

Sustainable Zero Carbon Communities: The Role of Community-Based Interventions in Reducing Carbon Footprint

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Abstract : Developed countries account for a large proportion of greenhouse gas emissions. In the last decade, countries including the United States and China have made a commitment to cut down carbon emissions by signing the Paris Climate Agreement. However, carbon neutrality is a challenging issue to tackle at the country level because of the scale of the problem. To overcome this challenge, cities are at the forefront of these efforts. Many cities in the United States are taking strategic actions and proposing programs and initiatives focused on renewable energy, green transportation, less use of fossil fuel vehicles, etc. There have been concerns about the implications of those strategies and a lack of community engagement. This paper is focused on community-based efforts that help actualize the reduction of carbon footprint through sustained and inclusive action. Existing zero-carbon assessment tools are examined to understand variables and indicators associated with the zero-carbon goals. Based on a broad, systematic review of literature on community strategies, and existing zero-carbon assessment tools, a dashboard was developed to help simplify and demystify carbon neutrality goals at a community level. The literature was able to shed light on the key contributing factors responsible for the success of community efforts in carbon neutrality. Stakeholder education is discussed as one of the strategies to help communities take action and generate momentum. The community-based efforts involving individuals and residents, such as reduction of food wastages, shopping preferences, transit mode choices, and healthy diets, play an important role in the context of zero-carbon initiatives. The proposed community-based dashboard will emphasize the importance of sustained, structured, and collective efforts at a communal scale. Finally, the present study discusses the relationship between life expectancy and quality of life and how it affects carbon neutrality in communities.

Keywords : carbon footprint, communities, life expectancy, quality of life

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