

An Analysis of Malnutrition Programming and Policies in Peru

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Executive Summary

This paper presents an analysis of policies to reduce chronic malnutrition in Peru. The causes of malnutrition in Peru are direct, including food insecurity and poverty, and indirect, such as lack of access to markets, transportation, and education; inadequate water and sanitation; cultural practices; and weak governance. There are numerous programs funded by the Peruvian government, international donor agencies, and non-governmental agencies currently in place in Peru to reduce malnutrition. These programs vary in the direct and indirect causes of malnutrition that they target and in their success in reaching their target population and reducing malnutrition rates. Our recommendations to strengthen Peru's nutrition programs include policies to address malnutrition in the short-term as well as long-term sustainable policies. Our recommendations include: (1) Establishment of a national malnutrition committee; (2) South-South cooperation; (3) Nationwide mandatory nutrition education in schools; (4) Increase funding of the Juntos cash transfer program; (5) providing food supplements with greater support from the health system; (6) Monitoring and evaluation as a component of all nutrition programs; and (7) Establishment of a nationwide comprehensive community-centered program.

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1. INTRODUCTION

The term malnutrition essentially means “bad nourishment.” Malnutrition can refer to the varied conditions of too little food as well as too much, the wrong types of food, or the body's response to a wide range of infections that result in mal-absorption of nutrients or the inability to use nutrients properly to maintain health. Clinically, malnutrition is characterized by inadequate or excess intake of protein, energy, and micronutrients such as vitamins, and the frequent infections and disorders that result. People are malnourished if they are unable to fully utilize the food they eat because of such things like diarrhea or other illnesses (secondary malnutrition), the over consumption of calories (over nutrition), or an inadequate consumption of calories and protein for growth and maintenance (under nutrition or protein-energy malnutrition).¹

Long-term malnutrition is generally indicated by “stunted” growth, which reflects a person’s failure to reach growth potential as a result of suboptimal health and/or nutritional conditions. High levels of stunting in a population are associated with poor socioeconomic conditions and increased risk of frequent and early exposure to adverse conditions such as illness and/or inappropriate feeding practices.² In Peru, the problem of stunting is greatest in the highland and jungle regions and, within these, rural areas face an even higher risk of stunting.³

Malnutrition in Peru can be attributed to multiple causes, both direct (including insufficient amounts and variety of food consumption) and indirect (exclusion from markets, food insecurity, education levels, unclean water, inadequate sanitation, cultural preferences and ineffective

¹ World Health Organization. “Malnutrition.” Retrieved from: http://www.who.int/water_sanitation_health/diseases/malnutrition/en/ on 15 March 2007.

² World Health Organization. “Child growth indicators and their interpretation.” Retrieved from: <http://www.who.int/nutgrowthdb/about/introduction/en/index2.html> on 15 March 2007.

³ Rogers B. Rajabiun S. Levinson J. Tucker K. 2002. “Discussion Paper 2, Reducing Malnutrition in Peru: A Proposed Strategy.” Tufts University. pg. ii. Retrieved from: http://nutrition.tufts.edu/pdf/publications/fpan/wp02-malnutrition_peru.pdf on 15 February 2007.

governance), with resultant effects on health outcomes as well as the country's economic and social development.

The objective of this paper is to analyze policies aimed at reducing chronic malnutrition in Peru. We begin in Section 2 with a discussion of the sources of malnutrition in Peru, which can be categorized as direct and indirect, as well as the health and other impacts of malnutrition. We proceed to describe and analyze programs that attempt to improve the nutritional status of Peru's population. Section 3 focuses on programs that explicitly target malnutrition, while Section 4 examines programs that affect nutritional status through more indirect means. We conclude in Section 5 by proposing six recommendations that attempt to strengthen these programs by building on their strong points and encouraging cooperation between Peru and other countries that face substantial malnutrition problems.

2. CHRONIC MALNUTRITION IN PERU: CAUSES AND IMPACTS

2.1. Direct Causes of Malnutrition

2.1.1. Food Insecurity

For a large proportion of Peru's population, even individuals and families who have sufficient resources to purchase food, insecurity in the food supply limits their ability to do so. While 1/3 of Peru's population remains tied to agricultural production for their livelihood, harvests have not been able to keep pace with the rapid growth of Peru's population. Although total agricultural output has increased recently, not all food products have experienced increases in production. This is exemplified in Appendix A where we see that some food products (vegetables, barley, bovine meat, cereals (non-traditional), milk, onions, and potatoes) have increased; the production of beans, maize, soybeans, wheat, and animal fats have peaked (or their output initially increased from 1990 to 2000, but recently the production of these foods has decreased); and the production of crustaceans, demersal fish (saltwater fish), and other meats (including llama and alpaca) has decreased. However,

of more relevance is that the food products that have increased have done so by a very small margin over the past 5 years, especially Peru's main staple crop of potatoes.

Although some food product imports have decreased in recent years, as demonstrated in Appendix B, overall Peru is a net importer of food, particularly certain meats and dairy products, grains (wheat particularly), and vegetable oils.⁴ In 2002, Peru imported nearly \$250 million of food products, mostly processed food, which was a continuation in a trend of 4% annual growth in food imports since the late 1990s.⁵

Thus, the nutrition and food-intake of Peruvians is very susceptible to food supply and price shocks of the commodities it imports and produces. Recently, the government of Peru reported that, "consumer prices jumped to a 0.26 percent increase in February, 2007 from 0.01 percent in January, 2007...The greatest (price) increases were seen in food and beverage prices, which rose 0.5 percent, led by a 3.6 percent jump in fresh vegetables."⁶ Therefore the recent jump in the price of food in Peru will have a strong effect on Peru's most impoverished populations, who will be less able to afford food (particularly healthy and nutritious food such as fresh vegetables) as the price of food continues to rise sharply. Most significant, with 40% of Peru's population earning only 10% of the country's income, while the top 20% of Peruvians in regards to income earn 59% of the country's income, there is great inequity and disparity relating to how much of the increased food production and food imports that certain segments of the population can buy and consume.⁷

The scarcity of arable land, just 2.9% of Peru's land area⁸, is a major concern in all regions of the country. Other land-based issues affecting agriculture and nutrition in Peru:

⁴ Rogers B. et al. "Discussion Paper 2, Reducing Malnutrition in Peru: A Proposed Strategy."

⁵ Gutierrez V. "Niche, Ingredient Markets Growing in Peru." *AgExporter*. Oct 2003. Vol.15, Iss. 10; pg. 6

⁶ Reuters. "Peru Feb CPI jumps; 12-mo inflation at 6 year-low." 1 March 2007. Retrieved from: <http://www.reuters.com/article/economicNews/idUSN0127426420070301?pageNumber=1> on 10 April 2007.

⁷ UNICEF. "At a glance-Peru." Retrieved from: <http://www.unicef.org/infobycountry/peru.html> on 10 April 2007.

⁸ Food and Agriculture Organization of the United Nations (FAO). "Country Pasture/Forage Resource Profiles." Retrieved from: <http://www.fao.org/ag/agp/agpc/doc/counprof/peru/peru.htm> on 6 April 2007.

- With over 33% of the population, the Andean region has limited soil fertility, high population density in its arable regions, and lacks the potential for diverse crop production because of high altitude.
- The northern and southern coastal areas of Peru are experiencing rapid desertification, and increasingly depend on irrigation for farming. Furthermore, Peru's largest cities (including Lima where nearly 1 in 3 Peruvians current live) are located along the coasts where rapid growth is decreasing the amount of arable land.
- Although the Amazon basin contains 98% of the country's water supply, the area is sparsely populated and establishing agriculture in the rainforest requires high investment costs, not to mention strong condemnation of the deforestation of the Amazon.

With the precarious geographical situation of arable land in Peru, a majority of food production is limited to the irrigated valleys of the coastal region, whose production capacity cannot meet Peru's food demands. Additionally, investment in irrigation by the Peruvian government is limited, and irrigation technology is often outdated.⁹

Food insecurity is further complicated by the inconsistency of Peru's agricultural production due to variability in weather, climate and ecological factors. The El Niño phenomenon affects agricultural production in Peru. El Niño occurs when the Pacific Ocean heats up off the west coast of South America, causing high levels of rainfall in Peru and snowfall in the Andean regions.¹⁰ The increased moisture leads to flooding in Peru, which is detrimental to the many agricultural areas that are highly concentrated near local rivers, particularly in the more arid coastal regions. Flooding causes high losses of crops and decreased food production, leads to erosion, and washes away many of the valuable nutrients that are contained in the soil. Further, seafood is a valuable food source along the coast of Peru however, during El Niño periods, fish and crustaceans that are staples of Peruvian food, tend to move farther away from the warm waters off the coast, decreasing fishing yields. Worse, with weakened immune systems due to malnourishment and more areas of stagnant

⁹ Ibid.

¹⁰ Kovats SR. Bouma M. Hajat S. Worrall E. Haines A. "El Niño and Health." *The Lancet*. November 2003. Vol. 362. Iss. 9394. pgs. 1481-1489.

water from increased rainfall, incidence rates of malaria, dengue, and other parasitic diseases tend to rise and greatly reduce the health of malnourished individuals.¹¹

Food security is also an issue in urban areas of Peru, but for differing reasons. Malnutrition is greatly reduced in urban areas because of the constant availability of food brought to urban markets, greater access to canned goods and processed food that can last for longer periods of time, and high prevalence of imported foods¹². However malnutrition does exist in urban areas, often highly correlated with poverty and seasonality. Although most types of foods are available year-round, during summer months (December thru February) more fruits and vegetables are available at cheaper costs in urban areas, while meat and animal products are limited and more expensive. This may cause impoverished people to suffer from protein and iron deficiencies during this period due to the decrease in availability and the higher price of meat and animal products.¹³ Meat and animal products are more available and cheaper during the winter months (June-August), yet fewer vegetables and fruits are available and their costs are substantially more, which may cause other vitamin deficiencies in impoverished urban populations.¹⁴ Also, people in urban areas are more susceptible to changes in policies that support food subsidies, and the volatility of market prices for food. For example, in 1988, the Peruvian government withdrew price subsidies for wheat, meat, rice, sugar, and powdered milk, significantly decreasing the population's purchasing power and resulted in higher levels of stunting for urban children born in 1985, 1986, and 1987.¹⁵

2.1.2. Poverty

Poverty is a major determinant of malnutrition in Peru for several reasons. Malnutrition is a condition generally associated with deprivation, whether at the individual/family level, community,

¹¹ Kovats SR et al. 1481-1489.

¹² Martin C. Segura JL. Bern C. Freedman D. Lescano AG. Benavente L. Cordero L. Clavijo L. Gilman J. "Seasonal change in nutritional status among young children in an urban shanty town in Peru." *Transactions of the Royal Society of Tropical Medicine and Hygiene*. 1996. Iss. 90. pgs. 442

¹³ Ibid. pg. 444.

¹⁴ Ibid. pg. 444.

¹⁵ Ibid. pg. 445.

or the national level. A report produced by the Pan American Health Organization¹⁶ found that among children of the poorest 20% of families in Peru, the risk of dying from nutritional deficiencies is eight times higher than among children of the richest 20% of families. The most direct way poverty contributes to chronic malnutrition is by limiting an individual's ability to purchase food in adequate amounts or variety. But poverty is also tied to a larger problem whereby poorer populations often lack access to clean water and sanitation services. Additionally, poor populations often face limited access to healthcare services, including prenatal and childhood care, as well as treatment for other conditions that can lead to malnutrition, such as intestinal parasites. Furthermore, school attendance rates among poor children are often dismal because of their family's economic and social needs. For example childcare or augmenting family income, which has the dual impact of limiting children's future earning potential while also excluding them from nutrition programs implemented through schools.

2.2. Indirect Causes of Malnutrition

2.2.1. Access to Markets

The problem of malnutrition and poverty is exacerbated by a lack of access to markets. For many of the inhabitants of the Andean and Amazon regions (especially indigenous populations), poverty and malnourishment persist because they are essentially excluded from the market economy. In contrast to the fertile valley areas where most productive land is dedicated to the production of cash crops, highland farmers produce mostly for subsistence, generating little or no income from crop sales. Further complications in market access include the lack of transportation infrastructure between Andean and Amazon rural communities and market towns in these regions as well as the limitation of growing high-demand crops in the Andean highlands.

¹⁶ Pan American Health Organization. 2002. "Peru." In *Health of the Americas Volume II*. Washington, D.C.: PAHO.

2.2.2. Transportation

Transportation is another important piece of the malnutrition picture in Peru because the lack of infrastructure inhibits the flow of goods and people. The challenge of improving infrastructure is quite daunting, owing to Peru's topography, which ranges from desert flat lands, to snow-capped mountains, to jungle within a span of a few hundred miles. Prospects to increase transportation networks are constrained by the high costs and difficulty that such projects would entail. The country, therefore, lacks needed secondary and tertiary roads to many of its potential rural agricultural areas. This means that transportation time is greatly increased and the quality of food products upon arrival at markets may be questionable, or simply not profitable due to spoilage.¹⁷ Although the Amazon Basin has a huge potential to be an agricultural panacea for Peru, transporting agricultural goods from this region to the urban centers of the coast and Andean valleys is a great challenge because of the difficulty of navigating the Andean roadways and the lack of roads to and within the Amazon region. Furthermore, lack of reliable transportation limits access to healthcare services, especially for those in rural areas.

2.2.3. Water and Sanitation

Water and sanitation issues play an important, but sometimes neglected, role in influencing nutritional status. While quantity and variety of food consumed is often highlighted as the key determinant, proper metabolism of foods can be severely limited by certain health conditions. Chief among these are diarrheal disease and parasitic infection. Both are highly prevalent among inhabitants of rural regions, especially in the jungle where overall prevalence of diarrhea was 25.0% in the year 2000.¹⁸ Infections are primarily transmitted through contaminated water or unhygienic practices, like the failure to wash hands before preparing food. Access to water and sanitation services is in need of improvement, and the need is greatest in rural areas. The proportion of homes

¹⁷ FAO. "Country Pasture/Forage Resources Profile."

¹⁸ Pan American Health Organization. pg. 595

with access to basic sanitation services was much lower in the rural areas (53.0%) as compared to Lima (97.5%).¹⁹ Water treatment statistics are similarly disparate across the rural/urban divide.²⁰

Along with transportation infrastructure, water and sanitation services must be strengthened in order to decrease malnutrition rates, and behavioral education should be emphasized as well.

2.2.4. Education

Education can impact malnutrition levels through a number of pathways. The Peruvian Ministry of Health has found that a mother's educational level is associated with child malnutrition, with malnutrition rates decreasing with a mother's educational level. Among mothers with no education, chronic malnutrition among children under five years of age reached 54.5% in 2005, while in women with secondary education the rate was far lower at 16.0%.²¹ In the same year, among mothers with post-secondary education, the prevalence of malnutrition among young children was even less: just 3.0%. The reasoning behind this relationship of mother's education and malnutrition is two-fold. First, mothers with less education are employed in low paying jobs, tend to start having children earlier, with less time spacing between each child, therefore increasing the burden of income to pay for a household's food.²² More directly, lack of education often points to scarcity of knowledge about health issues (particularly malnutrition), and reluctance to turn to health care services to deal with their health issues.

Of particular concern in limiting malnutrition and stunting in Peru is the geographic accessibility of schools. Families that live in inaccessible rural regions have less opportunity to send their children to school due to distance and the costs of getting children to school, or staying with a relative in a community near a school. Children who do not attend school are excluded from

¹⁹ Ibid. pg. 464

²⁰ Ibid. pg. 464

²¹ Ministerio de Salud. "Lactancia y nutrición de los niños. ENDES Continua 2004-2005: Presentación de Resultados Preliminares." 2005.

²² Rogers B. Rajabian S. Levinson J. Tucker K. 2002. "Discussion Paper 2, Reducing Malnutrition in Peru: A Proposed Strategy." Tufts University. http://nutrition.tufts.edu/pdf/publications/fpan/wp02-malnutrition_peru.pdf

government education and food supplementation programs that are implemented through schools. Furthermore, lower education levels lead to restricted wage-earning opportunities in the future.

2.2.5. Cultural Practices

Cultural practices affect many spheres of life, but they are particularly influential in matters of food preparation and consumption. Certain foods may have strong ceremonial or religious ties, or may be preferred by a population simply as a matter of tradition. As a result, such groups may be less interested and tend to dislike other foods that may be more nutritionally superior. While this is a very wide generalization, it may be proven by the strong interest in populations in the Andean highland to cultivate potatoes versus other crops that may be nutritionally superior. As cultural groups become reliant on a food staple, health outcomes suffer because individuals are not able to obtain adequate caloric intake or essential vitamins and minerals. Furthermore, if a core crop fails during a given year, the consequences for the health of a dependent population can be devastating, especially for groups without access to other food sources.

2.2.6. Governance

In many of the rural regions of Peru malnutrition, especially child malnutrition, is seen as a normal or unavoidable life event. Unfortunately, many regional governments have not prioritized malnutrition as a serious health issue deserving of substantial funding. In November 2006, during the Andean Conference to end malnutrition, President Garcia was quick to blame regional governments for squandering mining tax revenues on new elaborate government buildings and other self-aggrandizement programs, instead of focusing on malnutrition.²³ President Garcia stated that “The cost to countries from failing to eradicate under-nutrition is a staggering six percent of gross

²³ International Herald Tribune. “Peru president opens Andean conference to end child malnutrition.” 23 November 2006. Retrieved from: http://www.ihf.com/articles/ap/2006/11/23/america/LA_GEN_Peru_Child_Malnutrition.php. on 19 February 2007.

domestic product. Not only is under-nutrition impeding the development of individuals, it is acting as a brake on economic development.”²⁴

At the national level, malnutrition programs are plagued by other problems. While significant resources have been dedicated to the issue over the years, progress has been slow. National malnutrition programs have been characterized by unresponsiveness to local needs and wasted resources. Government officials have reportedly been afraid to allocate resources to nutritional programs with a history of ineptitude, due to the fear that they may later be sued for misuse of funds.²⁵ Yet another problem is the lack of inter-sectoral cooperation among Ministries and organizations to address more of the root causes of malnutrition, such as transportation and education, rather than simple reliance on food supplementation programs.

As recently as March 10, 2007, a number of regional presidents gathered in Lima to sign the “Lima Declaration” against malnutrition, which sets forth a goal of reducing childhood malnutrition by five percent by the year 2011. The national government believes this to be an important step towards motivating the regional presidents to take the lead in the fight against malnutrition.²⁶ Whether such progress will materialize will depend on a number of factors, including the government’s ability to delegate power to regional governments and to overcome the hurdles of bureaucracy and inefficiency.

2.3. Impacts of Chronic Malnutrition in Peru

2.3.1 Health Impact of Chronic Malnutrition

Chronic malnutrition among young children is a significant cause of mortality and morbidity. The World Health Organization (2006e) estimates that more than half of the world’s 10.8 million child deaths (under age five) are due, in some part, to malnutrition. For those children that do

²⁴ Ibid.

²⁵ Personal communication with USAID program officers, from a March 1, 2007 interview. Lima, Peru.

²⁶ Gobierno del Perú. “Gobierno y presidentes regionales juntos contra la desnutrición.” Retrieved from: <http://www.pcm.gob.pe/Prensa/ActividadesPCM/2007/Marzo2007/10.03.2007-2.htm> on 15 March 2007.

survive malnutrition during childhood, the condition can lead to lifelong consequences for their health and development, both physical and mental.²⁷ Of the three most common indicators of childhood nutritional status, measures of “stunting” are most commonly employed in Peru. Stunting measures a child’s height in comparison to age, and is also considered indicative of childhood poverty.²⁸ A policy paper from Tufts University reports childhood malnutrition rates of “crisis proportions” in Peru: in 2002, 25.4% of all children under five suffered from stunting.²⁹

Besides its impact on child morbidity and mortality, malnutrition can also lead to susceptibility among children and adults to other conditions, especially infectious diseases. According to the World Health Organization (2006d), “poor nutrition contributes to 1 out of 2 deaths (53%) associated with infectious diseases among children under five years-old in developing countries.” Some infectious diseases further weaken the body, through diarrhea or other mechanisms, and compound existing malnutrition problems. The situation is aggravated when those affected are unable to seek medical treatment, which may result from a number of factors, as discussed above. This cycle of malnutrition and disease contributes to an extraordinarily high disease burden among the poor and malnourished of Peru.

2.3.2 Other Impacts of Chronic Malnutrition

Rogers et al. note that the “high prevalence of stunting in the population has grave implications for the economic development of the country”³⁰ through its effects on children and adults alike. Stunting hinders childhood development and can lead to poor cognitive ability, which may later prevent them from reaching their full potential in school. Thus in areas of Peru where childhood malnutrition remains high, investments in education are often seen as ineffective since

²⁷ World Health Organization. “Child growth indicators and their interpretation.” Retrieved from: <http://www.who.int/nutgrowthdb/about/introduction/en/index2.html> on 14 March 2007.

²⁸ UNICEF. “A report card on nutrition. Number 4, May 2006.” Retrieved from: http://www.unicef.org/progressforchildren/2006n4/index_additionalstories.html#stunting on 15 March 2007

²⁹ Rogers B et al. 2002. pg. ii.

³⁰ Ibid. pg. ii.

children are unable to learn and fully take advantage of education programs. This has led to some areas of the country reconsidering their funding for educational programming. Educational performance in Peru is also compromised by the low energy foods that children consume, decreasing their ability to pay attention or complete homework tasks.

Malnutrition affects adult performance as well. As people in Peru are not only stunted due to malnutrition and are less physically capable of doing some tasks, their low level of caloric and vitamin intake means that they are often less able to do work for longer periods of time, especially more strenuous tasks. Overall, physical labor in Peru is often less productive than it could potentially be if malnutrition could be curbed.

3. ANALYSIS OF PROGRAMS TARGETING NUTRITION

3.1 Peruvian Government Action and Programming

Peru's government supports a multitude of programs that address the challenges of malnutrition in the country. This section describes in detail the four government programs that most directly address nutrition – Comedores Populares, Vaso de Leche, Desayunos Escolares, and the new PIN (Integral Nutrition Program) initiative – and suggests recommendations for improving each program's effectiveness. The Peruvian government spends about \$250 million a year on food assistance programs to vulnerable populations in the country³¹. Table 1 shows selected public food assistance programs and their budget allocations. Given its recent inception the PIN program does not appear in the table, as the data is not yet available.

Over half of government expenditures for nutrition programs in Peru are spent on the Programa Vaso de Leche and Comedores Populares. In 2000, about 59% of the Peruvian government expenditure for food assistance was concentrated in these two programs, 43.1% and

³¹ Ibid. pg. ii.

15.8% respectively.³² Desayunos Escolares also receives a significant portion of funding from the government for its nutrition-targeted programs. With about \$51 million invested in Desayunos Escolares in 2002, it is the second most funded public nutrition program in Peru.³³ The next section describes these government programs in detail, with recommendations following each program description.

Table 1. Selected Public Food Assistance Programs in Peru

Public Programs	Oversight Institution	US (\$)	Population Served	US per Capita
Programa Comedores Populares	Pronaa	25,804,594	897.303	\$29
Desayunos Escolares	MoH	51,428,571	1,891,600	\$27
Vaso de Leche	Municipal districts	92,892,571	4,009,739	\$23

Source: Rogers B. Rajabian S. Levinson J. Tucker K. 2002. "Discussion Paper 2, Reducing Malnutrition in Peru: A Proposed Strategy." Tufts University. http://nutrition.tufts.edu/pdf/publications/fpan/wp02-malnutrition_peru.pdf

3.1.1 Programa Vaso de Leche

Program Description

The World Bank initiated the Vaso de Leche ("Glass of Milk") program in Lima in 1984. It uses community municipalities as the basis for providing in-kind transfers of milk and other commodities including cereals and other milk products to households. Priority is given to the 'first-tier' group of households which consist of families with lactating mothers and children age six or younger. Once people in this tier have been provided for, the program distributes milk and related commodities to households with children from 7 to 13 years old, and people suffering with tuberculosis. As determined by the World Bank at the commencement of the program, each municipality has an administrative committee and a Vaso de Leche Mothers' Committee elected from within the respective neighborhood. These internal organizations determine program beneficiaries as well as the administration and allocation of goods within the municipality.

³² Gobierno del Peru. "National Living Standards Survey." 2001. CUANTO.

³³ Rogers B. pg. ii.

The Vaso de Leche program became increasingly popular during the economic stress and downturns of the 1990s. After about 14 years as a program, Vaso de Leche was catering to 44 percent of households with children from age 3 to 11.

Program Analysis

The Vaso de Leche program is based on a good theoretical framework for addressing malnutrition in poor communities. However, as studies have demonstrated, the program fails at various levels of implementation and is not a sustainable solution to the problem of malnutrition. If we measure success of the program with its ability to fulfill its mission, Vaso de Leche fails.³⁴ A majority of communal women's kitchen are found in Lima (60%), with the rest in 'urban coasts'. This means that most of the population served by this program is actually not poor or extremely poor. A study of this program, conducted by researchers at Tufts University, notes that the percentage of beneficiaries of the Vaso de Leche program that is not poor or extremely poor ranges from 60 to 68%. Most of the resources, therefore, are going to middle income Peruvians. In another study sponsored by the World Bank, David Stifel and Harold Alderman assess the impact of this program on households with low nutritional status before the program. After measuring the nutritional status of the same group of participants after the program, Stifel and Alderman come to the conclusion that even though the program functions well as an in-kind transfer to a large number of poor households, it only serves to decrease malnutrition rates by 0.28 percentage points³⁵. This is a dismal improvement rate for a program geared to solving malnutrition in the country.

a. Increase Administrative Efficiency

During our interview with the Veronica Zevala, the Minister of Transportation and Communication, she discussed the difficulty of administrative bureaucracy in getting programs to

³⁴ Palace L. "Operations of the Milk Glass Program, The Glass Does Not Arrive Full". *Economic Peru Magazine*. 10 January 2004.

³⁵ Stifel D. Alderman H. "The Glass of Milk Subsidy Program and Malnutrition in Peru". *The World Bank Economic Review*. 2006. Vol 20. No. 3. Pp. 421-448.

address its goals. This is of particular concern because the funding that directly reaches underserved populations is very small compared to the initial budget allocation for programs. In Vaso de Leche, for instance, Ms. Zevala revealed that only 30-35% of funds for the program actually go to milk and cereal products for mothers and children. There is a need for integrated and efficient administration that will maximize utility to targeted populations. Administration of programs and efficient allocation of funding for programs, like *Vaso de Leche*, will be discussed in the recommendation section of the paper.

b. *Target Populations with Most Need*

Because of the skewed regional location of Vaso de Leche programs to more urban areas, most of the poorest populations do not benefit from the services offered through this outreach. A better approach would be to target areas with greatest malnutrition problems and extend programs to more rural areas where extremely poor families can be served. An evaluation prioritizing the nutritional needs of each region would be a great tool for improving overall health. Peru may want to partner with their universities and research centers to generate data collection for this purpose.

During our interviews in Peru it was brought to our attention that a related problem facing *Vaso de Leche* is that program is a political tool that is used to garner support from constituents. For example, a politician will not stop funding the program for his/her constituents, even if the program no longer reaches its target population. Additionally, the program does not restrict access of deliverable program goods to populations that do not fall under the category of need in its mission. For example, children of police or children of teachers, where the program exists in a school, still receive food through the program. An objective evaluation, possibly from an outside consultant, is needed to define priority communities where Vaso de Leche is most needed and cut funding where populations are well-off so that the program's funding is not subject to political whims.

c. Sustainability

Even if *Vaso de Leche* is perfectly run and foodstuffs are allocated to the right populations, the program will not solve the problems of malnutrition in the long-run. Recommendations for sustainable nutrition programs are listed in upcoming sections.

3.1.2 Programa Comedores Populares

Program Description

Comedores Populares, or Communal Kitchens, emerged in the late 1970s when groups of women came together to prepare food for their community. These communal kitchens became crucial for poor families to survive during times of economic hardship. They serve as a financial aid, providing meals at a lower cost and giving neighborhood women more time for income-generating activities. Organized by women's voluntary associations made up of about 25 women, they prepare meals for approximately 100 people in their neighborhood. About 10% of all meals are provided free to the extremely poor, elderly and sick. The rest of their neighborhood clients pay a minimal fee to support the program.³⁶ Communal Kitchens continue today to provide support to communities in Peru.

Comedores have played a significant role in Peruvian women's civic engagement and social movement. The first communal kitchen was said to have emerged in the Comas district, an impoverished and densely populated part of Lima, in 1978. It was not until 1982 that the government officially expanded on the idea of the communal kitchen. The Belaunde government initiated a program that provided women's groups with a subsidy, infrastructure, and an administrator for their *Cosinas Familiares* program.³⁷

³⁶ Kamioka N. "Women's Voluntary Groups in Lima, Peru: Comedores Populares." *World Learning*. September 2001. Report prepared for delivery at the 2001 meeting of the Latin American Studies Association.

³⁷ Ibid.

Over the years, funding for communal kitchens has been used to generate political support. In the 1980s, *Comedores* began organizing into federations. Initially for the purpose of centralizing food distribution and increasing effectiveness, it facilitated an increase in training and increased participation and leadership among women. In 1986 the National Commission of Comedores (CNC) formed to represent self-managed *Comedores* in 10 districts and attempted to demand support from the government. They later decided against government funding and wanted to maintain their autonomy. In 1988, the CNC achieved a new legal status for *Comedores* as a social base group.³⁸

In the late 1980s and early 1990s, government-supported Comedores were funded by USAID funding of Proyecto de Desarrollo Integral con Apoyo Alimentario (PRODIA) and through President Fujimori's Programa Nacional de Asistencia Alimentaria (PRONAA). (The privately funded PRODIA program will be discussed further in section 3.2.5. Comedores and PRODIA are not the same program, but have similar nutritional aims.) Meanwhile, self-managed kitchens were faced with serious problems due to the economic crisis and obstructions from terrorism. Self-managed Comedores began to take a collective stance and, with assistance from NGOs, they proposed that the government provide funds for their programs. In 1993, after some failed attempts, a law was passed that prioritized food aid to every type of communal food kitchen.³⁹

In 1994, there were an estimated 5,000 *Comedores* in the Lima Metropolitan area and about 13,000 throughout the country. In Lima, an estimated 12,000 women volunteer in *Comedores*.⁴⁰ About half of the *Comedores* are self-managed, originally started by churches or parishes and later by non-governmental organizations. The other half of Community Kitchens is supported by local or central government, and sometimes by political parties. *Comedores* receive basic foods such as rice and beans, and funds to buy perishable items like meat, fish, and fresh vegetables. Some women

³⁸ Ibid.

³⁹ Ibid.

⁴⁰ Ibid.

working at these kitchens also receive support in the form of training in areas such as nutrition, reproductive health, handicrafts, and management.

Program Analysis

a. Offer Paid Positions

We recommend that volunteers serving these kitchens receive monetary pay for their work. Offering workshops on nutrition and leadership classes do not adequately compensate women for their work in *Comedores*. Without pay, the work that community volunteers contribute is taken for-granted and condoned. Providing hourly or stipend positions would not only increase women's financial independence, but it would also raise the status of women in their family and community. According to microfinance ventures, it is often the case that women's wages often go toward household needs, more so than men's wages. Furthermore, paid work is usually the definition of a job and, therefore, would provide women with work experience that can serve as a channel for formal employment.

b. Increase Funding for the Program

Community kitchens often face the problem of scarcity of funding and lack of a consistent source of funding⁴¹. Because of the politically charged history of the *Comedores Populares*, the program is subject to political whims, changes in administration, or times of economic hardship, when funding is most needed. The *Comedores* is an effective way to serve the nutritional needs of communities while promoting community cohesion.

⁴¹ Baghaei-Zandieh M. "Community Kitchens of the Port Coquitlam Area Women's Center." CED 404 Project. Simon Fraser University. 10 January 2002. Retrieved from: <http://www.sfu.ca/cscd/resources/students%20papers/BaghaeiM404.pdf> on 12 March 2007.

3.1.3. Desayunos Escolares

Program Description

Desayunos Escolares, or the Program of Scholastic Breakfasts, provides financial aid for states to operate programs of food distribution in schools and homes where infants are present. The program is operating in about 72,000 schools and institutions that serve an average of 7.4 million children a day. The program was established in 1966 as a two-year pilot project designed to provide categorical grants to assist schools serving breakfasts to undernourished children. In its first year, the program managed to serve 80,000 children at a cost of \$573,000. In 1975, the program received permanent authorization, continuing to emphasize participation of schools in severe need to improve the nutrition and dietary practices of children of working mothers and poor families.⁴²

Program Analysis

a. Clearer Coordination and Administration of Program

Studies of the program have shown that *Desayunos Escolares* has great potential to improve the learning capacity of students by, for example, improving short-term memory and nutritional state of children⁴³. However, the program would be more effective if it targeted populations with greater nutritional risk. Additionally, since there are two federally-mandated programs that aim to address nutrition in schools, implementation should be better coordinated or programs should be put together to reduce administrative costs and improve efficiency.

⁴² Department of Agriculture Servicio de Alimentos y Nutricion. "Programa de Desayunos Escolares." Retrieved from <http://www.fns.usda.gov/cnd/breakfast> on 10 March 2007.

⁴³ GRADE Analisis & Propuestas "Los Programas de Desayunos Escolares: Su Impacto en el Rendimiento Academico." June 2001. Retrieved from <http://www.grade.org.pe/boletin/03/art01.htm> on 10 March 2007.

3.1.4 Integral Nutrition Program (PIN)

Program Description

The Integral Nutrition Program consolidates six national nutrition programs into one program of targeted malnutrition prevention. As part of the national government's commitment to reduce chronic malnutrition in Peru by 5% over the next 5 years, the general objective of PIN is to contribute to the prevention of malnutrition in children under the age of 12 by prioritizing interventions to children under the age of 3, pregnant women, lactating women, and the poor and extreme poor who are at high risk for malnutrition. It is estimated that 52% of Peruvian children under the age of 3, and 58% of children between ages 3 and 6, will participate in PIN.⁴⁴

Created by law in 2006,⁴⁵ PIN integrates the following national programs: PACFO - a malnutrition prevention program for children between 6 and 36 months of age; PANFAR - a program to improve the health and nutrition in the poorest regions for children between 6 and 36 months of age and their mothers; Comedores Infantiles – a program to improve nutrition for children between 6 months and 6 years of age through food assistance and capacity building for mothers; CEIS Pronoeis – a program for children between 3 and 5 years of age with a focus on improving nutrition in pre-school and primary education; Desayunos Escolares – a program to improve nutrition in primary education for children between 6 and 12 years of age by providing breakfast in school; and Almuerzos Escolares – a program to improve nutrition in primary education for children between 6 and 12 years of age by providing lunch during school.⁴⁶ The new program combines resources from three ministries – the Ministry of Health (MINSA), the Ministry

⁴⁴ Ministry of Women and Social Development. “Plan Nacional de Lucha contra la Malnutrición 2006-2011.” No publication date.

⁴⁵ Personal communication with ADRA staff, from a March 2, 2007 interview. Lima, Peru.

⁴⁶ Ministry of Women and Social Development. “Plan Nacional de Lucha contra la Malnutrición 2006-2011.” No publication date.

of Women and Social Development (MIMDES), and the Ministry of Education (MINEDU).

However, the responsibility for implementing the PIN lies with local governments.⁴⁷

The goals of PIN are numerous. For children less than 3 years of age, pregnant women, and lactating women, the program aims to prevent chronic malnutrition and anemia, promote exclusive breastfeeding through 6 months of age, promote proper complimentary feeding after 6 months of age, promote healthy behavior for pregnant and lactating mothers, and promote the integration of health care, proper feeding, and nutrition in children. For children between the ages of 3 and 12, the focus of PIN is to prevent anemia, promote school attendance, and promote healthy behaviors on children and their parents. By 2009, the program will attempt to reach 100% coverage of PIN for children under 12, pregnant, and lactating women of the two lowest wealth quintiles (poor and extremely poor). To that end, there are four primary components of PIN: (1) Food assistance with a focus on foods rich in iron and vitamin A; (2) Education for mothers and caretakers that includes balanced nutrition for children, hygiene practices such as hand washing, and exclusive breastfeeding; (3) Capacity development for the regional and local governments and civil society that includes development of integrated health and nutrition planning; and (4) Monitoring and evaluation through establishment of base line measurements and integrated information systems between local governments, regional governments, the Ministry of Health, and the Ministry of Education.⁴⁸ .

Lastly, although PIN combines programs from three ministries and places responsibility for implementation with the local government, the three ministries still have large roles within PIN. For the Ministry of Health, one goal of PIN is for all of the children in the PIN target population to receive health insurance from the Ministry through the SIS (Seguro Integral de Salud) insurance program. As such the Ministry of Health would be responsible for providing health care to the children of PIN including immunizations, micronutrient supplementation, and nutritional education.

⁴⁷ Personal communication with ADRA staff, from a March 2, 2007 interview. Lima, Peru.

⁴⁸ Ministry of Women and Social Development. "Plan Nacional de Lucha contra la Malnutricion 2006-2011."

The Ministry of Education is responsible for formal education in preschool and elementary school, and another goal of PIN is for all children in the program to attend school. For its part, the Ministry of Women and Social Development is responsible for the development of the ability to care for children with a focus on caretakers, local institutions, and the family and community.⁴⁹

Program Analysis

As previously discussed, lack of political commitment is a barrier to reducing malnutrition in Peru. To that end, the establishment of the PIN is a strong step for the national government towards its commitment to reduce malnutrition. Another strength of PIN is that the program creates a more targeted and efficient, and less redundant, approach to nutrition programs by integrating the six national programs into one. In addition, by providing food assistance and behavioral education, PIN addresses two of the main causes of chronic malnutrition in Peru. Further, PIN includes components whose effects can be seen beyond the reduction of malnutrition. Ensuring access to education and health care will improve the overall health and development of the children in the PIN program. By including measures for capacity development, PIN can strengthen government at both the regional and local levels in general. Lastly, PIN includes a strong plan for monitoring and evaluation which is essential. Given the number of organizations involved in the implementation of PIN (local and regional governments, the three ministries), it is necessary for the national government to monitor how the program is being implemented, and if it is reaching the target population. Close monitoring and evaluation will avoid waste of resources and is essential to determining if the program is successful.

PIN is also however, quite an ambitious plan, and it is unclear how PIN is going to be realized. Some questions concerning implementation still remain: (1) If funds are channeled from the six previous nutrition programs to local governments for implementation of PIN, how will this

⁴⁹ Ibid.

occur? (2) Which organization will be responsible for overseeing this program and holding all actors accountable, specifically in managing the PIN activities of the Ministry of Health, Ministry of Education, Ministry of Women and Social Development, regional governments, and local governments? (3) Which organization will be responsible for assisting in the capacity development of the regional and local governments? (4) What is the timeframe for implementation of PIN? (5) Will the six programs integrated under PIN end or continue to provide services under the new mandate? (6) The target population of PIN is the poor and extreme poor, however how will those children and mothers be identified and provided access to education and health insurance? (7) What is the role of community involvement in PIN?

If properly implemented, PIN could result in significant reduction in chronic malnutrition as well as produce other benefits from access to health care and education and strengthening of the regional and local governments. However, given the magnitude of what PIN logistically proposes in the consolidation of six programs and responsibilities that span across three ministries, the regional governments, local governments, and communities, it is very realistic that PIN could not be successfully realized. As indicated in a number of interviews, the government of Peru has difficulty successfully implementing one nutrition project at a time. As such, specific delineation of roles and responsibilities among all stakeholders is strongly needed. In addition, PIN would greatly benefit from establishing which organization(s) is (are) responsible for oversight of the program. Strong management of PIN is essential to ensure that the program successfully transitions from a plan into action.

3.2. Private Food Aid Programs

Peru is host to myriad nutrition programs that fall outside of public funds and government management. This section discusses the important role that international organizations, NGOs, and their local partners, have in improving access to better nutrition. Future Generations is an

organization that has had an especially vital role in improving health outcomes for communities through the localized CLAS system. USAID, the World Bank, and the World Food Program are major multilateral agencies that have explicitly identified curtailing malnutrition as an important aspect of their development strategies in Peru and have integrated their approach within Peru's larger public health framework. More specifically, the World Bank's Vaso de Leche Program and USAID's "Buen Inicio" Nutrition Program provide an interesting comparison of the types of intervention that development agencies have used to address malnutrition. CARE examines increasing income at the individual household level as a way to improve malnutrition challenges. The Hunger Project's respective partnerships with DESCO and Chirapaq Peru showcase an approach to malnutrition that has been shaped by geographic location and local requirements. Furthermore, from a research perspective, these organizations have readily available, detailed information, conveyed in English, about their nutrition programs to help us gain more insight on the day-to-day management of these programs, as well as their impact on malnutrition in Peru.

3.2.1. Future Generations Program

Program Description

The non-profit organization, Future Generations, has implemented a pilot program in Las Moras Health Center focused on the reduction of chronic malnutrition. The program works within the Local Community Administrations of Health (CLAS) system which is a model of co-management of primary health services between the government and the community. Through the CLAS system, funds are transferred from the government to a community CLAS association that decides how to most efficiently use those funds at the local level. One CLAS association can manage a micro-network of a number of primary health care centers or posts. The clinics remain government property but are managed by the community through the CLAS.⁵⁰

⁵⁰ Personal communication with Future Generations staff, from a March 1, 2007 interview. Lima, Peru.

The unit of organization of the Future Generations' program is the community. The program consists of a number of components, including the development of a multi-sectoral plan, where the local community health plan is coordinated with other local plans, and mapping to identify households with children and pregnant women. In addition, a survey is conducted in each household that inquires as to the main problems for all members of the household, the type of information that the household would like to learn for each member of the household, and the changes that are needed in the community. In this way, demand for services within the community is identified by the community members themselves.⁵¹

Subsequently, the core services of the program are administered through community health promoters. Community leaders in each community identify and select community members to serve as health promoters. The health promoters then receive training on how to monitor the nutrition of children and pregnant women at the household level. To facilitate the monitoring of household nutritional status, Future Generations developed a tool for the health promoters that have a column for each child they are responsible for visiting and specifies what the promoter must check for each child during each visit. For example, it is indicated on the tool that for each child, promoters have to check whether the child is being exclusively breastfed up to 6 months of age. After 6 months of age the promoters monitor the consistency and amount of food being given to the child, such as if child is receiving foods rich in protein and vitamin A. The tool also indicates that promoters should monitor if the child has received their vaccinations, the growth and development of the child, and if the child has received a check-up at a health facility. The protocols on nutrition and development included in the tool follow the standards developed by the Ministry of Health.⁵²

The health promoters are responsible for visiting each child in a household once a month for the child's first year of life, and after the first year, once every 3 months. Each promoter is

⁵¹ Ibid.

⁵² Ibid.

responsible for an average of 30 households, however not all households contain children and pregnant women. The promoters work on a volunteer basis. Although Future Generations believes in the importance of the promoters receiving incentives for their work, the organization does not support parties outside of the community to provide the promoters with financial retribution. Proper incentives for promoters include payment from their community or exoneration from community work. To promote empowerment of health promoters and sustainability of the program, Future Generations supports the organization of health promoters into associations. As an association, promoters are organized into a legal entity that could receive donations, own a business, or contract with CLAS associations.⁵³

In addition to education on good nutrition practices, the Future Generations program includes education on safe water handling and water treatment at point of use. Best practices include hand washing, storage of water in covered containers, boiling of water with storage in clean containers, treatment of water with chlorine tablets, bleaching of water, and treatment of water by the sun. The program also includes linkages between the community and the local health facility. Children are monitored both at home by health promoters and by a health professional at the health facility, with direct follow-up between the two. For example, if a health promoter identifies that a child is not attending check-ups at the health facility, the health professional can intervene.⁵⁴

The pilot program in Las Moras was successful on a number of indicators. Chronic malnutrition among children between 24 and 35 months old in Las Moras fell from 57.9% in the base year 2003 to 29.2% in 2005. This is almost a one-half reduction in chronic malnutrition in 2 years. In addition, the percentage of children between 6 and 35 months old receiving complimentary foods rich in protein increased from 60% in 2003 to 79% in 2005. Those receiving foods rich in vitamin A and iron between 2003 and 2005 increased from 55% to 71% and from 77%

⁵³ Personal communication with Future Generations staff, from a March 1, 2007 interview. Lima, Peru.

⁵⁴ Ibid.

to 94% respectively.⁵⁵ The program is currently being implemented in Cuzco. Unlike most organizations that work with the regional health office when implementing programs, Future Generations coordinated directly with the regional government of Cuzco in order to implement this program. The program in Cuzco is funded by USAID, and plans are to incorporate the program into an existing program for children and adolescents within the Office of Social Development.⁵⁶

Program Analysis

The Future Generations program has a number of strengths. For one, the community as the unit of organization and the demand driven approach create community empowerment. This in turn may aid in the long-term sustainability of the program. In addition, this program addresses some of the root causes of chronic malnutrition in Peru, including maternal education on nutrient rich foods, infection prevention (addressed in this program through checks on vaccinations and promotion of good hygiene), and proper handling and treating of water. Components of this program are also consistent with best practices for reducing malnutrition, such as the promotion of exclusive breastfeeding through 6 months of age, nutrition education that promotes the consumption of nutrient rich foods, accessibility to safe water, and community and family involvement.

On several interviews, we discovered that a large barrier to nutrition programs is working with the government at all levels – national, regional, and local. One reason the government is a barrier is a lack of political will for programs to fight chronic malnutrition. As one person commented, those that suffer the most from malnutrition are not those that vote, therefore there is less incentive for politicians to expend resources on programs that target that population. In addition, government employees may be unwilling to spend money as a government employee can be sued for a failed program, even after the person has left their position at the government. As

⁵⁵ Future Generations International. “Future Generations Peru.” No Publication Date.

⁵⁶ Personal communication with Future Generations staff, from a March 1, 2007 interview. Lima, Peru.

such, garnering political will and buy-in is a challenge, however necessary to the sustainability of any nutrition programs. Future Generations has taken steps towards establishing political buy-in. Specifically, their choice to go work directly with the Cuzco regional government rather than the regional health office is one strategy to engage politicians at the regional level on the subject of malnutrition in their region and to gain support for their specific program. Such political support is essential for the sustainability of the program.

There are a few weaknesses with the program that may inhibit its success if it were to be widely implemented throughout Peru. The program focuses on behavioral change and linkages to the health system; however the program does not appear to assist poor households in accessing food or the health system. While it is not necessarily the responsibility of this program to provide food assistance, it should be taken into consideration that the situations of poor households that cannot afford access to food or the health system are not explicitly addressed through this program. In addition, while the questions in the initial household survey are necessary for identifying the needs of the community and establishing household/community demand, it is unclear how demand for nutrition programs would be established in households or communities that do not recognize need for these programs. Further, such a program would require an intense investment of resources with respect to training of health promoters and close oversight of the program were it to be rolled-out on a national level. While this is not a weakness of the program, it is a consideration in terms of planning for any level of scale-up of this program.

Lastly, a challenge to the success and sustainability of this program is the use of health promoters to engage behavioral change. It is very difficult to change behavior, as a number of factors could undermine the ability of the health promoters to successfully change behavior in their community. For one, the selection of health promoters is critical, as the individuals designated as health promoters must be well-respected throughout the community. Secondly, the volunteer status

of health promoters may also not be sustainable, and lack of financial compensation does not further the economic development of the promoter's household. However, Future Generations promotes the development of an association of health promoters which would address this issue of sustainability. Such an association that would be able to contract with CLAS associations to receive financial compensation or own a business has strong implications for the long-term success and sustainability of this program. In addition, Future Generations stance on not allowing organizations from outside of the community to reimburse the health promoters is a step towards sustainability as outside assistance is unreliable and unlikely to be provided long-term.

3.2.2 USAID's "Buen Inicio" Nutrition Program:

In 2006, USAID was providing program support to several areas of health concern in Peru including enhancing the capacity of the public health sector to respond to infectious diseases and HIV/AIDS, providing support to improve the quality of medical services, and establishing nutrition campaigns in marginalized and impoverished communities. Between 2000 and 2004, the "Good Start ("Buen Inicio") nutrition program was implemented in Cuzco, Cajamarca, Apurimac, and Loreto. In partnership with UNICEF, its mission is to reduce chronic malnutrition and micronutrient deficiencies in children in specific peri-urban and rural communities by utilizing local resources in cost effective ways. Its main features are:

- Providing iron supplements for highly malnourished children
 - Expanding cover and ensuring the provision of iron supplements to pregnant women.
 - Managing logistics for delivery and distribution.
- Establishing a delivery framework that has close physical proximity to the communities
 - Ensuring that all personnel in the field are adequately trained and competent.

- Providing opportunities for one-in-one discussions and consultations with community members and providing for feedback and follow-up of program beneficiaries.
- Prompting and encouraging ‘community promoters’ to assess and preserve community support for the project.
- Distributing instructional and communication education materials for healthcare providers and beneficiaries of the program.
- Ensuring suitable project appraisal and impact evaluation⁵⁷.

This project ended in late 2006, and it was successful in cutting malnutrition between 24 and 41 percent in targeted areas that covered almost 75,000 poor children⁵⁸.

3.2.3 World Food Programme

The World Food Programs initiated its operations in Peru in 1964, and since then it has pursued its objectives to reduce poverty and food insecurity by providing food assistance and introducing systems for sustainable food production. WFP’s programs are mainly concentrated in the Andean highlands (i.e. areas such as Ayachucho, Apurimac and Huancavalica as well as the region bordering Ecuador⁵⁹) where indigenous communities suffer from a greater lack of access to adequate nutrition in comparison with Peru’s population on the coast. The World Food Program has attempted to fit its nutrition programs into the larger framework of the Peruvian government’s public health objectives. It has also made consistent efforts to establish and maintain collaboration with its biggest donors (e.g. the United States and Canada), and to develop partnerships with local programs including PRONAA and CARITAS to facilitate its efforts in the field. By 2004, WFP’s school feeding programs emphasized de-worming for school children, and provided nutritious

⁵⁷ USAID Peru. . “Project Activity: Good Start (Buen Inicio)”. 2004. Retrieved from: http://www.usaid.gov/locations/latin_america_caribbean/environment/IEEs/peru/IEE04_21.pdf on 10 March 2007.

⁵⁸ USAID Peru. “Health”. October 2006. Retrieved from: <http://peru.usaid.gov/docmtos/Health-English.pdf> on 10 March 2007.

⁵⁹ Canadian International Development Agency. “United Nations Associations in Canada.” Retrieved from: <http://www.acdi-cida.gc.ca/cpb/zonejeun.nsf/En/STE-10685549-UZG> on 10 March 2007.

snacks to help reduce anemia and enhance learning capacity for 82,500 primary school students (mostly girls).⁶⁰

Alternative methods for increasing the food supply and food variety in high altitude regions can include growing robust genetically modified crops and the creation of man-made ponds for fish farming. Although these represent possible programs to address nutritional issues in Peru's rural areas, they will most likely face opposition from local community groups and international organizations concerned with their environmental impacts. There are probably more politically feasible and sustainable ways to address access to healthy food without drastically changing the environment. The World Food Program may provide a better model for food support and sustainable food production.

3.2.4 CARE'S Sustainable Food Security in the Andean Highlands

Currently, this food security project targets 72,977 poor households in Cajamarca, Ancash, Ayacucho, and Puno, and it has adopted a two-pronged approach, i.e. consistent rise in income of the households involved in the program in order to ensure access to food, and improvement of nutrition and health of impoverished families. CARE plans to achieve these objectives by helping families to identify better market opportunities and market information, provide assistance to improve their access to crop inputs, and support their efforts to get loans from financial institutions. It also aims to educate the heads of the family (including fathers and mothers) regarding healthier nutrition for themselves and for their households, and plans to involve other community actors such as communal kitchens and community health agents to promote better nutrition⁶¹.

⁶⁰ U.S. Mission to the United Nations Missions in Rome. "US Mission to the Humanitarian Attache-Peru Trip Report". *US UN Rome Mission Trip Reports*. 2004. Retrieved from:

<http://usunrome.usmission.gov/Reports/Peru/PDF/perureport.pdf> on 10 March 2007.

⁶¹ CARE. "Sustainable Food Security in Peru". Retrieved from: <http://www.care.org/careswork/projects/PER086.asp> on 10 March 2007.

The indicators that have been determined to depict the benefits of the program include a 25% rise in income and a decline in diarrhea from 29% to 20% among children that are under three years of age.⁶² The program ended in 2007 because it was designated a nine-year term limit.

3.2.5 Proyecto de Desarrollo Integral con Apoyo Alimentario (Integrated Development and Food Assistance Project)

In the indigent squatter settlements and poor urban areas of Peru, community kitchens have become a common way for inhabitants to share their resources and get sufficient food for themselves and their families. In the late 1990s, CARE Peru and CARE USA joined together to launch Proyecto de Desarrollo Integral con Apoyo Alimentario (PRODIA), a program to assist urban community kitchens. PRODIA's main purpose is to bolster improve communities' lives and to provide direct food assistance and credit funds to members of community kitchens. It has allied with the Peruvian Ministry of Health to promote nutrition education, develop food preparation classes and modules for members, and to provide resources to those community kitchens that have demonstrated the potential to evolve into self-sufficient business operations. Besides channeling food and other resources received from USAID to the community kitchens, CARE has encouraged female PRODIA participants to manage the kitchens on their own and it has helped them in this endeavor by teaching them to "maintain the kitchens, keep accounts, monitor finances, and develop nutritious meals".

The International Food Policy Institute conducted an assessment of PRODIA, and it reported that PRODIA helped to cut down hunger in urban communities during times of economic downturn by arranging for free and subsidized meals, providing women with alternatives to gain

⁶² Ibid.

credit and earn money to supplement their incomes, and helping with ‘training administration, management, food preparation.’⁶³

3.2.6 The Hunger Project

Partnership with DESCO

From 2000 to 2005 the Hunger Project partnered with DESCO to promote the welfare of indigenous communities in the Yurinaki River basin. An important part of this project was to improve family health and nutrition by providing education. The training program concentrated on teaching ways to maintain a balanced diet, and to explain the causes of malnutrition and related diseases. There were also specific workshops for mothers which accommodated their work schedules, and which strove to communicate messages regarding infant and child nutrition and hygiene and sanitation. Within the targeted area, sixty-two indigenous women participated in five capacity-building workshops held in their localities⁶⁴.

Partnership with Chirapaq Peru

More recently, in 2005 the Hunger Project has established an alliance with Chirapaq Peru to implement the food security and sovereignty program for indigenous Andean and Amazonian communities in Peru. This project is currently concentrating on increasing the cultivation and production of local products that would improve nutrition, and it has furthered this objective by training 77 community promoters and helping to cultivate organic production of diverse cultures⁶⁵.

⁶³ Garret J. “Comedores Populares: Lessons for Urban Programming from Peruvian Community Kitchens.” *International Food Policy Research Institute* 2001. Retrieved from: http://www.ifpri.org/pubs/ib/ib9_peru.pdf on 10 March 2007.

⁶⁴ Perlman J. “Empowering Indigenous Women’s Leadership in Peru”. *The Hunger Project*. April 2003. Retrieved from: <http://www.thp.org/peru/2003/update403/index.htm> on 10 March 2007.

⁶⁵ The Hunger Project. “Summary of the Work of Chirapaq Peru in 2005”. 2005. Retrieved from: <http://www.thp.org/peru/2006/board506/index.html> on 10 March 2007.

4. ANALYSIS OF PROGRAMS THAT INDIRECTLY AFFECT NUTRITION

4.1 Women and Gender Issues

As stated in the previous sections, culture is a large issue that indirectly affects malnutrition in Peru. Peru can be described as a “machista” society, where males are favored in the public and private spheres of society. For example, sons are almost always favored for having better access to and receiving higher levels of education versus daughters, and girls are generally assigned a greater number of household tasks than boys.⁶⁶ This occurs even though the private/household sphere is the domain of women, however men are still deferred to for final approval of most household activities. Therefore the preferences of men, in regards to food consumption and meals that are eaten by the family, have strong influence on the nutritional value of the food that families consume in Peru, even if women are interested in changing food consumption to reflect better nutrition.⁶⁷ Future Generations-Peru Director, Dr. Lara Altobelli stated that this is one of the greatest frustrations of NGOs and health workers completing malnutrition prevention: it is very difficult to influence the private sphere, and Peruvian culture in general, to change their diet in favor of something more nutritious.

To combat the gender issues in Peru, and empower women to make better choices regarding nutrition and meal preparation, and to hopefully have stronger say in the food that their household consumes, the Peruvian government has mainly focused on women literacy programs and making certain that more girls attend school. A great deal of this programming is put in place by PRONAA, the national food aid program, administered by the Ministry for the Advancement of Women and Human Development (PROMUDEH), whereby women are given food assistance in exchange for their participation in literacy programs, or sending girls to school. As expressed in a meeting with

⁶⁶ Agenda Peru. *Development Strategies for the 21st Century: the Case of Peru*. Peru Monitor. Copyright 2000. Lima. pg. 276.

⁶⁷ Babb F. *Between Field and Cooking Pot: The Political Economy of Marketwomen in Peru*. University of Texas Press. Copyright 1989. pg. 34.

government officials from an Andean region, women literacy programs are a primary focus of their upcoming development budgets, and are considered a primary intervention to improve health in rural regions of Peru.

International NGOs and assistance programs have been more proactive regarding gender issues by creating programs that reduce the obstacles and barriers that limits gender equity in Peru. NGOs have not only supported literacy programs, but are also providing programming to limit domestic violence, offering family planning services, and empowering women as decision makers in the private sector economy with micro-credit loans for women entrepreneurs, market sellers, and participants in the informal sector, where an overwhelmingly large number of employed women gain wages.⁶⁸

Peruvian NGOs and community organizations are more concerned with the establishment and organization of women groups. The best examples are the strong women groups that developed in Villa El Salvador in the 1970s. Women groups are involved in a variety of activities ranging from teaching each other skills and methods of earning extra income for their households (for example, sharing artisan production techniques to teaching courses on cosmetology)⁶⁹, to sharing health services entitlements, mostly regarding the Peruvian Social Security program, ESSALUD. Regarding nutrition, Peruvian NGOs are strong advocates of improving the services and benefits that women groups receive from Comedores Populares and the Vaso de Leche programs.

Analysis

While it is commendable for the Peruvian government and various NGOs to tackle the barriers preventing women from gaining better equity relationships in Peruvian society, in regards to

⁶⁸ Boesten J. "Poor Women in Peru. Reproducers of Poverty and Poverty Relievers" *Women's Studies Quarterly*. Fall 2003. Vol. 31. No. 3/4. Pg. 113.

⁶⁹ Personal Communication with Villa el Salvador's Women's Group on 2 March 2007. Lima, Peru.

curbing malnutrition, these are long-run programs that may not bear fruition, due to other confounding variables. For example, most of these programs fail to involve men and change their attitudes about gender relations in Peru. Without changing cultural ideals among men, the long-run effects of these programs may still be lessened, and women will still not attain greater equity. Further, in the short-run, regarding malnutrition prevention, all of these programs especially, the literacy programs, need to include more health education regarding malnutrition and ways for women to supplement their meals with nutritious food that is not too different than the regular meals that a household consume. This type of programming is currently in place in several West African countries. However this type of programming must be sensitive to the fact that, it is very difficult to get people to change their diet. Food and meals are a cultural experience, and hold certain values in each society's culture. It may be best to obtain greater Anthropological and Sociological data to determine better methodologies for changing culture in favor of more nutritious food consumption.

Most of the health services concerning women, especially PRONAA, have been too heavy on providing access to the health system, and not emphasizing preventive health programming and increasing health education. To get more favorable results regarding health education and nutrition education programs there seems to be very little inclusion of the ideas of Peruvian women, and finding-out from past experiences what are the best practices for changing nutrition habits and influencing men on acceptance of new food and meal options. Thus most of the programs listed above need to provide greater participatory methods to engage women on ideas to limit malnutrition and other empowerment issues.

Of particular interest for women and gender issues concerning malnutrition would be the scaling up and thereby nationalizing the activities of Center for Study and Promotion of Nutrition (CEPREN), which has produced videos on increasing iron consumption in meals prepared at

community kitchens, and have been contracted via PRONAA to speak to women's groups throughout Lima regarding enhancing nutrition during meals preparation.⁷⁰ Also of great importance would be to simply focus on improving the nutrition of women in households, and thereby creating advocates for better nutrition, once women feel less ill and in better-health from better nutritional consumption.

4.2 Water and Sanitation Issues

Over the past two decades, the Peruvian legislature has debated the contents of the General Water Law, which would determine rights of access to water bodies for irrigation, drinking water consumption, recreational-use, and development of hydroelectric power. Regrettably, legislative consensus on the law has not occurred, and thereby delineations on who has the right to access water remains unclear, and regulations on water usage remain undefined. Without legal recognition of water standards and rights of access, potable water and sanitation are not considered essential rights of all Peruvians. Thus water-usage is often based on a first-come, first-serve methodology. This also means that pollution of upstream rivers and streams is not prevented, and thereby polluted and unclean water is regularly consumed in Peru. Consuming unclean water further exacerbates malnutrition as described in section 2.2.3 .

Without legal standards or regulations established for water usage, Peru's government, and stakeholders involved in water and sanitation programming have yet to make a formal link between water and sanitation programming and malnutrition. By not making this link, there is also a lack of recognition that many of the Peruvians that are malnourished are also the same Peruvians who lack access to potable water and sanitation services. Peru's 2006 National plan stated that 81% of urban Peruvians have access to potable water, and 68% of urban Peruvians have access to sanitation; 62%

⁷⁰ Sanez NC. Door de Ubillas RM. Mendoca Ferreira S. "Increasing Women's Involvement in Community Decision Making. A Means to Improve Iron Status" *International Center for Research on Women*. Research Report Series 1. November 1998. pg. 22.

of rural Peruvians have access to potable water with only 30% of rural Peruvians having access to sanitation. Thus, the impoverished continue to consume water filled with bacteria and parasites, and along with unhygienic disposal of human and animal waste. These actions further the circular relationship between malnutrition and illness.

Water and Sanitation programming in Peru has become a strong area of programming interest for the Peruvian government, with President Alan Garcia stating that he would like for all Peruvians to have access to potable water and sanitation before the end of his current Presidential term.⁷¹ Peru has not developed any policies or programs concerning climate change and water access at present.

The Peruvian government is more than aware of the significant health benefits that could be attained by improving water/sanitation programming in Peru. According to Peru's 2006 National Plan, between 2001 and 2005, \$166 million was invested in water/sanitation programming, with most of the funds going towards the expansion of water/sanitation systems in Lima and other major cities. The government is currently pushing the development and expansion of the PRONASAR Project, being implemented by the Ministry of Housing, Construction, and Sanitation, that aims to improve access to potable water and sanitation among rural families via, installation of potable water and sanitation systems, training of Water Committees (JASS) to administer, operate, and maintain water and sanitation systems; and teaching community members about the importance of water and sanitation programming.⁷² The PRONASAR Project will be implemented by the government via Social Technical Operators, or local and international NGOs with water/sanitation capacity such as CARE-Peru.

⁷¹ Wiener R. "Water for all, gains for some." *Boletín Informativo Mensual*. 6 October 2006. Retrieved from: http://66.218.71.231/language/translation/translatedPage.php?lp=es_en&text=http%3a%2f%2fwww.pidhdd.org.pe%2fboletin%2fsetiembre2006%2f1.htm on 14 March 2007.

⁷² CARE. "Care's work; project information." Retrieved from: <http://www.care.org/careswork/projects/PER101.asp> on 14 March 2007.

NGO and International aid agency assistance complete a myriad of water/sanitation projects ranging from the Centers of Disease Control (CDC)'s help in developing locally manufactured point-of-use water treatment solutions (made of Sodium hypochlorite), to World Bank funded sanitation ponds, where waste water from small towns is drained, treated, and then allowed to seep back into the area's aquifers after passing through filtering rocks, sand, and gravel that line the bottom of the sanitation pond.

Analysis

- Peruvian water projects, including PRONASAR run under the assumption that Peruvians should pay for their use of the water services. Therefore, the rural poor, who are unable to pay for supplements to their diet for good nutrition, are also unable to pay for access to potable water. This becomes a worse situation in the Andean highlands where community members have little access to the cash economy to earn income for water fees. While it can be assumed the intention of funding water access is for sustainability and allowing JASS, or other community mechanisms, the funds to maintain and expand water systems, pricing is rarely scaled, and thereby the most impoverished populations that need access to potable water end up being priced out of the system.
- NGO programming is small in scope and completely uncoordinated. Thus some communities receive strong drinking water programming and limited sanitation programming, while other communities receive the opposite in programming, or no water/sanitation programming at all. Further without coordination, there is the possibility that communities are receiving duplication in programming, or learning different viewpoints and methodologies on how to help their water/sanitation needs. .
- More disconcerting, potable water access and programming (as evidenced by access to those services listed above) are implemented far more often than sanitation programming. Unfortunately, without sanitation, drinking water can not remain potable for very long, and the chief agent of infectious diseases (bacteria and parasites passed through human and animal waste) which cause high rates of morbidity in malnourished children remain prevalent in the "clean" water sources that people use.
- Without the establishment of the rights of accessing water and regulations for using water, there is a future threat that populations with potable water may have their water taken for consumption by other wealthier communities which may be suffering from water shortages.
- Further without the establishment of regulations for water-usage, there are no limits on how much and where wastes can be disposed in water sources. There is great risk that communities downstream from other communities where waste is being disposed in water sources, those cycles of infectious diseases will continue to perpetuate the infections disease-malnutrition. Cycle. This could certainly become a big issue for the highly populated

Peruvian coast, who are becoming more and more reliant on rivers and water run-off from the Andean highlands, where few sanitation systems and programs have been put in place.

4.3 Access to Food Products and Income to purchase food for Remote Rural Areas

As expressed during meetings with the World Bank in Cusco and USAID representatives, many households and communities that have the highest prevalence of malnutrition in Peru are also the most remote and isolated rural communities. Their isolation does not allow for these households to have good access to markets and other communities (that have access to other food crops and/or processed food) to gain other food products to supplement their diets. This is important for two reasons.

1. Regarding the remote communities of the Andes, due to altitude and soil composition, few crops and livestock thrive in this region. Thus if these rural communities are deemed to be self-sufficient for food production, community members would only consume starches and meat products, and lack many vitamins and nutrients necessary for good nutrition.
2. Also applicable to remote rural communities in the Andes, due to the limited amount of food products that can be produced, is that if a household wants to improve their nutrition they must develop other goods that can be sold and/or traded with other communities, in order to purchase and/or attain supplemental food products for their diet.

For example, in the Cusco Region within a very short distance, farmers in the Sacred Valley region (due to lower altitude and water access) can produce several varieties of grains and vegetables, have two agricultural seasons, and consume 20% of their crop yield, and sell 80% of their crop yield for export and extra income.⁷³ Individuals in the Sacred Valley tend to be healthier and better nourished. Several miles away and several thousand feet higher, farmers in the Andean highlands can only grow various potatoes species for consumption, and possibly grow coca as a cash crop for extra income. Farmers can only have one harvest a year due to the altitude, and thereby farmers consume 80% of their crop yield, and sell the remaining 20% for domestic or export consumption, earning very limited extra income.⁷⁴ Thus households in the more remote parts of the Andean region, especially in the higher altitudes, have less variability in the food that they consume due to

⁷³ Personal communication with World Bank program officer, from a February 27, interview.Cusco, Peru.

⁷⁴ Ibid.

the limited variety of food and limited amount of cash crops and products that they can produce, to earn income to buy other food products to supplement their diets. However, it is clear (and as proven historically) there is potential for the two regions to trade, and thereby further supplement the diets of the remote communities in the Andean highlands.

There are 3 issues that hinder market access for remote villages in the Andean region:

1. Road networks in the Andean and Amazon regions are sparse. This is due in part to the geography of the regions, regarding steep mountains and narrow valleys in the Andes, and the dense rainforest and many rivers of the Amazon region. However, the lack of road networks is due to the Peruvian government's inability to invest heavily in infrastructure. Without good transportation and infrastructure, the cost and effort of bringing products to market increases substantially.
2. Although coca is a significant cash crop for farmers in both regions, due to its illegal status, the crop is impossible to sell for export, and is limited in how it can be sold and utilized within Peru.
3. Most farmers grow the same crops and raise the same type of livestock in the Andes and the Amazon. This means that when farmers do have access to markets, the products that they attempt to sell or trade (potatoes, alpaca, coca leaves, etc.) are already present and flooding the market. This causes low prices for the farmer's products and difficulty in trading for needed food products.

At present, there are few programs that directly attempt to solve the issues of improving the physical access of Peruvians in remote rural locations, to access areas where these populations could buy/trade for supplementary food products. The most notable project that attempts to address market accessibility and food trading is Peru's attempt to complete the trans-Oceanic highway that will run from the coast of Brazil to Lima. The highway would allow for greater access to the Amazon region of Peru, and thereby allow for food products produced in this region (especially fruit and vegetables) to reach more markets in the Andean and Coastal regions. However as noted by Professor Joseph Eisenberg at the University of Michigan, roadways and interconnectedness also bring new vectors and disease to communities that were not previously exposed to these vectors.⁷⁵

⁷⁵ Lecture by Professor Joseph Eisenberg, University of Michigan School of Public Health on, "The Influence of roads on the spread of infectious diseases in Ecuador." on 14 February 2007.

Instead, the majority of programs focusing on access issues for remote rural communities attempt to address the lack of variety of food produced in remote rural locations, by providing supplemental food products and microfinance loans (United States Department of Agriculture (USDA) and USAID), and passing legislation that would permit farmers in remote locations to use genetically modified seeds to diversify the crops that they could produce.

USDA and USAID Title I and Title II programs:

- The USDA Title I program provides low-cost wheat grain (produced in the United States) to Peru. The wheat is put on the market, with its intention of being bought by poor farmers (specifically in the Andean region) to supplement their diet and caloric intake.⁷⁶ USAID's Title II program has been existence for 54 years, and has been a major part of the \$250 million dollars that USAID has invested in curbing malnutrition in Peru.⁷⁷ Title II programming offers short-term food assistance to malnourished households, and medium-term assistance for households to limit costs and build stronger income and savings.⁷⁸ The food distributed in Title II programs has tended to be soybean oil and other soybean products to add protein to the diet of Peruvians. However, since Peru has gained status as a middle-income country (according to World Bank rankings), USAID is currently phasing out its Title II programming by 2008, and will soon only offer soybean oil for sale throughout Peru.⁷⁹ In addition to Food Assistance programs, USAID (and numerous other international organizations) have offered micro-credit loans to assist farmers with the production of cash crops, and invest in modes of transportation to lessen the cost of transporting crops to the market.⁸⁰

Legislation regarding Biotechnology

- Besides the current Juntos programming (as discussed in the recommendations section), the Peruvian government's nearest attempt to help remote rural communities supplement their food product consumption is the legislature's current debate regarding the "The Law to allow the use of Biotechnology in Peru." The law would allow the use of genetically modified seeds, and the cultivation and selling of genetically modified crops on the domestic and international markets.⁸¹ The law is Peru's first attempt to recognize the potential for genetically modified crops to not only create greater market revenue for Peruvian agricultural goods, but also for Peruvians to expand the diversity of agricultural products that remote communities can produce. The arguments against this law relate to fears that genetically modified crops will supersede the natural biodiversity in Peru.

⁷⁶ Nolte G. pg. 3.

⁷⁷ Personal communication with USAID program officers, from a March 1, 2007 interview. Lima, Peru.

⁷⁸ USAID. "Peru-Activity Sheet, TITLE AND NUMBER: Increased Incomes of the Poor, 527-002." Retrieved from: <http://www.usaid.gov/pubs/cbj2002/lac/pe/527-002.html> on 14 March 2007.

⁷⁹ Nolte G. pg. 3.

⁸⁰ USAID. "Peru-Activity Sheet, TITLE AND NUMBER: Increased Incomes of the Poor, 527-002."

⁸¹ Nolte G. "Peru-Biotechnology Annual 2006." USDA Foreign Agriculture Service, GAIN Report # PE 6009. 21 June 2006. pg. 1.

Analysis

- As noted during a visit to a center that raises alpacas and llamas near Cusco, and sells their artisan goods made from the alpacas and llamas to tourists, most of the employees of the center were from Andean villages that had several months off between harvests. Therefore the people working at this center were weaving and selling sweaters, rugs, and hats to supplement their income, and afford more food, schooling, etc. It is important for programs that focus on agricultural production to respect the seasonality of farmer's work and harvests in Peru, and thereby develop seasonal employment programs, to allow farmers to gain extra income when they are unable to farm. In the Cusco region, this could be met by furthering tourism programs, not only in handicraft development, but developing other tourism projects including village stays, trekking programs, and cultural tours, that the World Bank and government of the Cuzco region favor for furthering the economy of the region.
- Programs that attempt to supplement community diets via food assistance to communities are generally only successful during times of crisis or disaster, since communities only need to be dependent on the food product for a short period of time. Unfortunately programs that offer long-term food products to communities often create great dependence in the community supplying the food supplements.⁸² This in turn inhibits the ability of the community to become sustainable and develop new methodologies and technologies to improve their food in-take situation.

The other major criticism of food assistance programs is in regard to their equity of distribution. Due to the finite resources of the donor agencies and their limited stock of food to distribute, it often becomes divisive on which community should receive food assistance. This is the largest criticism of USAID Title II programs that incorporate Food for Work programming. Food for Work programs require, that a community must be able to complete a development program with USAID (such as building latrines or a school), and rather than receiving money/funding for the program, the community receives food assistance. Regrettably, this program is inequitable to communities that are unaware of Title II funding, and communities where USAID can not specify a development program that they would like to implement. Title I programs are reliant on the ability and willingness of communities to purchase highly subsidized food products from the United States.⁸³ Therefore the programs are only equitable if communities are interested in consuming the food products that are subsidized via Title I. Also related to equity, Title I programming relies on fixing an appropriate price that impoverished and remote populations can afford. If the pricing is not appropriate, many individuals will choose not to purchase the Title I food assistance. More important, the Title I food products must reach a large amount of markets and communities where the food products can be purchased. As noted earlier in this section, access to markets and income generation among remote rural communities in Peru is low, and thereby Title I programs may not be reaching the most needed communities.

⁸² Goldman R. "Food and Food Poverty: Perspectives on Distribution." *Social Research*. Spring 1999. Vol. 66. Iss 1.

⁸³ Dugger C. "Even as Africa Hungers, Policy Slows Delivery of US Food Aid." *New York Times*. 7 April 2007. pg. 1.

5. RECOMMENDATIONS

5.1. Establishment of a National Malnutrition Committee

Regarding concerns that were voiced by Future Generations, the World Bank, women's organizations, and regional government officials in Peru that nutrition programs lack coordination, often are duplicated, rarely combine efforts from other sectors, and are constantly looking for new ideas to address cultural, procedural, and regulatory barriers, it is recommended that a national nutrition committee should be established. The committee should incorporate all actors and policy-makers involved in nutrition issues and could be modeled after the national Water Sanitation and Hygiene (WASH) committees established by the United Nations and the International group Water Supply & Sanitation Collaborative Committee (WSSCC), throughout sub Saharan Africa. WASH committees bring together all actors in a specific program that complete programs that affect water and sanitation, to allow for member organizations to share their analysis of community, regional and national water and sanitation issues; experiences; lessons learned and best practices; and to coordinate joint activities (specifically joint activities where two different stakeholders are focusing on the same areas but implementing projects of different scopes, and thus reducing program duplications and economic inefficiencies for water/sanitation programming).

The National Nutrition Committee should include all stakeholders in Peru that deal with nutrition issues, including government agencies, international assistance organizations, local, national, and grassroots Peruvian NGOs, and private industry programs that may operate corporate social welfare programs to lessen malnutrition, or produce products that are beneficial for curbing malnutrition. To continue the flow of new ideas and avoid more influence in the committee from one member compared to the other members, it would be recommended that the national nutrition committee should rotate leadership between various nutrition stakeholders for a certain period of time. This is an important concept in WASH, and leads to organizations that focus on certain ideas

bring their focus to the forefront of national efforts, and thus educating other organizations about other aspects and issues regarding the health concern. In addition, several meetings a year where malnutrition programs would share their work with other organizations, would cause organizations to be more cognizant of their activities, and thereby increase monitoring and evaluation of programs, and gather and organize more data on their programs and general malnutrition issues that they observe.

The advantages of a National Nutrition Committee in Peru are:

1. *Sharing different Methodologies Best Practices and Lessons Learned.* As established in this paper the causes and more specifically the programs related to malnutrition are extremely diverse, ranging from: breastfeeding campaigns, to Vaso de Leche implementers, to CARE-Peru implementing potable water systems, or women literacy programs. Similar to the WASH committees, Peruvian nutrition actors could also share their experiences, analysis of Peruvian nutrition concerns, and the lessons learned/best practices of the various nutrition projects that have been implemented in Peru. Further by allowing private, public, and international agencies to share their methodologies for targeting nutrition, organizations will learn of different ways to affect malnutrition that may otherwise be unknown due to the sectoral constraints of the organization.
2. *Limit duplication.* Peruvian nutrition stakeholders expressed the inefficiency of overlapping and duplicated programs in Peru. While some duplication is good for reminding people about the core issues regarding malnutrition, organizations often have different methodologies and philosophies for the implementation of their nutrition programs, thus communities can often receive competing or different information that may confuse community members on the information learned from other nutrition programming. A national nutrition committee will allow for organizations to coordinate nutrition programming, and create more consistent nutrition messages for program implementation.
3. *Create partnerships.* The national committee on malnutrition will allow organizations to share their experiences and efforts, and thereby organizations may have a better understanding of each other to develop partnerships and joint-programs, where communities receive programming on two aspects of malnutrition. For example, USAID micro-finance programs may be able to develop partnerships with various women's organizations to create greater availability for funds to expand community kitchen programs.
4. *Create a more unified interest group/lobbying mechanism regarding nutrition.* By sharing information and combining efforts, the national nutrition committee could develop unified messages and information to educate, lobby, and ask the Peruvian government for developing concerted policies and development plans for targeting

malnutrition and its specific causes in Peru. Receiving policy recommendations from a large group of organizations would also be more influential, and provide more people to promote nutrition issues to government officials.

It would be recommended for the national nutrition committee's members to develop a collective 10 year national plan on goals and actions to curb malnutrition in Peru. As a committee this would not only coordinate the actions to be taken by the various organizations that work-on nutrition issues, but the collective action plan would also be able to develop benchmarks for improving nutrition that all organizations in Peru would strive to achieve, and define future nutrition issues for organizations to consider and research.

5.2. South-South Cooperation

Peruvian stakeholders and organizations involved in limiting malnutrition in Peru are fully aware that many other countries have large groups of citizens that suffer from malnutrition, or its associated causes. Thereby, malnutrition stakeholders should be aware that Peru, as a member of the Group of 77, is a signatory of the Marrakech Declaration which states:

Recognize that South-South cooperation is not an option but an imperative to complement North-South cooperation in order to contribute to the achievement of the internationally agreed development goals...(and)undertake to further strengthen it in different areas, including information and communication technology, trade, investment, finance, debt management, food, agriculture, water, energy, health and education and transit transport as well as in related North-South issues. We undertake to enhance and expand exchange of resources, experiences and know-how in these areas to make South-South cooperation contribute to economic growth and sustainable development.⁸⁴

Peruvian stakeholders should take greater advantage of south-south cooperation and meet with other developing country organizations that are also working on nutrition issues. Thereby Peruvians can learn greatly about lessons learned and best practices, new techniques and theory regarding malnutrition programming, and methodology for preventing and treating malnutrition. This information could be of great value to Peru, as most malnutrition programming, ideas, and theory

⁸⁴ G77. "Marrakech Declaration." Retrieved from <http://www.g77.org/marrakech/Marrakech-Declaration.htm> on 14 March 2007.

are generally passed via North-South transfers. While this information is valuable, most Europeans, Japanese, and North Americans that complete these transfers do not have personal experiences with malnutrition that lessens their insight and accuracy in analyzing malnutrition issues. Further the ideas generated from south-south cooperation maybe more applicable to Peru, due to understanding of budget, government, and cultural constraints that consultants and advisors from other developed countries may have a better understanding and more creative ways of dealing with these constraints.

Of particular interest for Peru may be participation in the Special Programme for Food Security sponsored by the Food and Agriculture Organization of the United Nations. The program promotes collaboration between developing countries via the exchange of successful technologies and technical experts with a partner country.⁸⁵ Thus Peru could match itself with a country that may have had success with several of the malnutrition issues that Peru is interested in reducing. In exchange for information, Peru could offer the services and assistance of the Centro Internacional de la Papa (CIP), the world's foremost research organization regarding the cultivation and development of potatoes as food and export crops.

Further, it would be encouraging for Peruvian malnutrition officials to meet with a number of countries in particular. For example, Peruvian officials could meet with their neighboring counterparts in Ecuador and Bolivia, where similar malnutrition issues are encountered among similar cultural and socio-economic groups to share nutrition strategies. In addition, Peru could speak with officials in other high altitude countries such as China and Nepal to learn about farming methods and crops other than those currently grown in the Andes that can successfully be grown at high altitudes. Lastly, Peruvian officials could meet with their counterparts in other countries that have successfully implemented malnutrition programs, such as Tanzania which has had success with

⁸⁵ FAO. "South-South Cooperation." Retrieved from: http://www.fao.org/spfs/south_en.asp on 14 March 2007.

both promotion of complimentary feeding programs and community-based growth monitoring programs.^{86,87}

It would be encouraging for Peru to enlist the funding support of large international organizations such as the World Bank, USAID, FAO, and other organizations that complete malnutrition programming throughout the world. Not only could these agencies fund conferences and meetings between Peruvian malnutrition stakeholders and their developing country counterparts, but these organizations should be able to offer greater information and connections with other developing country counterparts that are completing malnutrition prevention programming.

5.3. Nationwide Nutrition Education and Food Distribution Program in Schools

Peru's nutrition problem does not solely rest on the availability of good, nutritious food, but the problem is also embedded in behavioral and cultural practices. Therefore, we recommend mandatory nationwide nutrition education in mainstream school curriculum for students 5-18 years old. The national nutrition committee, recommended above, can facilitate the process by setting up an educational nutrition committee to provide guidance for implementation and evaluation. A few issues need to be taken into consideration in the development of nationwide nutrition education.

These issues include:

- Devising age-appropriate material for children that spans learning about vitamins and minerals to devising nutrition menus to incorporating exercise and healthy body image into the curriculum.
- Developing a curriculum that includes practical learning and ensures that nutrition knowledge is transferred.
- Developing critical thinking skills that enable children to evaluate advertisement messages about junk food.

⁸⁶ United Nations Children's Fund. The state of the world's children: Focus on nutrition. 1998. Retrieved February 19, 2007 from <http://www.unicef.org/sowc98/>

⁸⁷ Ibid.

- Increasing funding to schools for the implementation of these programs.
- Developing region-appropriate nutrition information. For example, if only potatoes grow in one area, curriculum should address ways diets for children in that region can be supported by things like vitamins and growing particular types of vegetables.

In order to facilitate the distribution and access to good food in rural areas, Peru needs to transform its *Vaso de Leche* program to include a more comprehensive and nutritious food menu. However, as stated earlier, the *Vaso de Leche* program does not support groups that are most in need. A local nutritional needs assessment, administered by contract through local nonprofit organizations, like CLAS, or through regional government offices, should be implemented. An examination of local needs will make sure that appropriate populations will be receiving program funds and that nutritional needs are met in these areas with the adequate amount of vitamins, minerals, and overall food intake to support these populations. Providing funding and administrative support to increase the amount and variety of food through the *Vaso de Leche* structure may also decrease the time it takes to implement a food distribution system.

Furthermore, the new and more comprehensive *Vaso de Leche* program should be tied to nutrition curriculum and community-wide education of healthy and adequate food options. Schools and centers implementing the new food program should receive funds to send *Vaso de Leche* administrators to receive nutrition and health education certification. These trainings should be centralized and provide uniform curricula throughout Peru, while also catering to the individual needs of local communities. Additionally, the training and certification program should be mandatory and renewed yearly. They can serve as a venue through which program administrators can share challenges to achieving their community goal and, hopefully, a place where they can share ideas to address these problems.

5.4. Increase Funding for Juntos

It is important to recognize that the current Juntos program administered by the Presidential Council of Ministers, (Peru's first and main cash-transfer program) has strong potential to affect child malnutrition, especially in regards to lack of income issues. Although in its initial stages of implementation, Juntos can immediately affect malnutrition primarily through its principal mechanism, a fixed monthly income transfer of 100 soles (around \$30) to households that allow for their children to access and participate in basic public services (schools/education, vaccinations at health centers, obtain appropriate civil identification documents for their children, etc.). The money transfer is distributed to the female heads of households, and initial data regarding the Juntos money transfers has found that most women tend to spend most of their 100 soles on food to supplement their household's consumption.⁸⁸ Even better initial feedback also relates that women tend to buy fruits, vegetables, and meat that are sorely needed to improve household micronutrient consumption (iron, vitamin A, vitamin C, etc.).⁸⁹

Beyond the direct effects of the Juntos money transfer, the other requirements of Juntos, the greater enrollment of children in school and their better access to health centers (via the vaccination requirements), will also provide for better nutrition outcomes in the long-run. As discussed in previous sections of this paper, malnutrition has strong correlations with lack of access to health care and education. Further, households that participate in Juntos are required to take advantage of the National Nutritional Assistance Programme (part of PIN) for children under 3 years.⁹⁰

Participation in this program insists that households utilize chlorine treatment additives for safe water supply, and gain greater access to anti-parasitic medicines at health centers. Obviously,

⁸⁸ Jones N. Vargas R. Villar E. "Conditional Cash Transfers in Peru: Tackling The Multi-Dimensionality of Poverty And Vulnerability." February 2007. pg. 18. Forthcoming chapter in *Social Protection Initiatives for Families, Women, and Children: Analysis of Recent Experiences*. To be published by UNICEF and New York University. Intended copyright 2007. Retrieved from : <http://www.odi.org.uk/portals/gender/UNICEFpaperFebFinal.pdf> on 6 April 2007.

⁸⁹ Ibid. pg. 18.

⁹⁰ Ibid. pg. 3.

compliance with this program initiative will reduce the harmful relationship between malnutrition, and parasitic illnesses and the consumption and use of unsanitary water.

Juntos has two issues that hampers its success to further reduce malnutrition in Peru. First, Juntos has yet to be thoroughly evaluated due to its recent development and implementation. Unfortunately the current data may not be reliable enough to conclude that Juntos money transfers directly increase household food consumption. Second, Juntos and its requirements, outside of the money transfer, are only targeted towards children. Thus the overall affects of Juntos (in regards to education, vaccination, and the utilization of the National Nutritional Assistance Programme) are long-run solutions, as their benefits (less child mortality, more educated individuals) will be realized when these children reach adulthood. However, noting the success of similar programs in Mexico (Mexico now has issues of over-consumption versus under-consumption), it would be of strong interest for the government of Peru to expand Juntos to all applicable households, and encourage more household to become eligible for Juntos. Therefore if the initial evaluations of Juntos prove to have a strong affect in reducing malnutrition, it is highly recommended for the Peruvian government to increase its funding of Juntos.

For more information and analysis of the Juntos program, it is recommended to read a companion policy paper developed by graduate students at the University of Michigan entitled, “Conditional Cash Transfer Programs in Latin America: How Does Peru Measure Up?” The paper can be found at the following website: <http://www.umich.edu/%7Eipolicy/iedp.htm>

5.5. Increase the variety of and provide better support for food supplement distribution

Peru’s emphasis on programs that offer food supplement (Comedores Populares, Vaso de Leche, Desayunos Escolares, etc.) have been criticized due to their minimal relationship with health education programming, and the promotion of the food supplement products being offered by the

health care system.⁹¹ Other criticisms of food supplement programs as mentioned in this paper include the creation of dependent relationships between the recipients of the food assistance and the organization/program that provides the food assistance, the difficulties in distributing food supplements that communities would like to consume based on cultural food preferences, and the equity of the food supplement distribution. However, it is important to recognize that food supplements do have tremendous value when they are initiated properly, as they can provide key vitamins and micronutrients that otherwise are very difficult to procure and consume in remote rural areas.

There are numerous examples of the success of the implementing food supplements from Carotino Enriched Biscuit developed by Merck and sold in South Africa (to provide Iron, Iodine, and Beta Carotene to primary school students⁹²) and the use of Red Palm Oil in Malaysia, India, and Brazil to provide Vitamin A and iodine,⁹³ to sodium, iron, zinc, and vitamin enriched sugar and flour produced in Guatemala.⁹⁴ All of these products caused significant increases in the nutrition and health of individuals that consumed the food supplements. And by boosting the vitamin and micronutrient levels, individuals that consumed the supplements experienced less illness and infection as their bodies had greater abilities to ward off and fight illness. However, recognizing the criticism of food supplement programs stated above, this paper recommends the following actions to improve food supplement distribution and programming in Peru.

- The Peruvian government should develop various products to sell such as high-protein wafers, ready-to-use food powders (that can be stirred into various food products and

⁹¹ Rogers B. et al. "Discussion Paper 2, Reducing Malnutrition in Peru: A Proposed Strategy."

⁹² Limson J. "Carotino biscuits - munching away at micronutrient deficiencies." *Science in Africa*. Retrieved from: <http://www.sciencein africa.co.za/2001/may/carotino.htm> on 10 April 2007.

⁹³ Nestel P. Nalubola R. "Red Palm Oil is a Feasible and Effective Alternative Source of Dietary Vitamin A." International Life Sciences Institute and USAID. 2003. Retrieved from: <http://www.sightandlife.org/booksAll/vitAweb/MGLvitapalm.pdf> on 10 April 2007.

⁹⁴ International Food Policy Research Institute. "Preventing and Treating Anemia." Retrieved from: <http://www.ifpri.org/> on 10 April 2007.

provide energy dense supplements)⁹⁵, vitamin enriched beverages, and other products. By offering a variety of products, hopefully one of the products will be appealing to the various communities suffering from malnutrition.

- The government should highly subsidize the price of the food supplements and create a regulated national price for the goods that would make them affordable to the most impoverished families. Food supplements could thereby be sold out of health centers, which would also offer information on malnutrition and the correct usage of the food supplements.
 - Otherwise the food supplements should be supplied to Vaso de Leche and Comedores Populares participants to sell to other community members, and the food supplements should be supplied to community shops, especially in remote rural areas to increase the access to the food supplements.
 - Regulation of the product should exist, whereby health centers, food programs, or shop-owners that raise the sales price for the food supplements lose their privilege to sell the food supplements. Thus a reporting mechanism on the sales of the food supplement program needs to be developed.
- The government should complete large-scale marketing schemes describing the value of the products. This marketing scheme should include radio, television, and billboard advertisements.
- These products should be incorporated into a social marketing campaign that could be run by local health centers. During these campaigns, health center officials will go to remote village and markets, and provide presentations to the communities describing the dangers and concerns of malnutrition and how to prevent malnutrition. After the presentation, health centers would also promote their services and the food supplements. Thus the health center would bring along various food supplement products to be sold to community members. This is based on successful social marketing campaigns for condoms, water purification additives, and mosquito nets completed by Population Services International (PSI) in sub-Saharan Africa.

5.6. Monitoring and Evaluation

Any nutrition program implemented in Peru should include detailed plans for monitoring and evaluation. Anecdotal reports of mismanagement of nutrition programs in Peru point to the need for close oversight of all national, regional, and local nutrition programs. Close oversight is necessary to ensure that government funds are not being wasted and that the programs are reaching their target populations. In addition, programs need to be regularly evaluated (every 2 -5 years for

⁹⁵ Manary MJ. Ndekha MJ. Ashorn P. Maleta K. Briend P. "Home based therapy for severe malnutrition with ready to use food." *Archives of Disease in Childhood*. 2004. Iss. 89. pgs.557-561

example) to determine if they are successful and any corrective action that is necessary to improve the programs. However, monitoring and evaluation alone is not sufficient. There must be a system of accountability, where reports of mismanagement are followed up with corrective action.

5.7. Comprehensive Community-Centered Program

One recommendation is to expand the Future Generations model to address more of the root causes of malnutrition. Such a community-based program could be more effective in targeting nutrition interventions to communities most in need and would be aligned with the government's move towards decentralization. This type of program could work through existing CLAS programs or establish new community management programs. However the purpose of the community-based association would extend beyond the scope of managing health facilities.

As the Future Generations program currently exists, behavior education on proper nutrition habits is provided as well as intensive monitoring of child growth. These elements have been shown successful in reducing chronic malnutrition in the pilot program in Las Moras and should be included in this expanded program. However, an essential element would be formation of an association of health promoters that would receive financial compensation for their community services from local governments. The funds could be channeled through the expanded CLAS associations. In addition, as is currently provided under the Future Generations program, a census should be provided in each community; however the census should also identify households that are in need of food assistance and health insurance. In this way the food assistance component of PIN, as well as the provision of health insurance through the Ministry of Health to all children in PIN, would be realized. Food assistance could also be channeled from the local governments through the expanded CLAS associations. Further, in order to address additional root causes of chronic malnutrition in Peru, the expanded community associations would work closely with local governments to develop plans to provide safe water and sanitation in the community and have

access to the cash economy. Water and sanitation are necessary components to prevent infections which exacerbate malnutrition and access to the cash economy would provide households with money to purchase a wider variety of nutrient rich foods.

At the national level, one government entity should be responsible, and held accountable, for implementing, monitoring, and evaluating the program. Within such a program, donor agencies and non-governmental organizations (NGOs) could leverage their experience providing nutrition programs to provide technical assistance to all levels of government and the expanded CLAS associations. Although donors and NGOs should play a strong role in providing assistance to the government, the responsibility for carrying out this program should lie with the government in order to further strengthen the levels of government and their working relationships with one another and the community.

Such an expanded community program could identify solutions to the multiple causes of malnutrition (i.e. lack of knowledge of good nutrition habits, inability to afford nutrient rich foods, undrinkable water) on an individual community basis. Given that the causes of malnutrition vary by geographical region throughout Peru, a tailored intervention is needed by community. Were such an expanded community-based program to be implemented, communities in the poorest regions of Peru should be the first to receive the intervention.

5.8. Other Issues to be addressed through Inter-sectoral Collaboration

Devising policy recommendations for solving malnutrition in Peru is a challenging task because nutrition issues are related to so many aspects of people's lives. The recommendations we have proposed demonstrate our attempt to address nutrition given the existing structural problems and lack of coordination between central, regional and local governments in Peru. In addition to these specific recommendations, we want to recognize that there are other factors that are tied to improving nutrition such as improving overall access to education, supporting balanced economic

growth, awareness of environmental impact and damage, building markets for Peruvian cash crops (and other crops where Peru holds a comparative advantage) abroad, and overall healthcare access. These factors are only a few of the issues indirectly related to nutrition. Support of positive development for Peru can lead to better nutrition and overall improvement of health outcomes.

APPENDIX A: Chart of Food Production in Peru between 1990-2005

Production quantity (1000 tonnes) | 1990-2005

	2005	2000	1995	1990
Gains				
Vegetables	409.47	403.84	219.98	219.98
Barley	193.09	186.17	71.64	71.64
Bovine meat	153.11	136.23	117.11	117.11
Cereals, nec	39.69	35.55	6.26	6.26
Milk, whole, fresh	1,350.71	1,086.76	795.90	795.90
Onions (inc. shallots)	493.26	379.75	151.05	151.05
Potatoes	3,289.70	3,273.82	1,153.98	1,153.98
Peaked				
Beans	31.56	42.23	20.74	20.74
Maize	1,240.78	1,240.81	631.82	631.82
Soybeans	2.06	3.13	2.55	2.55
Wheat	178.46	189.01	88.49	88.49
Animal fats	17.30	18.56	13.32	13.32
Decreased				
Crustaceans	10.92	4.73	13.84	13.84
Demersal fish	59.95	152.21	203.09	203.09
Other Meat, (inc. llama, game)	32.32	29.54	35.97	35.97

FAOSTAT | © FAO Statistics Division 2007 | 10 April 2007

Source: Food and Agricultural Organization. "Core Production Data/Commodities/Countries." 2005. from: <http://faostat.fao.org/site/340/DesktopDefault.aspx?PageID=340>

APPENDIX B: Chart of various malnutrition statistics from the World Health Organization regarding Peru and nutrition issues

Indicator	Value
Children under five years of age stunted for age (%)	25.4
Children under five years of age underweight for age (%)	7.1
Population with sustainable access to an improved water source (%) urban	87
Population with sustainable access to an improved water source (%) rural	66
Population with sustainable access to an improved water source (%) total	81
Population with sustainable access to improved sanitation (%) urban	72
Population with sustainable access to improved sanitation (%) rural	33
Population with sustainable access to improved sanitation (%) total	62
Children under five years stunted for age (%) – rural	40.2
Children under five years stunted for age (%) – urban	13.4
Children under five years stunted for age - rural to urban ratio	3
Children under five years stunted for age (%) - lowest wealth quintile	47
Children under five years stunted for age (%) - highest wealth quintile	4.5
Children under five years stunted for age - lowest to highest wealth quintile ratio	10.44444
Children under five years stunted for age (%) - mother with no education	51.6
Children under five years stunted for age (%) - mother with higher education	12.6
Children under five years stunted for age - mother with no to higher education ratio	4.095238

Source: World Health Organization. “World Health Statistics 2006 and “The World Health Report 2006 Edition.” From www.who.org.

APPENDIX C: Table from Food and Agriculture Organization (FAO)’s report on Peru’s domestic food production and food imports, from 2006 database:

		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Beef and Veal	Exports	0	0	0	0	0	0	0	8	4	n.r.
	Imports	8,033	9,044	5,975	4,694	3753	3820	6158	5197	4192	n.r.
Milk equivalent	Exports	1.7	1.9	3.6	3.5	6.8	12.3	25.2	42.3	76.5	n.r.
	Imports	387.1	383.3	381.2	353.1	281.3	229.0	221.7	153.6	187.7	n.r.

Source: Food and Agriculture Organization of the United Nations (FAO). “Country Pasture/Forage Resource Profiles.” <http://www.fao.org/ag/agp/agpc/doc/counprof/peru/peru.htm>. Table 4. PERU, Imports and exports of beef and veal, milk, and wool (Metric tons).

APPENDIX D: Food and Agriculture Organization (FAO) statistics on Food Security in Peru

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS



Food Security Statistics - Peru

Population	1990-1992	1995-1997	2001-2003
Total (millions)	22.2	24.3	26.8
Food Deprivation	1990-1992	1995-1997	2001-2003
Proportion of undernourishment (%)	42	19	12
Number of undernourished (millions)	9.3	4.6	3.3
Food Consumption			
Nutrients	1990-1992	1995-1997	2001-2003
Dietary energy consumption (kcal/person/day)	1960	2370	2570
Dietary protein consumption (g/person/day)	48	59	67
Dietary fat consumption (g/person/day)	42	49	48
Food and Population Growth (Average Annual Rate of Change (%)):	1979-1981 to 1990-1992	1990-1992 to 1995-1997	1995-1997 to 2001-2003
Food	1.5	3.6	3.0
Population	2.2	1.8	1.6
Diet Composition (Share in total Dietary Energy Consumption (%)):	1990-1992	1995-1997	2001-2003
Non-starchy foods	48	48	46
Poverty	1994	1997	
National (Poverty headcount, (% of population))	53.5	49.0	
Rural (Poverty headcount, (% of population))	67.0	64.7	
Urban (Poverty headcount, (% of population))	46.1	40.4	
Food Production and Trade			
Food — Production Index Numbers	1990-1992	1995-1997	2001-2003
Net Per-Person PIN, base period 1989-2001	67	85	105
Food Excl Fish - Trade Index Numbers	1990-1992	1995-1997	2001-2003
Import value, base period 1989-1991	89	154	101
Export value, base period 1989-1991	38	80	138
Inequality in Access to Food and to Income	1985-1988		2000
Gini of income (%)			50
Gini of dietary energy consumption (%)	15		
Child Nutritional Status		2000	
Wasting, less than - 2 s.d (%)		0.9	
Stunting, less than - 2 s.d (%)		25.4	
Overweight, more than + 2 s.d (%)		6.4	
Health	1990		2003
Life expectancy at birth (years)	66		70
Under-five mortality rate (per 1,000 live births)	80		34
Infant mortality rate (0-1 year) (per 1,000 live births)	60		26

Source: Food and Agriculture Organization (FAO). "Peru-Agricultural Sector. Food Security Statistics." 2006.
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APPENDIX E: Contact Information from Meetings and Interviews in Peru

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