Proposed Paper for the World Bank's Land and Poverty 2018 Conference
March 19-23
Washington, DC

Title: Leveraging Big Data to Promote Sustainable Supply Chains: The Case of Paraguay's Beef Sector
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Abstract:

Cattle ranching is expanding in the Paraguayan Chaco and has contributed to the degradation and loss of forests and associated ecosystem services. Until the late 1880s, much of the Paraguayan Chaco was used by indigenous peoples; they now legally hold just a small fraction of their traditional land. Today, most land in the Paraguayan Chaco is private land, with a significant amount also in large public protected areas. Deforestation rates on private lands are considerably higher than on indigenous lands and lands in the public protected estate. As cattle production expands, the risk of more deforestation on private lands is high. Protecting the land rights of indigenous peoples could help secure their livelihoods and protect the remaining forests in the Paraguayan Chaco.

This paper describes an assessment of the deforestation and land rights risks to meatpackers sourcing cattle from the Paraguayan Chaco, as well as the development of a bottom up platform for documenting indigenous claims to land in this region. Given the significant losses over time, particular attention is paid to indigenous lands, including both lands that are now legally held by indigenous peoples and those that are claimed by indigenous peoples but are legally held by private landholders or the state. The Chaco has the greatest diversity of indigenous peoples in Paraguay, including the last uncontacted indigenous persons outside the Amazon. The Chaco covers 24,155 ha (250,000 km^2), or about 60 percent of Paraguay's land area; however, it is home to less than two percent of the country's population.

Extensive cattle ranching began in Paraguay in the 1960s. Over time, as the population in the Chaco has grown and international beef markets have expanded, previously (locally) powerful, but small-scale cooperative farm groups have transformed into much larger cattle agribusinesses. Furthermore, in the early 2000s, Brazilian and other foreign ranchers began to buy large tracts of land in the Chaco exclusively for livestock production, particularly because of the low price of land. The result has meant the transition of the Chaco in the minds of Paraguayans living in the capital or the eastern region from a distant wilderness to a region with significant economic influence, nearly all of which is concentrated in cattle-oriented agribusiness. The expansion of market-oriented agriculture (annual crops and cattle) incentivized enormous forest clearing.

Decades of unrestrained agricultural expansion, often at the expense of tropical and sub-tropical forests has made Paraguay one of the world's top exporters of soy (ranked fourth) and cattle (fifth). The remaining Atlantic forest has been lost to annual crop production (especially soybeans in a number of departments in the far east of the country), while the also biodiverse Gran Chaco, the second largest forest in Latin America after the Amazon, has been particularly hard-hit, losing nearly three million hectares (7.4 million acres) of forest – mostly to pasture – in the past ten years alone. Having moved through the south of Argentina and east of Paraguay with large-scale soy production and cattle ranching, agribusiness (in particular cattle ranching) has extensively expanded into the Chaco of western Paraguay. The dynamics of forest loss have been deeply influenced by the status of land tenure and property rights in Paraguay's history, particularly as it relates to the rights of indigenous peoples vs. those of settlers.

The current pattern of land rights and tenure security in the Paraguayan Chaco has roots in land grants issued by the government in the 19th century. At the time, the Chaco was inhabited principally by indigenous peoples. In 1825, the government issued a decree mandating that all citizens present titles to the lands they occupy. Lands without titles, such as those held and used by indigenous peoples, were declared state property. The decree allowed the government to take legal possession of the Chaco, although it did not lead to an immediate occupation or use of this land, and indigenous peoples continued to be the primary inhabitants and managers of the land. This all changed in the late 1800s. To pay for Paraguay's debt following its defeat in the 1865-70 War of the Triple Alliance with Uruguay, Brazil, and Argentina, the government sold large tracts of land to foreigners, mostly Argentines. These actions concentrated land holdings that are still present today and have led to the deforestation dynamics described above with global agribusiness demand for soy and cattle.

Today, more than 95 percent of land in Paraguay is held as private property. In the Chaco, most land is privately owned, principally by individuals, corporations, and cooperatives. Some land is public land, such as land in the protected areas and the lands alongside roads and power lines. While estimates vary, a relatively small amount of land in the Paraguayan Chaco – likely less than five percent - is legally held by indigenous peoples (although they claim considerably more land). There are also a number of smallholder farmers living in the Chaco.

Based on World Resources Institute (WRI) calculations, the Paraguayan Chaco lost an average of 245,746 ha of forest/year between 2001 and 2014, for a total loss of 3,440,441 ha in this 14-year period from 2001-2014. This translates into an annual average deforestation rate of 1.4 percent, resulting in a 14 percent total decline of forest area in the Chaco. These figures are in general agreement with those provided by other researchers. More specifically, public protected areas experienced the lowest annual average deforestation rate of 0.3 percent/year from 2001-2014 and indigenous lands had an average deforestation rate of 0.6 percent/year. Private lands had the highest average deforestation rate at 1.5 percent/year.

The last decade has seen an enormous shift in the generally accepted standard of agricultural commodity sourcing standards. The global beef and leather industries are, however, arguably the least progressive among the major drivers of tropical deforestation, with neither a globally recognized certification or standard-setting body, and little uptake of basic sourcing criteria or global, time-bound commitments by major multinational players. The Global Roundtable on Sustainable Beef (GRSB) is relatively young and with little influence compared to the other major commodity roundtables (for example around timber, soy and palm oil), and is resistant to any verified certification or standard setting regime. While major grain and vegetable seed oil traders (Wilmar, Cargill, ADM, etc.) have made global commitments, the major meatpacking companies sourcing in the tropics have so far not done so.

As Paraguay's cattle exports are not primarily to higher value markets (e.g. the United States, European Union, or Japan), there has been little history of promoting progressive criteria for social and environmentally monitored beef production. In general, the respective markets for Paraguay export beef determine the relatively small differences in sourcing criteria, and these correspond to price differences. The European market is both the smallest and most demanding of markets, requiring higher levels of traceability and animal welfare requirements, while Chile also requires documentation of the corral location as part of its requirements. Russia, the leading export destination of Paraguayan beef in most years, imposes very few criteria on imports beyond sanitary controls (such as foot and mouth disease regulations).

Apart from the portion of the market that requires corral coordinates, the present perception of risk and the relatively permissive regulatory environment discourages additional measures to connect supply chains to ranch locations or inquiries into the land tenure of sourcing areas. Investment in geospatial data for day-to-day operations is likewise limited (against the general trend in the global agricultural sector), and the land use and land ownership history is of little concern for cattle buyers. Disputed titles and indigenous claims and their related controversies tend to weigh little in sales contracts that are more concerned with volume and price.

Recognizing this context, USAID has supported the piloting of approaches to increase data management and transparency by the beef sector and the government of Paraguay. USAID, with local and international partners: 1) built an interactive online platform to provide precise maps and other critical information on indigenous lands and peoples in the Paraguayan Chaco, along with contextual data on forest change, fires, and other data; 2) strengthened the capacity of the Federación por la Autodeterminación de los Pueblos Indígenas (FAPI, the Federation for the Self-Determination of Indigenous Peoples) to assume the medium and long term management of the platform as well as to use geospatial data and tools; and 3) made the data available to public sector actors - at the national and local level - to improve land use planning and enforcement, and to private sector actors (cattle supply chain actors and banks) for their due diligence activities through various communications. This paper will describe the development of this platform and initial efforts to engage with key private sector actors to improve uptake and use of the data, as well as government engagement to promote transparency and sharing of information.