**The Effects of the Slash-and-Burn farming industry on the Prosperity of the Amazon**

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According to the research report authored by Daniel F. Runde, a senior vice president, director of the Project on Prosperity and Development (PPD) at the Center for Strategic and International Studies, there has been an unprecedented surge in security challenges in the Amazon, including, but not limited to, lodging, trafficking, and poaching. (R,B,M 17). The devastating effects of climate change and deforestation in the Amazon is in theory the responsibility of the three countries governing the Amazon—Peru, Colombia, and Brazil. However, the countries lack the institutional resources to enforce legislation to regulate the illegal activities that cause deforestation. Unfortunately, the bulk of the devastation falls upon the indigenous Amazonian people in all three countries. These populations are often seen as a hindrance to these governments’ infrastructure projects within the Amazon and these “successive governments sought to colonize and integrate the region and its indigenous ethnic groups with the rest of the country” (R,B,M 17). The government’s focus on establishing infrastructure and removing indigenous families is misdirected and could be more useful if focused on regulating the excessive slash-and-burn farming and illegal lodging. The rainforest’s species and natives are left to fend for themselves in an overwhelming minority that has been lasting since the 1970s, where “the rainforest has been battered by significant loss of biodiversity and forest cover as well as increasing water contamination. Researchers have found that deforestation has contributed to a loss of species in the Amazon and declining biodiversity” (R,B,M 23). Theoretically these respective governments responsible for the Amazon enforcing legislation that better regulated farming methods and the corruption in the industry, the Amazon’s biodiversity would not be under constant threat. In the research article authored by Michela Coletta, an Assistant Professor in Hispanic Studies at the University of Warwick and Associate Research Fellow at the Institute of Latin American Studies, University of London and Malayna Raftopoulos, an Associate Research Fellow at the Institute of Latin American Studies, University of London, the Human Rights Consortium, University of London, and the Centro Latino Americano de Ecología Social, Uruguay, it is explained that Brazil, Colombia, and Peru have a clear communal goal of implementing infrastructure programs in the Amazon despite indigenous protest, where they attending meeting wearing feathered head-dresses and facial designs to support the Amazonian people (C,R 89). The misdirected focus on infrastructure leads to negligence to the Amazon’s environmental crises. Despite the suffering of these indigenous populations these countries’ governments “has long resisted any form of international Amazonian deforestation monitoring and rejects what it calls the ‘internationalisation’ of the Amazon”(C,R 94).

Farmers in Colombia’s portion of the Amazon significantly rely on slash and burn agriculture. Slash-and-burn agriculture is defined as the intentional clearing of forest and burning of the remaining vegetation to create an open field. The ashes act as fertilizer making slash-and-burn seem like a sustainable option. However, this is a myth. According to a research report published by the Igarape Institute, an internationally recognized think and do tank dedicated to security, justice and development in the Americas and Africa, in 2017 a record high of 219,973 hectares were deforested in Colombia, up 23 percent from 2016 (IDEAM 1). The Igarape Institute cites some leading causes as illegal logging, land grabbing, and illicit crop cultivation. The slash-and-burn crop cultivation practices in the Amazon as a whole contributes to seventy percent of deforested land in the Amazon. According to the The Institute of Hydrology, Meteorology and Environmental Studies, also known by its acronym in Spanish, IDEAM, is a government agency of the Ministry of Environment and Sustainable Development of Colombia, also “in 2020, this figure rose again by 8 percent, as 171,685 hectares of forest were destroyed”( 2). The IDEAM also includes that the most influential seven causes of Colombian deforestation are clearing land for pasture, irregular development, the expansion of agricultural activities into prohibited areas, extensive cattle farming, illicit crop cultivation, illegal logging, and illegal mining. The Igarape Institute references The InSight Crime Investigation and the rise in illegal activities hidden within the Amazon region, where they claimed there are four main factors driving deforestation in Colombia’s Amazon. Those factors include criminal networks and entrepreneurs, non-state armed groups, facilitators or legal actors, and the labor force. These four factors are all actively deforesting the Amazon destroying habits and as a result limiting biodiversity. The labor force involves the land clearers and local farmers who rely heavily on slash-and-burn cultivation. However, it is important to remember the extent of devastation these activities have on the native Amazonian populations. For instance, some of the labor force individuals are indigenous victims of human tracking or forced under financial necessity and other threatening conditions. The Colombian Amazonian natives only make up 2.9 percent of Colombia’s population and therefore, many Colombians don’t recognize the country as an Amazon country. This denial has led to the lack of focus on the Amazon in Colombia, which has created the Amazon’s economy increasingly ineffective over time. In a research report authored by Romina Bandura, a senior fellow with the Project on Prosperity and Development at the Center for Strategic and International Studies (CSIS) with more than 20 years of experience in international development research, policy analysis, and project management, claims Colombia’s portion of the Amazon is increasingly damaged due to “the country’s unclear rules for land titling lead to a high level of spontaneous and disorderly “colonization,” as outside interests force indigenous communities out of their territories and seize their land for commercial use” (B,B,R 8). The land seized for commercial use by the Colombian government can completely displace natives and if they were to receive the land back, the land is damaged significantly from excessive slash-and-burn agriculture or failed infrastructures. The Amazon’s economy makes up for only one percent of the country's GDP; however, agriculture in the Amazon accounts for thirty-five percent of the country’s greenhouse gas emissions.

The Amazon’s devastation is not limited to Colombia, it is also very prevalent in the Brazilian Amazon. In Brazil, infrastructure is significantly important to the economy; therefore, the Brazilian government sees the potential profit in colonizing Brazil’s Amazon region. According to a journal article authored by Michael S. Giaimo, practitioner of land use, real estate and environmental law and representative of developers, businesses, institutions, government agencies, and other property owners in permitting, regulatory compliance, transactions, and related litigation and administrative proceedings, There are many ecological problems associated with this plan and Brazil's responses are “unpromising.” Fifty-nine percent of Brazil is the Amazon basin (537). The Amazon is vast but has pretty poor soil nutrients and takes a long time to regenerate itself following slash-and-burn farming and cattle ranching. Giaimo also claims in the article that “an [ecological] collapse of the rain forest or large scale deforestation, will inevitably lead to a change in regional climate” (539). As a result, one of the most essential aspects of a rainforest— the rain and precipitation decreases significantly with deforestation. The government’s interest in the Amazon currently is largely financial, illustrating the problem with the regulation of the Amazon. According to Moral Courage and Intelligent Disobedience by Ted Thomas and Ira Chaleff, “Intelligent disobedience requires refusing to follow orders that are either unlawful or will produce harm”(59). Therefore, government regulation takes moral courage and disobedience to uphold the position of power. The countries responsible for the Amazon have a civic responsibility to ensure the safety and prosperity in the Amazon but are failing to enact such courage. For instance, slash-and-burn farming is still a prevalent cause for deforestation in the Amazon and worsens every year especially in Brazil.

Peru has responsibility over about 14% of the Amazon Rainforest. However, the small portion has severe crime rates from various illegal activities such illegal logging through the slash-and-burn method. According to a research report authored by Romina Bandura and Owen Murphy, Program Coordinators from Center for Strategic and International Studies (CSIS), “local governments often lack the institutional capacity and budgetary resources to respond to these challenges. Taken together, these activities not only instigate more deforestation, undermine the rule of law, and threaten human health, but also prevent the achievement of a viable long-term vision for the economic development of the Amazon region”(12). Similarly to Colombia and Brazil, the Peruvian government lacks the necessary resources needed to regulate this portion of the Amazon effectively to reduce rapid deforestation. Although the Peruvian government has recognized the problem and sent out “numerous military and police crackdown”(13), it has not been enough to efficiently reduce deforestation in the Peruvian Amazon. Peru has also tried implementing a program that has efficiently reduced 92% of deforestation in La Pampa in the years of 2018 to 2019; however, it has not reduced the deforestation due to illegal gold mining or the sex trafficking of underage indigenous girls in La Pampa. Peru has the moral courage to implement policies and yet these policies aren’t universally implemented throughout the country and have only made a surface level impact. According to Elouise Cobell: A Small Measure of Justice by Melinda Janko, “heroes don’t start out to be heroes, they simply do whatever it takes to make things right” (26). It is clear that there are heroes in the Peruvian government, but every hero must finish the job.

There have been significant changes in the rates and effects over the years to the point where some diminish the effects of slash-and-burn farming due to a few good years. According to a journal article authored by Christopher Uhl, a professor of biology at Pennsylvania State University with 30-year teaching career that has been marked by experimentation and innovation, “By five years, Vismia mortality exceeded establishment and pioneer trees of the Melastomataceae were growing in the spaces vacated by Vismia. Primary forest species represented only 7% of all stems at this time.(3) The number of tree species ( > 2 m tall) increased from seventeen (year 1) to thirty-five (year 5)”(Uhl 377). The mention of the increase in primary forest species over five years is not inclusive across the entirety of the Amazon. The Amazon will not truly flourish until slash-and-burn farming is a fully forgotten method and legislation regulating the Amazon comes into effect. Professor Uhl’s article insinuates that the effects are not as devastating as the other reports claim and that things are progressing. All progress is important; however, that progress should be universal across the Amazon, not just in certain areas, not just in the upper Rio Nedra region Uhl references in his findings. The slash-and-burn farming industry wasn’t always bad; however over time too many farmers began slashing and burning their land plots to cultivate crops. The problem has been recognized because there are too many farmers and not enough land to slash and burn and not enough time for the land to recover. Rather than distracting from the immense impact slash-and-burn, there are other solutions to mediate if not replace this industry. According to the article published in Spore, the previous quarterly magazine of the Technical Centre for Agricultural and Rural Cooperation (CTA), the Alternative to Slash-and-Burn Initiative (ASB) was created in 1992. The ASB has encouraged different methods to slash-and-burn farming and how to find use for land while it recovers instead of reburning it. A technique mentioned by Spore to mediate the effects on the soil that slash-and-burn has is living fences. They encourage living fences with “Farmers should be encouraged to plant living fences of fast-growing leguminous trees to which fencing wire can be attached; this serves the double purpose of containment and provides browse for the cattle at the same time. The trees also protect and enrich the soil” (1). The living fences don’t replace slash-and-burn farming, however, if they are included in slash-and-burn farms it would help mitigate the negative environmental effects. According Educating the Slash-and-Burn Farmer on the Conservation of the Rainforest: A Challenge in Intercultural Communication published by the Journal of the Washington Academy of Sciences, a multi-disciplinary peer reviewed journal published four times a year, a key reason for the vast deforestation in the Amazon is “the indiscriminate use of [resources from the rainforest] and to the lack of awareness of the forests' potential as a renewable resource and as new sources of products”(K,P,R,B,C 230). The slash-and-burn farming method is supposedly used by approximately 200 million farmers and causes the Amazon to lose 160,000 square kilometers of forest per year. The authors claim that the main problem is the farmers are unaware of the harm they are doing to the Amazon’s ecosystem and educating them should become a priority. The farmers must “be introduced to new ways of utilizing existing cleared land that will enable them to live on that land indefinitely. And [slash-and-burn farmers] must be introduced to ways of utilizing the resources of tropical forests without destroying them” (K,P,R,B,C 231). By advocating for the education and regulation within the Amazon deforestation rates will decrease as real change begins to occur.