Changing cities' food systems to help reduce carbon emissions

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Many U.S. cities and states are looking for ways to slash greenhouse gas emissions, including cap-and-trade programs, building-efficiency regulations, and boosting public transit and renewable energy sources.

Now scientists report in ACS' *Environmental Science & Technology* additional measures cities could take to further cut their carbon footprint: by tackling emissions related to food consumption and waste.

According to previous studies, feeding urban populations—from producing food to transporting it, to refrigeration and cooking meals, and finally to tossing leftovers—accounts for 20 to 30 percent of global greenhouse gas emissions. This large contribution makes the food system a prime target when researchers and policymakers are looking for ways to reduce cities' carbon footprints. Conversations around this idea have focused primarily on the agricultural production side of the equation. But Eugene Mohareb and colleagues wanted to see what would happen if they reframed the issue from the urban consumption standpoint.

Building off of a review of diet-related emissions conducted by one of the members of the team, the researchers pooled data from a variety of sources to estimate emissions related to different components of the U.S. food system, including transportation, processing and waste disposal methods. They then estimated how changes in specific urban consumption practices could reduce these emissions. Interestingly, they found that increasing urban agriculture to occupy half of the vacant land in cities would reduce food-related emissions by only 1 percent. But switching from fossil fuel-based electricity to carbon-free energy sources would slash food-related emissions by at least 18 percent; reducing retail and consumer food waste by half would decrease emissions by 11 percent; and replacing a quarter of total beef consumption with chicken would drop emissions by 6 percent.

More information: "The Role of Cities in Mitigating US Food System Greenhouse Gas Emissions" *Environmental Science & Technology* (2018). pubs.acs.org/doi/abs/10.1021/acs.est.7b02600