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To cite this article: S Ali *et al* 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **918** 012007

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Maximizing the social-economy impacts of urban green space in several cities in Indonesia

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Abstract. Trees in urban green space areas serve not only aesthetic purposes but also various ecological functions, including filtering air pollutants, improving groundwater quality, and generating biodiversity of flora and fauna. However, the presence of urban Urban Green Space (UGS) must equal 30% of the urban area, which is still constrained by regulations and community participation. Therefore, this paper aims to capture an overview of the existing UGS in several regions in Indonesia by using qualitative methods., which included over ten locations in Lampung and several cities throughout Indonesia for comparison, yielded several findings that can hopefully be used to inform the development of UGS policies. The findings demonstrate the numerous benefits of open space, particularly mental health, nature conservation, social interaction, and economic development. The critical nature of UGS, particularly in regencies/municipalities, requires increased awareness and effective management by involving as many stakeholders as possible, including the private sector and the community as users. The implication of this research is, in a sustainability context, with the need to instill sustainable behavior in users and to stimulate economic growth, a business model based on environmental stewardship is required, specifically the circular business model

1. Introduction

Numerous researchers have not agreed on a rigid definition for the term "Urban green space (UGS) [1–3]. The disparate definitions imply that they do not share a common understanding of UGS [4]. This statement is also supported by the finding that most published research has failed to define green space [4]. Some definitions of UGS include land primarily composed of open-soil, grass, plants, and trees are permeable, soft surfaces. [5]. Another definition of UGS is public or private areas located in urban areas with natural or semi-natural ecosystems covered by vegetation. These can be used for recreational and sporting activities. It provides a sustainable place for humans, animals, plants, and environments [6]. As a result of this definition, UGS can be thought of as a catch-all word for any public and private land areas that fall under the notion of green space. Meanwhile, UGS is a portion of an urban environment dedicated to nature and can be used for social contact, entertainment, and play [7]. Forest canopy, urban wetlands, parks, public gardens, sports fields, children's play spaces,



shrubbery and nature reserves, national parks, state forests, and nature reserves are examples of this [7].

Several experts have researched UGS (references, and some of these studies focusing on the benefits of UGS to human life [8–12]. There are at least three benefits to open space that can be explored in terms of sustainability ecological, social, and economic benefits. The ecological benefits of UGS, such as trees on roads, city parks, and gardens above houses, were decrease temperatures, air pollution, and an increase in fauna habitat diversity and biodiversity [11]. Green Space in urban areas has economic value [10], promotes social cohesion, social interaction, and exchange [8], provides recreational value, aesthetic beauty, psychological well-being, physical health, social bonding, and educational opportunities [13]. Additionally, research indicates that UGS has an impact on people's health and well-being [9]. The amount of greenery in a location has an effect on the citizens' quality of life. In addition, several experts also examined the relationship between UGS and human health [9, 12, 14] The condition of UGS in Indonesian cities is an intriguing topic for discussion in this paper.

1.1. Statement of UGS issues/problems in Indonesia.

The issue that urban areas in developed and developing countries face is rapid population growth, which is primarily influenced by the rapid flow of urbanization and has an effect on the management of urban space, which is becoming increasingly congested. It is critical to emphasize the critical need for UGS, such as parks, urban forests, children's play areas, sidewalks, borders, and river banks [11]. On the other hand, densification or expansion of city functions can deteriorate existing open spaces. Not only is the quantity of UGS decreasing over time, but also its quality. The economic value of land is increasing the pressure on UGS. Land development for commercial, industrial, and residential reasons rewards a landowner more than land development for green infrastructure. This means that the urban environment will deteriorate ecologically, despite its social and economic growth. To improve the quality of UGS, the government has made a good faith effort to ensure that 30% of the city's area is covered by UGS that complies with regulations and meets ecological, social, and economic standards. However, the findings of several studies highlight some empirical evidence that requires resolution, including, first and foremost, a lack of community participation and support for the development of UGS. This is demonstrated by the existence of an apathetic community dominated by individuals who are unaware of the benefits of UGS [15]. Second, there is user misconduct [16], and there is a public perception that participation in the management of UGS is the government's sole authority, so they lack a sense of responsibility for maintaining cleanliness and protecting [17]. Third, a lack of community support is evidenced by the community's unwillingness to pay for UGS management and development [18]. Fourth, the presence of street vendors has a detrimental effect. The emergence of environmental hygiene problems as a result of traders' lack of awareness about city cleanliness, resulting in dirty public spaces, and other consequences, including the emergence of land conversion, in which street vendors instead use public spaces that should be used for community activities as a place to sell [19].

2. Research methodology

This study was conducted through a qualitative approach by exploring primary and secondary data through observation and interviews. This research focused on determining new or different viewpoints and founding a deep understanding of a discussion about green public space, such a municipal parks, squares, and other open spaces that meet the criteria for areas classified as public green spaces under the local government's UGS regulations. The purpose of observation is to take pictures of UGS, and the interview was conducted to gain users' points of view about UGS utility and maintenance.

Because this study focused on social and economic aspects in UGS, observations of activities conducted by UGS users were made. The observed UGS included ten locations visited directly (table 1). In this study, the use of sample data was expanded by adding the observed parks in order to identify the shape of the overall picture of the state of UGS to answer research questions. Therefore, the researcher added eight UGS observed via youtube media (table 2). The focus is on the researchers'

analysis of the YouTube platform and the performances available from the content creators. There are many channels on YouTube that perform UGS: for this study, eight channels are used as case studies. Each channel selection is based on the UGS location must be in urban areas at several places in Indonesia. The content analysis method is used in research to analyze the content of videos about UGS on YouTube. Content analysis is carried out to get an overview of the video content that appears on the video, especially related to the unit of analysis: the atmosphere, visitor activities, and UGS conditions.

UGS was once visited during the study at a different time, in the morning, afternoon, and evening. All current user activities were logged. Interviews were conducted by first asking the user's willingness. Only those who are agree were assessed for their behavior towards UGS. Researchers were assisted in their observations outside the province of Lampung by research assistants who had been given prior directions. Observations and interviews, however, were conducted using a purposive sampling technique. The purposive sampling strategy used was to ensure that the participants met the requirement for participation. Following eligibility criteria for the participant in this study are: (a) as users of UGS, (b) doing the activity at UGS, (c) willing to be a participant in this study.

Table 1. Primary data of urban green space.

Province	City/Regency	Urban Green Spaces	Social	Economy
Lampung	North Lampung	Sahabat Garden	Recreation, Sport	Street Vendors
	Central Lampung	Canang Monument	Recreation	Street Vendors
	Metro	Kota Gajah	Recreation, Sport	Street Vendors
		Merdeka Garden, Metro	Recreation, Sport	
West Java	South Lampung	Samber Field	Recreation, Sport	Street Vendors
	West Bandung	Anak Batin Garden	Recreation, Sport	Street Vendors
		Park Square	Recreation, Sport	Street Vendors, Children Playground
DKI Jakarta	Central Jakarta	Kartini garden	Recreation, Sport	Street Vendors, Children Playground
		Menteng Garden	Recreation, Sport	Street Vendors
South Sulawesi	Makasar	Surapati Garden	Recreation, Sport	Street Vendors
		Losari Beach	Recreation, Sport	Street Vendors
East Java	Bojonegoro	Park Square	Recreation, Sport	Street Vendors

Interviews were conducted with three to five visitors at each UGS observation site. A total of fifteen participants were recruited over dozens of users who recently visited UGS and Ten street vendors selling at the location. The questions concern the activities of visitors at the observation site. Visitors will ask who is responsible for the cleanliness and care of the trees in the UGS location. The same question was also posed to merchants who conduct business near UGS.

Table 2. Secondary data of urban green space.

Province	City/Regency	Urban Green Spaces	Social	Economy
North Sumatera	Medan	Central Field	Sport Center	Street Vendors
South Sulawesi	Makassar	Macan Garden	Sport Center	
Central Java	Semarang	Pakui Sayang Garden	Sport Center	Street Vendors
		Beringin Garden	Recreational Place	
		Kasmaran Garden		
		Indonesia Kaya Garden	Recreational Place	
Bali	Solo	City Forest	Recreational Place	
	Bali	Renon Field	Sport Center	Street Vendors

3. Findings and discussions

Under the rules of Law No. 26 of 2007 on Spatial Planning, specifically Article 29, paragraph 2, which says that the proportion of Urban Green Space in urban areas UGS must be at least 30% of the city’s total area, local governments are required to create UGS.



Figure 1. The pictures are Canang Monument in Central Lampung (a), Sahabat Garden in the Regency (b), Samber Field in Metro City (c), Losari Beach, South Sulawesi (d), Kartini Park and Cimahi town square €, Bojonegoro town square (f), Menteng and Surapati Park in Jakarta (g), Anak Batin Gardenin South Lampung Regency (h).

Special rules governing the provision of UGS facilities are contained in the Minister of Public Works' Regulation 45/PRT/M/2007 on Technical Guidelines for the Construction of State Buildings. According to the regulation, UGS must be one of the infrastructures and building facilities that must be provided in state buildings. A regional regulation now governs the arrangement of UGS in accordance with the Minister of Home Affairs' Decree No. 650-658. It is known that UGS are used in different activities and times by people. From figure 2, it can be illustrated that during the Covid-19 pandemic, parks were used relatively for health activities. Existing studies indicate that family or friends accompany the majority of visitors. Visitors engage in sports (55%), family recreation (25%), taking a short break to unwind after work (5%) and taking an afternoon walk with friends (15%). Most visitors' inquiries about who should look after the plants and gardens they visit are mostly directed toward local governments (70%), particularly the sanitation department. However, a minority of users argue that it is a shared responsibility (15%). Additionally, the findings regarding the traders at the location indicate that they deal in food or culinary items, beverages (figure 2. A,d,e,f,h), and children's toys (figure 1.c).

Some believe that the existing UGS cleaning and gardening office is responsible for maintaining cleanliness (30%). Another fact discovered was that trees had been nailed to put up announcements containing messages prohibiting garbage disposal in UGS (figure 2.c), demonstrating the communication behavior of the surrounding community that cares about the environment. Numerous street vendors, such as Surapati, Menteng parks, Canang Monumen, and Cimahi Town Square, operate from permanent structures or motorized vehicles such as two-wheelers, bicycles, and automobiles. Additionally, merchants walk with baskets of merchandise like in Bojenegoro town square. The study also discovered piles of garbage at the site from the rest of the visitors' activities, which attracted a significant amount of existing waste in plastic packaging for food and beverages (figure 1.a). The existing plastic packaging is derived from items brought from home by visitors and the packaging used by street vendors in the vicinity of the UGS location.

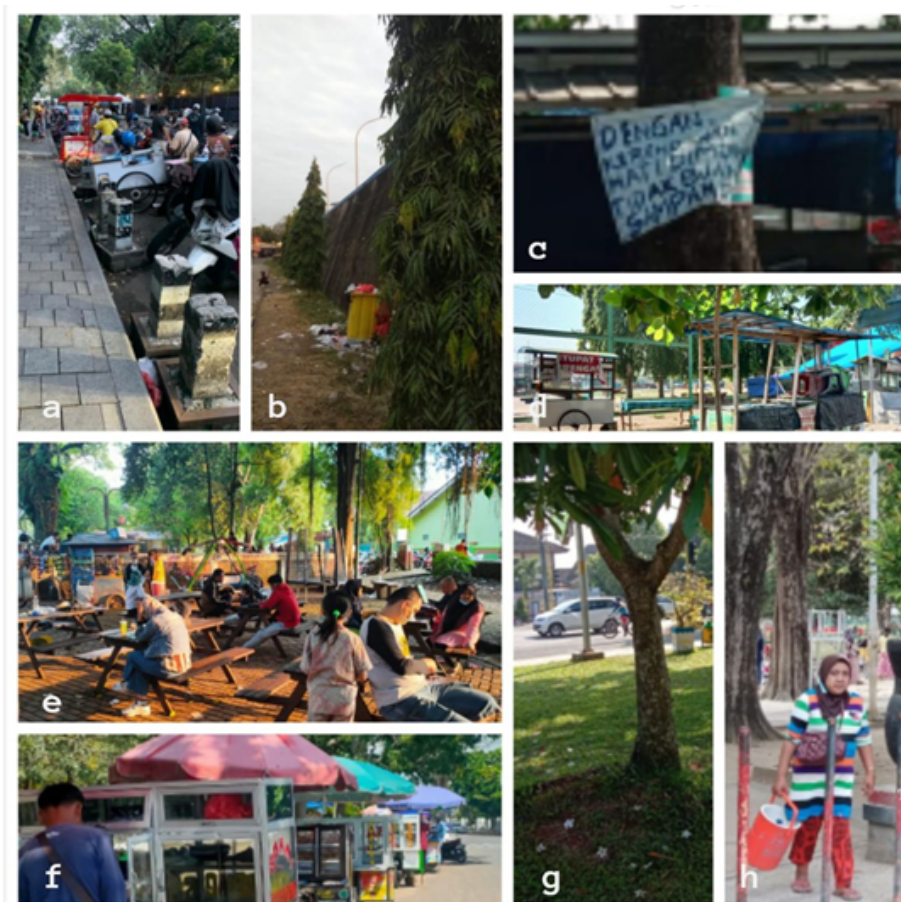


Figure 2. Activities of street vendors are shown in a, d, e, f, h photos. Photo c is trees in the urban green space area nailed to put up banners. Photo b, g is garbage distribution from the rest of visitors' activities

The study's findings indicate that, first and foremost, almost all UGS serve ecological and recreational purposes, particularly when diverse trees are planted throughout the park. Additionally, educational parks exist, such as the Surapati Garden. Second, visitors' perceptions of the obligation to care for and manage UGS continue to vary. In an ideal world, green space management, care, and maintenance would be carried out collaboratively by managers, visitors, and merchants as economic actors in the local area. Perception significantly influences how visitors use and treat green public spaces [8]. If visitors and traders as fellow users have a positive perception of the existence of the UGS, then they will also show positive behavior towards the utilization of the facilities. Maintaining healthy green spaces requires open communication between officials, managers, and residents. It is necessary to educate residents about green space management or make it easy for them to acquire information at the proper office in order to gain community support for conserving natural values [20].

Public support is critical for maintaining healthy green spaces, but how do we engage the public? The fundamental tenet of public participation is to involve all stakeholders throughout the planning process, from the beginning (goals setting) to the conclusion (providing plans and monitoring their implementation). Raising awareness of natural values is a long and gradual process. However, with a gradual approach, it is possible to arrive at a situation where officials and citizens can co-manage urban green spaces.

Thirdly, it is critical to note the amount of waste generated by visitors' activities at the UGS location. While commercial, economic activities expand, the waste generated should not have a negative impact on the environment; therefore, it is critical to apply economic principles that prioritize environmental considerations in practice; this approach is referred to as the circular economy concept

or business circularity [21]. The circular economy approach serves as a guide for a business's sustainability. Thus, managing the local economy (street vendors) through a circular business model requires a paradigm shift in thinking and doing business.

These are completely reusable, recyclable, or biodegradable materials and can be reused multiple times to reduce costs and increase profitability. Businesses require access to materials that are scarce or environmentally hazardous. Food packaging, in particular, has become a major source of concern. Due to the ban on single-use plastic in Jakarta and other cities, many foods and beverage traders and delivery partners are switching to alternative packaging materials such as paper bags or reusable bags, which are frequently less suitable for food products. The consumer base is growing over the last few years, it has been observed that Indonesian consumers have become more health-conscious. This trend is particularly noticeable among consumers in cities such as Bandung, Jakarta, Makassar, Medan, and Surabaya, who are willing to pay a premium for healthier options. Additionally, consumer preferences for healthier food and beverage options, such as less processed or minimally processed foods, such as fresh produce and ingredients, are increasing.

4. Conclusion and policy recommendation

This research aimed to capture users' activities and assess their opinion in visiting urban green spaces (UGS) in several cities in Indonesia. We found various patterns of visitors' activities that are beneficial to them in UGS. The presence of UGS produces many benefits for them, including ecological, social, and economic. It was found that UGS provides the convenience for recreational, sports, and relaxing action. In term of economy, UGS promote the opportunity to business practice. Moreover, it can enhance social interaction and cohesion. At the same time, the study also found evidence of bad behavior of users and traders in UGS. In order to fulfill the gap, this study suggests that users must have a sense of belonging to maintain the existence of UGS, and we suggest the concept of a circular economy in street vendor business methods.

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