunshots. More than 3000 demonstrators were shot dead and thousands more arrested. But that’s not all of the junta’s injustice. In 2007, Burmese monks and

citizens alike peacefully marched the street in what was termed the Saffron Revolution named after the saffron robes of the monks. (Bandow, 2011) Yet the military, with not an ounce of compassion, brutally beat and imprisoned anyone and everyone.

The extreme inequalities in Burma cause few to be rich, yet many to be dirt poor. Only members of the regime and their families and friends have money, many benefiting off the political power. Those in power also make sure the government is ruled exclusively by their friends and family. The title of general is passed down the family line. (McGeown, 2006) The ruling elite have no respect for their fellow man. With 1/3 of the population in poverty, some have to even sell their children for food and money (McGeown, 2006). This child trafficking underhandedly does not even raise great attention to the government. The government-run postal services are also corrupted; mail is stolen and lost very frequently. (McGeown, 2006) The media is heavily censored with only 2 main channels both controlled by the government. The military's cruelty is especially highlighted in their use of villagers as "porters" to risk themselves to scout land mines ahead in enemy territory. (McGeown, 2006)

Burma's undeveloped, stagnant economy has been hindered by the junta's restrictive rule and international sanctions placed on Burma. The enormous government interference in the economy cannot allow an open market and causes depression instead of prosperity. The government plays a part in all aspects of the economy. The government issues repressive policies that include regulations on private property, markets, production quotas, governmental controlled prices, tax rates, and more. Most business is done in state-owned enterprises. They regulate "case-by-case" transactions between foreign investors and private sectors. (2012 Index of Economic Freedom, 2012) Major powerhouses in the international community such as the United States and the European Union (EU) have placed economic sanctions on Burma in order to discourage the prosperity of the military junta. This reduces external commerce and trade and hurts the Burmese economy. Another reason for the lack of investment into Burma from foreign countries is the poor chance of a good feedback on investment. Burma has strict, yet unreasonable policies that other countries do not want to take a chance at. The lack of economic freedom is accompanied by underdevelopment of the private sector, structural problems, little access to capital for investment, and erratic inflation.

The gross domestic product (GDP) of Burma relies on 3 sectors: agriculture which makes up 38.2%, industry which makes up 18.2% and services which make up 43.6% (World Factbook, 2012). The labor force of 2.53 million people is highly concentrated in the agricultural industry, occupying 70% (World Factbook, 2012).

Up to 30% of Myanmar's population suffers from malnutrition (El Obeid, Jensen, & Smith, 2000). That means 30% of the population do not have access to enough food to live an active healthy lifestyle. 1.62 million people do not have sufficient and secure food availability (El Obeid et al., 2000). This lack of food security can be attributed to 2 main factors: national food availability and people's access to food. National food availability depends on the ability of a nation to have sufficient amount of food available to feed all of its population. The other major problem is the inability of people to access the food, mainly because of poverty. More than 30% of the population of Myanmar lives below the poverty line. 90% of the population lives on less than one dollar a day. Poverty of the Burmese population has been on the rise ever since the military takeover in 1988. This corrupt government has forced Burma into political instability, war/conflict, economic imbalances, trade dislocations, and marginal class inequality. All these

factors combined make it impossible for the majority of the Burmese to rise above poverty. Access to food can be observed by how a household distributes its income. Some of the income may be left aside for health care or for housing, but in Burma, an average of 75% of total income is spent only for food supplies (AFSC, 2011).

Food insecurity is so complex that it is impossible to completely eradicate it; however, the goal should be to improve food security at the fastest rate for the most people. First, we need to address poverty since it plays a large role in causing food insecurity. To do this, the Burmese government must create policies that reduce poverty which will increase people's access to food which will increase food security. One way is through "equitable economic growth" (El Obeidet al., 2000). Instead of having the poor get poorer and the rich get richer, the poor must also be included in the growth process. The government must allow them more access to financial resources, training, and capital/infrastructure. This also leads into investing in the poor, mainly their health and their education. To educate the poverty stricken gives them more options to support themselves. Keeping the poverty stricken healthy allows them to sustain life.

Another main problem in the agriculture of Myanmar is not the agriculture itself, but the state of the farmers. Over 70% of the population in Burma lives in a rural environment (Prosterman & Vhugen, 2012). Not all agricultural workers (farmers) own the land they work on. One-third of the population that lives in a rural environment is comprised of landless agricultural laborers; they work on the fields tenuously with the government telling them specifically what to grow and subjecting them to production quotas. (Prosterman & Vhugen, 2012) A substantial amount of farmland has also been transferred to private companies. From the mid-1990s to mid-2000s the amount of land distributed to private companies rose by 900% (Dapice, Vallely, Wilkinson, McPherson, & Montesano, 2011). This land now makes up 5% of Myanmar's agricultural land. (Dapice et al., 2011) This poses a problem because instead of Burmese individuals reaping the harvest from the Burmese soil, foreign investors make the money. Landless farmers must also follow Myanmar's ever changing, labile agricultural policies. Many times these policies hinder more than help; farm productivity suffers as a result, leading to food insecurity. Farmers are forced into debt because they must take out loans or sell land to meet unrealistic planting directives. In recent years, food production has not been high due to the degree of poverty of the farmers. Most farmers are in huge, substantial amounts of debt that they cannot continue to risk investing in their farming production. The Burmese government has tried to resolve this issue by providing new loans, but many of these loans are not being repaid. What farmers tend to do is take these new loans to pay past debts because it will be a cheaper interest/credit. Overdue loans comprise 1/3 of the total loans the government gives out (Dapice et al., 2011). In addition to the farmer's overwhelming debt crisis, exchange rates have been and still are declining, leading to lower paddy prices, and little to no profit of production for neither farmers nor manufacturers. Inflation is very high, yet prices did not increase to the same degree. The higher input costs and lower kyat prices that factor into the output of production, in conjunction, is not able to achieve revenue, leading to farmers stopping output.

Rice plays an important role in the lives of the Burmese not only as the bulk of sustenance in their diet, but also as the largest agricultural commodity of Burma. The level of rice production can be used as an indicator to how much food is available for the Burmese people and how secure their food is. An increase in rice productivity or a decrease in the price of rice will largely benefit Burma. Of the rice grown globally, 50% is grown using an irrigation method. The other 50% depend exclusively on natural rainfall; this is the category most rice grown in Burma falls under. Most rain fed paddies are managed in areas of

greatest poverty since farmers do not have any other resources to implement a thorough irrigation system. Although it is very beneficial to be able to depend on natural rainfall, the amount of rain is always variable. In times of severe drought or flooding, the crops will suffer (Barclay & Zeigler, p. 7).

In the “Survey of Myanmar Rice Production and Constraints” by Naing, Kingsbury, Buerkert and Finckh in 2008, they observed 4 main factors influencing agriculture: water, seed quality, fertilizers, and weed control. Based on this study, they compared rain fed versus irrigated fields. Irrigated farms achieved higher yields because of better water management. Many times rain fed water contributed to over-flooding and lowered yields. These rain-fed farms did not have any drainage systems to solve the buildup. Irrigational systems need to be implemented in more and more farms to improve water management. In terms of seed quality, it was found that many people could not access recommended, certified seeds of improved strains because of poor transportation, high costs and poor communication infrastructure. In terms of fertilizers, the application of fertilizer has been severely low. Overall higher amounts of affordable fertilizers are needed. Farmyard manure, likewise, has not been utilized to a large degree. Only 50% of the farmers interviewed practiced any form of weed control – the most common method being hand weeding. The weed growth has caused difficulties in farming and it is often highlighted by the poor water management. Weed manage practices need to be developed and utilized. The state should make and develop quality seeds at an affordable price for farmers to purchase to potential grow all their harvest.

Although rice is a very important crop, it is not necessary for Burmese farmers to make it the *only* crop. Because of the overproduction of a single crop, a farmer may yield more harvest but receive less in income. Because of the overabundance, of rice, the market price has depreciated rapidly. This can be solved by diversifying planting schemes with other non-rice crops. Other research dealing with developing newer, better strains of seeds should not only be directed towards rice seeds, but wheat, pulses, and other grains as well.

Increased investment in agricultural research will serve the needs of unsuccessful, poor farmers.

Technologies and research in matters such as dams, irrigation canals, cropping techniques, modern rice varieties, and expansion of agricultural areas should be developed to target Burmese farmers. Afterwards, the adoption of these new technologies by the farmers should be well observed. In many cases, farmers are unable to cope with the new technologies presented to them. They also do not have the time, labor and capital resources to fully utilize these technologies to their advantage (Garcia, Garcia, Hossain, & Oo, 2000). Oftentimes, many farmers experimenting with new agricultural technology receive a negative net income coupled with a less than expected yield because of the increased cost of production because of the usage of new equipment and fertilizer. Farmers are also just untrained on how to use these new systems. They are unable to afford these things. To get adequate yields, fertilizer must be used at recommended amounts to be effective. At most, farmers have used only 40% of the recommended level of fertilizer for healthy and large amounts of crop harvest (Garcia et al., 2000). To fix this, the state must create better programs that support the farmers in their first few trials of using new technology by providing them with adequate materials, adequate fertilizers, and a low-interest loan to make up for the initial loss of income.

Another way the government may “invest” in its farmers is through skill development (Garcia et al., 2000). The inability of farmers to use technology is due to the lack of training. Most technology developed today is not suitable for the common smallholder farmers. This technology must be adapted to the farmers’ condition to make it applicable and useful. The main goal really is to “enhance farmers’

capacities to develop and diffuse new technologies and techniques themselves from farmer to farmer” (Cho, 2002). What needs to be done is that more “agricultural extension agents” need to spread and diffuse the information and technologies to the farmers. These agents are trained in areas of crop production technology, weed and pest control, post-harvest technology and numerous other specialties. The training of farmers must be done first hand, in person, and through demonstrations. To make sure these agents are able to make an impact, citizen participation in Myanmar must be high. Local farmers, government agencies and agricultural services should be very active and involved with the agricultural training (Cho, 2002).

Also, since Burma’s economy relies heavily on agriculture, policies to increase agricultural productivity would be very effective (El Obeid et al., 2000).

Currently the policies in place relating to agriculture include land policies, production policies, and procurement/price policies. The land policy first stated all land is state property. Later on, it has evolved into allowing landholding rights. However, rights of the cultivator or the farmer are sometimes restricted. Farmers may be granted “tilling right” or the right to farm, but not allowed the right to divide, sell, mortgage, or transfer the land (Soe, 2011). Government land policies also regulate which crops must be grown in which specific areas. Government also decides for the farmers who to sell the produce to (besides the government). Burmese farmers are discouraged from increasing food production if they are stuck in this rut of being controlled by the government. Alternatives to the current land use policy include using a contract system of land use in which farm households can be given land use rights for a specific period (30-50 years) (Baker, 2011). The contract system of land use is geared toward small land holders to allow them economic security from the contracting company. Contract farming, plainly stated, is “an agreement between farmers and firms for production and supply of agricultural productions under forward agreements, frequently at predetermined prices” (Baker, 2011). In many cases, contract systems have gone awry. To prevent this, the farmer and the company must have a clear understanding of the goals. Companies should provide technical training and agricultural assistance to the farmers so they can succeed. In return, the companies will get higher yields from the farmers. The farmers, by entering a contract, can benefit from the resources that a contracting company can give. Small land farmers often do not have access to inputs needed for production, technology training, or improvement of quality. Another policy change that can be enacted is the “Liberalization of Production” in that the government will not control what farmers can or cannot grow (Soe, 2011). This will allow farmers more flexibility on the choice of crops and markets to sell their produce to maximize their profits.

The production policy in Myanmar has always been centered on maximizing output or increasing food production. Although this is the target goal, another factor that plays a large role is the income of the farmers. If the farmers cannot make money, they cannot farm. The policies are geared toward self-sufficiency and ultimately food security, yet they are indirectly hindering what they are trying to reach. Policies must be achieved to find a balance where farmers can grow the most crops while still making enough money to escape poverty. The price policy has to do with the before mentioned production quotas. The farmers are required to sell the state a fixed amount of produce, whether per hectare or per cent yield, at a government-set procurement price. These prices were usually 60% lower than market prices (Garcia et al., 2001). Farmers receive a negative net income off the production quotas which drives the cost of production up. To remedy this problem, the state should eliminate quotas to allow farmers to get full price of product. This will be a bigger motivator for increased food productivity efficiency. Farmers should be

allowed to fully access the market and also sell/export their produce freely without government interference such as the heavy tariffs and trade restrictions. Another option the government could take would be to raise the procurement price they give to the farmers to the price at market level or close to market level. This guaranteed minimum price is beneficial to the farmers not only as an increase in revenue, but also as a stabilizing factor to the agricultural market.

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