

## Drivers of Deforestation in the Colombian Amazon: An Empirical Causal Loop Diagram of Food Security and Land-Use Change

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**Abstract :** In 2016 the historic peace accord between the Colombian government and the Revolutionary Armed Forces of Colombia (FARC) had no strong mechanism for managing changes to land use and the environment. Since the end of a 60-year conflict in Colombia, large areas of forest in the Amazon region have been rapidly converted to agricultural uses, most recently by cattle ranching. This suggests that the peace agreement presents a threat to the conservation of the country's rainforest. We analyze the effects of cattle ranching as a driver and accelerator of deforestation from a systemic perspective, focusing on two key leverage points the legal and illegal activities involved in the cattle ranching practices. We map and understand the inherent dynamic complexity of deforestation, including factors such as land policy instruments, national strategy to tackle deforestation, land use nexus with Amazonian food systems, and loss of biodiversity. Our results show that deforestation inside Colombian Protected Areas (PAs) in the Amazon region and the surrounding buffer areas has accelerated with the onset of peace. By using a systems analysis approach, we contextualized the competition of land between cattle ranching and the need to protect tropical forests and their biodiversity loss. We elaborate on future recommendations for land use management decisions making suggest the inclusion of an Amazonian food system, interconnecting and visualizing the synergies between sustainable development goals, climate action (SDG 13) and life on land (SDG 15).

**Keywords :** tropical rainforest, deforestation, sustainable land use, food security, Colombian Amazon

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