

## **LFRT Climate Justice Abstract - Integrated Urban Agroforestry on Educational Facilities and CO2**

Los Angeles County once was a mecca of landscapes with food production that served the whole of the United States. By 2050, it is expected that 60% of the world's human population will reside in urban cities. Increasingly, this puts stress outlying rural food production farms by putting more pressure to transport food at greater distances. The increase of urban land development leading to degradation through expansive amounts of impervious surfaces, causes environmental problems like heat island effect and increased greenhouse gas emissions. Lack of green space along with food deserts lacks environmental justices for those who don't have access to parks or markets supplying fresh produce.

Educational institutions are ramping up their urban ecosystem services, like planting trees to increase tree canopies, with the sole purpose of combating climate change by reducing carbon emissions. A handful of educational institutions are seeing beyond this by recognizing urban agriculture as having multiple benefits within a social, environmental, health, and economic realm. Urban agriculture compliments green building initiatives by potentially meeting carbon requirements that must be met in order to achieve net zero.

Educational facilities make up the largest landowner in Los Angeles County. In LAUSD schools alone, there are 600,000 children who attend these facilities, who are exposed to environmental heat gain from the immense amount of impervious surfacing of asphalt meant for playgrounds. There have been recent literature benefits of natural based solutions and urban agroforestry could contribute to a baseline measure of how much it can contribute to mitigating climate change.

Urban agroforestry systems are based on the structural and functional patterns in forest ecosystems. These systems become shared functions for the health of tree canopies, increasing wildlife corridors, food systems for people, mitigating heat islands, as well as contributing to sequestering a significant amount of carbon from the atmosphere.

Through literature review and case studies, these questions will be approached. With focus on urban agroforestry, how much carbon can be sequestered on an educational site development dedicated to climate appropriate consumable vegetation? Can urban agroforestry compliment urban forest initiatives by potentially meeting carbon requirements that must be met in order to achieve net zero? Methodology will include the same units for specific physical characteristics, and specific biomass estimations. There will be a special section/chapter on southern california biomes and CO2. An ArcGIS storyboard will be the result, featuring existing educational school sites with overlaid urban agroforestry & CO2 results.