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Cambodia, Factor 11: Malnutrition

## **Cambodia: From A Bowl Of Rice To A Nutritious Meal**

### **Introduction**

Cambodia is known for its sophisticated nature, temples with stories, tropical climate, and rich culture. However, hiding under these magnificent temples, are one-fifth of the population living under the poverty line (Food and Agriculture Organization). Cambodia's GNI per capita is 2890 PPP dollars, one of the lowest amongst all developing countries in Asia. To put it in perspective, United States' GNI is 53,750 PPP dollars, which is almost 19 times more than Cambodia's GNI. To understand the transformation from once a powerful Khmer empire to the third poorest country in Southeast Asia today, one might look at Cambodia's history and origin.

In late 1970s, Pol Pot's Khmer Rouge regime killed around 2 millions of Cambodians in a genocide. While other countries were rapidly advancing and developing economically, Cambodia was suffering from its internal conflicts. When Cambodia embarked their journey to civilization after toppling Khmer regime, many of them were trained as farmers as the skilled workers had been killed. The delay in rebuilding the country economically brought Cambodia into poverty. Even to this day, Cambodia faces corruption, inadequate government fundings for education and health, lack of infrastructure, and disparity in distribution of wealth among the rich and the poor.

Facing such hardship, food security emerges to be of prime concern, not just in Cambodia, but in the international community as they see that the rate of malnutrition is amongst the highest. Inevitably, malnutrition brings a series of negative consequences, individually, in the community, and nationally. To name a few, high infant mortality rate, high maternal mortality rate, and premature death of children under the age of five. Besides death, the lack of nutrition affects the growth of children, both physically and intellectually. This leads to poor academic performances in school and a high school dropout rate. Undoubtedly, poor education of a society hinders the development of a country. Hence a vicious cycle is seen as a result of malnutrition.

### **Challenges that a Typical Subsistence Farm Family in Rural Cambodia Face**

Unlike many Asian countries that adopt extended family system, Cambodia has a more flexible family system in which a Cambodian family can be either nuclear or extended. In a nuclear family, the family size is around five as the total fertility rate (TFR) or births per women was 2.66 in 2014 ("Women's Health Cambodia"). Extended families include 2-3 generations, with grandparents, parents, children, aunts, uncles, and in-laws. Thus, in a typical family, a size of five or more is to be expected.

In a typical family, it is common to see at least 2 to 3 school-aged children. Although primary schools' net enrollment rate is quite high, 96 percent, the rate for lower secondary and upper secondary is only 34 percent and 21 percent respectively (UNICEF). All students receive free education for nine years, but in order to persist in their education, they need to overcome many barriers such as teachers shortage, additional travel expenses, and inadequate facilities. School-aged children especially need a well-balanced diet because they need to grow both physically and intellectually. A well educated young generation will be promising to the future development of the country.

Cambodia farm families also face acute challenges in the country's healthcare system. Of the 5.9 percent of GDP that the Cambodian government spends on health care, only 1.4 percent is from government funding. 75 percent of the health expenditure is from out of pockets payments (World Health Organization). It is simply unaffordable for a typical farm family to receive proper healthcare, given the severe poverty condition in the rural areas of Cambodia. To make matters worse, facilities, resources, and spaces are extremely restricted in rural areas. Cambodian farm families often have to travel far to have access to health care service.

A typical farm family farms. In fact, agriculture is the heart of the country as more than 80 percent of the population resides in rural area. 37 percent of the GDP is on agriculture. Paddy rice is the most grown crop in Cambodia, amounting to 90 percent of all the crops. Hence, rice farming employs 75 percent of the entire workforce (UNICEF). Other crops include rubber, corn, and vegetable. This agriculture makeup leads to serious health problems. If the family only farms rice, which is very likely the case, chances are they will not have sufficient nutrition and puts the whole family, especially the young school-aged children to a very vulnerable health condition.

As mentioned above, in rural Cambodia, a typical subsistence farm family has to overcome many barriers to produce sufficient nutritious food to feed a family of at least 5. Farming rice will not provide enough micronutrients to everyone, especially school-age children. Poverty decreases the opportunities for workers to venture in employments other than farming. The lack of health care, secondary schooling, and government support all added to the plight of the family.

## **Malnutrition**

To tackle the malnutrition issue in Cambodia, one may focus on the issue of micronutrients. Micronutrients are only needed in tiny amounts, but plays an important role to one's health. Unfortunately, rice does not deliver all the micronutrients a person needs. The lacking of dairy, protein, vegetables and fruits in daily diet results in malnutrition. The severe poverty crisis also makes many Cambodians impossible to access vitamins or other supplements.

The lack of micronutrients such as iodine, vitamin A and iron is especially threatening to pregnant women and children. A child is defined as "a human being below the age of 18 years" by The United Nations Convention on the Rights of the Child. If 0 years is below 18, what about pre 0 years when the child is still in the prenatal state? Prenatal care is very important to the growth of the child. In Cambodia, recent studies shown that one in 8 babies pass away before 5 years old. This could be due to the deficiency of iron, iodine, and vitamin A during pregnancy, which can cause the child to serious health problems such as anaemia, night blindness, severe infections, brain damage, and death. In addition, almost 40 percent of children under 5 years old are chronically malnourished, and 10.9 percent are acutely malnourished (World Health Organization). Targeting pregnant women and children is the main focus in dealing with the severe malnutrition crisis in Cambodia today.

It is a fact that Cambodia is disadvantaged because it is a rural developing country, in which 90 percent of the poor people live in rural areas. They also face lack of diversity in growing crops, farming technologies, education, and access to micronutrients. Nevertheless, the malnutrition condition has shown positive trend in the past decade. The infant mortality rate has dropped around 47 percent, from 95 to 45 deaths per 1,000 live births. Iodine deficiency has greatly declined since the introduction of iodized salt. Despite these achievements, the infant mortality rate in Cambodia is 0.045, which is still nine times higher than the United States (0.005), and 1.5 times higher than the world average (0.032). The maternal mortality ratio is still at 206 deaths per 100,000 live births (UNICEF). Moreover, UNICEF stated that "the number of children suffering from chronic malnutrition has decreased only slightly and the number suffering from acute malnutrition may have increased."

Adding to all these, one major potential issue affecting malnutrition is global warming. Global warming will lead to extreme weather, which will further affect Cambodia's agriculture. Cambodia in fact is ranked one of the top 10 countries most vulnerable to global climate change. Extreme conditions such as no rain, will make the rice field dry. No rice means no food and no income. The living condition of Cambodia's farmers are especially affected by the negative impact of global warming.

## **Recommendations**

### **i) Educate and Care to Pregnant Mothers and Nursing Mothers**

In a running race, the starting line is obvious. But one's previous effort and practice is what put them to the race's starting line and ultimately success. Similarly, the starting line for a child's health is not when the child is born, but rather before one is born. A pregnant woman needs an extra 500 calories to their daily diet, 36-75 mg of iron intake, 800 mcg of folic acid, 1000-1500 mg of calcium, zinc, and vitamin D ("Nutrition and Pregnancy"). Thus, paying attention to pregnant mother is crucial. 55 percent of women in Cambodia do not receive prenatal care. The cost of health care is burdensome to almost every woman, hence they cannot afford to go to any medical facilities or health clinics. After the infant is born, their first few years are also important. Since majority of the mothers breastfeed, ensuring the nutrition intake of these nursing mothers are crucial. According to UCSF Medical Center, a breastfeeding woman needs 200 more calories per day than she did during pregnancy, and it is important that the calories come from nutritious foods. In addition, a nursing mother also needs to eat two to three servings of protein, 1300 mg of calcium, and other vitamins.

Organizations such as World Food, United Nations, and World Health Organization can help by establishing prenatal health care centers in villages. The centers can supply pregnant mothers with adequate nutrition, educating them with knowledge on the amount of nutrients one should intake. The prenatal care centers will be able to provide nutritious food to mothers from the organizations' funds. However, since many of these centers may not be easily accessible to the pregnant women and nursing mothers live in far away villages, it is recommended that outreaching teams made up of staff of these organizations to be set up. They can go into these remote villages and bring the necessary knowledge and nutritious food into their families.

### **ii) Include Nutrition Education in School Curriculum**

Once the children pass the nursing stage, it is almost time for them to begin school. The Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA) released a study showing that nutrition education can lead to healthier food choices. The recipients boost their average daily intakes of fruits by 0.24 cups and vegetables by 0.31 cups ("Study Shows Strong Nutrition Education Can Lead to Healthier Food Choices by Supplemental Nutrition Assistance Program (SNAP) Recipients"). With proven success that nutrition education leads to improvements in malnutrition, nutrition education for children should also exist in Cambodia's primary school curriculum. Government policy initiatives may be able to provide funding. Similar to Doctors Without Borders system, a team of nutritionists from the food industry can be established in Cambodia. They are responsible to teach "nutrition" class to school aged children in primary schools through interactive games, and talks about the importance of micronutrients. For instance, children should not only eat rice, but also other variety of foods such as vegetables and meat as rice does not provide all the micronutrients. Every year, the class curriculum will be different so that the students can learn something new. The primary school net enrollment rate is 96 percent. This means it will benefit the majority of Cambodia's population. The role of the national government can reinforce this nutrition education by making it a required class for primary school. When

children learn more about nutrition education, they will make smarter choice to their food intake, thus healthier development, both physically and intellectually. This will benefit the society in the long run.

### **iii) Set Up Special Trade Task Force with Neighboring Countries**

But where can the variety of food come from so that the young Cambodian schoolers and the pregnant and nursing mothers can consume? To solve the problem of insufficient micronutrients in food, other neighboring developed countries should import foods that contains micronutrients such as calcium, potassium, iron, zinc, vitamin A, and sodium. Milk, yogurt, spinach, cheese, eggs, beef, potatoes are examples of micronutrients foods. Although several Asian countries have already established stable trading relationships with Cambodia that amounted to a total of 14.9 billion worth of imports, only 10.6 percent of the total imports are food (Observation of Economic Complexity). Receiving more imports on micronutrients food from neighboring countries will make an impact to the malnutrition crisis. For instance, eggs, vegetables such as spinach and lettuce, and meat such as beef are Singapore's main production. Barley, a major cereal grain, is South Korea's second most produced crop (United States Department of Agriculture Economic Research Service). Since Cambodia produce massive amount of rice, Cambodia should establish a special trade with developed countries to exchange rice for dairy products, meat, grains, and vegetables. However, this cannot be just a pure economic trade. As a poor developed country, Cambodia is not on the level ground field and has very little bargaining power. Therefore, any trades between Cambodia and her neighboring developed countries should be approached from a humanity perspective, to reach out to tackle the severe malnutrition crisis in Cambodia. World Food could set up a special task force that will help Cambodia gain an advantage in the creation of these trade deals, encouraging neighboring developed countries to support this humanity trade pack. The extra supplies from neighboring countries will amplify the amount of micronutrients Cambodia receives, thus, improving the public's general malnutrition crisis.

### **iv) Invest in Biofortification research**

As the dominant food rice lacks the micronutrients one needs, biofortification may be a reasonable method to tackle the problem. Biofortification is "adding crucial nutrients to food biologically to existing food", designed particularly for developing countries ("Biofortification of Staple Crops"). It is different from ordinary fortification, as it adds nutrients while they are growing, not after they have been processed. Biofortification can be done either through genetically engineering or selective breeding. Paddy rice can be biofortified through selective breeding. A success example is "The Orange Sweet Potato" which improved many poor people's health in Africa as it increased their micronutrients intake ("Saving Lives In Africa With The Humble Sweet Potato").

"The Golden Rice" has already existed for more than a decade, which is done through genetically engineering. However, it still remains controversial. Some might not accept it and think is "unnatural" to infuse bacteria and genes from other plants which could lead to unexpected negative consequences. However, despite public opposition against genetically modified organisms (GMOs), scientific research has shown that they make valuable contributions to sustaining agriculture. Nevertheless, as mentioned above, biofortification can also be achieved through selective breeding. It appears to be the more preferred way as it does not interfere with the genetic makeup of the crop, just like the case of "The Orange Sweet Potato". It is recommended that the international community to invest more in research and development in this area. This will be a long term goal, that could be set as a target for Goal 2 of UN's SDG - Zero Hunger. Scientists, agricultural specialists, nutritionists should collaborate internationally. With concerted effort, the Goal of Zero Hunger can be reached.

## **Conclusion**

Unquestionably, Cambodia's journey to fight food security, particularly receiving sufficient nutrition is difficult due to the many barriers. Cambodia is a poor, rural, developing country, and this alone already puts Cambodia in a big disadvantage. Apart from such environment, Cambodia's lack of government support, education, and health care worsen the food security problem. The lack of diversity in crops contributes to the high malnutrition rates. In fact, it is one of the highest in Southeast Asia. However, there is only a slight positive trend in recent years as the country is growing at a snail's pace. Poverty and global warming intensify the severe condition.

Providing education and care to pregnant and nursing mothers are crucial as they are the key to children's health. Organizations such as World Food and World Health Organization can set up prenatal care centers around the villages in Cambodia. The service will include nutrition education by a team of outreachers, as well as providing adequate nutritious food that a pregnant or nursing mother needs.

Integrating nutrition education in primary school curriculum will benefit many young schoolers. They will learn how to achieve a balance diet through interactive games and talks by a team of nutritionists from international organizations like United Nations.

Education and care is nothing if the country does not have sufficient food. Hence, United Nation can help set up special trade agreements between Cambodia and other developed neighboring countries, such as Singapore, Hong Kong, Korea, Japan and even China. These relatively richer countries not only can they not take advantage of Cambodia, but they also have to give more from a humanity perspective, the determination to help Cambodia escape malnutrition problem.

Biofortification has been more common recently to help developing countries to sustain their agriculture. Rice can integrate more micronutrients through selective breeding, a kind of biofortification. Since this will take a longer period of time to see results, this can be a goal to achieve by 2030.

Implementing these recommendations with the help of other countries, national government, and international organizations will help fight malnutrition in Cambodia. The fight will go on.

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