

Sarah Warren
Jessamine Career and Technology Center
Nicholasville, KY
Brazil, Factor 6

Brazil: Forgotten Farmers in the Amazon and the Environment around Them

Located on the eastern coast bordering the Atlantic Ocean, Brazil is the largest country in South America and the fifth largest country in the world. A predominantly tropical/temperate country in climate, Brazil has seen its share of climatic contradiction, from drought and flooding, to tropical storms and frost. The terrain of the area is mostly flat, with the dense Amazon rain forests to the northwest and rolling plains of the Cerrado in the southeast. Brazil is divided into 26 states and one federal district; Dilma Rousseff has presided over this Federal Republic government since January 2011. This South American country has the world's eighth largest economy with a \$2.324 trillion GDP, and is steadily climbing as a world trading power. Brazil is ranked fourth in the world for internet usage, second in the world for airports, and has a FIFA football ranking of 11th. (*Central Intelligence Agency-Brazil, CIA*)

On the shiny surface of facts and figures, Brazil is a sophisticated, organized, and highly competitive country. What, then, makes it a “developing” nation? To understand, one must delve deeper into the country of Brazil; one must stray from the urban cities and travel into the no-man’s land of the plains, into the dense trees of the rainforest; into the life of a rural family, eking out a living on subsistence agriculture.

Miles outside of the urban areas of Brazil reside more than 40 million Brazilians on small-scale subsistence family farms, run by close-knit, extended-family units. These “rural poor” people are practically invisible to the urban middle and upper classes; however their existence couldn’t be more real. The average number of persons living under one roof in a Brazilian rural household is 4; this may include the mother and father and their child/children, as well as a grandparent, aunt/uncle, etc. The family members all help on the farm in some way, with women and children doing household work and participating in the harvests, and men performing more strenuous labor or going out into the country or nearby cities to find work in the off season; when the man of the house must leave to find work, this often times leaves their wife as the sole provider for the family, as the man may be gone for months at a time. Often the family will live in small, one- to two-room homes made of stone or adobe with clay tiles for a roof, or small wooden shanties. While those in the urban areas may be able to dine at a restaurant, most subsistence farmers provide all of their own food for the family from what they can grow, find, or hunt. The main staples of this Brazilian family’s diet consist of rice and beans, any meat that may be available, and a very few vegetables. Bread and pasta have become increasingly popular as well, due to government subsidies on wheat. Poultry-raising is a fast growing industry for a rural family, providing eggs and meat and supplementing the family’s protein intake. Often, the poorest of the poor rural family suffer from malnutrition, leading to many diseases. Only about 61% of rural Brazilians have access to a sanitary water supply, compared to the 95% of urban citizens with access; only 32% of rural dwellers have adequate waste disposal systems. (*World Bank Data, The World Bank*) Deaths from diarrheal problems and cholera are the most common due to these sanitation issues. The rural family may be at an even greater disadvantage when it comes to these diseases because of the uneven distribution of healthcare in Brazil. The main concentration of healthcare providers is located in the large urban centers where they are not nearly as needed as in rural areas. The greatest demand for healthcare is in the Amazon region, ironically one of the farthest regions from urban areas. Even if a rural family can make the travel to a medical facility miles away, they most likely cannot afford the new medical technology and must rely on over the counter pharmaceuticals for a remedy. Not surprisingly, there are also inequalities in Brazilian education; once again, there is a concentration of elite intelligence in urban areas, while many rural families experience widespread illiteracy. This is mostly due to the location and income of our rural family in question; the children may be more than two hours away from the nearest school house, and there is no

school transportation. Often, the family cannot afford the trip to take the children back and forth to school each day. Less than 40% of the high school aged youth in Brazil is actually enrolled in school. For those kids that can make it to a school, the government is usually unhelpful in providing adequate primary schools, as it is more focused on building up Brazil's universities, so that the quality of education may be skewed. As education is one of the very few ways to rise above your situation in Brazil, most children will eventually take over the family farm and continue on to raise another generation of illiterate children. (*Brazil, Rural Poverty Portal*)

The majority of farms in Brazil are under 50 hectares (about 125 acres) taking up about 81% of all the land in Brazil. The average farm is around 23km (14 mi) away from the nearest urban center, while some farms on the outer extremes can be up to 350 km (217 mi) away from the nearest urban center. The main crops grown on the average Brazilian farm include: rice, beans, maize, cotton, cocoa, sugar cane, coffee, soybean, wheat, citrus fruits, bananas, and tobacco. With all of this, it is odd to imagine that 60% of Brazilian farms do not own a tractor. On the land that is not being used for crops, many farmers let loose cattle to graze and allow for poultry productions; often in the dense forests, farmers will cut and burn many trees to make room for their herds and flocks. Most of the soil in Brazil is ferralsol, a yellowish soil found in humid, tropical climates that is poor chemically and can be easily depleted of its nutrients if overused. Most of Brazil's economic gain from agricultural exports comes more from the extent of farms than from their fertility; in reality, the small subsistence farms have relatively low production due to the misuse and over-exploitation of soil and environment (including clearing and deforestation for pastureland). To combat this, practices such as no-till production and crop rotation are beginning to be practiced, but not on a large scale. (*Brazil, FAO*)

Major barriers to improving agricultural productivity, employment, earning a living wage, and gaining access to adequate services include education, income, and government funding. A majority of rural subsistence farmers are illiterate; if there were more accessible schooling for farmers and their families, they could understand better their own situation, as well as learn how to better manage the soil and production on their farms. Income is another barrier to improving the production and quality of life on a rural Brazilian farm. Many farmers cannot afford to have clean water piped to their homes, cannot afford to send their children to school, and cannot afford the new technologies used to improve agricultural production. For example, they would greatly benefit from integrated pest management systems and genetically modified organisms that are resistant to disease, drought, etc., but these small farmers can hardly afford to eat, let alone buy technology that many commercial farms struggle to possess. Finally, government funding is another barrier to advancing in life for these rural subsistence farmers; without proper funding and assistance, there is an inadequate supply of healthcare and education, as well as inadequate services to aid farmers (roads, transportation, sanitation, access to markets, etc.) Without funding for roads or transportation, farmers who do live miles and miles away cannot reach doctors or schools, and cannot buy proper foods from distant markets or get to work somewhere for extra income.

Based on the information about rural subsistence farming in Brazil and the deficiencies that prevent their advancement, the focus of my research is on factor 6: Developing and implementing sustainable agricultural practices to combat erosion, desertification and soil depletion and reduce pesticide/herbicide usage in Brazil. If we can educate these farmers on new, efficient technology, as well as implementing government assistance to a people long forgotten, I have no doubt that Brazil can become an equal, entirely thriving nation. (*United Nations Millennium Development Goals, UN News Center*)

Currently, my rural Brazilian family, like most rural families, does not understand that the soil is being overused and therefore will not produce as well. The family doesn't understand that the deforestation that they partake in is harming the environment. They really have no choice anyways; they have to do what they can to survive. But if they learned how to rotate crops, or were able to prevent soil erosion and depletion, they could produce more and earn a better living. Today, the present status of this factor is in progress, however it is a long way from being a solved problem. The real problem started in the 1980s

when deforestation became an ever increasing issue. Farmers began clearing out about 22,000 sq. km. per year of the Amazon rainforest for their farms. This in turn led to major desertification and soil erosion problems. It became a vicious cycle, as the soil became depleted and the cleared land became less productive, leading to more clearing. The late 1980/early 1990 economic crisis in Brazil hindered some of the clearing and logging in the Amazon, however it led to over-exploitation of the natural resources. The water has been affected in more intensively developed agricultural areas, as the soil that is eroded gathers in the water tables, as well as the pesticides that went with the soil. Despite attempts at government intervention, Brazil is still experiencing much environmental degradation, mostly in part due to lack of education and the poverty of the farmers. The rural subsistence farmers can hardly afford a loss of money or food in an attempt to protect the environment by parting with their current practices, and the big corporate farms are hardly concerned with the welfare of the environment or the people, as most are owned by foreigners who don't have to live in Brazil. The situation is slowly getting better, but not nearly enough to make a huge difference. Since the 1990s, many world organizations such as The Global Environment Facility (GEF), The Pilot Program for the Conservation of the Brazilian Rain Forests, and the European Community have set aside millions of dollars for conservative efforts. Even so, many rural families that are forgotten by the government receive no word of these efforts and continue "slash-and-burn" techniques; essentially, they are shooting themselves in the foot due to the harm it causes their soil. The deforestation, being the major problem in agricultural endeavors, is measured by census' and satellite images. They are compiled in data charts and compared over years. For example, one environmental database reported that between 2000-2005, more than 3.1 million acres of forest cover was lost in the Amazon, at a rate of -0.6% a year (MongaBay).

If these problems of Factor 6 were resolved, farms could produce more food of better quality, on small amounts of land. If deforestation were to stop, the soil erosion could stop building up in water sources, improving the quality of the family's life. If the family farms could utilize certain techniques, such as crop rotation and integrated pest management, the quality of the soil could return to a normal level in years to come, without the heavy burden of pesticides, herbicides, and nutrient depletion. With healthier land, the farms could have a higher productivity rate and therefore more food. Also, if the small farms can get back on their feet, they can provide food for nearby towns. This can cut out some of the corporate farms and their destruction of the environment. It is almost like the Eat Local programs trending in the United States; the healthiest food comes from the small, organic farms, attracting urban folks. This in turn could create more revenue for the rural farmers. However, all this cannot happen unless the government invests in education and training of these farmers, as well as the protection of the soils.

As previously mentioned, climate change is a common thing in Brazil. Being such a large area covering differing biomes, Brazil can see droughts, floods, and frosts all at the same time in different regions. Therefore, climate change can be a limiting factor in the growth and advancement of the farms. Even once they get the soil back to a stable, healthy level, there is a possibility in the southern parts for frost to kill crops, or for droughts in the north to further deplete the soil and allow for crops to shrivel up. Water scarcity is of course another major limiting factor for the rural family, as well as the lack of healthcare and education. The well-being of these families can be harmed by the pushes from the corporate farms, who may try to push some rural families off of their farms, or who negatively affect the subsistence farms through the deforestation or improper management of the big farms (with large factory cattle farms, all of the manure must go somewhere, and it will often end up in water supplies that rural dwellers must use). A final issue that will affect the family in years to come is the continuation of good stewardship practices; if the family falls on hard times or cannot receive further education, they may fall back into the way it is now: poor production and a poor way to live.

To effectively address Factor 6 and improve the food security of our rural Brazilian family, The MDG goals number 1 (End Poverty and Hunger), 2 (Universal Education), and 7 (Environmental Sustainability) must be addressed. The rural Brazilians need education to understand the state of their farms; if they can

understand the soil composition, the way to properly rotate crops or deal with weeds and pests, then they can become better stewards of the land. Also, if the environment can remain stable and healthy, the crops and livestock raised by the farmers will be more productive and provide better nutrition for the family. In this way, the rural people can overcome poverty, perhaps becoming agricultural educators or scientists themselves, as well as obtain the proper nutrition that every single human being deserves. I suggest the elimination of deforestation. I also suggest that the greater powers of the world send troops, missionaries, etc. with an agricultural background into the most isolated and rural areas, paving the way for these areas to get the help they need. They should bring with them technologies that help farmers in other developed countries, such as integrated pest management systems. They should work with the farmers to come up with a plan for their farm, in a way that they can utilize their farm for all they can get from it, without depleting the soils. They should bring in natural pesticides/herbicides, as well as introduce new species of plants that are resistant to drought and pests, and that will grow well and produce a higher yield for the farmers. I believe that these people should help, because I feel that we have successfully established that our Millennium Goals require the help of the entire world; how else are we to survive as a species? The farmers also need access to facilities such as water sanitation, medical care, and schooling. There should be townships set up that are accessible to the remote areas, in a system that is efficient and helpful in the betterment of the farmers' and their family's health. The government should enforce stricter laws on the corruption of big business farms and their detrimental impact on the Brazilian people and environment. More money should be spent on rural development instead of the urban cities. There should not be such a skew between the high class in the fancy cities and the rural poor struggling to survive, especially in the fifth largest country in the world. The people in the cities should use their knowledge to help those in rural areas; if there is a skew of classes anywhere, there has to be a middle point where the two classes can come together so that neither class suffers. Brazil should better look after its forgotten, poverty stricken farmers who the country may depend on, once the corporate farms run dry the land they abuse. The Brazilian government should welcome help where they cannot help. It may not be such a bad idea for Brazil to form a certain branch of government dedicated specifically suited to gather aid and volunteers to educate and connect the rural farming families. Such organized actions as the Rio de Janeiro Sustainable Rural Development Project should be funded by the government, and it should be encouraged that these organizations have more publicity and support. (*World Bank Projects and Operations*. The World Bank) This project is aiding in the development of rural farms, by increasing their competitiveness and education. They provide financial assistance as much as possible to the farmers, allowing them to borrow money for equipment or technology. They aid in educating farmers so that they may be able to expand their farms in a safe and effective manner. More organizations and projects such as these should be implemented.

Finally, the Brazilian government should fund projects that aid farmers, if not creating programs and setting aside a significant portion of the country's budget to finance schools and healthcare, as well as financial aid for the farm. There should be no reason why any person in rural Brazil should not have clean water, or should die from inadequate healthcare, when people in the cities are doing well. Communities in Brazil should reach out to farmers who live a few miles outside of their town, hopefully starting a chain reaction of helping hands that reaches into the depths of the Amazon. Furthermore, international organizations should meet with leaders of Brazil and organize educational/research departments for the country, as well as set up constitutional laws regarding the well-being of all rural families. The families can also help themselves by reaching out to nearby towns, even if they must make a trip that is a few hours away. If they cannot make this trip, farmers should group together and create their own town, in the hopes of creating a support system. Then, the groups of farming families can work together to learn and strive for a better future. They can't get better or go any farther alone. The rural Brazilians need each other, and they need the rest of the world. They need help to understand their environment and their agriculture so that they may produce and live better. They need us.

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