Application of the Urban Forest Credit Standard as a Tool for Compensating CO2 Emissions in the Metalworking Industry: A Case Study in Brazil

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Abstract : The climate changes resulting from human activity have increased interest in more sustainable production practices to reduce and offset pollutant emissions. Brazil, with its vast areas capable of carbon absorption, holds a significant advantage in this context. However, to optimize the country's sustainable potential, it is important to establish a robust carbon market with clear rules for the eligibility and validation of projects aimed at reducing and offsetting Greenhouse Gas (GHG) emissions. In this study, our objective is to conduct a feasibility analysis through a case study to evaluate the implementation of an urban forest credits standard in Brazil, using the Urban Forest Credits (UFC) model implemented in the United States as a reference. Thus, the city of Ribeirão Preto, located in Brazil, was selected to assess the availability of green areas. With the CO2 emissions value from the metalworking industry, it was possible to analyze information in the case study, considering the activity. The QGIS software was used to map potential urban forest areas, which can connect to various types of geospatial databases. Although the chosen municipality has little vegetative coverage, the mapping identified at least eight areas that fit the standard definitions within the delimited urban perimeter. The outlook was positive, and the implementation of projects like Urban Forest Credits (UFC) adapted to the Brazilian reality has great potential to benefit the country in the carbon market and contribute to achieving its Greenhouse Gas (GHG) emission reduction goals.