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Guatemala: Addressing Childhood Undernutrition

With rich cultural diversity and spectacular natural beauty, Guatemala is one of the most fascinating countries in the world. Guatemala was the heart of Mayan civilization for more than two thousand years before the Spanish ruthlessly conquered it in the 16th Century. Guatemala eventually gained its independence in 1821, yet the turmoil did not cease. Military and dictatorial governments brutally ruled Guatemala for much of the 20th Century, climaxing in a bloody civil war that spanned nearly four decades. Finally, after 200,000 civilians lost their lives and one million people fled the country, Guatemala signed a peace agreement in 1996 that officially ended one of the bloodiest conflicts in Latin American history. Yet Guatemala's problems did not end with this agreement, and the country's grim past foreshadows a troubled future. With a population of 14.7 million people, Guatemala is the most populous country in Central America. Over half of the population lives in poverty and children are especially vulnerable. Chronic childhood undernutrition remains at 49.8% and reaches 69.5% in rural areas. In fact, Guatemala currently suffers from the fourth highest rate of chronic undernutrition in the world. The Global Hunger Index (GHI) is one method used to measure the severity of hunger. Every country is assigned a GHI rating based on three factors: the proportion of undernourished children, prevalence of underweight children, and mortality rate of children less than five years of age. A lower score indicates a lesser concern for hunger in the given country. Scores ranging from 5 to 9.9 are considered moderate, 10.0 to 19.9 are serious and 20 and above are alarming. In 1990, Guatemala's score was serious at 15.1 and it decreased to 12 in 2010. Although this suggests the problem of childhood undernutrition has improved, Guatemala still has the second highest GHI rating of any other country in Latin America and the Caribbean after Haiti. A variety of factors contribute to the problem of child undernourishment. Guatemala's geography limits arable land and isolates much of the rural farming population. Families have poor access to healthcare and education. In addition, significant ethnic, socioeconomic, and gender inequalities exist which disadvantage many Guatemalans. A combination of community projects, nutritional education programs, governmental support, and assistance from non-governmental organizations should be implemented to address these problems and solve the urgent issue of childhood undernutrition.

Farm families are at greatest risk of undernourishment. Subsistence farming is a common way of life for many Guatemalan families. By definition, subsistence farming is "farming whose products are intended to provide for the basic needs of the farmer, with little surplus for marketing." Therefore, farmers rely on their crops to produce sufficient food to feed their families, but farming oftentimes does not provide a substantial source of outside income. A typical subsistence farm encompasses less than 8.6 acres of land, with an average size of 6 acres. Primary crops include maize, beans, potatoes, wheat, rice and oats. In general, the diet of a typical family is limited, high in carbohydrates, and lacks healthy nutrients. Maize and beans constitute the average diet for subsistence farm families. Energy and protein in a typical diet are mainly derived from maize, while beans provide less than six percent of total daily energy. If farmers were to reverse their practices by increasing bean production and decreasing maize production they could potentially reap greater benefits. Although beans have fewer calories than maize, they contain almost three times as much protein and are a source of essential nutrients such as iron, calcium, and thiamine. Furthermore, bean production requires significantly less labor and would result in greater gains for subsistence farmers.

One way farmers reap greater gains is by having larger families to help out on the farm. Life in Guatemalan society revolves around family. Parents are greatly respected as reflected in their title as "espejos," or mirrors, because they set an example by which their children can learn and mature. The

typical family consists of parents and dependent children. Women marry at a young age and have four to six children. In rural areas families live in isolation and so extended family members often form the basis of a community.

Many communities throughout Guatemala suffer from undernourishment and a variety of causes combine to exacerbate the problem. One contributor to the plight of malnutrition is Guatemala's geography, which is primarily mountainous with coastal plains and plateaus. Over 51% of the population lives in rural areas, removed from the rest of the country. With few reliable roads, communities remain isolated and have minimal access to education, health care, and markets to sell goods. The rugged terrain presents numerous challenges for subsistence farmers as well. Only 13.22% of Guatemala's land is considered arable, as mountains and dense forests cover much of the landscape. As a result, many farmers must contend with difficult terrain and limited arable land to grow their crops. To adapt, farmers cultivate their crops on steep slopes. Farming practices are basic and farmers rely on rainfall for irrigation, which can prove costly when faced with severe drought. Varied landscape and rural isolation limit crop diversity and affect farmers' abilities to grow sufficient food to feed their families and earn an income. This fuels the continuous cycle of child undernourishment because children cannot consume a balanced, nutritious diet and families do not earn enough money to purchase healthy food for their children.

Guatemala's geography not only limits crop diversity, but it restricts access to education and health services as well. Primary school enrollment is 39% overall but 35% in rural areas and as low as 20% in the poorest regions of Alta Verapaz and Quiché. Compared to other Latin American countries, Guatemala's test scores continually rank in the lowest quartile in basic math and language skills. Rural areas are especially disadvantaged because schools struggle to provide adequate space and materials for learning and qualified teachers from larger cities are dissuaded from rural jobs due to poor salaries and lack of curriculum. Schools are often inaccessible and students must walk long distances to attend. Moreover, many parents believe their children are more useful working on the farm than attending school, and so most children drop out of school by 6th grade. This pattern of inadequate education and poor school attendance correlates with the problem of child undernutrition. As children mature and enter adulthood, a complete and comprehensive education is vital to their success and well-being. Through education they could pursue a variety of careers, earn a higher income, and break free from the grasp of poverty and undernourishment.

Not only do families have limited access to education, but healthcare facilities are often inaccessible as well. Hospitals are primarily located in larger cities and 90% of Guatemala's physicians work in urban areas. Only a few smaller clinics are interspersed throughout rural areas. As a result, 40% of rural farm families have no access to health services and so diseases such as malaria, cholera, dengue fever, and chagas are prevalent. The severity of childhood undernutrition is increased as well because families cannot consult health services to treat and prevent the problem.

A continuing problem is the significant disparity between ethnic and socioeconomic groups. Guatemala has an incredibly diverse population with 44% indigenous people, the largest percentage in all of Latin America. People of mixed Amerindian descent, or Mestizos, and people of European descent comprise about 56% of the population and control most of Guatemala's resources. Although Spanish is the official language, there are twenty-three recognized Amerindian languages in Guatemala. In rural areas, indigenous languages are widely spoken and Spanish is rarely used. This language diversity creates a lack of conformity amongst the population and contributes to the inequitable distribution of Guatemala's resources. Only 5% of the population controls 85% of the country's wealth. Rural indigenous farm families suffer as a result of this disparity because they are among the population that lacks basic resources. These resources, such as education, healthcare, and adequate income, are essential to averting poverty and alleviating childhood malnutrition.

In addition to ethnic and socioeconomic disparity, Guatemala has a gaping gender gap which greatly impacts families. Women are often undereducated, with an illiteracy rate of 31% among women and 59%

among indigenous women. This disadvantages them in the workplace. Therefore, they cannot earn enough money to supplement the family income and provide sufficient, healthy food for their children. Furthermore, women often lack basic knowledge on important childrearing techniques such as breastfeeding and nutritional practices, adversely affecting their ability to properly raise their children. Coupled with problems of gender and socioeconomic inequality, poor access to education and healthcare, and minimal arable land, Guatemala's childhood undernourishment situation is further threatened by both climate change and overpopulation. According to the United Nations, Guatemala is one of the ten countries most vulnerable to climate change in the world. Given its geographic location, Guatemala is extremely susceptible to natural disasters, including hurricanes and earthquakes. Severe, irregular weather has plagued the country in recent years, with a drastic increase in rainfall and flooding followed by extended droughts. In 2010, Guatemala experienced the wettest rainy season in sixty years, the eruption of Pacay volcano, and tropical storm Agatha. These events took 235 lives, forced the evacuation of 208,000 people, annihilated more than 15,000 homes, and damaged roads throughout the country. Prior to the floods, the worst drought in thirty years affected more than 2.5 million people. Effects of the weather pattern known as El Niño only prolonged the drought, which destroyed crops and increased food prices. According to the World Food Programme, women and children in rural Guatemala were particularly affected. The "dry corridor" in the central and eastern part of Guatemala, primarily inhabited by subsistence maize farmers, is most vulnerable to drought. The extreme weather patterns of recent years are due largely to changing climate. If the sea level rises six centimeters, 24% of Guatemala's current land will be underwater. In a country with already limited arable land, this drastic loss would be detrimental to the food security of countless subsistence farm families.

Compounded by climate change and loss of arable land, Guatemala also faces a major problem of overpopulation. With a growth rate of 2.4%, Guatemala must balance decreasing arable land with a rapidly increasing population. It is estimated that Guatemala's population will double in size by 2040. At this rate, there will not be sufficient land and food to support the population and avoid an even greater food shortage.

In order to address the crisis of childhood undernutrition and improve the lives of Guatemalan subsistence farm families, certain Millennium Development Goals must be targeted. Child and maternal health, education, gender equality, and targeted developmental assistance should be of primary focus. Community involvement through local projects, government support of agricultural programs and assistance from non-governmental organizations must play a role in benefiting farmers and eliminating child malnutrition.

Childhood undernourishment is most effectively treated during a period known as the "1000 Day Window of Opportunity" which lasts from conception to the age of two. During this time children are at the greatest risk of health damage caused by undernutrition and both physical and cognitive development can be greatly affected. Growth problems including stunting, defined as low height for one's age, and wasting, defined as low weight for one's height, primarily occur between birth and two years of age. Over 50% of children in Guatemala are stunted. Undernourished children often experience chronic health problems throughout their lives and undernourished girls mature and produce undernourished children. This perpetuates the pattern of childhood malnutrition. Not only are children affected physically, but mentally as well. Children who are undernourished during the 1000 day window are slower to develop mentally. As a result, they may begin school later and struggle academically, which affects their productivity and success later in life. Children must be well nourished during the 1000 Day Window to ensure healthy physical and cognitive development and to prevent malnourishment in later years.

To most effectively address childhood undernourishment within the 1000 Day Window of Opportunity, programs should be implemented at a community level and focus on nutritional education. A mother mentor program would enable experienced mothers to educate their peers on good nutritional practices for children. In Totonicapán, a Guatemalan province plagued by a chronic undernourishment rate of 82%,

one such program was recently established. Two hundred twenty-eight volunteer mothers work in forty indigenous communities throughout Totonicapán. These mother mentors teach proper breastfeeding techniques and appropriate times to introduce complementary and fortified foods. Not only do these mentors provide education, but they share personal experience on nutrition and proper childcare.

Educating mothers on proper nutrition and methods of preventing malnutrition is important, but the entire community must be educated as well. One such option is through the media, which has the capacity to reach out to many people and raise awareness about issues. Recently in Guatemala, Radio National Corporation joined with the World Food Programme to broadcast a radio program entitled “1000 Days to Change a Life.” The goal of the program was to disseminate information regarding undernutrition in Guatemala and educate the public on methods of preventing it. To reach out to indigenous people, the program was broadcasted in three native languages: Kikche, Kachiquel and Kekchi. Along with the radio program which aired in May and June of 2012, information about malnutrition was published in newspapers and social networking sites. This method should be scaled up to include newspaper messages and frequent radio and television broadcasts throughout the entire country. These messages and broadcasts should occur in many of Guatemala’s twenty-three officially recognized languages so that the information can reach a larger audience. In this way rural subsistence farm families, many of whom speak solely their native language and are at greatest risk of undernutrition, can understand and utilize the information.

Beyond the media, additional programs should be instituted using the twenty-three native languages spoken in Guatemala. One program recently established in the municipality of Huehuetenango focuses on Mam, which is a Mayan language. Huehuetenango, located in the northwestern part of Guatemala, was once a Mayan settlement and the capital of the Mam kingdom before the Spanish conquest. Today, however, Huehuetenango suffers from a child undernourishment rate of 69%. To address this problem, the World Food Programme partnered with the Guatemalan Ministry of Education to distribute over 12,000 textbooks written in Mam to 75 schools in the municipality, where Mam is still widely spoken today. These textbooks vary in topic from gender equality, to stages in adolescent development, and food insecurity and proper nutrition. By providing educational materials in Mam, students have the opportunity to use their native language academically while learning about important issues relating to gender inequality and food insecurity. Establishing similar programs in native languages throughout Guatemala would address several of the Millennium Development Goals, namely educating students about gender equality and food insecurity at the primary school level. This education should continue into secondary school to further promote awareness of these issues for Guatemala’s future citizens.

Community programs are fundamental to eliminating childhood undernourishment, but even greater accomplishments could be achieved if the Guatemalan government were involved. Government support of crop diversification, agricultural credit programs, and increased social spending is essential to improving the well-being of subsistence farmers. Most subsistence farmers predominantly grow maize and beans, but a program encouraging crop diversification would prove beneficial for farmers. The Guatemalan government established a crop diversification program in 1982 and this could serve as the framework for a new program. Through government-supported soil conservation and irrigation programs, farmers could increase crop production by cultivating cold-weather vegetables. This would reap nutritional benefits, increase on-farm employment throughout the year, and as a result raise income and improve the socio-economic wellbeing of subsistence farmers.

Along with agricultural programs, it is necessary for the Guatemalan government to provide comprehensive support for subsistence farmers. Social spending programs should be increased to account for the overall wellbeing of farmers and their families. Other countries, such as Brazil and Thailand, are prime examples of the benefits reaped by increased social spending. In 1974, 37% of Brazilian children were stunted. Throughout the 1970s and 1980s the Brazilian government increased social programs supporting food and nutrition, health, education, and potable water access. As a result, the rate of child stunting decreased to 7% in 2006. Similarly, Thailand decreased its childhood undernourishment rate

from 50% to 25% in less than a decade by investing in health, sanitation, and education. To address childhood undernutrition, Guatemala should invest in similar programs. Providing universal healthcare for mothers and their children less than two years of age would reduce the childhood undernutrition rate by 25-36%. Additional government funding for nutritional programs, education, and infrastructure are necessary to support subsistence farmers and their children.

Many non-governmental organizations can be very effective in supporting farmers and empowering communities. One notable organization is Heifer International, which currently has several projects established in Guatemala. Through the work of Heifer, certain Millennium Development Goals can be addressed, including improvement of food security and economic development, primary education, gender equality, and targeted developmental assistance. By providing livestock, training, and developmental assistance, Heifer focuses on long-term solutions to accomplish individual and community self-reliance. Initial training occurs in small groups where citizens, primarily women, learn and prepare to receive a gift of an animal. Once a family's animal produces offspring, the "living loan" is repaid by passing on the offspring to another family in need. In addition to animals, families share knowledge, skills, and resources with one another. This strengthens communities and creates a cycle of sustainability. Families sell and consume cheese, eggs, milk, meat and honey from their animals, resulting in a more nutritious diet. Larger animals, such as oxen and heifers, can be used to increase crop production and transport products to market, thereby increasing family income. Heifer International focuses on gender equality by encouraging men and women to work cooperatively together in order to successfully raise their animals. This benefits families by empowering women and maximizing family income. To reach vulnerable families throughout Guatemala, additional Heifer International projects should be supported. In this way, a cycle of sustainability can emerge throughout Guatemala that lifts families and communities out of poverty and undernutrition.

As the 2015 deadline approaches for accomplishing the Millennium Development Goals, Guatemala still faces numerous challenges in working to combat childhood undernourishment. Subsistence farm families lack the basic resources necessary to earn a sufficient income and lead healthy, prosperous lives. They are significantly isolated from the rest of the country and must contend with decreasing arable land for farming. Children are in greatest danger because their future is too often predetermined by their family's struggles. Without adequate education and health services, children suffer irreversible physical and cognitive damage that affects the rest of their lives. Solving the plight of childhood undernutrition in Guatemala is not impossible, but it requires a cooperative and sustained effort on multiple levels to succeed. According to the World Food Programme, "the causes of child hunger and undernutrition are predictable and preventable, and can be addressed through affordable means." Although Guatemala faces seemingly ominous challenges, specific programs and policies must be instituted at many levels to target different aspects of the problem. Engaging local communities is of utmost importance and must be the foundation for many solutions. Nutrition education, empowerment of women, and awareness of childhood undernutrition should all occur at the local community level. Mentor programs and use of the media would be especially effective. However, additional support is required to launch and maintain these programs. The Guatemalan government should help provide much needed financial assistance for its people. Non-governmental organizations could supply resources and teach Guatemalans necessary skills to enable self-sustainability in the future. Once these programs gain traction, communities can become self-sustainable and outside assistance can lessen. And as the world recognizes and works to reduce climate change, Guatemala and its people will greatly benefit as well. According to agronomist and Nobel laureate Norman Borlaug, "food is the moral right of all who are born into this world." It is therefore imperative that the problem of childhood undernutrition be promptly addressed. As actress Drew Barrymore keenly stated, "I can't think of any issue that is more important than working to see that no child in this world goes hungry."

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