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## Uganda Children in Crisis

The face of hunger in Uganda is in the eyes of the children. The typical family in Uganda consists of a single parent and six children living in a one-room house in a rural village. AIDS continues to leave children orphaned. The older siblings are then forced to care for what is left of the household. The family tries to survive the best they can, but it is very difficult to get food and resources. When they have food it consists of mainly starchy foods and some fresh fruits. They get by on yams, corn, potatoes, bananas, tapioca, rice, lentils and occasionally beef, poultry or goat meat. The type of food they eat depends on the season and the location in which they live in Uganda. Most of the people in Uganda live on one dollar or less a day. They eat and use what they receive from their hard work. The relationship between malnutrition directly interferes with a child's intellectual abilities and their motor skills. If a child starts out malnourished during their developing stages, they will never be able to fulfill their highest human potential. Conditions in Uganda continue to improve, but I believe every person should have the ability to reach their highest potential. A little more than half of the children receive some sort of schooling. They live with many environmental issues including soil degradation, erosion, deforestation, and overgrazing. Mothers often lack proper nutrition which directly affects their babies who are born with a very low birth weight and are very weak. This weakness at birth makes them incredibly susceptible to many illnesses and diseases. Undernourished infants lose their curiosity, motivation and even the will to play. We can not turn our backs on a country whose median age is 15 years old. They need our help to build into a strong country by developing into a country of healthy individuals.

Uganda lies in the center of Africa, north and northwest of Lake Victoria, the largest manmade lake in the world. It is known as the "pearl of Africa" and covers a land area about the size of Oregon. Nearly one-fourth of the land is arable. Twelve percent of the land is reserved as national park and forests. The average rainfall is around 125 cm per year through out north and south Uganda, excluding the Karamoja District which is much drier and experiences frequent droughts. There are two rainy seasons, March-July and September -October. Although it lies on the Equator, it is on part of a high plateau and with the presence of immense Lake Victoria the south has a rather moderate climate. The temperature ranges from 72 degrees Fahrenheit to 92 degrees Fahrenheit in the summer. In contrast the North is considerably hotter than the rest of the country. The soil is fertile under the prevailing conditions and scattered with wooded savannas and grasslands.

A large number of native tribes inhabited Uganda before the Arab traders and European explored the area. Each tribe having its own political organization. The territory was proclaimed a British protectorate in 1894, with most of the tribes not knowing how to react to the new central rule. The Baganda, the largest and most powerful tribe, controlled the center of trade and later the government (under British watch). Almost 70 years later Uganda achieved independence from the UK in 1962.

Although Uganda achieved its independence, corruption still resides in the government. In 1987, Joseph Kony started a movement to overthrow the government to be later known as the Lord's Resistance Army or LRA. Their plan was to overthrow the current administration and install a government based on the Ten Commandments. The war has manifested into a humanitarian disaster. Kony created his army through a form of terrorism primarily by the forced enlistment of children. Children are used as soldiers, laborers and with girls as sexual slaves. Counts of more then 20,000 children have been kidnapped by the

Lord's Resistance Army. This band of insurgents still ventures into the northern parts of Uganda to terrorize the country.

In all the terror the United Nation has set up displacement camps to help with the estimated 1.3 million people that have been forced from their homes. Insecurity in northern Uganda has disrupted all farming in the region causing many families to become completely dependant on international food assistance. Ninety five percent of the land has been abandoned and lies uncultivated. In all the disarray the northern part of the country has basically become too insecure for humanitarian aid causing many families, especially children, to become malnourished.

Malnourished people do not have sufficient food to meet their dietary needs for a productive and healthy life. The body requires approximately 20 amino acids for the synthesis of proteins. The body can make only 13 of these amino acids. These are known as nonessential amino acids. They are called non-essential because the body can make them and does not need to get them from the diet. There are 9 essential amino acids that are obtained only from food not made in the body. Protein is the main component of muscles, organs, and glands. Everyone requires protein for growth and development. If the protein in a food supplies enough of the essential amino acids, it is called a complete protein. If the protein of a food does not supply all the essential amino acids, it is called an incomplete protein. All meat and other animal products are sources of complete proteins. Protein in foods such as grains, fruits, and vegetables are low or incomplete proteins. Plant proteins can be combined to include all of the essential amino acids and form a complete protein. Examples of combined, complete plant proteins are rice - beans, milk - wheat cereal, and corn - beans. The problem in meeting the protein requirements in a developing country is that there is only one staple in each region so only one food source is available to consume and people do not have money to supplement their production with additional foods.

Malnourished children do not reach their full potential in life. Health and nutrition problems affect children's growth, tolerance to diseases, and intellectual potential. As adults, this translates into reduced work capacity and earnings. The strength of a country is linked to children receiving proper nutrition at an early age. Children suffer from low birth weight because their mothers suffer from malnutrition. Studies by Sharman and Williams have shown that many African children experience a slowdown in growth following weaning, when their diet suddenly shifts from high-protein, high-energy mothers' milk to predominantly starchy foods. Malnourished children often develop protein-energy malnutrition conditions such as marasmus (essentially infantile starvation) and kwashiorkor. Kwashiorkor is a condition resulting from inadequate protein intake. Early symptoms include fatigue, irritability, and lethargy. As protein deprivation continues, one sees growth failure, loss of muscle mass, swelling and decreased immunity. Improving calorie and protein intake will correct kwashiorkor, provided that treatment is not started too late. Full height and growth potential will never be achieved in children who have had this condition. Severe Kwashiorkor may leave a child with permanent mental and physical disabilities. There is good statistical evidence that malnutrition early in life permanently decreases your Intelligence quotient (IQ) level (Ruitishauser and Whitehead, 1972) (Pollitt 1973).

Protein-energy malnutrition is by far the most lethal form of malnutrition. Children are its most visible victims. Chronic hunger delays or stops the physical and mental growth of children. Poor or insufficient nutrition over time means some 226 million children are too small for their age. Without protein many children do not have the motivation or energy to think, move around or play. Millions drop out of school.

Diseases such as measles and dysentery can kill undernourished children. According to the Food and Agriculture Organization's (FAO) 2004 Food Insecurity Report, vitamin and mineral deficiencies afflict nearly two billion people worldwide. Deficiencies of iron, vitamin A, protein, and zinc are ranked

among the World Health Organization's top ten leading causes of death through disease in developing countries. Iron deficiency prevents oxygen from being carried in the blood. Vitamin A weakens the immune system and causing child blindness. Iodine deficiency impacts brain development. Zinc deficiency contributes to growth failure and weakened immunity. The World Food Programme research indicated that every year, malnutrition resulting in disease contributes to 10 million deaths of children under the age of five.

AIDS also posed a large risk on the agricultural aspect of malnutrition and undernourishment. The negative effects of the epidemic are already being felt as the labor force reduces in these rural and poor areas. The agricultural sector relies primarily on labor so this drop is starting to take a large toll on the people who live in those areas. Not only does AIDS take away mothers and fathers from the already starving children it takes the workers out of the field that provide them with food.

Women are the primary food producers in the world and yet they are also the ones that tend to be malnourished. Seven out of ten of the world's hungry are female. Around 25 percent of men suffer from anemia caused by iron deficiency, but over 45 percent of women suffer from the same anemia. Their lack of iron results in 300 women dying during childbirth each day. Women in Uganda have an average of 6.74 births (2005 est). The mother stops breast feeding one child when the next child is born. Maternal stunting and being underweight are also among the most prevalent causes of giving birth to a low birth weight child. The weaning food is cassava, which tastes and looks like milk but is almost completely deprived of protein. So while the baby grows, the immune system weakens.

Solutions to Uganda's child malnutrition problem include education and research. The World Bank's program for Nutrition and Early Child Development Project, (NECDP), received a \$34 million dollar loan to support the National Program of Action for Action. The proceeds of the loan program went to about 8000 communities in 20 of Uganda's 39 districts, selected based on levels of malnutrition, infant mortality and primary school enrollment rates. The project sought to improve nutrition among preschool aged children, raise school enrollments, reduce drop-outs, improve psycho-social and cognitive development, and educate mothers in appropriate childcare and nutrition. Their strategy on educating mothers included; a national advocacy aimed at government officials, a multi-media campaign that emphasized changes in behavior, a health care training program for pre-school teachers and workers, and a monitoring and evaluating component to see if the message was reaching the targeted audiences. This program resulted in malnutrition among children 0-36 months reducing 30 percent and education on breast feeding, supplementary feeding, immunization rates, and intake of vitamin A greatly improved.

The problem of poor yields also needs to be addressed. By increasing yields, improving cultivation techniques and controlling viruses and pests, more food could be grown. In Uganda sweet potato yields about 4 tons per hectare were as in other countries yields of 75 tons per hectare have been recorded. Problems with weevil, a sweet potato virus, and other pests have contributed to losses in 90 percent of farmers crops. This means that a farmer plants 10 crops to feed their family only results in one crop that actually gets eaten. A biological control system for cassava has been created by Dr. Hans R. Herren is now a model for solving pest problems in Africa. It has demonstrated the success of large-scale programs along with taking care of the ecosystem that is very economical.

Another solution to the problem of malnutrition is enhancing the protein content of staple foods. Corn and rice are staple foods in Africa. These diets are poor in complete proteins, vitamins and important minerals. CIMMYT's Quality Protein Maize strives to help meet the basic nutritional requirements that everyone needs. There is an old Swahili saying that acts as their motive, "Bila mahindi, hakuna chakula," translated means, "without maize, there is no food." Other companies are working towards improving rice to contain Beta-Carotene, Vitamin E, Enhanced Iron, and Zinc. Rice is traditionally a poor source of many essential micronutrients, and the new Golden Rice will contain a more

complete nutrition. Research continues to improve the yields, taste, and nutritional content of these staple crops.

Attention needs to be placed on the ecosystem situation next to Lake Victoria. Before the 1970's, Lake Victoria had more than 350 species of fish from the cichlid family. The introduction of Nile perch and tilapia caused a collapse in the lake's biodiversity. It also resulted in deforestation since wood is needed to dry the oily perch, compared with the cichlids, which could be air-dried. Forest clearing in turn is increasing siltation of the lake, putting in jeopardy the Nile perch and tilapia fishery. Lake Victoria's Nile perch fishery generates as much as \$400 million in export income, but few of the villagers around the lake benefit from it. While tons of perch find their way to diners in Europe, scientists have documented protein malnutrition among people around the lake. People have focused too long on how many goods they can take from lakes and other ecosystem with out paying attention to the environment. If more fish were available to the country, this would help the protein malnutrition problem.

Through research, education, and financial support, Uganda can become a better place. Malnutrition imposes a crushing economic burden on Uganda and the developing world. World Food Programme (2005) estimates that every child whose physical and mental development is stunted by hunger and malnutrition stands to lose five to ten percent in lifetime earnings. Attention needs to be concentrated on education, research, and personal involvement. We have a good start in the World Bank's Program for Nutrition and early childhood development. This program targets the importance of early childhood education and nutrition. Quality Protein maize and other projects have began to work to increase food fortification and better yields of agricultural products. Along with increased yield, the people of Africa can help themselves by using the new technology to secure a more stable family atmosphere. All leaders and decision makers must look at the whole picture to make positive improvements including environment concerns with each decision. Understanding the problem is the first step in improving the situation. We must do all we can to remedy the causes of malnutrition in Africa.

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