

Urban Agriculture for Reduce Food Miles and CO₂ Emission in Gampaha Municipal Council - Sri Lanka

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The main contributor (80 %) to greenhouse gas GHG is CO₂ and transportation produces a relatively high amount of CO₂ even in the process of transporting food to urban areas. The urban agriculture has potential to reduce CO₂ emissions by reducing the distance of food transported. The distance of food is transported from the time of its production until it reaches the consumer is called “food mileage”. Though urban is congestion, there is a potential for urban agriculture in metropolitan regions. Previous studies have shown that Gampaha Municipal Council (GMC) area as agricultural based urban area and comparatively high abundant paddy lands are exist in GMC. Therefore, this study was conducted in Gampaha Municipal Council (GMC) area, to develop a method to assess food miles for rice and green chili and to quantify reduction of CO₂ emission through reducing food miles by urban agriculture. Abundant paddy lands in GMC area can be cultivated again and there is a potential for urban home gardening in this area. According to feasibility to paddy cultivation and urban agriculture, rice and green chili were considered to identify food flows, to estimate food miles and to reduce CO₂. Then food miles were estimated by downscaling standard formulas. Land potential for cultivate paddy and chili was obtained from department of Agrarian Development. Then reduction of food miles was estimated with respect to land potential to paddy and green chili in urban agriculture. Finally, reduction of CO₂ emissions that could be obtained if the GMC metropolis introduced urban agriculture in potential lands. The estimated food miles for rice and green chili were 24,8002,560 KmTon and 143,482 KmTon respectively. However, it is possible to re-cultivate 8.72 Km² abandoned paddy lands in GMC area. If four green chili plants would be cultivated in 16362 households including 244 apartment houses in GMC area, the harvest will enough for their daily consumption. This is contributing to reducing the food miles for green chili by 100 %. If this potential was addressed, then it is possible to reduce food miles by 12,816,480 KmTon for rice and 143,482 KmTon for green chili respectively. Reduction of food miles leads to reduce CO₂ emissions by 466 million kg annually. It can be concluded that the localized food production thus not only brings benefits in terms of savings in fuel use and GHG emissions, it also contributed in this case to income generation and environmental management.

Keywords: CO₂, Emission, Food miles, Home gardens, Metropolis