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Green Infrastructure as a Tool for Health Quality Insurance in New Cities: Processes and Proceedings of Reducing Carbon Emissions

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Abstract

The services provided by urban vegetation are based on a specific urban ecosystem balance with inputs and outputs values as well as measurable transformation processes and proceedings. This study seeks to quantify the parameters of urban green infrastructure that regulate the balance between carbon emission and absorption, and to explain how the ratio of carbon in the air can be minimized through strategic planning of the green grid. Indeed, it has been proven that the high level of carbon in the urban atmosphere causes several respiratory diseases, therefore the purpose of this work is to highlight the role of urban vegetation in the insurance of health quality in cities. This study relies on the urban theory that approaches the city to an integrated ecosystem encompassing complex combinations of processes and proceedings and which assimilates the carbon exchange metabolisms between vegetation and the atmosphere to a detailed process from the point of view of the gas exchange balances and drive factors of carbon sequestration processes, to build a carbon storage optimization tool downstream, by which the green infrastructure becomes more efficient in reducing diseases related to cities.

References

Bhan, M., Gingrich, S., Matej, S., Fritz, S., & Erb, K.-H. (2021). Land Use Increases the Correlation between Tree Cover and Biomass Carbon Stocks in the Global Tropics. *Land* 2021, Vol. 10, Page 1217, 10(11), 1217.

Masseti, L., Petralli, M., Brandani, G., Napoli, M., Ferrini, F., Fini, A., ... Giuntoli, A. (2019). Modelling the effect of urban design on thermal comfort and air quality: The SMARTUrban Project. *Building Simulation* 2019 12:2, 12(2), 169–175.

Qin, Y., Wagner, F., Scovronick, N., Peng, W., Yang, J., Zhu, T., ... Mauzerall, D. L. (2017). Air quality, health, and climate implications of China's synthetic natural gas development. *Proceedings of the National Academy of Sciences of the United States of America*, 114(19), 4887–4892.

Sun, Y., Xie, S., & Zhao, S. (2019). Valuing urban green spaces in mitigating climate change: A city-wide estimate of aboveground carbon stored in urban green spaces of China's Capital. *Global Change Biology*, 25(5), 1717–1732.



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The above course allowed me to acquire a general culture imbued with the disciplines I was confronted with (Urban Planning, Architecture, Civil Engineering, Hydraulics, Public Works, Judicial Law). Hence a relative ease in communication and dialogue with the other partners that I meet regularly when taking charge of the situations entrusted to me