

Alexa Calaguas
Clear Lake High School
Clear Lake, Iowa
Peru, Key factor 10

Advancements for improving water scarcity in Peru

The definition of food security, set by The World Food Summit, is “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”. Many people don’t have clean water or enough food. Too many children fall asleep at night not knowing when their next meal will be. Food is often taken for granted by those who have food security. Food security is a key factor of survival. It is one of the basic needs before you can move to the next step in Maslow's Hierarchy of Needs.

Lack of food security often leads to malnutrition and water or food borne illnesses. Many of these illnesses are highly contagious. Some can destroy entire villages if they are not treated. Malnutrition is an unsolved problem in a number of different countries around the world. According to a 2010 survey, 925,000,000 people are hungry. That is 13.6 percent of the entire world’s population. This is a statistic that needs to change.

Technically, there is enough food for everyone. However, the economy, agriculture, climate, and availability all play large roles in why so many people don’t receive enough food. Many countries are working on the agricultural aspect of this. They have found ways to genetically modify plants, so that they can adapt to their specific environmental needs. Some of the other factors are more difficult to change than agriculture. This is why the majority of countries put extra stress on agricultural research.

Peru has an overall population of approximately 29,164,883 people. Of those, about 75.6% live in urban or developed areas (Survey taken in 2005). The average urban Peruvian family consists of five family members: a father, a mother, and three children. Education is free and mandatory from ages 7-16, but over half of the families in Peru have no health care. The public health care system in Peru is almost non-existent. It barely covers basic needs, and people who use it must be extremely cautious as they are often subjected to extra charges that are not covered by insurance. Qualifying is extremely limited to those at the lowest poverty levels. There is little clean, safe water for poor families. Most of these families eat a three or four part meal for dinner consisting of soup or salad, fish or beef with vegetables, and rice or potatoes. The meal is often served with juice.

Some Peruvian women sculpt pots and pans to use in their households. Most women also look after their children. The occupations for men in poor urban families usually include difficult manual labor and are hard to find. Careers for these men may also include: production, transportation, and jobs that require the movement of materials from one area to another. The fortunate average family normally makes between two hundred and three hundred U.S. dollars per month. Supermarkets exist in Peru with the largest chain of them called Wong. Not many people have access to gardens of any type. This is unfortunate because they are an extremely reliable source of healthy food.

As of 2005, 11% of Peru’s population lives on one dollar or less per day. The reality is that even if you have an educated background, it is difficult to find employment. It is even harder to find a job that pays well. Even those who have a college degree are often stuck with low paying jobs, such as bus drivers. Many Peruvians, who go to college or have higher education, move out of the country in search of a more desirable job and life.

In my opinion, there are two major barriers to improving some of Peru’s current problems that are holding it back. The first major barrier is advancing agricultural productivity. Slash-and-burn farming and

other agricultural techniques are destroying mass amounts of forest area, making it very difficult to farm in the same location more than once. Peru needs lots of area in order to farm because of this technique. The current deforestation is also particularly devastating to the native animals and delicate eco systems. Peru's deforestation pace is 261,000ha every year. A different, more eco- friendly agricultural technique, such as crop rotation, would potentially be very beneficial in many ways because the soil would not be as severely damaged.

Their second, even more critical problem, is Peru's lack of clean water and sanitation facilities. About 9.2 million Peruvians don't have access to proper sanitation facilities, and approximately 5.3 million people don't have clean, safe water available to them. That is roughly 18.3% of Peru who do not have reliable water. Buying jugs of water from markets is prohibitively expensive for most families, so the majority of low-income people who inhabit Peru are forced to drink and use untreated water from wherever they can find it. Clean water is a basic necessity in order for people to simply survive. Water can make or break countries. It has the power to create more productive crops and a healthier population of people. On the other hand, the lack of clean water can destroy agriculture, lead to poverty, and cause illness.

Clean water and sanitation problems do not just affect rural or urban people. They affect both groups and those most affected are poor or low-income families. You have to be relatively wealthy to have easy access to these luxuries such as buying drinking water in the grocery store. Drinking untreated water often leads to outbreaks of disease that can rapidly spread to other countries in Latin America. In the early 1990's Peru had a severe outbreak of cholera. It didn't just stay in Peru, it spread to the rest of Latin America killing more than 3,000 people.

Presently, the water situation in Peru is deteriorating. The Center for Strategic and International Studies believes that by 2025 the biggest natural resource problem throughout the world will be access to clean water. A disturbing trend is that water consumption goes up by at least 50% every 20 years. That is double the population growth. Agriculture often uses 75-90% of the safe water. If we could successfully improve the water situation in Peru, then the crops would be able to have the amount of unpolluted water that they require and the excess water could be used for drinking and "luxury" tasks such as cleaning.

Water is the life source for everything. When there is no clean water, the crops do not thrive or produce. If the crops don't produce, then it negatively affects the economy. When the economy goes into a recession, the population has trouble supporting their families and accessing food and other necessities. Among these necessities is still water. This is why water is so crucial. Everything hangs in a balance that must stay constantly in order for this potential cause and effect to be avoided.

When there is easier access to clean water, then families are less likely to get sick. Therefore they miss less work or school. They also do not have to pay as much for medical care. It is beneficial to the agriculture because so much water is necessary to grow crops. For example, growing one cantaloupe requires approximately 40 gallons of water. One pound of pork needs about 1,630 gallons. Water helps the crops, and the crops give people their necessary nutrition. Agriculture is a big part of preserving the country's economy, so if the agriculture suffers, so does the economy. That means that the urban, lower class families will have a harder time providing for their families.

Urbanization will help the current problem because it will increase the demand for water and hygiene facilities by concentrating the water demands in one spot instead of many. This makes water easier to distribute throughout the cities. The sanitation stations also provide for more people. While urbanization helps with sanitation, the large cities would still need to find a way to make water more affordable and a good source from which to get water. Farming families would still have difficulties accessing water. Rural families are spread out farther than urban ones, making water and facilities harder to provide.

Peruvian farmers and rural villagers could potentially commute to urbanized cities and use the urban facilities if water is not available right where they live.

Growth in the population continues to lead to problems with world hunger and water scarcity. Water use is increasing dramatically, but the population is also increasing. That means that there are more people who are constantly using more water. This causes water to be in even higher demand. The rate at which people use water needs to be reduced in order for the population and water rates to even out. The first step in solving this problem is awareness. Even though a majority of the population is aware of the current water scarcity situation, the city of Lima has been using on average 250 liters of water per person compared to approximately 120-140 liters per person in the EU. Educating the Peruvian people that water is not an infinite resource and how to conserve it properly is imperative.

In addition, the creation of more wells in Peru would be very advantageous because most of the world's water is underground. These wells are relatively easy to build and not exceedingly expensive. A shallow well can be built for around \$6,500. Multiple groundwater well sites can be completed between 6-12 months. These wells also don't need any kind of sanitation treatment. There are many organizations that work to raise money to build wells in developing countries. Unfortunately, some countries such as Peru are overlooked by water organizations that focus most of their efforts on the water scarcity problems in Africa and India.

Water filtration systems would also greatly benefit Peru to clean the natural sources of water they currently have. MIT students have created a reasonably priced water filtration system. It has been installed in over 25 Nepalese villages. The students were awarded \$115,000 from World Bank Development Marketplace Global Competition. These filters don't just help one person, but they have the capability to purify the water of entire villages. When it comes to water and sanitation, the key is the number of people it can help.

Sanitation education is also imperative to improving Peru's future. If the people of Peru were more informed about what is actually lurking in the unsafe water, they might be more inclined to access clean water. They need to be informed of food and water borne illnesses and how to prevent them, such as washing their produce, washing their hands after restroom use, etc. A lot of these diseases are preventable. For example, Hepatitis A can be prevented by simply washing hands. This is why it would be indispensable to have a mandatory class in school teaching young people about these diseases and their prevention, as well as how to conserve water.

All of these suggestions could be implemented and in progress by 2015. It is also possible to keep adding new short-term or long-term goals. Sanitation education, installing wells, and water filtration systems can all be started on a small scale and expanded as time and money allows. They will start as short term goals, but they can either be turned into long term goals or lead to other long term goals that will continue the progress that has been accomplished.

In order for the sanitation education classes to be implemented, the government would need to write a law mandating these classes in schools. This way all of the children of Peru, who are the future of the country and next generation of leaders, would learn about the situation and measures to improve it. Learning the importance of water may even inspire some of them to go into politics, agriculture, or other jobs that could aid in resolving these types of situations in the future. Perhaps someone who's currently a student may even think of different ways to solve the problem more effectively because they have fresh ideas. Inevitably, there will be more advanced technology in the future; such as a more efficient way to purify water.

The most cost-effective solution for Peru would be to find donations for installing the wells from the wealthier citizens, private donors, or international organizations. Peru also needs to make the public more aware of its situation and their plan of action. An effective way to make the public more informed is a public relations campaign. They could create posters, T.V. ads, and billboards in order to get the word out. Peru should also make some of the water organizations that build wells for free, more aware that they need the money and facilities as much as many of the other countries who already receive various donations. These essential “water organizations” already receive donations from private and public donors. It may be also necessary for the government to budget for some of the costs that they are unable to raise. World Bank currently assists Peru with approximately 700 million dollars per year, but the money doesn’t necessarily go to water and sanitation. It more likely goes to other aspects of reducing poverty.

The water filtration systems will require similar budgeting to the wells. The Peruvian government could consider cutting back on some of their extraneous spending or prioritize it to fit into the new budget. There are organizations that donate these types of systems also such as Ryan’s Well Foundation, Charity: Water, and Water Works. These organizations are an extremely valuable resource. With the help of these organizations, the government, and the people of Peru, the goals set forth could be reached.

I am confident that Peru will be able to turn their current water and sanitation issues around. As long as they have a plan of action, goals, and supportive government officials, Peru can make all of the decisions and choices that will lead them to a more successful economy. Peru needs to move forward, which is why it’s crucial they put an emphasis on education and prevention. Peru must invest in their future, which means empowering their youth. Should the country choose to instate compulsory education, inform the public and donation organizations via a public relations campaign, and solicit donations in order to construct groundwater wells and water filtration systems it would go a long way in improving their infrastructure. Peru is definitely capable of making these changes and solving their hunger, water, and sanitation predicaments. With these improvements in place, Peru would be well equipped to compete in the global economy.

Works Cited

- ":: Ewong.com Donde Comprar Es Un Placer." *Wong*. Web. 21 Aug. 2011.
<http://www.ewong.com/TV_CIU/Wong/index.html>.
- "2011 World Hunger and Poverty Facts and Statistics." *Www.worldhunger.org*. Web. 10 Aug. 2011.
<<http://www.worldhunger.org/articles/Learn/world%20hunger%20facts%202002.htm>>.
- "Arid Lima among Most Wasteful Cities for Water Consumption." *Peruvian Times*. Web. 15 Sept. 2011. <<http://www.peruviantimes.com/21/arid-lima-among-most-wasteful-cities-for-water-consumption/9195/>>.
- Charity: Water*. Web. 15 Sept. 2011. <<http://www.charitywater.org/>>.
- "CLEAN WATER CRISIS." *Pure Water Gazette Online Water Newsletter*. Web. 28 Aug. 2011.
<<http://www.purewatergazette.net/cleanwatercrisis.htm>>.
- "Culture of Peru - History, People, Clothing, Traditions, Women, Beliefs, Food, Customs, Family." *Countries and Their Cultures*. Web. 20 Aug. 2011.
<<http://www.everyculture.com/No-Sa/Peru.html>>.
- "Daily Life." *Research Laboratories of Archaeology, UNC-Chapel Hill*. Web. 20 Aug. 2011.
<<http://rla.unc.edu/Teaching/mop/LifeonProject.htm>>.
- "Digging Wells In Africa and India: How It Works." *Bring Clean Water to Africa - The Water Project*. Web. 11 Sept. 2011. <<http://thewaterproject.org/digging-wells-in-africa-and-india-how-it-works.asp>>.
- Hansen, Celine. "A Year Living and Working in Peru." *Portal for Work Abroad, Study Abroad, Cultural Travel and Living Overseas*. Web. 20 Aug. 2011.
<http://www.transitionsabroad.com/listings/living/articles/living_and_working_in_peru.shtml>.

- "Health Care in Peru." *Gringos Community For Expats Living, Working and Traveling in Central and South America*. Web. 15 Sept. 2011. <<http://www.gringos.com/peru/health-care-in-peru.html>>.
- "Lima's Organic Food Scene." *Ezinearticles.com*. Web. 21 Aug. 2011. <<http://ezinearticles.com/?Limas-Organic-Food-Scene&id=5800921>>.
- Mayer, Chris, and Gary North. "CLEAN WATER CRISIS." *Pure Water Gazette Online Water Newsletter*. 29 June 2006. Web. 27 Aug. 2011. <<http://www.purewatergazette.net/cleanwatercrisis.htm>>.
- "Peru - Country Assistance Strategy." *World Bank Group*. Web. 15 Sept. 2011. <<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/LACEXT/PERUEXTN/0,,menuPK:343636~pagePK:141132~piPK:141105~theSitePK:343623,00.html>>.
- "Peru - FAMILY LIFE." *Country Studies*. Web. 11 Aug. 2011. <<http://countrystudies.us/peru/43.htm>>.
- "Peru: Access to Clean and Affordable Water." *Food & Water Watch*. Web. 21 Aug. 2011. <<http://www.foodandwaterwatch.org/global/latin-america/peru/peru-access-to-clean-and-affordable-water/>>.
- "Peru Facts." *Sponsor a Child - Compassion International*. Web. 21 Aug. 2011. <<http://www.compassion.com/about/where/peru.htm>>.
- "Peru." *U.S. Department of State*. Web. 15 Sept. 2011. <<http://www.state.gov/r/pa/ei/bgn/35762.htm>>.
- "Peruvian Family Life - International Business - a Wikia Wiki." *International Business Wiki*. Web. 20 Aug. 2011. <http://internationalbusiness.wikia.com/wiki/Peruvian_Family_Life>.

"Ryan's Well Foundation | About Us | FAQs." *Ryan's Well Foundation | Home*. Web. 15 Sept. 2011. <<http://www.ryanswell.ca/about-us/faqs.aspx#how-long>>.

"Ryan's Well Foundation | Learn the Facts." *Ryan's Well Foundation | Home*. Web. 15 Sept. 2011. <<http://www.ryanswell.ca/learn-the-facts.aspx>>.

Simply Hired. Web. 15 Sept. 2011. <<http://www.simplyhired.com/a/local-jobs/city/1-Peru,+IN>>.

Theparadigmshiftproject. Web. 20 Aug. 2011. <http://www.theparadigmshiftproject.org/peru-food_security.html>.

Thomson, Elizabeth A. "MIT Filter Cleans Nepalese Drinking Water." *MIT*. Web. 10 Sept. 2011. <<http://web.mit.edu/newsoffice/2004/nepal.html>>.

Water Works Charity. Web. 15 Sept. 2011. <<http://www.waterworkscharity.org/>>.

Welcome to The World Water Organization (WWO). Web. 28 Aug. 2011. <http://www.theworldwater.org/water_facts.php>.

"WHO | Food Security." *Http://www.who.int/trade/glossary/story028/en/*. World Health Organization. Web. 10 Aug. 2011. <<http://www.who.int/trade/glossary/story028/en/>>.

"World Bank, World Development Indicators-Google Public Data Explorer." *Google*. Web. 10 Sept. 2011. <http://www.google.com/publicdata/explore?ds=d5bncppjof8f9_>.

"WWF - Environmental Problems in Peru." *WWF - WWF*. Web. 21 Aug. 2011. <http://wwf.panda.org/who_we_are/wwf_offices/peru/about/problems/>.

"Youth and Education Issues in Peru | Foundation for Sustainable Development." *Welcome to FSD | Foundation for Sustainable Development*. Web. 12 Aug. 2011. <<http://www.fsdinternational.org/ntlopps/country/peru/youthanded>>.