

Systematic Review of Rooftop Agriculture in South and South East Asia: A Means to Achieve Urban Sustainability

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Humanity in the 21st century deliberately evolves them as urban species resulting pressing issue of food security during a time where available fertile land is minimal. Rooftop gardens are gaining relevance at such phase as they have the potential to meet the growing demand of nutritional needs in cities and enhance the ecosystem services along with the social capital. Yet, there is no adequate researches done and research literature available to understand how cities can achieve sustainability via urban rooftop agriculture. Our primary intention was to do an in-depth analysis of how South Asian and South East Asian countries have achieved urban sustainability through rooftop farming interventions. Ergo, thirteen parameters were used to evaluate three bottom lines of sustainability. Thirty papers were selected from the digital databases of Science Direct, Elsevier, and Academia Education for this systematic review. Selected literature comprised of studies from Bangladesh, India and Nepal representing South Asia and Malaysia, Singapore and Vietnam representing South East Asia. Regardless of region or country, findings revealed that the selected research literature supports more environmentalism aspects signifying the reduction of carbon foot print followed by food security cum self-reliance and climate change adaptation. Overall sustainability was best achieved by India showing the highest achievement in all the above dimensions. Environmentalism accounted for 43% of overall rooftop sustainability providing a strong sense of environmental security for both humans and the natural environment. Our in-depth analysis done at the regional level indicated that South Asia is achieving much from rooftop agriculture to enhance food security and self-reliance while South East Asia is concentrated on economic gain specifically focusing on extra cost saving through rooftop agriculture practices. The way forward promoting rooftop farming in cities need outreach programs, capacity development and policy interventions and nations must foster research partnerships, collaborations and investments. Moreover, it is essential to have a productive mechanism to disseminate the regional success stories and best practices among local urban communities to transform their rooftops into more conducive communal spaces.

Keywords: Rooftop agriculture; South and South East Asia; Urban; Sustainability