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Analysing andEvaluating the Circular Economy

Professor Theodore Endreny
State University of New York College of Environmental Science and Forestry (Syracuse, NY, USA)
Department of Environmental Resources Engineering

Seminar

Mapping tree canopy cover in the world's megacities: the urban-rural gradient of a new product and the circularity of Nature

Friday 13th December 2019 – 14:00
Università degli Studi di Napoli Parthenope Villa Doria D'Angri (via F. Petrarca 80, Naples, Italy)

Abstract
Tree cover maps within cities provide a first step toward managing the ecosystem services of urban forests. This research presents percent tree cover maps for 35 megacities, using the 2017 NASA MOD44B vegetation continuous field product at 250 m spatial resolution. Accuracy tests used Google-image photo-interpreted estimates of city-average tree cover and stratified tree cover for 20 bins from 0 to 100% tree cover. Maps of tree cover were improved by combining the MOD44B tree cover with its standard deviation product, which on average underestimated photo-interpreted tree cover by only 1.8%, close to the photo-interpreted tree cover standard error (+/- 1.2%). The spatial distribution of MOD44B percent tree cover within the megacities was not random, and exhibited statistically significant clustering into hot spots of relatively high tree cover and cold spots of relatively low tree cover. The spatial pattern of tree cover hot spots was organized around the rural-urban interface, as well as abutting agriculture or wetlands, within higher elevation terrain, in parks, and in some low-density residential districts. The spatial pattern of tree cover cold spots was organized around areas of concentrated urban land use, including downtown, shipping ports, and high density residential, commercial or industrial zones; it often followed expressways or railways. Environmental engineers and scientists should use these tree cover maps to manage urban forest their benefits to society.

Short biography
Theodore Endreny is a Professor in the Department of Environmental Resources Engineering at the State University of New York in Syracuse, New York, and earned his doctoral degree at Princeton University. Professor Endreny's scholarship involves i-Tree software development and applications for restoration of river basins and their ecosystem services.
Fulbright Distinguished Chair in Environmental Sciences at Parthenope University in 2016.

References
Mapping tree canopy cover in the world's megacities: assessing the accuracy and urban-rural gradient of a new product
Theodore Endreny[1], Francesco Sica[2], David Nowak[3]

[1] State University of New York College of Environmental Science and Forestry, Department of Environmental Resources Engineering, Syracuse, NY, USA
[2] Doctoral School of Architecture and Construction, Department of Architecture and Design of Sapienza University, Rome, Italy
[3] USDA Forest Service, Northern Research Station, Syracuse, NY, USA

For further info contact:
prof. Massimiliano Lega
email: massimiliano.lega@uniparthenope.it

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