Urban Sustainable Development in Cities that Host Sporting Events

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Abstract

Human actions emit carbon emissions which in turn degrade global environmental quality. The urbanization and the over-populated areas such as growing cities are places where the number of carbon emissions has presented extreme levels. The most influential activity is people's transportation. Urban planning practices aim to adapt alternative mobility modes such as public transportation, cycling lanes and car sharing rides (e.g., Uber and Lyft). However, even the infrastructure supports the use of these sustainable modes of transport, people's transportation mode choice is still on single operation vehicle. In addition, research on sporting events showed that attendees' traveling behaviors relates with the level of urban density of the place hosts sporting events. This chapter discusses how sense of place can relate with the urban characteristics of a growing cities where people's decisions are made toward the mode of transport they will use when they attend sport events. Finally, it is highlighted the significant role of planning theory and sustainable development on urban transportation.

Keywords: sustainable development, urban sustainability, sporting events, sense of place, sustainable city, natural environment

1. Introduction

Growing cities are associated with the large production of greenhouse gas [GHG] emissions [1, 2]. Specifically, cities are defined as high-density areas when the population of people live in the urbanized are is relatively high [1, 2]. Residents of high-density areas generate tons of GHG [3]. Specifically, GHG emissions are associated with many environmental problems occur in the cities and they have as a result the urban pollution due to the amount of carbon dioxide (CO_2) emissions is emitted on the environment [3, 4]. In the scholarship of urban planning and sustainable development, there have been discussed theoretical and practical implications relate to the negative impacts occur on the natural environment when sporting events are hosted [5-8]. Specifically, a study by [1] showed that in a sporting event where the sport facility (i.e., stadium) is located in high-density area i.e., city, spectators' generates approximately 1 ton of CO_2 emissions only by their transportation to the stadium of the sporting event. The number of this research was calculated based on the stadium capacity and the number of spectators attended the event [1]. Accordingly, the latter example illustrates the large impact derives from transportation and its negative effects on environmental sustainability [2-4]. in a collegiate football event in the United States.

However, in study by [1] was calculated the average number of CO_2 emissions from each individual attended a sport event. Specifically, results revealed that each a spectator that uses a SOV generates approximately 15 kg of CO_2 emissions [1, 2]. The outcome of study by [1] supported by previous research findings that] illustrated evidence that a SOV roundtrip within a geographical radius within an urban area range from 8 kg to 50.5 kg of CO_2 emissions per attendee [3-12]. The latter numbers illustrate an urgency of environmental pollution occurred by people's traveling behavior and large quantity of CO_2 emissions [9-12].

The negative impacts on environmental sustainability derives from people's transportation habits within growing cities that hosting sporting events, and this is one critical problem that needs to be solved through urban sustainable development [1-5]. According to sustainable development definition, in order to maintain environmental and social welfare, it is required to behave responsible in order to satisfy our current needs and wants with the least resources, in order future generation to be still satisfy their own needs [10-11]. Therefore, in terms of urban sustainable development human actions' such as transportation and primarily usage of SOV should be mitigated as carbon dioxide creates significant social and environmental harm because of the global warming [12, 13]. In the literature, several definitions have been proposed for urban sustainable development [14, 15]. For example, the most common include the urban planning regarding a quality growth of infrastructure, minimization of the depletion of non-renewable resources while considering the needs of future generation [16]. Therefore, the destruction of the natural environment as well as the degradation of social well-being are evidences that are warning us to change our behaviors in and start building upon a more sustainable future [17-19].

From an urban development standpoint, it can be suggested that cities should utilize sustainable strategies for urban planning by developing infrastructure that can motivate residents to use alternative transportation modes, such as cycling lanes and accessibility to public transportation [13-18]. In addition, strategies to encourage usage of electrical vehicles can developed and include availability of charging stations across the cities [1, 12-14, 16]. Take together evidence from current literature, the aforementioned strategies can mitigate significantly usage of SOV and enhance alternative transportation among its residents [6-9]. Moreover, cities should utilize sporting events as platforms for environmental and social interventions, as sport has the positive values to motivate residents to respect others, appreciate the outdoor environment, appreciate the natural environment and their health and well-being [1, 2, 8]. Taken together that sport for development offers volunteerism, community service and opportunities to everyone, it is suggested that sports events within the city can inspire residents to become environmentally friendlier and accept in a positive manner the policies that will be developed toward sustainable practices such as usage of sustainable modes of transport [5-12]. According to the purpose of this book, research on urban sustainability and sport for development should focus on transportation impacts within the growing cities. Thus, it is recommended that urban and regional planning should utilize the value of sport and the principle of sustainability. By incorporating these concepts cities will grow and become healthy, by meeting the environmental standards of sustainable

development such as ISO 21021) i.e., sporting events and transportation). Also, if urban planning addresses sustainability on its strategies, research should focus on the psychological aspects of the city's residents regarding sense of place concept.

2. Sporting events in the city

Cities across the globe are facing with health, social and environmental problem related to transportation [1-5, 12-16]. Examples include traffic, congestion, accidents pollution and outcomes such as health related issues, such as asthma [14-16]. There is a growing interest by cities' urban planners who support and seek to develop transportation systems that would reflect on a more sustainable living [13-18]. Evidence shows that in high-density areas, most of the residents use public transportation for their mobility within the radius of the city or town [16-19]. However, during a sporting event in the city, e.g., where the host sport facility is built within the city boarders, most of the attendees use SOV in order to have a convenient access to the stadium area, where they can engage in pre-sport event activities, such as tailgating [11, 18]. The decision of spectators toward their mobility choice on sporting events has found to create transportation problems in the city [2, 5]. In the literature it has been found that the traffic and congestion generated during a sporting event are primarily outcomes of the undeveloped infrastructure system in concert with the large number of people attend the events [18]. This unique aspect of people's traveling behavior has been primarily found when sport events, festivals and activities that attract a large number of people occur [20]. This finding come in contrast to urban planning theory and sustainable design as in the growing cities the transportation system has been designed on the framework of sustainability and urban development [15, 16, 18-21]. Given the current literature, urban planners have not yet solved this issue and therefore an urgent need for further research has been proposed to be conducted in when sporting event occur when urban planning and sustainable development experts would collaborate [20, 21].

2.1. Sporting event attendance and environmental impacts

In the United States, almost every high-density area has its own professional or a collegiate sport team and at least one-time per week it is hoisted a large-scale sporting event that has a capacity of approximately 40,000 to 90,000 spectators [1, 2, 5-8, 20]. The sport that has the largest event attendance is considered the American football [1, 2, 20]. Most of the residents in of those cities' residents team present high levels of attachment with their city's favorite sport team are identifies as sport fans [20-21]. Sport fans have the habit to attend in large number the sport event that their favorite team plays [5-9]. Accordingly, this unique bonding between residents and sport have negative outcome on the cities in terms of pollution and traffic when sporting events are hosted [5].

2.2. Sense of place and pro-environmental behavior

Furthermore, residents of a city usually have an emotional attachment to their city itself, and scholarship defines those connections as sense of place or place attachment [19, 20-4].

The bonding of people with particular place plays a central role on their experiences, perceptions and behaviors [21,22]. Particularly, research has indicated that the residents present strong bonding to their cities because of their belongingness feelings with them [22, 24]. The feelings of belonging have been defined as place identity and has significant implications on people's pro-environmental behavior [Scannell]. Accordingly, the bonding of people with places have found to interact with their mobility behaviors [20-25]. For example, modern society lives in the age of mobility where mass automobility has grown tremendously [25]. Also, people's lifestyle depend on the social interactions and participate in community gathering such as the sporting events [24]. Especially, when sporting events take place in places such as the cities that people live in and have an attachment with them, those individuals have found to present positive environmental perspective with respect the protection of those places [25].

2.3. Sustainable transportation in the urban environment of a city

In terms of environmental sustainability, individuals who present local rootedness to their city they are highly involved in environmentally sustainable practices, included sustainable transportation [18-20, 22-26]. Sustainable transportation includes all the modes of transport where primarily do not function with engine machineries or generate the least possible carbon dioxide emissions [4-8, 20]. Examples include, cycling, walking (i.e., carbon neutral modes), public transportation, electric cars and carpooling choices. However, recent studies in sport events and traveling behaviors indicated that those choices are not a priority of those people attached to their city when a sporting event takes place [20]. Correspondingly, this controversial phenomenon where people who intend to adopt environmental behaviors due to their bonding with their city, they do not show evidence of environmentalism when sporting events happen [1, 2, 20]. This finding has been a serious concern of social and environmental scientists who seek to understand their behaviors based on people's emotional bonding with places and the mobility on growing cities [18-25]. Therefore, it can be assumed that people's feelings toward their favorite sport team overcome their responsible mindset to act in a pro-environmental manner such as use of sustainable transportation [1, 2, 20]. This conclusion indicates that local roots, community bonding and strong emotional connections with people's home city does not affect their pro-environmental perspective toward use of sustainable transportation when sport events occur [24-26]. From this perspective it can be suggested that mobility behaviors does not relate with sense of place and people's choice on modes of transport depend on social life satisfaction such as sport event participation [1]. Accordingly, the weight falls over the urban planning as people's mobility depend on infrastructure and transportation systems, urban design and sustainable development [27].

3. Urban sustainable development

Most residents across the globe and are asking themselves: "So, what is urban sustainable development? what is the role of transportation? How sport for development can actually implement aspects of sustainability?". According to [27], there is a perspective that within a

city, people by using their senses perceive the following characteristics: architecture, mobility-transportation and other people. However, there is one very important dimension that our human nature often forgets. These are the psychological views toward a city, toward a place towards our existence within a particular location. Psychological aspects are the motives of social and environmental conflicts, of social bonding, natural environment attachment, and self-identification within a city [1-4, 27].

3.1. Psychological connections of the residents and behavioral outcomes

The concept of sense of place is highly correlated with sustainable development [1]. As a result, the concept of sustainable development is a formulation in response to a growing awareness on social, environmental, economic, political and technological change. Sense of place awakes people and become more responsible on their behaviors in a place [1]. For example, emotional connections to a city and sport teams generates on people's mindsets a greater understanding toward regional, urban social and environmental problems, increase of population and urban growth [18. 19]. Therefore, people become concern toward the sustainable and healthy development in the urban context, because they care, and they are worried about their quality of lives [18. 19]. Based on evidence, quality of life in a city depends on demographics, standard of living, consumption and production transportation, air, water, soil and land quality, health, physical activity and leisure, including participation in sporting events [1, 2, 27, 28].

3.2. Moving towards a sustainable future

In summary, the latter psychological expectations, motives and behaviors can illustrate the human sustainability with in a city context [26-29]. Based on the discussions in the previous sections, it can be illustrated the importance of the urban sustainable development concept. In this chapter, the concept of sense of place is incorporated with urban sustainable development because a city without humans, and humans without intangible and tangible resources do not exist. Especially, in urban and regional planning the latter concept should be incorporated within the urban development framework.

4. Conceptual model

The current chapter proposes a new conceptual framework that can be utilized by urban and regional planning scholarship. This conceptual model is presented in Figure 1. In more detail, the conceptual model utilize the framework of urban sustainable development, incorporates it with sense of place, the natural environment and sport [1-5]. Specifically, the model introduces the development of sustainable cities. Initially, it assumes that a city includes people, sport participation and infrastructures and activities related to transportation. According, to [2], a city is formed based on peoples activities such as sporting events, people's sense of place, their city, their home, and the natural environment, which include any living and non-living organism within the city's urban system [12]. By implementing the latter concepts and characteristics a city can become sustainable if urban

planning process implement policies and strategies based on sustainability. Essentially, this process found support on urban sustainable development where growth of the city in proceed according to standards of its residents living, measurable consumption and production, in a responsible manner towards the natural environment.

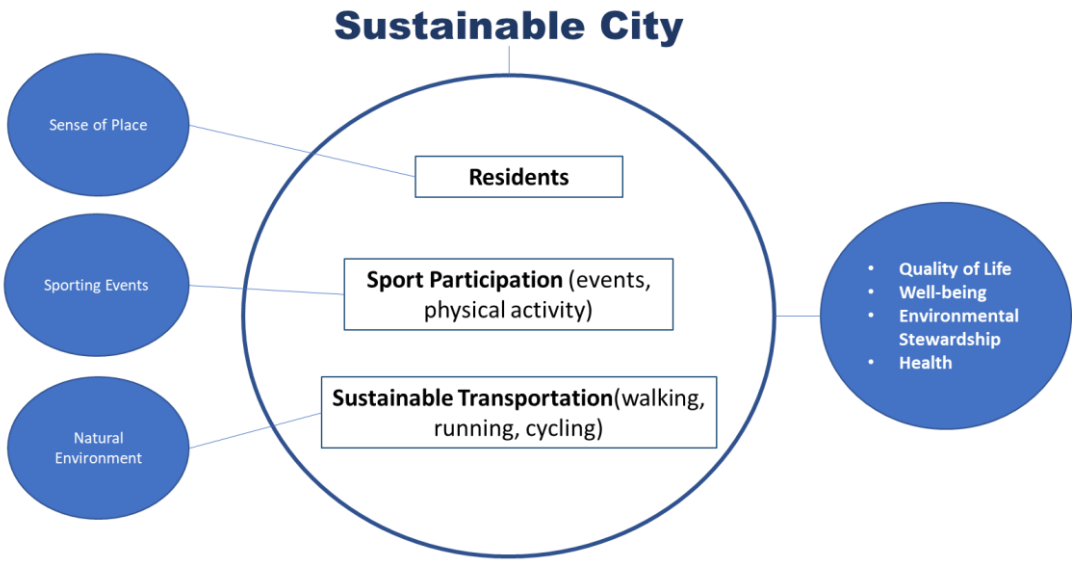

Figure 1. Conceptual model of sustainable city.

5. Conclusions

This chapter provides essential information on the urban and regional planning literature. By viewing cities in a different perspective, it is concluded that urban sustainable development will be effective when the natural environment, residents' sense of place and sport participation work in concert and are taken under serious consideration when strategies and policies are developed in an urban and a regional level. Accordingly, a new conceptual model is proposed that show the process of building a sustainable city. Based on the previous discussion, the creation of sustainable cities can bring in reality the following key outcomes: residents' improvement of quality of life, well-being, residents become environmentally conscious and maintain positive health by adopting a sustainable lifestyle.

Figures and Tables

Please see attached the PDF file. There is only Figure 1. The Figure 1 was created by me, the author, Stavros Triantafyllidis.

Conflict of Interest

The author certify that he has NO affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

Thanks

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