



Undergraduate Honors Theses

2022-04-20

FOOD SECURITY: A Study of the History of Nutritional Insecurity and Implications of Development in the Rural Sierra and Selva Regions of Peru

Jane Morrissey

Follow this and additional works at: https://scholarsarchive.byu.edu/studentpub_uht

BYU ScholarsArchive Citation

Morrissey, Jane, "FOOD SECURITY: A Study of the History of Nutritional Insecurity and Implications of Development in the Rural Sierra and Selva Regions of Peru" (2022). *Undergraduate Honors Theses*. 246. https://scholarsarchive.byu.edu/studentpub_uht/246

This Honors Thesis is brought to you for free and open access by BYU ScholarsArchive. It has been accepted for inclusion in Undergraduate Honors Theses by an authorized administrator of BYU ScholarsArchive. For more information, please contact ellen_amatangelo@byu.edu.

Honors Thesis

FOOD SECURITY: A STUDY OF THE HISTORY OF NUTRITIONAL INSECURITY AND
IMPLICATIONS OF DEVELOPMENT IN THE RURAL SIERRA AND SELVA REGIONS OF
PERU

by

Jane Morrissey

Submitted to Brigham Young University in partial fulfillment of graduation requirements for
University Honors

Latin American Studies
Brigham Young University
April 2022

Advisor: Scott Sanders
Honors Coordinator: Jeffrey Shumway
Reader: Evan Ward

TABLE OF CONTENTS

Title	1
Table of Contents	2
Abstract	3
I. Introduction of Peru.....	4
II. Demography of Peru:.....	6
III. Introduction to Food Insecurity in Peru.....	16
IV. History of Food Security in Peru	19
V. The Current Situation with Food Insecurity	21
VI. Causes of Food Insecurity	22
VII. Effects of Food Insecurity	26
VIII. Interventions	31
IX. Conclusion.....	40
XI Key Takeaways	41
X. Key terms.....	41
Bibliography	44

ABSTRACT

FOOD SECURITY: A STUDY OF THE HISTORY OF NUTRITIONAL INSECURITY AND
IMPLICATIONS OF DEVELOPMENT IN THE RURAL SIERRA AND SELVA REGIONS OF
PERU

Jane Morrissey

Latin American Studies

Bachelor of Arts

This study looks at the history of food insecurity in Peru, ranging from 1969 to 2021. The main contribution this paper seeks to make is to create a holistic approach at viewing the historical causes and consequences of food insecurity in Peru, particularly in the rural mountainous regions of the country. These areas range from the southeastern, eastern, and northeastern towns near Lima, with case studies from towns such as Ayacucho, San Martin, Huaycan, Socos, Banda de Shilcayo, and Sapote. Different levels of effective food security can be observed from the oppressive political overthrow of agriculture production in the 1960s by General Velasco. Consequences of food insecurity, such as child stunting, are quantifiably

observed from case studies conducted in 1996. More statistics of malnutrition in Ayacucho Peru are analyzed from a 2016 study conducted by the *Instituto de Investigación Nutricional*. Beyond understanding causes and consequences of food insecurity, this study also attempts to observe multiple applications of development programs within Peru that are meant to help increase food security throughout the country. Each program mentioned takes a different approach in order to fulfill the intended purpose this study pursues of highlighting a holistic approach to understanding Peru's food insecurity situation. While the study ultimately does not claim any particular solution to be the best, through demography, history, and social experimentation, its ultimate goal is to paint an overall picture of Peru's journey to helping each of its communities reach a greater level of security to ensure a better future for their citizens.

Introduction of Peru

Peru, located in the southern hemisphere of South America, is the 21st largest country in the world with a total area of 1,285,216 sq km.¹ It borders the countries of Chile, Bolivia, Brazil, Colombia, and Ecuador. Due to its size, Peru enjoys a wide range of climate, terrain, and natural resources. Peru is split into three different sections: the costa, comprised of the Western coastal plain and has a dry desert climate, the sierra, the high Andes mountains in the center whose climate ranges from temperate to frigid, and the selva, the Eastern lowland jungle of the Amazon Basin that enjoys a tropical climate.² Because Peru has both a coastal front and the majority of the Andes mountain range, elevation within the country spans from 0 meters to 6,746 meters, which is roughly 22,133 feet.³

¹ "Peru" Central Intelligence Agency, www.cia.gov/the-world-factbook/countries/peru/

² "Peru" Central Intelligence Agency, www.cia.gov/the-world-factbook/countries/peru/

³ "Peru" Central Intelligence Agency, www.cia.gov/the-world-factbook/countries/peru/

Natural resources include copper, silver, gold, petroleum, timber, fish, iron ore, coal, phosphate, potash, hydropower, and natural gas.⁴ Current environmental concerns within Peru vary greatly as a result of diverse climates. These issues involve deforestation in the selva; air pollution and soil erosion in the sierra; air pollution, and overfishing and water pollution in the costa as a result of mining wastes.⁵ The official currency used in Peru is the Peruvian Sol, which is administered in both coins and banknotes.⁶ The implementation of this monetary system can be traced back to the world crisis of 1929, where Peruvian banks experienced an economic crisis and the subsequent creation of the Central Reserve Bank of Peru.⁷ In 1990, the previous monetary currency called the ‘Inti’ was replaced by Soles to stabilize currency throughout the country.⁸ According to the Morningstar for Currency and Coinbase for Cryptocurrency, the Peruvian Sol is worth the equivalent of 0.28 United States Dollars. The current gross domestic product -GDP- per capita is 11,296 dollars and the gross domestic product in billions is 336 billion dollars.⁹

The country is ranked as the 45 most populated country in the world.¹⁰ Within Peru, approximately 1/3 of the population lives in the desert coastal belt in the west. The Andean highlands (sierra) is considered one of the most densely populated mountainous regions in the world with a population of 85 million people.¹¹ The rainforest is sparsely populated.¹² The

⁴ “Peru” Central Intelligence Agency, www.cia.gov/the-world-factbook/countries/peru/

⁵ “Peru” Central Intelligence Agency, www.cia.gov/the-world-factbook/countries/peru/

⁶ “The Currency of Peru .” *Information of Peru Currency*

⁷ “The Currency of Peru .” *Information of Peru Currency*

⁸ “The Currency of Peru .” *Information of Peru Currency*

⁹ “Peru.” *UNESCO*, en.unesco.org/countries/peru.

¹⁰ “Peru” Central Intelligence Agency

¹¹ *Why the Andes Matter - FAO*, 1

https://www.fao.org/fileadmin/user_upload/mountain_partnership/docs/Print_E_Brief_Andes-lo w.pdf.

¹² “Peru” Central Intelligence Agency

overall population of Peru is 32,201,224.¹³ To understand the general age makeup of the population, according to the Instituto Nacional de Estadística e Informática, in 2014 it was recorded that 29.2% of the population aged between zero to 13, 62.2 percent between 15 to 64, and 8.6 percent were older than 65.¹⁴

As for the ethnic groups within Peru, 60.2% of the population are Mestizo (mixed Amerindian and white), 25.8% Amerindian, 5.9% white, 3.6% African descent, 1.2% Chinese and Japanese descent, and 3.3% unspecified.¹⁵ Peru hosts three official languages, two of which are native Amerindian languages. These languages include: Spanish 82.9% (official language), Quechua 13.6% (official), Aymara 1.6% (official), Ashaninka 0.3%, other native languages 0.8% (CIA) Finally, the most commonly practiced religions in Peru are Roman Catholicism at 60% and Evangelical Christian at 14.6%.¹⁶

Demography of Peru

Population Growth and Structure

Table 1 Components of Population Growth, Peru

Year	Crude Birth Rate	Crude Death Rate	Net Migrants	Natural Increase %	Growth Rate %
2009	19.9	5.9	-3.6	1.40	1.05
2019	17.2	6.0	-1.9	1.11	0.92
2029	14.6	6.3	-1.7	0.83	0.66

Source: International Database, United States Census Bureau, 2020

¹³ “Peru” Central Intelligence Agency

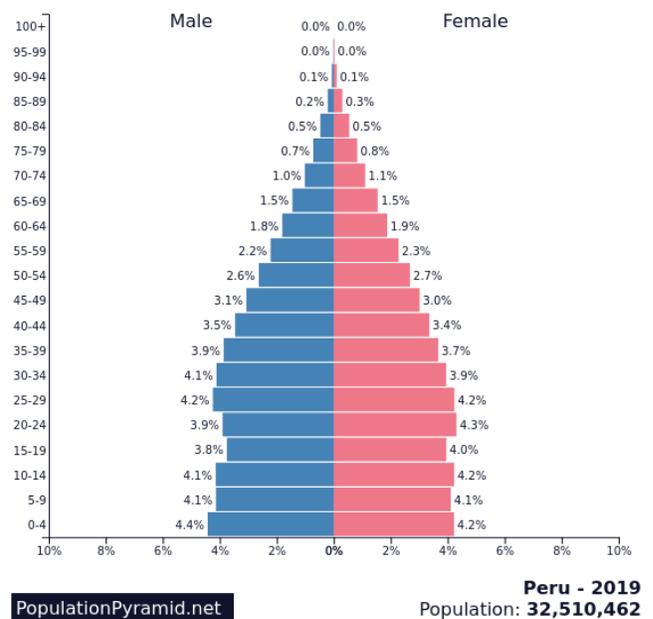
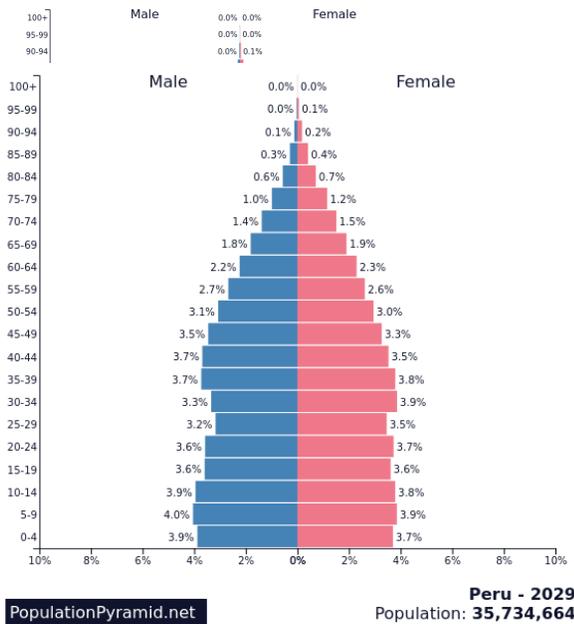
¹⁴ Instituto Nacional de Estadística e Informática, 35

¹⁵ “Peru” Central Intelligence Agency

¹⁶ “Peru” Central Intelligence Agency

The crude birth rate shows the annual number of births per 1000 population while the crude death rate shows the annual number of deaths per 1000 population. Net migration shows migration (immigration minus emigration) per 1000 population. Natural increase is the number of births minus the number of deaths in a population. The growth rate is the average rate of population size between a period of time.

Peru's fertility rate is currently higher than other more demographically developed countries, however it is projected that the country expects this rate to gradually decrease. Peru's higher fertility and mortality rate shows that it is not as developed in its demographic transition. Because Peru's mortality rate is so high in comparison to its fertility rate, it is still in process of demographic transition, and has not yet achieved the level of balanced growth indicative of a developed nation.



In comparison to the population pyramids¹⁷ of more developed countries, all three of Peru's pyramids show a higher population of younger people, with a gradual change to a higher

¹⁷ PopulationPyramid.net

population of middle-aged people in 2029. The natural increase percentage in Peru decreases, but the original percentage in 2009 was significantly higher than other developing countries in 2009 at 1.40%, decreasing to 1.11% in 2019, and 0.83% in 2029. This indicates that Peru isn't at the same level of transition as more developed countries. Peru's higher population in younger age groups indicates higher fertility rates. However, the fertility rates decrease as you look at the projected decade statistics, showing that Peru is in the midst of transition rather than pre-transition.

Mortality and Morbidity

Table 2: Mortality and Morbidity in Peru, 2021

Peru (2021)	Both Sexes	Males	Females
Infant Mortality Rate	19.4	22.0	16.6
Age 1 to 4 Mortality Rate	6.2	7.3	5.0
Under Age 5 Mortality Rate	25.4	29.2	21.5
Life Expectancy at Birth	75.0	72.8	77.2

Source: International Data Base, US Census Bureau, 2019

In comparison to its neighbors in South America, Peru has a higher infant mortality rate. In 2020, the infant mortality rate for both sexes in Peru was 15, with a projected increase to 19.4 in 2021. Its neighbor, Chile, had an infant mortality rate of 5.6 in 2020, which at the time was almost two-thirds less than Peru. According to the 2020 World Population Data Sheet, more developed nations averaged an infant mortality rate of 4 while less developed nations averaged an infant mortality rate of 34, leaving Peru in the middle. Additionally, the average life expectancy at birth for both sexes in a developed country is 79 years and 71 years with less

developed countries. Since Peru's life expectancy at birth in 2021 is 75 years old, it once again sits in between the status of a developed and less developed nation.¹⁸

Comparing the numbers within the country itself, Peru's data shows that males experience higher numbers in infant mortality rate, age 1 to 4 mortality rate, and under age 5 mortality rate. In contrast, females claim a higher life expectancy at birth by 4.4 years, with men projecting to live until around age 73 and women living to age 77. This data supports the common demographic paradox found in statistics between male and female morbidity and health statistics, since at each age group, males show higher health, but ultimately, females are proven to statistically live longer. However, since 2020, life expectancy at birth for both sexes has decreased by two years.¹⁹

According to the Pan American Health Organization (PAHO), the most common causes of death in Peru include infectious diseases, tuberculosis, pneumonia, malaria, diarrheal diseases, and yellow fever.²⁰ PAHO also provided distinction between the leading causes of mortality versus morbidity, clarifying that the leading causes for morbidity in Peru are parasitic diseases, diarrheal diseases, anemia, malnutrition, malaria, yellow fever, pneumonia, and sexually transmitted diseases.²¹ Although there are clearly few differences between the causes of mortality and morbidity, these lists indicate the possibilities of higher mortality rates derived from the morbidity rate data. The Ministerio De Salud based in Peru reported that in 2015, 67% of all the deaths in the country were the result of neoplasm, infectious diseases, parasitic diseases, diseases of the circulatory system, and injuries.²² It is reasonable to suspect that new health factors have provided a significant change in the morbidity and mortality rate from 2015 to 2021.

¹⁸ World Population Data Sheet, 2020

¹⁹ World Population Data Sheet, 2020

²⁰ "Peru." *Health in the Americas 2017*

²¹ "Peru." *Health in the Americas 2017*

²² "Analysis of the Causes of Mortality in Peru, 1986-2015."

In 2021, *Statista* reported that Peru suffered the highest mortality rate from COVID-19 in all of Latin America, with a reported 129.9 deaths per 100,000 inhabitants.²³ According to UNICEF data, 5% of children under the age of five died in 2017 due to diarrhoea.²⁴ Similarly, in 2017, 1,745 children under the age of five died of pneumonia.²⁵ From these numbers, we can see that COVID-19 with its 43,491 death toll in Peru since February 2020 has become a more central focus in the morbidity rates and data in Peru.²⁶

Fertility

Table 3 Fertility Rates and Contraceptive Use in Peru

Age-specific fertility rates (2019) (per 1,000 women)		
	15 to 19	33.8
	20 to 24	87.8
	25 to 29	109
	30 to 34	103
	35 to 39	58.6
	40 to 44	17.6
	45 to 49	3.9
Total Fertility Rate	2.07	
Gross Reproduction Rate	1.01	
Percent of Married Women 15 to 49 Using Contraception		
	All methods	76%
	Modern methods	55%
Source: International Data Base, US Census, 2019; World Population Data Sheet, 2020		

Peru provides an interesting case in regards to fertility in that it reported a significantly lower percentage of modern contraceptive use than other countries in South America in 2019. For example, both Uruguay and Argentina reported 78 percent of women ages 15-49 having

²³ Ríos, Ana María. “Coronavirus Mortality Rate Latin America 2021.” *Statista*

²⁴ “Diarrhoea.” *UNICEF DATA*

²⁵ “Peru.” *Our World in Data*

²⁶ “Peru.” *Worldometer*

access to and using modern methods of contraception, while Peru reported 55 percent, comparable to the lower percentages of Bolivia and Suriname. While Peru and Argentina had vastly different numbers, they still showed almost the same fertility rates in 2020, with Argentina at 2.3 in 2019 and Peru at 2.2. This also shows a rise in the fertility rate between 2019 to 2020 given that Peru's fertility rate was 2.07 in 2019. Perhaps the lack of modern contraceptive use in Peru allowed its fertility rate to increase over the year. This also indicates that Peru is still in demographic transition, since its population is increasing, yet its mortality rate is decreasing. Peru would probably be mid-shift, considering that its fertility rate is somewhat higher, but not comparable to that of the US. To contextualize, the US fertility rate was 1.7 in 2020, reiterating that Peru's was 2.2, making a 0.5 percent difference. With the increase in modern contraceptive use and the continued decline in mortality rates, Peru will continue its demographic transition.

Unions and Householding

In Peru, women marry younger than men, but the percentage of married women remains lower as age progresses than that of men, indicating that women are more likely to be widowed or divorced than men.²⁷ This is indicated by the dramatic increase found in male marriage statistics rising from 79.9 percent of men being married at ages 40-44 jumping to 84.4 percent of men being married from ages 45-49. In contrast, women at these ages drop in marriage percentile from 75.4 percent to 73.6 percent. Looking at the percentage of younger populations being married, 10.6 percent of women ages 15-19 are married while only 2.3 percent of the male population of the same age are married, indicating that perhaps some of these unions may be non-consensual in the juvenile cohort. Ultimately, by age 75, 63.6 percent of men are still

²⁷ United Nations 2017 World Marriage Data

married while only 26.7 percent of women are married, showing that there are more single elderly women than men, which is commonly caused by widowhood or divorce.

Table 4 Percent Currently Married, Peru 2012

Age Group	Men Married	Women Married
10-14	0.4	0.6
15-19	2.3	10.6
20-24	22.7	43.6
25-29	47.6	62.3
30-34	67.7	74.1
35-39	77.6	75.7
40-44	79.9	75.4
45-49	84.4	73.6
50-54	82.2	70.3
55-59	83.6	65.6
60-64	82.9	62.1
65-69	79.2	54.5
70-74	76.6	48.0
75+	63.6	26.7
Mean Age at Marriage	27.5	23.8

Source: United Nations 2017 World Marriage Data

According to womanstats.org, Peruvian law dictates that the legal marital age begins at age 18. The authorization for a minor to marry can only be given under a civil judge. The 2012 world marriage data indicates that while this may be the law, parties on both the male and female side have been recorded as marrying under the age of 16, with 0.4 percent of male juveniles ages 10-14 and 0.6 of female juveniles being married illegally. This further supports the allegations of

non-consensual marriage.²⁸ While the law states otherwise, Peru appears to be less than transparent in providing clear enforcement to proper marriage rituals. Another account on womanstats asserted that the legal age of marriage is normally 16 with circumstances providing the allowance of 14 year olds to marry.²⁹ The lack of a strictly understood and observed law may contribute to this data. Another factor to underage marriages is gender violence.³⁰ According to the United Nations, emphasis on education, especially at a university level, is imperative in developing Peruvian women during their formative years where they are traditionally being married young.³¹

Migration and Urbanization

Table 6 Urbanization Statistics for Peru, 2014

Percent of population urban (thousands)	
2014	24,088
2030	30,156
2050	35,405
Average annual rate of change (%) 2010-2015	
Urban	1.69
Rural	-0.27
Largest urban agglomeration	
Lima (population in 1,000s)	9,722
As percent of urban population	40.4

Source: United Nations 2014 Urban-Rural Areas Wall Chart

According to Table 6³², the urban population growth of Peru is projected to increase steadily over the next thirty years, starting at 24,088,000 to 35,405,000 in 2030. This indicates

²⁸ WomanStats JSM

²⁹ “Convention on the Elimination of All Forms of Discrimination against Women.” *United Nations*, United Nations

³⁰ WomanStats CPC

³¹ Woman Stats MLW

³² United Nations 2014 Urban-Rural Areas Wall Chart

that the average annual urban increase will be positive at 1.69, with the subsequent decline of rural population at -0.27 percent annually. Naturally, the greatest increase in urban living will occur in the country's capital, Lima. Observing the United Nations country profiles, from the century between 1950 to 2050, Peru has and will continue to experience an almost equal decrease in rural population as urban increase, with the proportion of the total population percentage being equal to around 1962. The projected trend shows that by 2050, over 80 percent of the population will be living in urban areas, while 15 percent will be rural. While this may be true, Peru ranks less in urban area percentage by region and subregion in comparison to both South America and Latin America in the Caribbean as a whole. However, the difference is not substantial with Peru barely under 80 percent while the other two rank slightly above 80 percent.

The rural population in Peru is projected to remain relatively the same, with a slight increase peaking in 2018. The dramatic difference in percentage between rural and urban population is due to a steady projected overall increase of the urban population, starting at around 8 percent in 1950 and rising to around 42 percent by 2050. These increases in population are shown to progress starting with one city having a population of 5 to 10 million another city having 500,000 to one million citizens and 2 other cities with 300,000 to 500,000 citizens in 1990. By 2030, one city is projected to have 10 million or more citizens, with another city having 1 to 5 million, 5 others having 500,000 to 1 million, and 5 more having 300,000 to 500,000 people, showing an increase from four to twelve highly populated cities in Peru by the mid-twenty first century.

Summary of Demography

Peru has been suffering from food insecurity in its mountainous regions where populations are isolated and more vulnerable indigenous groups live in greater numbers. The

Peruvian government has failed to oversee agricultural affairs in these areas, leaving citizens increasingly at risk of higher insecurity from lack of support. Migration of refugees from Venezuela and urban inhabitants seeking refuge in rural areas during the COVID-19 pandemic have increased the insecurity in these regions. Lack of services and ability to become economically stabilized in mountainous areas leave villagers imperiled towards the consequences of food insecurity. High percentages of children suffer from malnutrition and stunting while adults suffer from diseases such as anemia. Programs that could provide sustainable solutions include organizations that provide agricultural education, funding, and support for these communities. Additionally, nutritional education provided by food kitchen groups have proven successful throughout urban areas of Peru, and similar tactics could be implemented in rural regions. Lastly, the Peruvian Government has the capability to intervene and stimulate the economy in mountainous regions by utilizing the untapped agricultural resources in the surrounding areas of the mountains.

Upon analyzing the various demographic data points that illustrate Peru's progress as a nation, it can be reasoned that though there is still much change needed to become a developed nation, Peru is experiencing gradual improvement in each category. The nation has become more financially secure by adjusting their monetary system to the Sol. A steady decline in the growth and birth rate is projected to the year 2029. Also suggested is the change in the population age cohorts, showing Peru's population as a whole to have more balanced ratios between children, working-age groups, and the elderly. Peru is witnessing a disparity between the marriage percentages amongst certain age ranges in the male and female categories. This indicates population issues in the nation, one such being food insecurity towards children and female citizens. These issues are solvable through consistent, intentional effort to decrease the inequality

between the sexes as well as the different cultural groups found within the country. In conclusion, Peru has the potential to become developed in the foreseeable future. By recognizing the disparities among members of its nation coupled with the resolve to administer targeted assistance in a consistent manner, Peru may see an even more prosperous future.

Introduction to Food Insecurity in Peru

With the rise of the COVID-19 pandemic, public health has been a leading global social issue. An interesting case is that of Peru. While the country quickly reacted to the pandemic, it nevertheless ranked second for the highest number of cases in Latin America, following Brazil.³³ One element causing the large number of confirmed cases in Peru was the increased migration of citizens from highly populated to lowly populated areas in attempts to seek security after the economic crisis resulting from the country's lockdown. Although food insecurity is a hot button issue, its presence in Peru is not new. Not only has food insecurity affected individuals and families during the pandemic, but it has a history of causing anemia in adults and malnutrition in children. Additionally, food insecurity has led to approximately 25.4% of Peru's children under age 5 to suffer from growth stunting.³⁴ This has lasted for decades. Without a push for change, people will continue to be negatively affected in a manner that will affect the future of Peru.

Peru suffers from food insecurity in its mountainous regions where populations are isolated and more vulnerable indigenous groups live in great numbers. The Peruvian government has little to do with the agricultural affairs in these regions. Multiple NGO programs have proven

³³ Chávez Yacila, Rosa, and Julie Turkewitz. "Highways of Peru Swell With Families Fleeing Virus." *The New York Times*, 2020, <https://www.nytimes.com/2020/04/30/world/americas/20virus-peru-migration.html>.

³⁴ Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. "Reducing Chronic Malnutrition in Peru: A Proposed National Strategy." *Tufts Nutrition*, Feb. 2002, pp. i-65., https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf.

effective in smaller-scale efforts to combat food insecurity. The Peruvian Government has the capacity and potential to actively intervene by stimulating the economy in these regions.

Context

While thousands of Peruvian inhabitants live in villages located in the high rural mountainous areas of the Andes, their distance and alienation from more urban areas such as Lima or Cusco leave them vulnerable.³⁵ Food security is defined as the way a group of people rate in their practiced nutritional intake. According to the United States Department of Agriculture, low food security indicates that “there are reports of reduced quality, variety, or desirability of diet [with] little or no indication of reduced food intake.”³⁶

Because of Peru’s history with food insecurity, it is challenging to pinpoint a specific origin to the issue. However, consequences of food insecurity have statistically been increasing for the past five decades. Consequences to the country shut-down in response to COVID-19 pandemic have simply amplified previous challenges. According to the United States Organisation for Economic Co-operation and Development, “Rural communities – especially those in mountainous areas and those associated with Peru’s ethnic minorities – are among the most exposed to FSN-related challenges. In 2014, less than one-third of the country’s population lived below the national poverty line... [and] the poorest Peruvians are found in the arid Andean

³⁵ Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts Nutrition*, Feb. 2002, pp. i–65., https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf.

³⁶ “Definitions of Food Security.” *USDA ERS - Definitions of Food Security*, www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx.

highlands that are home to a large majority of the indigenous Quechua and Aymara peoples, many of whom live below the poverty line (IFAD).³⁷

This shows that although insecurity by result of poverty is prevalent throughout Peru, the specified mountainous regions cause greater concern. Many of the people affected are indigenous groups in the mountainous regions, including Achuar, Aguaruna, Ashaninka, Shipibo, Huambisa, Quechua and Aymara.³⁸ A radicalized group called the “hacienda program” has further complicated matters. In 1969, General Juan Velasco and his radical military government attempted to mandate a reform program to disband haciendas. In 1969, General Juan Velasco's radical military government initiated a far-reaching agrarian reform programme, with the objective of breaking up the hacienda system in Peru. According to the UN Refugee Agency, “it largely involved the installation of state-run farms rather than the direct restitution of lands to indigenous and peasant communities.”³⁹ Instead of resolving conflict, these farms created more hostility as land was invaded and towns were robbed. The UN Refugee Agency added that “The lack of state presence in rural areas is still a problem in Peru. *Rondas campesinas* continue to exist in northern Peru, while their relationship to the state (police and the military) remains ambivalent.”⁴⁰

Peru is not the only Latin American country that has struggled with hacienda systems, government assistance, indigenous rights, and the overall toll these issues take on food insecurity. According to the Food and Agriculture organization, Venezuela has experienced a

³⁷OECD/FAO/UNCDF (2016), *Adopting a Territorial Approach to Food Security and Nutrition Policy*, OECD Publishing, Paris: pp.137. <http://dx.doi.org/10.1787/9789264257108-en>

³⁸ United Nations High Commissioner for Refugees. “World Directory of Minorities and Indigenous Peoples - Peru.” *Refworld*, www.refworld.org/docid/4954ce0b2.html.

³⁹ United Nations High Commissioner for Refugees. “World Directory of Minorities and Indigenous Peoples - Peru.” *Refworld*, www.refworld.org/docid/4954ce0b2.html.

⁴⁰ United Nations High Commissioner for Refugees. “World Directory of Minorities and Indigenous Peoples - Peru.” *Refworld*, www.refworld.org/docid/4954ce0b2.html.

dramatic increase in undernourishment within its population, seeing a doubling of 2.9 million people to 6.8 million people reported to be suffering from hunger between the years 2013 to 2018.⁴¹ Although the issues of food insecurity are relatively similar throughout Peru, some mountainous areas may receive more support based purely on the accessibility of their location.

The data and research on this topic derive from different governmental groups, as well as NGOs, Non-profit organizations, and studies conducted by universities. For this reason, data given in this report are procured from specified findings in smaller-scale projects as well as generalized national statistics from government input. Gaps to this research may exist in that not every village in the mountainous regions have individually been monitored, and some variation in data may exist.

History of Food Security in Peru

Peru is a geographically diverse country, with different statistics ranging from one area to another. Around 7.5% of Peru's population experiences food insecurity.⁴² 23.26% of women said they did not have food in their household at least once, 9.3% reported that they or someone in their household had gone a whole day and night without food, and 25.58% reported that they or someone in their household had gone to bed hungry.⁴³ High percentages reported of insecurity have included eating smaller meals, meals with limited variety, undesired foods, and foods that

⁴¹FAO, PAHO, WFP and UNICEF. 2019. Regional Overview of Food Security and Nutrition in Latin America and the Caribbean 2019. Santiago. 135. <https://doi.org/10.4060/ca6979en>

⁴² Isquith-Dicker, Leah Nadine. *Food security & nutrition assessment in an informal settlement in Lima, Peru*. 2016. University of Washington, Masters thesis. https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/35510/IsquithDicker_washington_02500_15574.pdf?sequence=1&isAllowed=y

⁴³ Isquith-Dicker, Leah Nadine. *Food security & nutrition assessment in an informal settlement in Lima, Peru*. 2016: 16. University of Washington, Masters thesis. https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/35510/IsquithDicker_washington_02500_15574.pdf?sequence=1&isAllowed=y

weren't to the consumer's preference.⁴⁴ Overall, 34.88% of households were reported severely insecure, with 41.86% moderately insecure, 11.63% mildly insecure, and 11.63% secure.⁴⁵

According to the Global Food Security Index -which "evaluates vulnerability to food insecurity based on affordability, availability, quality, and safety"- Peru is currently placed at 53 of 113 countries in the world and is in 9th place in Latin America.⁴⁶ According to Ermelinda Maglione in her article, "Peru Improves in Food Security." Peru ranked at a 46 (from a scale of 0-100) on food quality, 54 on affordability, and 57 on availability.⁴⁷ Twenty-two percent of people in Peru live in poverty, making accessibility to nutritious food difficult and rare.⁴⁸ These statistics provide understanding to the background of Peru's food insecurity pattern. Consequences have led to incredible statistics of illnesses. For example, 4 out of every 10 women suffered from anemia in 1996.⁴⁹ Along with anemia, chronic child malnutrition numbers reach up to 33.4% in rural areas.⁵⁰ With these previously problematic patterns, the introduction and subsequent effects of the Coronavirus pandemic created more breeding ground for food insecurity to flourish

⁴⁴ Isquith-Dicker, Leah Nadine. *Food security & nutrition assessment in an informal settlement in Lima, Peru*. 2016:16. University of Washington, Masters thesis. https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/35510/IsquithDicker_washington_02500_15574.pdf?sequence=1&isAllowed=y

⁴⁵ Isquith-Dicker, Leah Nadine. *Food security & nutrition assessment in an informal settlement in Lima, Peru*. 2016. University of Washington, Masters thesis. https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/35510/IsquithDicker_washington_02500_15574.pdf?sequence=1&isAllowed=y

⁴⁶ Maglione, Ermelinda. "Peru Improves in Food Security." *Traveling & Living in Peru*, 21 Feb. 2018, www.livinginperu.com/peru-improves-food-security/.

⁴⁷ Maglione, Ermelinda. "Peru Improves in Food Security." *Traveling & Living in Peru*, 21 Feb. 2018, www.livinginperu.com/peru-improves-food-security/.

⁴⁸ "Peru." *Scaling Up Nutrition*, 21 Oct. 2019, scalingupnutrition.org/sun-countries/peru/.

⁴⁹ "Nutrition Country Profiles: Peru Summary." *Agriculture and Consumer Protection Department*, www.fao.org/ag/agn/nutrition/per_en.stm.

⁵⁰ "Peru." *Scaling Up Nutrition*, 21 Oct. 2019, scalingupnutrition.org/sun-countries/peru/.

The Current Situation with Food Security

Over 30,000 cases of COVID-19 were confirmed in Peru, most coming from urban areas such as Lima.⁵¹ As the Coronavirus pandemic rose, the large populations of urban Peruvians lost jobs and, as a result, resorted to returning to the countryside as they found scarcity in resources. According to the *Global Nutrition Report*: “Constant migration from the rural population to the city contributed to a population increase and unstable homes, raising instability and insecurity.”⁵² Over the last four months, over 167,000 Peruvians attempted their voyage back to the rural towns of Peru.⁵³

Because the majority of COVID-19 cases were found in the urban areas of Peru, the Peruvian government saw a need to limit travel and possible spread of the virus, releasing travel restrictions and allowing those testing negatively for the virus to travel.⁵⁴ These travel queues included registration for government aid, which quickly rose to over 100,000 registries and only around 3,579 people successfully moved.⁵⁵ According to Luca Dall-Oglio of the International Organization for Migration: “Migration is an adaptive strategy to Adverse climatic conditions and food insecurity, and we expect it to continue.” This statement is currently being proven factual as Peruvians scramble to survive, searching for the basic necessities of life as they

⁵¹ Chávez Yacila, Rosa, and Julie Turkewitz. “Highways of Peru Swell With Families Fleeing Virus.” *The New York Times*, 2020, <https://www.nytimes.com/2020/04/30/world/americas/20virus-peru-migration.html>.

⁵² “Nutrition Country Profiles: Peru Summary.” *Agriculture and Consumer Protection Department*, www.fao.org/ag/agn/nutrition/per_en.stm.

⁵³ Chávez Yacila, Rosa, and Julie Turkewitz. “Highways of Peru Swell With Families Fleeing Virus.” *The New York Times*, 2020, <https://www.nytimes.com/2020/04/30/world/americas/20virus-peru-migration.html>.

⁵⁴ Chávez Yacila, Rosa, and Julie Turkewitz. “Highways of Peru Swell With Families Fleeing Virus.” *The New York Times*, 2020, <https://www.nytimes.com/2020/04/30/world/americas/20virus-peru-migration.html>.

⁵⁵ Chávez Yacila, Rosa, and Julie Turkewitz. “Highways of Peru Swell With Families Fleeing Virus.” *The New York Times*, 2020, <https://www.nytimes.com/2020/04/30/world/americas/20virus-peru-migration.html>.

experience a worldwide pandemic. With these panicked actions, families have been left in danger as their strongest members seek opportunities to provide for them elsewhere, highlighting the need to find a solution to provide security to all members of Peruvian society.⁵⁶

These migrations were a result of individuals seeking security and prosperity, naturally finding more job opportunities and potential for rise in power in the big cities. Many people moved to Lima or Cusco seeking such opportunities, creating a large influx in the urban population. As these urban groups flood back to the rural areas, lack of infrastructure within these smaller towns have left them unprepared to support the newly increased population.

Causes of Food Insecurity

A major contributing cause to increasing food insecurity is migration, which has escalated with COVID-19. As a result of the pandemic in Latin America, Peru mandated certain cautionary measures. Certain city highways were shut down to prevent migration into rural areas. These actions came with a cost. As families lost jobs and struggled to survive in the city, they began gathering at the government checkpoints. In April, 2020, an estimated 167,000 Peruvians were attempting to migrate to more rural areas of Peru.⁵⁷

With the influx of groups gathered at these checkpoints, the spread of sickness likely increased. While the government made great efforts to prevent the spread of COVID-19 in the country, Peruvians were still adversely affected, and food security continued to decline as a result of increased migration during this time.

⁵⁶ “Food Insecurity Second Most-Cited Cause of Migration from Central to North America.” *International Organization for Migration*, 25 Aug. 2017, www.iom.int/news/food-insecurity-second-most-cited-cause-migration-central-north-america.

⁵⁷ Rosa Chávez Yacila and Julie Turkewitz, “Highways of Peru Swell With Families Fleeing Virus,” *New York Times*, April 30, 2020. <https://www.nytimes.com/2020/04/30/world/americas/20virus-peru-migration.html>

Another explanation for the decline in food security is the lack of economic opportunities and mobility in these mountainous regions. Difficulties in social mobility in these regions prevent individuals and families from having sufficient funds to purchase nutritious food. As Journalist Ermelinda Maglione put it, “The country’s major weakness is still the low investment in agricultural investigation and development.”⁵⁸ Because Peru has invested insufficiently in agriculture within rural and mountainous regions, they are finding themselves struggling to meet the needs of their citizens who flee to these far-reaching areas as a result of the COVID-19 outbreak.

By not prioritizing food security as a national necessity, Peruvian citizens are growing with a lack of development, education, and progress for the future. This can be seen from *el Instituto de Investigación Nutricional* based in Lima, where it was determined through multiple intervention processes to combat food insecurity that the behavior of the citizens to whom the intervention was more successful differed greatly from those who didn’t receive better intervention. According to Tufts, 30% of women said they didn’t know where to go for health services, and 28% of districts with high stunting received no nutrition services.⁵⁹ Riner Gross and his team of researchers in their nutritional study specified in Chiclayo Peru were able to make a connection between education and stunting, saying:

“The analyses of covariance also found a significant negative association between the level of formal schooling of the parents and the prevalence of stunting among their children. This observation reinforces prior findings on the importance of education as an intervention and its potentially powerful nutritional impact.”⁶⁰

⁵⁸ Maglione, Ermelinda. “Peru Improves in Food Security.” *Traveling & Living in Peru*. February 21, 2018. <https://www.livinginperu.com/peru-improves-food-security/>

⁵⁹ *Reducing Chronic Malnutrition in Peru: A Proposed National Strategy*, Pg. ii.

⁶⁰ “Baseline evaluation of nutritional status and government feeding programs in Chiclayo, Peru.” S120.

This makes a clear point that education and stunting are mutual factors. Because of low access to proper health and nutritional services (such as food kitchens and health clinics), rural mountainous Peruvian areas do not receive sufficient education to promote proper nutrition. In companionship with poverty is the absence of education. According to Levinson, 28% of Peruvians receive no nutrition services.⁶¹ One of the biggest problems is that these communities are difficult to access. They are off the beaten path. According to Levinson: “among rural households, 60% report problems reaching health services due to distance.”⁶² Finding ways of accessing these remote communities may be a first step to providing much needed nutrition education and health services.

The lack of nutritional diversity is another concern in Peru. In the mountainous regions, where foods are less available unless grown there, there is access to only a few foods. According to Isquith-Dicker, approximately 60.27% of Peruvian meals are often made with a limited variety of foods.⁶³ To add to this statistic, Mary Penny states “The concept of food insecurity refers not only to the constraints regarding availability, access and the way food is used and prepared within the household, but also to perceptions about food-related topics such as insufficiency, inadequacy, access uncertainty, and social and cultural unacceptability of certain foods.”⁶⁴ In the

⁶¹ Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts Nutrition*, Feb. 2002, pp. ii., https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf.

⁶² Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts Nutrition*, Feb. 2002, pp. 12., https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf.

⁶³ Isquith-Dicker, Leah Nadine. “Food security and social capital in an urban informal settlement in Lima, Peru.” *University of Washington* (2016): 16. <https://digital.lib.washington.edu/researchworks/handle/1773/35510>

⁶⁴ Mary Penny, “Measuring food insecurity and hunger in Peru: a qualitative and quantitative analysis of an adapted version of the USDAs Food Insecurity and Hunger Module.” *Instituto de Investigación Nutricional* (2009): Pg. 1488 https://www.researchgate.net/publication/40455783_Measuring_food_insecurity_and_hunger_in

case of rural mountainous areas of Peru, uncertainty in food access comes from the reliance on good crop growth or shipping from other locations that can provide food.

Insufficiency can be present in the population changes due to COVID-19. Some examples can be seen in specific Peruvian towns. People in the town of Ayacucho suffer from food insecurity due to the lack of seasonal food availability. Because Ayacucho is located in the Andean highlands southeast of Lima,⁶⁵ a considerable distance from most urban populations, it is difficult to consistently provide a stream of necessities such as imported foods and clothes. Because of the remote location, people usually store dry food so they have something to eat when the fresh food is gone. Their food availability depends on the weather and potential crop loss.⁶⁶ In San Martin, north of Lima, food insecurity was present in minimal variety. People had access to rice, beans, plantain, and cassava.⁶⁷ Throughout the Andes, food variety and availability

Peru_A_qualitative_and_quantitative_analysis_of_an_adapted_version_of_the_USDAs_Food_Insecurity_and_Hunger_Module

⁶⁵ Penny, Mary. "Measuring food insecurity and hunger in Peru: a qualitative and quantitative analysis of an adapted version of the USDAs Food Insecurity and Hunger Module." *Instituto de Investigación Nutricional* (2009): Pg. 1490

https://www.researchgate.net/publication/40455783_Measuring_food_insecurity_and_hunger_in_Peru_A_qualitative_and_quantitative_analysis_of_an_adapted_version_of_the_USDAs_Food_Insecurity_and_Hunger_Module

⁶⁶ Penny, Mary. "Measuring food insecurity and hunger in Peru: a qualitative and quantitative analysis of an adapted version of the USDAs Food Insecurity and Hunger Module." *Instituto de Investigación Nutricional* (2009): Pg. 1490

https://www.researchgate.net/publication/40455783_Measuring_food_insecurity_and_hunger_in_Peru_A_qualitative_and_quantitative_analysis_of_an_adapted_version_of_the_USDAs_Food_Insecurity_and_Hunger_Module

⁶⁷ Penny, Mary. "Measuring food insecurity and hunger in Peru: a qualitative and quantitative analysis of an adapted version of the USDAs Food Insecurity and Hunger Module." *Instituto de Investigación Nutricional* (2009): Pg. 1490

https://www.researchgate.net/publication/40455783_Measuring_food_insecurity_and_hunger_in_Peru_A_qualitative_and_quantitative_analysis_of_an_adapted_version_of_the_USDAs_Food_Insecurity_and_Hunger_Module

was limited. And it could quickly change due to environmental hazards which cause loss of harvest.⁶⁸

Effects of Food Insecurity

The most obvious result of food insecurity in rural Peruvian towns is the underdevelopment of children. According to the Agriculture and Consumer protection department, in 1996 the highest prevalence of stunting in Peru was in rural areas at 40.4% of the child population. This included 37.8% in the mountain range and 33% in the forest, additionally consisting of indigenous populations.⁶⁹ Statistics in the World Food Programme show agreement in showing the rates of rural child stunting in Peru as high as 33.4%, with chronic child malnutrition at 13.1%.⁷⁰ As a whole, 25.4% of children under five years old suffer from growth stunting in Peru.⁷¹ Studies for Tufts University have shown that childhood stunting “increases the susceptibility in adulthood to heart disease, stroke, diabetes, and other chronic diseases, and possibly also to obesity.”⁷² Understanding this claim, child stunting not only is a serious consequence to food insecurity, but is long-lasting and affects the future of Peruvian citizens.

⁶⁸Penny, Mary. “Measuring food insecurity and hunger in Peru: a qualitative and quantitative analysis of an adapted version of the USDAs Food Insecurity and Hunger Module.” *Instituto de Investigación Nutricional* (2009): Pg. 1490
https://www.researchgate.net/publication/40455783_Measuring_food_insecurity_and_hunger_in_Peru_A_qualitative_and_quantitative_analysis_of_an_adapted_version_of_the_USDAs_Food_Insecurity_and_Hunger_Module

⁶⁹ FAO, “Nutrition Country Profiles: Peru,” *Agriculture and Consumer Protection Department*.
http://www.fao.org/ag/agn/nutrition/per_en.stm

⁷⁰ World Food Programme, “Peru,” *World Food Programme*, 2002.
<https://www.wfp.org/countries/peru>

⁷¹ Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts Nutrition*, Feb. 2002, pp. ii.,
https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf

⁷² Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts Nutrition*, Feb. 2002, pp. ii.,
https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf

Contributing factors that cause stunting include the economic situation at which the rural community sits at a given point in time. In Peru, stunting is caused by factors such as disease due to lack of health service access, inadequate food intake, the health of a mother contributing to child birth weight, and general poor health status.⁷³ Deficiencies in diet may be attributed to the yearly agricultural prosperity, which is more difficult to achieve in higher altitude rural areas. For example, according to Tufts, “deficient consumption of protein was highest in the Sierra and Selva, ranging from 38% to 57% of children.”⁷⁴ Another study showed that chronic malnutrition of children under three years old is 34.5%, with the worst hitting areas being the towns of Manaypata, Cuchucancha, Cusibamba, and Pilpicancha, all having nearly half the children under age three suffering from stunting in their towns.⁷⁵ From their study in *Epidemiology and Community Health*, H Moseson and his co-writers said it best: “Childhood malnutrition is one of the most harmful health consequences of poverty and a great threat to public health worldwide. Children throughout low and middle-income countries suffer the consequences of malnutrition, which include death, impaired growth and impaired cognitive, language and motor skills.”⁷⁶ It is imperative that behaviors are changed in both urban and rural communities in order to ensure the progress of their future generations through combating food insecurity and subsequently child stunting and malnutrition.

⁷³ Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts Nutrition*, Feb. 2002, pp.10-11., https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf.

⁷⁴ Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts Nutrition*, Feb. 2002, pp. 12., https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf.

⁷⁵ María Villanueva, Susan Pillaca. “Evaluation of food and nutrition security in families in the district of Los Morochucos in Ayacucho, Peru.” *Revista Peruana de Medicina Experimental y Salud Pública*, Vol. 32, I. 1 (2015): 73.

<https://rpmesp.ins.gob.pe/index.php/rpmesp/article/view/1577/1841>

⁷⁶ Moseson, H, R Hamad and L Fernald. “Microcredit participation and child health: results from a cross-sectional study in Peru.” *Journal of Epidemiology and Community Health*, Vol. 68, I. 12 (2014): 1175. https://www.jstor.org/stable/43282063?seq=1#metadata_info_tab_contents

Along with malnutrition and stunting comes anemia, a condition where the body fails to produce enough red blood cells to carry oxygen throughout the body, resulting in weakness and fatigue.⁷⁷ In 1996, Peru found that 4 in every 10 women suffered from anemia to some extent, with higher rates in rural areas at 41-42% in the mountain range.⁷⁸ Additionally, 57% of children suffered from anemia, with 77% aging between six and 23 months and 33% aging between 28 to 59 months old.⁷⁹ Across the country, 12.1% of children ages 6 months to three years have moderate anemia where 30.3% have mild anemia.⁸⁰ According to the Global Nutrition Report, 18.5% of women within reproductive age -15 years to 49 years old- suffer from anemia.⁸¹

Tying this back in with food insecurity, since anemia is a blood condition, lack of proper dieting contributes to its development. According to a study conducted on a group of both children and adults in Peru for the *Food and Nutrition Bulletin*, it's been found that many people suffer from iron deficiency as a result of low iron intakes, with the adults and children eating around 30% to 60% of the recommended daily intake.⁸² This statistic shows that the nutritional and dietary needs of both children and adults in Peru are not being met, causing a substantial level of blood illnesses amongst a wider age-range of its citizens. Anemia, like child stunting and

⁷⁷ Mayo Clinic. "Anemia" *Mayo Foundation for Medical Education and Research*, 2020. <https://www.mayoclinic.org/diseases-conditions/anemia/symptoms-causes/syc-20351360#:~:text=Anemia%20is%20a%20condition%20in,range%20from%20mild%20to%20severe.>

⁷⁸ FAO, "Nutrition Country Profiles: Peru," *Agriculture and Consumer Protection Department*. http://www.fao.org/ag/agn/nutrition/per_en.stm

⁷⁹ FAO, "Nutrition Country Profiles: Peru," *Agriculture and Consumer Protection Department*. http://www.fao.org/ag/agn/nutrition/per_en.stm

⁸⁰ María Villanueva, Susan Pillaca. "Evaluation of food and nutrition security in families in the district of Los Morochucos in Ayacucho, Peru." *Revista Peruana de Medicina Experimental y Salud Pública*, Vol. 32, I. 1 (2015): 73.

<https://rpmesp.ins.gob.pe/index.php/rpmesp/article/view/1577/1841>

⁸¹ Scaling up Nutrition. *Peru*. Geneva: Scaling Up Nutrition, 2020. <https://scalingupnutrition.org/sun-countries/peru/>

⁸² Gross, Riner, Aarón Lechtig and Daniel López De Romaña. "Baseline evaluation of nutritional status and government feeding programs in Chiclayo, Peru." *Food & Nutrition Bulletin*, Vol. 27 (2006): S120. <https://journals.sagepub.com/doi/pdf/10.1177/15648265060274S402>

malnutrition, prevent the proper and full development of many people in Peru and consequently its future potential in its citizens.

Although it seems uncharacteristic to speak of obesity with food security in rural developing areas, lack of food security through improper dietary habits and nutrition cause unhealthy fluctuation of weight on both sides of the scale. According to Isquith-Dicker's study on food security and social capital, 88% of 43 households in a settlement experienced some level of food security and 35 were severely insecure, with 64% of mothers and 35% of children overweight or obese.⁸³ In addition, the Global Nutrition Report recorded that in 2017, Peru's percentage of children who were overweight under the age of five rose from 7.7% to 8%.⁸⁴ Scaling Up Nutrition reported that for obesity in the 2017 Peruvian population were 15.8% for adult males and 25.1% for adult females.⁸⁵ This of course was not including the additional statistics given for the overweight population of Peru at the time, which, depending on age and gender, ranged from 24.4% to 40.7%.⁸⁶

As the *Food and Nutrition Bulletin* so tactfully articulated, food insecurity encompasses both undernutrition and overnutrition.⁸⁷ Obesity is as much a consequence of poor food security in Peru as is malnutrition. Each of these conditions cause a new problem for the victim,

⁸³ Isquith-Dicker, Leah Nadine. *Food security and social capital in an urban informal settlement in Lima, Peru*. Washington: University of Washington, 2016: Pg. 4.

<https://digital.lib.washington.edu/researchworks/handle/1773/35510>

⁸⁴ Global Nutrition Report. *Peru Nutrition Profile*. Global Nutrition Report, 2020.

<https://globalnutritionreport.org/resources/nutrition-profiles/latin-america-and-caribbean/south-america/peru/>

⁸⁵ Scaling up Nutrition. *Peru*. Geneva: Scaling Up Nutrition, 2020.

<https://scalingupnutrition.org/sun-countries/peru/>

⁸⁶ Scaling up Nutrition. *Peru*. Geneva: Scaling Up Nutrition, 2020.

<https://scalingupnutrition.org/sun-countries/peru/>

⁸⁷ Gross, Riner, Aarón Lechtig and Daniel López De Romaña. "Baseline evaluation of nutritional status and government feeding programs in Chiclayo, Peru." *Food & Nutrition Bulletin*, Vol. 27 (2006): S116. <https://journals.sagepub.com/doi/pdf/10.1177/15648265060274S402>

preventing them from gaining full health and ability. A reason food security is so important and should be prioritized is that it directly correlates with the general health and safety of the people, who seem to be suffering on one end of the scale or other from the results of not prioritizing these problems.

This of course is foreshadowing possible interventions, but also makes the clear point that education and stunting are mutual factors.

Lack of Developed Education or Progress for Future Citizens

An example they gave was that the attitudes of mothers living in communities with alternatives such as food aid kitchens clearly differed from mothers who didn't.⁸⁸

Because food insecurity exists, consequences of that include stunting, malnutrition, diseases such as anemia, and obesity. When a person is affected on some level to that scale, their education is affected, which then affects their children's relationship with the same health scale, effectively enlarging the issue. In summary, all the consequences of food insecurity are interconnected.

Interventions

Supporting Locals in Agriculture and Sustainability

An important point to remember is that access to rural and mountainous communities in Peru, especially during times of emergency or disaster, can be extremely limited. For this purpose, projects and support groups that seek to help these isolated communities need to

⁸⁸ Penny, Mary. "Measuring food insecurity and hunger in Peru: A qualitative and quantitative analysis of an adapted version of the USDAs Food Insecurity and Hunger Module." *Instituto de Investigación Nutricional* (Lima), December, 2009: Pg. 1490
https://www.researchgate.net/publication/40455783_Measuring_food_insecurity_and_hunger_in_Peru_A_qualitative_and_quantitative_analysis_of_an_adapted_version_of_the_USDAs_Food_Insecurity_and_Hunger_Module

approach the development project with the intention of allowing the community to strengthen itself, creating a behavior of improvement and a desire to live with attainable upgraded health standards.

Action Against Hunger is a program that is designed to “bolster agricultural production, jumpstart local market activity, support micro-enterprise initiatives, and otherwise enhance a vulnerable community’s access to sustainable sources of food and income.”⁸⁹ They work towards worldwide outcomes of ending malnutrition through education, data collecting, and building resilience amongst people in villages, refugee camps, and other vulnerable and high-risk groups. To approach this, they assess the needs of local communities and adjust their intervention according to that communities’ situation, but economically and agriculturally. They do this in order to create sustainable solutions that can supersede potential emergencies and allow the local economy to strengthen itself without many outside influences.

Depending on the severity of the situation, Action Against Hunger follows certain steps that ensure community growth in each of their uniquely-built programs. They start by collaborating with the local populations to create rebuilding strategies with set plans of actions to combat the current issue.⁹⁰ These actions may include providing micro-grants to jump-start families with the resources they need for developing their personal agriculture and become self-reliant.⁹¹ In the case of emergency, such as seen with COVID-19, Action Against Hunger provides more immediate support by distributing food, money, and other resources so agriculture

⁸⁹ “Peru: Hunger Relief in Americas.” *Action Against Hunger*, 28 Aug. 2020, www.actionagainsthunger.org/countries/americas/peru.

⁹⁰ “Peru: Hunger Relief in Americas.” *Action Against Hunger*, 28 Aug. 2020, www.actionagainsthunger.org/countries/americas/peru.

⁹¹ “Peru: Hunger Relief in Americas.” *Action Against Hunger*, 28 Aug. 2020, www.actionagainsthunger.org/countries/americas/peru.

can survive.⁹² This is especially relevant in times of mass-migration where communities are being overwhelmed with quickly-growing populations. In 2019, Action Against Hunger helped communities in the Peruvian Andes mountains adjust to the influx of Venezuelan refugees fleeing from Venezuela, and are now seeking to provide the same support in response to COVID-19.

Action Against Hunger has held projects in 21 countries in Africa, five countries in Latin America, 10 countries in Asia, and 6 countries in the middle east, totaling in supporting 42 communities within the global south.⁹³ In 2019, Action Against Hunger claims to have helped 5,385 people, providing 2,379 people with access to Nutrition and Health Programs, 853 people access to sanitation and hygiene programs, and 2,153 people access to food security and livelihood programs.⁹⁴ They highlight that although Peru is seeing an increase in food security, the development of rural mountainous regions is an area of heavy concern. Despite these claims, they fail to provide more detailed information regarding the situation in these areas of Peru. To ensure credibility, they provide a list of vetting groups including *Charity Navigator*, *CharityWatch*, and the *Independent Charities of America*⁹⁵ that have consistently given them high ratings for their commitment to transparency, successful organization, and meeting all 20 Better Business Bureau standards.

⁹² “Peru: Hunger Relief in Americas.” *Action Against Hunger*, 28 Aug. 2020, www.actionagainsthunger.org/countries/americas/peru.

⁹³ “Peru: Hunger Relief in Americas.” *Action Against Hunger*, 28 Aug. 2020, www.actionagainsthunger.org/countries/americas/peru.

⁹⁴ “Peru: Hunger Relief in Americas.” *Action Against Hunger*, 28 Aug. 2020, www.actionagainsthunger.org/countries/americas/peru.

⁹⁵ “Peru: Hunger Relief in Americas.” *Action Against Hunger*, 28 Aug. 2020, www.actionagainsthunger.org/countries/americas/peru.

Given their lack of specified data, there are gaps in the development process that would need to be reconciled. Their general goal is “to create a better way to deal with hunger.”⁹⁶ While they provide vague examples in their process of acting upon this goal, such as providing micro-grants or food in times of emergency, they fail to provide specific data as to the resources they provided to specific towns and the outcomes from those distributions. Additionally, they didn’t provide evidence that their actions were actually helpful to these groups in their failure to include some form of study such as a randomized control trial, ensuring that their intervention was the true cause of positive change. In conclusion, although their intentions to provide money and resources to effectively jump start local agriculture, it didn’t give enough quantifiable data to show how that made a difference and also didn’t resolve the question whether or not they had created a better way to deal with hunger, since food security is more than just having food, but also about the nutritional worth of consuming certain kinds of food, all of which wasn’t mentioned in their Peruvian intervention.

Another successful intervention tactic is seen through the community kitchen groups generated around the organization *Centrales de Comedores*. Their goal is to “(a) lower the costs of the daily diet at the family level, (b) maintain minimum levels of dietary quality, and (c) augment the time available to women for income-generating activities.”⁹⁷ Their goal is to “(a) lower the costs of the daily diet at the family level, (b) maintain minimum levels of dietary quality, and (c) augment the time available to women for income-generating activities.”⁹⁸

⁹⁶ “Peru: Hunger Relief in Americas.” *Action Against Hunger*, 28 Aug. 2020, www.actionagainsthunger.org/countries/americas/peru.

⁹⁷ Immink, Maarten. “People’s community kitchens in Peru: women’s activism pro urban food security.” *D C. Ecology of food and nutrition*. V. 40, no. 6 (2001): pg.701. *Anthropology Plus*. <https://www.tandfonline.com/doi/pdf/10.1080/03670244.2001.9991678?needAccess=true>

⁹⁸ Immink, Maarten. “People’s community kitchens in Peru: women’s activism pro urban food security.” *D C. Ecology of food and nutrition*. V. 40, no. 6 (2001): pg.701. *Anthropology Plus*. <https://www.tandfonline.com/doi/pdf/10.1080/03670244.2001.9991678?needAccess=true>

These kitchens were originally founded in the urban cities of Lima and Callao as an effort to reconcile decreasing food security amongst families in the late 1970s to early 1980s.⁹⁹ Women joined the kitchen groups out of concern for their own families. An interesting factor in these actions were that women seeking these kitchen programs were commonly met with resistance by the men, yet they found empowerment as they gained personal development in these groups (making an impact not just positive to the woman's family and food security, but to her social role as well). Experiencing this empowerment for themselves, they raised awareness and helped other families in their own community. Once the local project got large enough, more professional health services were incorporated into the program to provide professional consultation to the members and those they reached out to. This is a pattern that has been followed and spread since the 1970s.¹⁰⁰

After these kitchens began to grow in the late '70s, Peruvian government became involved and made them part of a government programme that was backed by political parties, proving that small programs can grow and become successful while backed by government funding and organization. According to Maarten Immink, the researcher on the history of this long-lasting project: “

“Community kitchen groups represent a first level organisation. Many kitchen groups belong to a *central de comedores*, which is a network of kitchen groups that provides technical services to its affiliates. A third level of organisation is the *Federación de Comedores de Lima y Callao*, which lobbies legislative and executive branches of government and formulates

⁹⁹ Immink, Maarten. “People’s community kitchens in Peru: women’s activism pro urban food security.” *D C. Ecology of food and nutrition*. V. 40, no. 6 (2001): pg.701. *Anthropology Plus*. <https://www.tandfonline.com/doi/pdf/10.1080/03670244.2001.9991678?needAccess=true>

¹⁰⁰ Immink, Maarten. “People’s community kitchens in Peru: women’s activism pro urban food security.” *D C. Ecology of food and nutrition*. V. 40, no. 6 (2001): pg.701. *Anthropology Plus*. <https://www.tandfonline.com/doi/pdf/10.1080/03670244.2001.9991678?needAccess=true>

legislative proposals, on issues such as food subsidies, minimum food basket composition containing national food products, as well as non-food concerns, such as personal safety, etc.”¹⁰¹

This distinction of levels of organization is important in that the true best practice of these interventions came when the government decided to provide aid to bolster these food kitchens. After *central de comedores* was recognized as an effective network, external support from NGOs and groups such as the US Food for Peace Programme provided more information and assistance in the operation and maintenance of these kitchens.¹⁰²

The various food kitchens that have been established and maintained since the late 1970s have proven to provide an abounding impact to those whom they have reached out to. Because these programmes aren't brand new, they have also had the opportunity to adjust according to the needs of their customers. Their main focus of impact has been on the dietary adjustment of the people they help. According to Immink, “two-thirds of the operating kitchens were able to offer meals that met, on average, approximately 90% of the RDA for dietary energy, and about 100 or more percent of the RDA for protein. Daily diets of participating families were found to be more diverse than of non-participating families, though the former did not overall spend less on food.”¹⁰³ Immink also details that 40% of daily iron requirements were provided by these kitchen

¹⁰¹Immink, Maarten. “People’s community kitchens in Peru: women’s activism pro urban food security.” *D C. Ecology of food and nutrition*. V. 40, no. 6 (2001): pg.701. *Anthropology Plus*. <https://www.tandfonline.com/doi/pdf/10.1080/03670244.2001.9991678?needAccess=true>

¹⁰² Immink, Maarten. “People’s community kitchens in Peru: women’s activism pro urban food security.” *D C. Ecology of food and nutrition*. V. 40, no. 6 (2001): pg.702-703. *Anthropology Plus*. <https://www.tandfonline.com/doi/pdf/10.1080/03670244.2001.9991678?needAccess=true>

¹⁰³Immink, Maarten. “People’s community kitchens in Peru: women’s activism pro urban food security.” *D C. Ecology of food and nutrition*. V. 40, no. 6 (2001): pg.703. *Anthropology Plus*. <https://www.tandfonline.com/doi/pdf/10.1080/03670244.2001.9991678?needAccess=true>

meals during the 1990s.¹⁰⁴ When the kitchens found that 27% of the women participating in their programs had anemia, further adjustments were made in the diet and nutrition plan of these programs.¹⁰⁵

Although these kitchens certainly prove to be well-established in their respective urban locations, there seems to be a lack of more recent data. Additionally, these programs are mostly based in urban Peru and fail to detail specific programs that are created based on the unique communities they are based in. With this lack of information and modernity, it is difficult to find credibility beyond the knowledge that these programs were backed by Peruvian government, NGOs, and the United States Food for Peace Programme. Without the proper updating of research and greater proof of collaboration between different networks of food kitchens, it will be difficult to find ways to adjust and incorporate these program strategies to the rural mountainous area of Peru.

Implementation of Government Intervention: How the Peruvian Government Can Help

Although the following groups aren't part of food kitchens, they prove that through government support, more sustainable methods of food security development in the rural mountainous regions of Peru may become readily available. For example, the Natural Resources Management and Environment Department conducted an analysis on Bioenergy and food security in Peru, stating that "agriculture is an untapped sector with lots of potential and its

¹⁰⁴ Immink, Maarten. "People's community kitchens in Peru: women's activism pro urban food security." *D C. Ecology of food and nutrition*. V. 40, no. 6 (2001): pg.702-703. *Anthropology Plus*. <https://www.tandfonline.com/doi/pdf/10.1080/03670244.2001.9991678?needAccess=true>

¹⁰⁵ Immink, Maarten. "People's community kitchens in Peru: women's activism pro urban food security." *D C. Ecology of food and nutrition*. V. 40, no. 6 (2001): pg.702-703. *Anthropology Plus*. <https://www.tandfonline.com/doi/pdf/10.1080/03670244.2001.9991678?needAccess=true>

relatively poor productivity is strong argument for governments to find a range of alternative measures that boost not only this sector but rural development in general”¹⁰⁶

Their study showed that percentage figures of malnutrition, anaemia, and caloric deficiency are higher in the highlands at between 60-70%.¹⁰⁷ They argue that through bioenergy, not only can the large amounts of agriculture in the untapped highlands of Peru be utilized, but communities living in these areas can find a sustainable and long-lasting way to combat food insecurity.

Though these two strategies have not had as much time to come to fruition as have *Central de Comedores*, the use of government intervention and implementation may create a gateway for more reliable and futuristically sustainable best practices to be realized.

Another example comes from a study in the Peruvian group *Scientia Agropecuaria*. They conducted a study determining how pricing, producing, and selling quinoa helped individuals and communities in small highland towns in Peru.¹⁰⁸ The reason they used quinoa was because of the low nutritional value of the food members of these communities were consuming.¹⁰⁹

Ultimately, they found that “with the farmers who produce quinoa, their price elasticity of demand for this good is positive, since they do not buy it in the market, but for farmers who do

¹⁰⁶ Khwaja, Yasmeen. “Bioenergy and food security: The BEFS Analysis for Peru, Supporting the policy machinery in Peru.” *Natural Resources Management and Environment Department*. Rome: Food and Agriculture Organization of the United Nations, 2010: Pg.2

http://www.fao.org/docs/up/easypol/952/befs_analysis_peru_policy_machinery_141en.pdf

¹⁰⁷ Khwaja, Yasmeen. “Bioenergy and food security: The BEFS Analysis for Peru, Supporting the policy machinery in Peru.” *Natural Resources Management and Environment Department*. Rome: Food and Agriculture Organization of the United Nations, 2010: Pg. 5.

http://www.fao.org/docs/up/easypol/952/befs_analysis_peru_policy_machinery_141en.pdf

¹⁰⁸ Rosales, Giovanni, and Waldemar Mercado. “Efecto de los cambios en el precio de los alimentos sobre el consumo de la quinua y la seguridad alimentaria rural en el Perú.” *Scientia Agropecuaria*, Vol. 11, I. 1 (2020): 83.

<https://search.lib.byu.edu/byu/record/edsbyu.asn.142681204?holding=ecq7shzlbmhtkpi>

¹⁰⁹ Rosales, Giovanni, and Waldemar Mercado. “Efecto de los cambios en el precio de los alimentos sobre el consumo de la quinua y la seguridad alimentaria rural en el Perú.” *Scientia Agropecuaria*, Vol. 11, I. 1 (2020): 83.

<https://search.lib.byu.edu/byu/record/edsbyu.asn.142681204?holding=ecq7shzlbmhtkpi>

not produce quinoa, their price elasticity is negative and inelastic, behaving like any consumer.”
[translated]¹¹⁰

Finding Solutions from Past Problem-Solving

In order to further understand the possibilities of finding some smaller solutions to these large problems of child stunting, adult anemia, and migrant vulnerability, we need to look to past projects that have been executed to assist in lifting similar communities. Studies performed by the International Organization for Migration have coordinated with programs such as the World Food Programme, the Organization of American States, International Fund for Agricultural Development, and the Inter-American Development Bank.¹¹¹ In Mary Penny’s study, she included focus groups in diverse areas of Peru, including the Andes, Amazon, and coast, with towns like Huaycan, Socos, Banda de Shilcayo, and Sapote.¹¹² These differences in location were imperative in that they demonstrated the different causes of food insecurity throughout Peru. For example, food access in Lima is related to poverty, cultural practices, and lack of information.¹¹³ In contrast, food access in Ayacucho related to food availability due to the season and in San

¹¹⁰ Rosales, Giovanni, and Waldemar Mercado. “Efecto de los cambios en el precio de los alimentos sobre el consumo de la quinua y la seguridad alimentaria rural en el Perú.” *Scientia Agropecuaria*, Vol. 11, I. 1 (2020): 92.

<https://search.lib.byu.edu/byu/record/edsbyu.asn.142681204?holding=ecq7shzlbdmhtkpi>

¹¹¹ “Food Insecurity Second Most-Cited Cause of Migration from Central to North America.” *International Organization for Migration*, 25 Aug. 2017,

www.iom.int/news/food-insecurity-second-most-cited-cause-migration-central-north-america.

¹¹² Penny, Mary. “Measuring Food Insecurity and Hunger in Peru: A Qualitative and Quantitative Analysis of an Adapted Version of the USDAs Food Insecurity and Hunger Module.” *Instituto De Investigación Nutricional*, Dec. 2009, pp. 1489., doi:10.1017/S136898000999214X.

¹¹³ Penny, Mary. “Measuring Food Insecurity and Hunger in Peru: A Qualitative and Quantitative Analysis of an Adapted Version of the USDAs Food Insecurity and Hunger Module.” *Instituto De Investigación Nutricional*, Dec. 2009, pp. 1490., doi:10.1017/S136898000999214X.

Martin, food security is related to the general lack of dietary variety.¹¹⁴ In understanding these concerns based on area, it becomes easier to identify solutions in that specific area.

Examples of area-based solution building include the World Food Programme assisting the local government of Ayacucho to push homegrown school feeding with a higher variety of vegetables.¹¹⁵ Other programs that have been created by the Peruvian government include “Healthy Nutrition” and “Schools of Life” with similar goals to that of the project in Ayacucho.¹¹⁶ In 2000, over half of \$250 million dollars for food assistance expenditures were spent on two food security programs: Vaso de Leche and Comedores Populares.¹¹⁷ In the *Tufts Nutrition* study “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy” the authors make the important point that providing food doesn’t necessarily create the most sustainable of solutions:

“This is not a food assistance or a food supplementation strategy. The provision of supplementary food, which has been central to Peru’s nutrition programs, is ineffective in reducing chronic malnutrition without complementary services to affect behavior and increase access to food and to health, water and sanitation.”¹¹⁸

To continue their study, *Tufts Nutrition* concluded that a large issue of Peruvian food security comes from what the citizens choose to eat, causing nutrition deficiencies from eating low

¹¹⁴ Penny, Mary. “Measuring Food Insecurity and Hunger in Peru: A Qualitative and Quantitative Analysis of an Adapted Version of the USDA’s Food Insecurity and Hunger Module.” *Instituto De Investigación Nutricional*, Dec. 2009, pp. 1490., doi:10.1017/S136898000999214X.

¹¹⁵ “Peru.” *Scaling Up Nutrition*, 21 Oct. 2019, scalingupnutrition.org/sun-countries/peru/.

¹¹⁶ “Peru.” *Scaling Up Nutrition*, 21 Oct. 2019, scalingupnutrition.org/sun-countries/peru/.

¹¹⁷ Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts Nutrition*, Feb. 2002, pp. 16., https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf.

¹¹⁸ Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts Nutrition*, Feb. 2002, pp. i., https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf.

quality foods and few calories.¹¹⁹ In order to combat these challenges, food security needs to be addressed by the community itself. According to Isquith-Dicker, “Food security and nutrition policy and programs that are community-driven and mobilized local assets, like income-generating projects and urban agriculture, are needed to address these complex issues.”¹²⁰ For example, Isquith-Dicker stated that “In 2013, IUCI assisted EC residents in constructing 29 household gardens.”¹²¹ With these types of solutions, communities can find sustainable solutions to increasing food security. As for the developers seeking to help Peru in this process, it’s important to be educated. In these projects, students and developers used Spanish-language versions of the Household Food Insecurity Access Score and the Short Adapted Capital Access Tool to create proper procedures in these projects that would overall benefit the people.¹²²

Conclusion

Food and nutritional security are rightfully a necessary topic of discussion in Peru right now. Large percentages of the population have been affected by stunting and anemia for poor

¹¹⁹ Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts Nutrition*, Feb. 2002, pp. 12., https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf.

¹²⁰ Isquith-Dicker, Leah Nadine. *Food security & nutrition assessment in an informal settlement in Lima, Peru*. 2016: 4. University of Washington, Masters thesis. https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/35510/IsquithDicker_washington_02500_15574.pdf?sequence=1&isAllowed=y

¹²¹ Isquith-Dicker, Leah Nadine. *Food security & nutrition assessment in an informal settlement in Lima, Peru*. 2016: 9. University of Washington, Masters thesis. https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/35510/IsquithDicker_washington_02500_15574.pdf?sequence=1&isAllowed=y

¹²² Isquith-Dicker, Leah Nadine. *Food security & nutrition assessment in an informal settlement in Lima, Peru*. 2016. University of Washington, Masters thesis: 10. https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/35510/IsquithDicker_washington_02500_15574.pdf?sequence=1&isAllowed=y

food security in the past. Currently, food security is a large cause of mass migration and endangerment to urban and rural citizens in Peru. Diverse reasoning for poor food security provide a larger conversation as to appropriate kinds of solutions depending on geographical area. Ultimately, the most effective form of change will come from the communities working together to create better security for themselves. According to the *Tufts Nutrition* study, to reach a community, we must start with a household.

“Increase home production of food for home consumption improve household purchasing power through employment, self-employment, agricultural production, or other means of income generation increase household access to markets for goods that they may sell or buy Increase household access to labor markets Increase income-earning capacity through education and training.”¹²³

When we successfully reach a household, we can reach a community, and when we reach a community, we can reach a household. We must support all levels of problem-solving, to help children seek their own food security and to educate adults about higher forms of food security. Ultimately, as we all become more educated and respectful of one another, we can make changes to our own health and relations.

Key Takeaways

- The lack of state presence in rural areas is still a problem in Peru
- 22% of people in Peru live in poverty with little access to nutritious food
- 28% of Peruvians receive no nutrition services.
- 60.27% of Peruvian meals are often made with a limited variety of foods.

¹²³ Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts Nutrition*, Feb. 2002, pp. 30., https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf.

- 25.4% of children under five years old suffer from growth stunting in Peru
- 4 in every 10 women suffered from anemia to some extent, with higher rates in rural areas at 41-42% in the mountain range.
- 30% of women said they didn't know where to go for health services, and 28% of districts with high stunting received no nutrition services.
- *Action Against Hunger* assess the needs of local communities and adjust their intervention according to that communities' situation, but economically and agriculturally
- *Central de Comedores* used grassroots development to educate women in nutrition and involve government programs to provide backup and bolstering.
- The Peruvian Government has the potential to tap into the unused agricultural resources in mountainous Peru to stimulate economic growth and increase prosperity, raising food security.

Key Terms

Disparity: The indication of a large difference or contrast between two entities.¹²⁴

Anemia: A condition where a person lacks enough healthy red blood cells to carry adequate oxygen to your body's tissues, resulting in them feeling tired and weak.¹²⁵

¹²⁴ "Disparity." *Merriam-Webster*, Merriam-Webster, www.merriam-webster.com/dictionary/disparity.

¹²⁵ "Anemia." *Mayo Clinic*, Mayo Foundation for Medical Education and Research, 16 Aug. 2019, www.mayoclinic.org/diseases-conditions/anemia/symptoms-causes/syc-20351360.

Covariance: Measures the relationship between two variables.¹²⁶ It assesses the way these two variables react together.¹²⁷

Vetting: “The process of thoroughly investigating an individual, company, or other entity before making a decision to go forward with a joint project. A background review is a vetting process.”¹²⁸

Hacienda: Spanish term for large estate or plantation.¹²⁹

Grassroots: The most basic level of an organization.¹³⁰

Central de Comedores: A Peruvian food kitchen program that directly translates to “Central Dining Room” in English.

Federación de Comedores: A Peruvian food kitchen organization that directly translates to “Federation of Dining Rooms” in English.

¹²⁶ Chen, James. “Covariance.” *Investopedia*, Investopedia, 29 Aug. 2020, www.investopedia.com/terms/c/covariance.asp.

¹²⁷ Stephanie. “Covariance in Statistics: What Is It? Example.” *Statistics How To*, 30 July 2020, www.statisticshowto.com/covariance/.

¹²⁸ Kopp, Carol M. “The Vetting Process Defined.” *Investopedia*, Investopedia, 16 Sept. 2020, www.investopedia.com/terms/v/vetting.asp.

¹²⁹ “Hacienda.” *Merriam-Webster*, Merriam-Webster, www.merriam-webster.com/dictionary/hacienda.

¹³⁰ “Grassroots.” *Merriam-Webster*, Merriam-Webster, www.merriam-webster.com/dictionary/grassroots.

Scientia Agropecuaria: A Peruvian science research and study group. “Scientia” directly translates to the word “knowledge” from Latin to English¹³¹, while “Agropecuaria” refers to “agriculture” translated from Spanish to English.

Bibliography

“Analysis of the Causes of Mortality in Peru, 1986-2015.” Translated by Miguel Luis Erb, https://www.vitalstrategies.org/Wp-Content/Uploads/2018/10/Analysis_Causes_Mortality_Peru.Pdf, Perú Ministerio De Salud.

“Anemia.” *Mayo Clinic*, Mayo Foundation for Medical Education and Research, 16 Aug. 2019, www.mayoclinic.org/diseases-conditions/anemia/symptoms-causes/syc-20351360.

Central Intelligence Agency, Central Intelligence Agency, www.cia.gov/the-world-factbook/.

Chávez Yacila, Rosa, and Julie Turkewitz. “Highways of Peru Swell With Families Fleeing Virus.” *The New York Times*, 2020, <https://www.nytimes.com/2020/04/30/world/americas/20virus-peru-migration.html>.

Chen, James. “Covariance.” *Investopedia*, Investopedia, 29 Aug. 2020, www.investopedia.com/terms/c/covariance.asp.

“Convention on the Elimination of All Forms of Discrimination against Women.” *United Nations*, United Nations, www.un.org/womenwatch/daw/cedaw/.

“Definitions of Food Security.” *USDA ERS - Definitions of Food Security*, www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx.

“Diarrhoea.” *UNICEF DATA*, 27 Oct. 2020, data.unicef.org/topic/child-health/diarrhoeal-disease/.

“Disparity.” *Merriam-Webster*, Merriam-Webster, www.merriam-webster.com/dictionary/disparity.

FAO, PAHO, WFP and UNICEF. 2019. Regional Overview of Food Security and Nutrition in Latin America and the Caribbean 2019. Santiago. 135. <https://doi.org/10.4060/ca6979en>

¹³¹ “Scientia.” *Merriam-Webster*, Merriam-Webster, www.merriam-webster.com/dictionary/scientia.

- FAO, "Nutrition Country Profiles: Peru," *Agriculture and Consumer Protection Department*.
http://www.fao.org/ag/agn/nutrition/per_en.stm
- "Food Insecurity Second Most-Cited Cause of Migration from Central to North America."
International Organization for Migration, 25 Aug. 2017,
www.iom.int/news/food-insecurity-second-most-cited-cause-migration-central-north-america.
- Global Nutrition Report. *Peru Nutrition Profile*. Global Nutrition Report, 2020.
<https://globalnutritionreport.org/resources/nutrition-profiles/latin-america-and-caribbean/south-america/peru/>
- "Grassroots." *Merriam-Webster*, Merriam-Webster,
www.merriam-webster.com/dictionary/grassroots.
- Gross, Riner, Aarón Lechtig and Daniel López De Romaña. "Baseline evaluation of nutritional status and government feeding programs in Chiclayo, Peru." *Food & Nutrition Bulletin*, Vol. 27 (2006): S116-S166.
<https://journals.sagepub.com/doi/pdf/10.1177/15648265060274S402>
- "Hacienda." *Merriam-Webster*, Merriam-Webster,
www.merriam-webster.com/dictionary/hacienda.
- Immink, Maarten. "People's community kitchens in Peru: women's activism pro urban food security." *D C. Ecology of food and nutrition*. V. 40, no. 6 (2001): pg.701. *Anthropology Plus*.
<https://www.tandfonline.com/doi/pdf/10.1080/03670244.2001.9991678?needAccess=true>
- IOM, "Food Insecurity Second Most-Cited Cause of Migration from Central to North America,"
International Organization for Migration, August 25, 2017.
<https://www.iom.int/news/food-insecurity-second-most-cited-cause-migration-central-north-america>
- Isquith-Dicker, Leah Nadine. *Food security & nutrition assessment in an informal settlement in Lima, Peru*. 2016. University of Washington, Masters thesis.
https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/35510/IsquithDicker_washington_02500_15574.pdf?sequence=1&isAllowed=y
- Isquith-Dicker, Leah Nadine. *Food security and social capital in an urban informal settlement in Lima, Peru*. Washington: University of Washington, 2016: Pg. 4.
<https://digital.lib.washington.edu/researchworks/handle/1773/35510>

James Levinson, Serena Rajabiun, Beatrice L. Rogers, and Katherine Tucker, “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts University Press* (2002): Pg. ii,5, 10-12 https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf.

Khwaja, Yasmeen. “Bioenergy and food security: The BEFS Analysis for Peru, Supporting the policy machinery in Peru.” *Natural Resources Management and Environment Department*. Rome: Food and Agriculture Organization of the United Nations, 2010: Pg.2-5
http://www.fao.org/docs/up/easypol/952/befs_analysis_peru_policy_machinery_141en.pdf

Kopp, Carol M. “The Vetting Process Defined.” *Investopedia*, Investopedia, 16 Sept. 2020, www.investopedia.com/terms/v/vetting.asp.

Leah Nadine Isquith-Dicker, “Food security and social capital in an urban informal settlement in Lima, Peru.” *University of Washington* (2016): Pg. 16.
<https://digital.lib.washington.edu/researchworks/handle/1773/35510>

Levinson, James, Serena Rajabiun, Beatrice L. Rogers, and Katherine Tucker. *Reducing Chronic Malnutrition in Peru: A Proposed National Strategy*. Massachusetts: Tufts University Press, 2002: Pg. ii.
https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf

Maglione, Ermelinda. “Peru Improves in Food Security.” *Traveling & Living in Peru*, 21 Feb. 2018, www.livinginperu.com/peru-improves-food-security/.

María Villanueva, Susan Pillaca. “Evaluation of food and nutrition security in families in the district of Los Morochucos in Ayacucho, Peru.” *Revista Peruana de Medicina Experimental y Salud Pública*, Vol. 32, I. 1 (2015): 73.
<https://rpmesp.ins.gob.pe/index.php/rpmesp/article/view/1577/1841>

Mary Penny, “Measuring food insecurity and hunger in Peru: a qualitative and quantitative analysis of an adapted version of the USDAs Food Insecurity and Hunger Module.” *Instituto de Investigación Nutricional* (2009): Pg. 1488-1490
https://www.researchgate.net/publication/40455783_Measuring_food_insecurity_and_hunger_in_Peru_A_qualitative_and_quantitative_analysis_of_an_adapted_version_of_the_USDAs_Food_Insecurity_and_Hunger_Module

Mayo Clinic. “Anemia” *Mayo Foundation for Medical Education and Research*, 2020.
<https://www.mayoclinic.org/diseases-conditions/anemia/symptoms-causes/syc-20351360>

- “Peru.” *Scaling Up Nutrition*, 21 Oct. 2019, scalingupnutrition.org/sun-countries/peru/.
- “Peru.” *UNESCO*, 14 Dec. 2020, en.unesco.org/countries/peru. (Demography, Education, Population, Culture)
- “Peru.” *Worldometer*, www.worldometers.info/coronavirus/country/peru/.
- “Population Pyramids of the World from 1950 to 2100.” *PopulationPyramid.net*, www.populationpyramid.net/world/2019/.
- Ríos, Ana María. “Coronavirus Mortality Rate Latin America 2021.” *Statista*, 5 Feb. 2021, www.statista.com/statistics/1114603/latin-america-coronavirus-mortality-rate/.
- Rogers, Beatrice L., Rajabiun, Serena, Levinson, James, Tucker, Katherine. “Reducing Chronic Malnutrition in Peru: A Proposed National Strategy.” *Tufts Nutrition*, Feb. 2002, pp. i–65., https://nutrition.tufts.edu/sites/default/files/fpan/wp02-malnutrition_peru.pdf.
- Rosa Chávez Yacila and Julie Turkewitz, “Highways of Peru Swell With Families Fleeing Virus,” *New York Times*, April 30, 2020. <https://www.nytimes.com/2020/04/30/world/americas/20virus-peru-migration.html>
- Rosales, Giovanni, and Waldemar Mercado. “Efecto de los cambios en el precio de los alimentos sobre el consumo de la quinua y la seguridad alimentaria rural en el Perú.” *Scientia Agropecuaria*, Vol. 11, I. 1 (2020): 83,92. <https://search.lib.byu.edu/byu/record/edsbyu.asn.142681204?holding=ecq7shzlbdmhtkpi>
- Scaling up Nutrition. *Peru*. Geneva: Scaling Up Nutrition, 2020. <https://scalingupnutrition.org/sun-countries/peru/>
- “Scientia.” *Merriam-Webster*, Merriam-Webster, www.merriam-webster.com/dictionary/scientia.
- Stephanie. “Covariance in Statistics: What Is It? Example.” *Statistics How To*, 30 July 2020, www.statisticshowto.com/covariance/.
- “The Currency of Peru .” *Information of Peru Currency | Global Exchange - Currency Exchange Services*, www.globalexchange.es/en/currencies-of-the-world/peruvian-nuevo-sol.
- United Nations High Commissioner for Refugees. “World Directory of Minorities and Indigenous Peoples - Peru.” *Refworld*, www.refworld.org/docid/4954ce0b2.html.
- “Welcome to the WomanStats Database.” *WomanStats*, www.womanstats.org/new/view/. CPC - (1998, International Covenant on Civil and Political Rights (CCPR), UN, CPC) para. 29-47

“Welcome to the WomanStats Database.” *WomanStats*, www.womanstats.org/new/view/. JSM - (JSM , United States Department of State - Bureau of Democracy, Human Rights and Labor , Peru 2017 Human Rights Report , , , , Publication date 2017 , Access date 20 April 2019 ,

“Welcome to the WomanStats Database.” *WomanStats*, www.womanstats.org/new/view/. MLW - ((Published 17 June, 1991, Click to open, United Nations, (Accessed 1 March, 2011), United Nations, Second periodic reports of States parties: Peru, MLW 8.0

Why the Andes Matter - FAO, 1

https://www.fao.org/fileadmin/user_upload/mountain_partnership/docs/Print_E_Brief_Andes-low.pdf.

World Food Programme. *Peru*. Rome: World Food Programme, 2020.dw2.

<https://www.wfp.org/countries/perunited> Nations, www.un.org/womenwatch/daw/cedaw/.