



The potential of Bekasi “Eduforest” Urban Forest in cultural environmental services

Tsamarah Nada Saninah^a, Rachmad Hermawan^b, Yudi Setiawan^{bc}, Tania June^d

^a Natural Resources Management and Environment Study Program, Graduate School, IPB University, IPB Darmaga Campus, Bogor, 16680, Indonesia [+62 81292530551]

^b Department of Forest Resources Conservation and Ecotourism, Faculty of Forestry and Environment, IPB University, IPB Darmaga Campus, Bogor, 16680, Indonesia [+62 8129517067]

^c Environmental Research Center, IPB University, IPB Darmaga Campus, Bogor, 16680, Indonesia [+62 8111188998]

^d Department of Geophysics and Meteorology, Faculty of Mathematics and Natural Sciences, IPB University, IPB Darmaga Campus, Bogor, 16680, Indonesia [+62 81297437644]

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Corresponding Author:

Rachmad Hermawan
Department of Forest Resources
Conservation and Ecotourism,
Faculty of Forestry and
Environment, IPB University;
Phone: +628129517067
Email:
rachmadhe@apps.ipb.ac.id

Abstract. *Setu Subdistrict, Bekasi Regency, is an area designated as urban forest development for providers of cultural environmental services. The purpose is to identify the community's perceptions, motivations, and preferences around the urban forest. Primary data collection by questionnaire to 31 people was determined purposively and analyzed quantitatively using a 4-point Likert Scale. Calculation of air temperature and humidity, thermal comfort, biomass with allometric methods, and CO₂ absorption to support recommendations for attractions. The results show that the air temperature is 30.88 °C, the relative humidity is 74.02%, and the THI value is 27.27 means uncomfortable. The potential of the Bekasi "Eduforest" Urban Forest in cultural environmental services can consider the micro climatic condition and biomass potential for urban forest development. The potential of biomass from dominant species is 133.10 kg/ha, stored carbon stock is 66.55 kg/ha, and CO₂ sequestration is 244.25 kg/ha. The potential for cultural environmental services can be through the provision of massive information and counseling either directly or through interpretation boards, as well as the development of tourist attractions which can be in the form of health therapy tours, educational tours, culinary tours, and landscape attractions.*

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INTRODUCTION

According to Regional Regulation No. 12 of 2011, the development of several areas of Bekasi Regency including South Bekasi, one of which is Setu Subdistrict, is directed as the center of the district government, industry, large-scale housing, as well as agriculture and tourism. Rapid development can increase the urban heat island (UHI). UHI is the intense overheating of a densely constructed area compared to the surrounding environment (Ambrosini et al. 2014). Any modification of the use of land cover will increase the ambient air temperature in the area which can affect the humidity and thermal comfort in the vicinity (Dong et al. 2014). Urban forests have environmental services in the form of climate control, CO₂ sequestration, and comfort regulation which are quantitatively expressed in the temperature humidity index (THI).

These environmental services are known as regulating environmental service (Department of the Environment Water Heritage and the Arts 2009). Related to CO₂ sequestration, the amount of CO₂ needs to be controlled by increasing the amount of carbon uptake by plants and reducing CO₂ emissions into the air. Urban forests, according to Government Regulation Number 63 of 2002 concerning Urban Forests, it states that urban forests can be utilized for nature tourism, recreation, sports, research and development, education, germplasm conservation, and cultivation of forest products without disturbing the main functions of urban forests. The community can directly play a role in utilizing urban forests in terms of education to conservation. This is another environmental service obtained from forest ecosystems, namely cultural environmental service. Cultural environmental services include education, inspiration, and knowledge systems (Department of the Environment Water Heritage and the Arts 2009), which can be in the form of spiritual values, scientific systems, education, inspiration, also recreation, and aesthetic values. The world is rapidly urbanizing, so the challenge is how to maintain the long-term community's quality of life. Green open space can help maintain human health physically, emotionally, and psychologically (Dou et al. 2017). The development of urban forests as green open spaces can be a step in improving the community's quality of life.

The research location is in the form of an urban forest in the form of clusters with the type of educational forest, this is regulated in the Decree of the Governor of West Java No. 522/Kep.710-Rek/2019 concerning the Regional Urban Forest of West Java Province in the Bekasi Regency. Bekasi Regency Regional Spatial Planning Document states that Setu District is one of the sub-districts with an area designated for guided tours which is built by utilizing the natural and cultural potential of the community. Not only to improve the quality of the community's living environment, but the development of the Bekasi "Eduforest" Urban Forest also needs to be directed to become a tourist recreation destination for the community to educational facilities as well as the function of cultural environmental services from the urban forest. The existence of urban forests with the value of cultural environmental services indirectly raises public awareness to protect forest ecosystems (Musawantoro et al. 2020). The potential of the urban forest needs to be assessed based on the perceptions, motivations, and preferences of the community to ensure the sustainability of the urban forest. According to Oteros-Rozas et al. (2018), exploring human perceptions and preferences for cultural environmental services is a very useful potential assessment. Therefore, it is necessary to research the potential of urban forest in cultural environmental services. The purpose of this study is to identify the potential of the Bekasi "Eduforest" Urban Forest through the perceptions, motivations, and preferences of the community around the urban forest.

METHOD

Location and Time

The research was conducted in the Bekasi “Eduforest” Urban Forest covering an area of 5 hectares and around the urban forest in Tamansari Village, Setu District, Bekasi Regency from September 2021 to August 2022 (Figure 1).

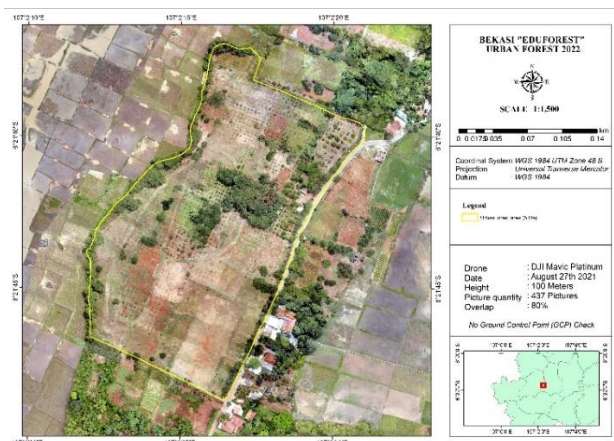


Figure 1 Research site

Research Method

The data collected consisted of primary data in the form of questionnaire results and field data measurements, as well as secondary data in the form of literature studies and reports from related agencies. The sample used in the study was 31 people according to the minimum number of respondents according to Singarimbun and Efendi (1995) because the number of 30 was close to the normal curve. Respondents were determined based on purposive sampling with the criteria of people who were close to and interacted with the urban forest at a minimum age category of 17 years or into the category of late teens, according to the Ministry of Health of the Republic of Indonesia in 2009. Questionnaire data collection was carried out in August 2022. Measurements of temperature and relative humidity were carried out on two days in September 2021 and two days in November 2021, three times each day. In the morning was at 07.00 to 9.00, in the noon was at 12.00 to 14.00, and in the afternoon was at 16.00 to 18.00 with recordings in the range every 30 minutes using a wet bulb and dry bulb thermometer. The thermometer was as high as 125 cm above ground level and is not exposed to direct sunlight (WMO 2006). Biomass data was collected in February 2022 of using a census of tree diameter and height and calculated using an allometric approach to obtain carbon stock and CO₂ sequestration.

Analysis Method

Quantitative analysis used a 4-point Likert Scale. There are 24 positive statements with four answer variables. According to Eser et al. (2020), a 5-point Likert Scale can produce biased answers, so the results are inconsistent in conveying facts. The use of a 4-point Likert Scale can provide better results. The calculation of the maximum and minimum values is carried out to determine the overall value of perceptions, motivations, and preferences. In determining the rating scale in Table 1, the ideal score is calculated first with the following formula:

$$\text{The ideal score} = \text{Number of samples} \times \text{The scale value}$$

Table 1 Rating scale

Rate	Scale
94–124	Strongly agree
63–93	Agree
32–62	Don't agree
0–31	Strongly disagree

Measurements of air temperature and relative humidity were analyzed using the formula (Handoko et al. 1994). The results of temperature and humidity measurements are then used to calculate THI using the formula according to Nieuwolt and McGregor (1998). The results of the THI are matched with the THI values listed in Table 2 according to (Emmanuel 2005). Estimating tree biomass in urban forests, tree diameter is inputted into the allometric equation in Table 3.

$$Tr = (2T_{\text{morning}} + T_{\text{noon}} + T_{\text{afternoon}})/4$$

$$RHr = (2RH_{\text{morning}} + RH_{\text{noon}} + RH_{\text{evening}})/4$$

$$THI = 0.8 T + (RH \times T)/500$$

Where:

Tr : Average air temperature (°C)

RHr : Average relative humidity (%)

T : Air temperature (°C)

RH : Relative humidity (%)

THI : Temperature humidity index

Table 2 THI Values

Category	THI
Comfortable	21–24
Quite comfortable	24–26
Uncomfortable	> 26

Table 3 Allometric equation of the dominant type of urban forests

No	Species	Allometric equation	Reference
1	<i>Gnetum gnemon</i>	$Y = 0.11 \times \rho \times (D^{2+c})$	(Ketterings et al. 2001)
2	<i>Sandoricum koetjape</i>	$Y = 0.11 \times \rho \times D^{2+c}$	(Ketterings et al. 2001)
3	<i>Acacia mangium</i>	$Y = 0.0000478D^{2.76}$	(Hairiah et al. 2011)
4	<i>Spathodea campanulata</i>	$Y = 0.118 D^{2.53}$	(Hairiah et al. 2011)
5	<i>Delonix regia</i>	$Y = 0.118 D^{2.53}$	(Hairiah et al. 2011)
6	<i>Anacardium occidentale</i>	$Y = 0.11 \times \rho \times D^{2+c}$	(Ketterings et al. 2001)
7	<i>Artocarpus heterophyllus</i>	$Y = 0.11 \times \rho \times D^{2+c}$	(Ketterings et al. 2001)
8	<i>Nephelium lappaceum</i>	$Y = 0.11 \times \rho \times D^{2+c}$	(Ketterings et al. 2001)
9	<i>Swietenia mahagoni</i>	$Y = 0.048 D^{2.68}$	(Hairiah et al. 2011)
10	<i>Syzygium polyanthum</i>	$Y = 0.11 \times \rho \times D^{2+c}$	(Ketterings et al. 2001)

The biomass data included in the formula for calculating the amount of carbon stock using the biomass content approach developed by Doorn et al. (2006):

$$C = Y \times 0.5$$

Where:

C : Carbon stock (C)

Y : Biomass (kg)

0.5 : Plant carbon coefficient

Analysis of CO₂ absorption is calculated using carbon stock data with the formulation used according to (Vishnu dan Patil 2017):

$$EC = 3.6667 C$$

Where:

EC : Sequestration CO₂ (tCO₂)

C : Carbon stock

3.67 : The atomic ratio of carbon dioxide to carbon

RESULT AND DISCUSSION

Micro Climate and Biomass of Bekasi “Eduforest” Urban Forest

The results of the air temperature in the morning, noon, and afternoon are different. The average air temperature and relative humidity measurement for four days in the morning at 7.00 to 9.00 with sunny weather on the first, second, and fourth day and cloudy weather conditions on the third day is 28.5 °C and 81.69%, at noon at 12.00 to 14.00 is 35.9 °C and 59.67%, and in the afternoon at 16.00 to 18.00 is 30.8 °C and 72.65%. The daily air temperature was obtained with an average of 30.88 °C, with a relative humidity of 74.02%. The results of air temperature and relative humidity are then processed to determine the THI. THI value shows 27.27, which means uncomfortable. THI can be maximized by adding trees which can prevent solar radiation and reduce air temperature through transpiration, thereby absorbing large amounts of heat from the

environment (Wang et al. 2018). Based on the average temperature and humidity, the morning is probably the most comfortable time to visit the urban forest. People who have a preference for enjoying the beauty of nature, sports, and healing with the motivation to get comfortable, healthy, and refreshing may visit the urban forest in the morning. Public motivation and preference can be seen in Table 5 and Table 6.

The biomass obtained from the calculation of the dominant tree species using the allometric method was obtained as much as 133.10 kg/ha. The calculation of biomass is carried out non-destructively by recording tree diameters. Biomass has a relationship with carbon stocks, namely, measuring the number of carbon stocks on land can describe the amount of CO₂ in the atmosphere that can be absorbed by trees. Urban forests have the function of reducing CO₂ by absorbing it efficiently (Lubis et al. 2013). The results of the calculation of biomass are multiplied by the coefficient of carbon content in plants to obtain a carbon stock value of 66.552 kg/ha so that the CO₂ sequestration is obtained at 244.25 kg/ha. Then calculations are also carried out to predict carbon stocks and CO₂ sequestration in the next 5 years. It is found that the biomass for the next 5 years or in 2027 is 343.555 kg/ha with CO₂ sequestration of 368.18 kg/ha. The existence of potential carbon stocks for the next few years can be one of the things that supports the results of people's perceptions that urban forests can provide carbon stocks to overcome environmental problems and oxygen needs and reduce the amount of CO₂. Public perception of green open spaces and urban forests can be seen in Table 4.

Respondent's Characteristics

Respondents came from Bunut Village, Ciledug Village, and Bogor Regency, with a total of 31 respondents the more female gender. The age of the majority of respondents is 25 – 35 years, with the category of early adulthood according to the Ministry of Health of the Republic of Indonesia in 2009. The level of formal education of the majority of respondents is SMA/MA/SMK. The occupations of the majority of respondents are housewives and entrepreneurs. Respondents do recreation at least once a week (Figure 2).

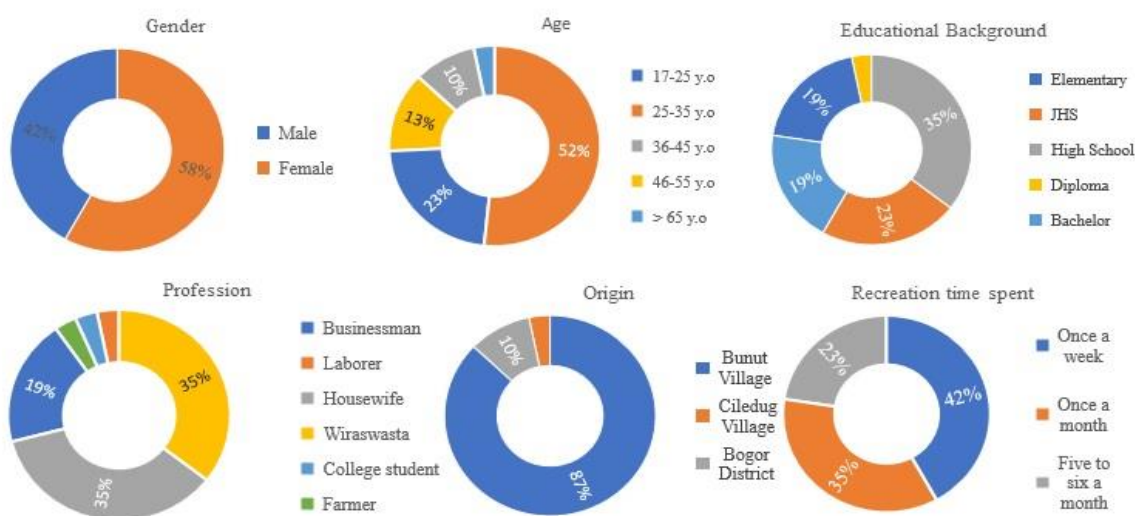


Figure 2 Characteristics of respondents

Public Perception of Green Open Space

An analysis of community perceptions was carried out to see how the community around the urban forest knew and understood about urban forest. Overall, the Likert Scale shows a score with the results of the Strongly Agree category for a total of seven statements submitted. The community strongly agrees on the meaning of green open space, the proportion of green open space in urban areas, and the functions and benefits of green open space for ecology, aesthetics, and society (Table 4). Strongly agree means that the community knows what is meant by green open space and urban forests, as research conducted by Pratiwi et al. (2019). The

majority of the community, with a percentage of 58% answered strongly agree that green open space is an area that extends/lanes/clusters, which is an open area to support ecological, sociocultural, economic, and aesthetic functions (UU 26 of 2007). Likewise in the statement regarding the proportion of green open space, where at least 30% of the city area, there is a score of 10 or 10%, the statement disagrees. According to the community, the proportion of at least 30% of the city area is still too small. The distribution of green open space is adjusted to the distribution of the population and the planned structure and spatial pattern so that the minimum proportion has been adjusted according to Law 26 of 2007 concerning Spatial Planning .

Table 4 Public perceptions of green open spaces and urban forests

No	Statement	Rating result				Score	Scale result
		SA ^a	A ^b	D ^c	SD ^d		
1	Definition of green open space	72	52			124	SA
2	Green open space proportion	52	39	10		101	SA
3	The function of reducing and controlling pollution	68	27	10		105	SA
4	Functions for the protection of biodiversity and aesthetics	56	48	2		106	SA
5	Benefits for education and recreation	60	45	2		107	SA
6	Benefits as regional identity and ecological function	68	42			110	SA
7	Urban forests store carbon stocks	64	42	2		108	SA

^aStrongly agree, ^bagree, ^cdisagree, ^dstrongly disagree

The same percentage disagrees with the statement regarding the function of green open space to reduce and control pollution and damage to land, water, and air. According to 10% of the people who disagree with the existence of green open spaces or urban forests, because they think it can cause damage to land due to the development and arrangement carried out. According to PP No. 63 of 2002, the area of the Urban Forest in one stretch is at least 0.25 ha. The Bekasi “Eduforest” Urban Forest has an area of 5 ha so development can be carried out with appropriate considerations, for example, the construction of a square with an area of 0.99 ha (Disperkin 2022). People who answered with disapproval statements were influenced by education and age. Respondents with high school education in early adulthood and late adulthood know the proportion of green open space. On the other hand, groups with elementary, middle, and high school education in their early teens and early seniors feel that the proportion of green open space is less and feels that urban forest development is damaging to the environment. The majority of people answered Strongly Agree with statements regarding the function of protecting biodiversity, aesthetics, educational benefits, recreation, regional identity, and ecological benefits.

Community Motivation to Visit Bekasi “Eduforest” Urban Forest

An analysis of community motivation was carried out to find out why people wanted to visit the urban forest. The Likert Scale calculation of community motivation shows a score in the Strongly Agree category for a total of five statements (Table 5).

Table 5 Community motivation to visit Bekasi “Eduforest” Urban Forest

No	Statement	Rating result				Score	Scale result
		SA ^a	A ^b	D ^c	SD ^d		
1	Provides comfort	68	42			110	SA
2	Positive impact on physical and mental	68	42			110	SA
3	A place to refresh	52	54			106	SA
4	A place for recreational or sports hobbies	48	48	6		102	SA
5	A place for social interaction and enrichment of insight	56	42	6		104	SA

^aStrongly agree, ^bagree, ^cdisagree, ^dstrongly disagree

Motivation is a condition that causes a person to carry out activities that are carried out consciously (Kasiman 2017). The motivation of the people to visit the urban forest is because they feel comfortable with good air quality so that it makes breathing healthy, calms the mind, and changes the mood to be positive and refreshed. Forest ecosystems have been suggested as a medium for non-pharmacological therapy with forest therapy or known as forest healing or known for the first time put forward by Japanese researchers as forest bathing (Farkic et al. 2021). Visiting the forest can activate the senses, multisensory, affective and kinesthetic processes to obtain psychometric and physiological benefits. Another motivation is to do recreation and sports in the urban forest. Even so, there is an answer choice of Dislike with a score of 6 or as much as 6% of all respondents to that activity. That is because people feel that sport is not a motivation to visit the urban forest. Likewise, activities add insight which is not a motivation for the community to go to the urban forest. The category of late teens with jobs as employees and housewives said that sports were not their motivation to visit the urban forest. The category of elderly and late adults with jobs as farmers and housewives stated that seeking new insights was not a motivation to go to urban forests. This can be caused by the fact that people at a certain age with their busy lives have not felt the benefits of urban forests as a means of education or sports.

Community Preference for Bekasi “Eduforest” Urban Forest

Analysis of community preferences was carried out to determine their desire to carry out activities in the urban forest. Based on calculations using a Likert Scale of a total of 12 statements, as many as 7 statements received scores in the Strongly Agree category, and as many as 5 statements scored in the Agree category (Table 6). The highest community preference with a percentage of 74% is the desire to build an urban forest together with intense participation and coordination. Building good coordination between the management and the community will create community participation in urban forest development. Participation can be in the form of involvement and initiatives to achieve sustainable development goals or making decisions related to the community's environment (Uceng et al. 2019). It shows the enthusiasm and concern of the community, so that the cultural benefits of urban forest development can also be realized at the stage of the development process that involves a knowledge system, a sense of shared ownership, and involves community values.

Table 6 Community preference for Bekasi “Eduforest” Urban Forest

No	Statement	Rating result				Score	Scale result
		SA ^a	A ^b	D ^c	SD ^d		
1	Coordination to develop an urban forest	84	30			114	SA
2	A place to gather with family/friends/colleagues	64	42	2		108	SA
3	To enjoy the beauty of nature (view of rice fields and forest)	64	42	2		108	SA
4	Going around looking for information/observing the diversity	60	24	12	2	98	A
5	Harvesting honey and tasting honey	76	27	6		109	SA
6	Place to exercise	44	45	8	1	98	A
7	Relax and selfie	72	33	4		109	SA
8	Culinary tour	68	36	6		110	SA
9	Preservation of rare plants	60	30	12		102	SA
10	Outdoor study area	44	51	4	1	100	A
11	Healing and treatment	44	48	8		100	A
12	Giving fees to service providers	44	36	8	8	96	A

^aStrongly agree, ^bagree, ^cdisagree, ^dstrongly disagree

The lowest preference is to wander around the urban forest to observe biodiversity and exercise. Then the statement with the most disagreeing category, with a percentage of 12% is the activity of preserving typical plants. People say that *Gandaria* is a plant typical of West Java and other rare plants such as *Kemang* and *Kecapi* are very easy to find in the yard and easy to plant, so they don't think those plants need to be specially preserved in urban forests. However, the overall Likert Scale calculation results state that the majority of people Strongly Agree with the preservation of unique and rare plants. *Gandaria* classified as a rare plant, is the identity of the flora of West Java based on the Decree of the Minister of Home Affairs Number 48 of 1989 concerning Guidelines for Determining Regional Identity of Flora and Fauna. It can be used to make agricultural tools, the leaves can be eaten fresh, and the fruit with high antioxidants can be eaten immediately (Roni et al. 2021). According to Rudiana et al. (2021), *Gandaria* has a high antioxidant which correlates with anticancer properties, so it can be used as a medicinal plant. Not only well managed to be preserved in urban forests, but it can also provide aesthetic and economic value from the use of these plants.

Statements with a score of strongly disagree are most often found with a score of 8 or with a percentage of 8% and are about the willingness to give appreciation in the form of retribution for the provision of services in the form of guiding a recreational program or providing fees for activities that are liked by the community. One of the activities is harvesting and tasting honey. However, the results of the Likert Scale calculation show that the majority of people are willing to provide retribution. Communities who disagree said that there should be no fees to be collected because all activities related to urban forests are carried out in their area. The existence of an individual's willingness to pay for an environmental condition and service needs to be done because it is an effort to improve environmental quality and assessment of natural resources, but knowledge of the importance of levies on services received is still lacking (Lestiani et al. 2022). Respondents who are not willing to pay the retribution are mostly people who work as housewives and farmers with elementary to high school education backgrounds. Work can affect a person's willingness to pay because it will affect the income earned. If the respondent's job has better opportunities with a more stable income, there is a possibility that he will be willing to pay a levy on environmental services which he will choose when traveling in the urban forest.

Bekasi “Eduforest” Urban Forest in Cultural Environmental Services

The final result of calculating the community perception, motivation, and preference can be seen more clearly in Figure 3. According to Joshi et al. (2015), the Likert Scale is a psychometric scale used in social science research to fulfill the quantification of perceptions and the quality of social science. So, the results in this study quantitatively provide information about the potential of urban forests that can be developed according to people's perceptions, motivations, and preferences to make the urban forest sustainable. Analysis of the potential of urban forests based on the results of a questionnaire was developed with a focus on two things, there are providing massive information and counseling and creating tourist attractions.

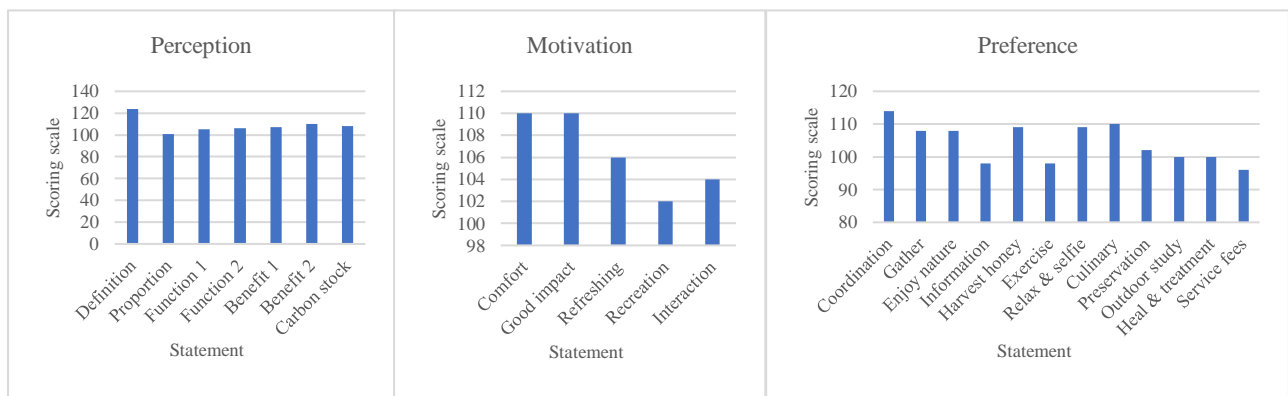


Figure 3 Graph of perception, motivation, and preference results

Provide Massive Information and Counseling

The results of the Likert Scale calculation regarding public perception show that the community has a good knowledge of urban forests so it has the potential for the sustainability of urban forests because of an understanding of its functions and benefits. The functions are ecological, social, and economic. Ecological functions as a provider of oxygen and water, reduce noise, and regulate thermal comfort. Social functions as recreation and education. The economy functions as an opportunity for livelihood (Markho et al. 2020). These functions need to be regularly disseminated to the community in other villages so that the community's desire to maintain and preserve urban forests increases. Providing information and counseling is a step that can be taken to spread understanding about urban forests. One of the efforts that can be done is by providing an interpretation board in the urban forest. Tourism interpretation facilities are information facilities that can develop tourism and provide services for visitors to meet diverse information needs (Syaputra et al. 2019), so they must be adjusted. In urban forests, interpretation boards regarding the types and roles of animals or plants for humans and ecosystems can be displayed, or about various environmental services provided by urban forests. Counseling to the community is also one of the things expected by the community regarding involvement in activities that involve the knowledge system and foster a sense of shared ownership.

Development of Tourist Attractions

Bekasi "Eduforest" Urban Forest has the potential of natural resources, including a diversity of flora and fauna that can be used as tourist attractions. In addition, community motivation and preferences for urban forests can be a potential attraction that can be created by urban forest managers to increase attractiveness for the community (Destiana et al. 2019). Managers can create several attractive tourist attractions according to their preferences, both those that already exist in nature or can be developed further.

Health therapy tourism

The main community's motivation to visit urban forests is the comfort they get from the forest, which has a good impact on physical and mental health. The others are for refreshing, recreation, and sports, also for social interaction and adding insight. According to Farkic et al. (2021), visitors with high-stress levels get therapeutic benefits while in the forest, thereby reducing stress. The development of urban forests, according to SNI 9006, regarding forest tourism for health therapy, can be carried out with four principles, there are academic principles, responsibility and professionalism principles, caution, and connecting people to nature.

In addition, the Bekasi "Eduforest" Urban Forest also needs to prepare physical environmental parameters so that they are carried out according to standards. Vegetation density must fall into the category of moderate to dense so that the temperature and humidity can be adjusted to provide thermal comfort. Based on the measurements, the average daily air temperature is 30.88 °C with a relative humidity of 74.02% and with a THI value of 27.27 which means uncomfortable. Even though one of the people's motivations is that the forest provides comfort, the condition in the urban forest needs to be improved to make it more comfortable. Based on SNI 9006 of 2021 concerning Forest Tourism for Health Therapy, the air temperature is still not suitable because it usually ranges from 20 °C to 26 °C, but the humidity is still appropriate because it ranges from 40% to 80%. So, to create health therapy tourism, it is necessary to select tree species with shady canopies and non-dangerous dense canopies. The calculated biomass from dominant tree species is 133.10 kg/ha so the stored carbon stock is 66.55 kg/ha. CO₂ absorption is obtained at 244.25 kg/ha so that people can breathe air that is less CO₂. Clean air and inhaling other substances in the air can reduce stress and increase concentration (Hansen et al. 2017).

According to SNI 9006 of 2021 concerning Forest Tourism for Health Therapy, the minimum area of urban forest for health therapy tourism is 4.5 ha with a minimum of 2.5 ha for the therapy area and the rest can be done by building facilities and infrastructure. This means that the area of the Bekasi "Eduforest" Urban Forest has met the main requirements, with an area of 5 ha. With the community's preference for health, a

special room for traditional medicinal plants can be created so that the community can use it daily for health, or it can be called a living pharmacy (Marpaung et al. 2020). The existence of special guidance regarding the functions and benefits of certain medicinal plants can increase public awareness of the benefits of medicinal plants found in the vicinity, as well as attract public interest in cultivation and preservation because medicinal plants can treat various diseases (Aristyani et al. 2018).

Educational tourism

In the development of educational tourism, the first thing that needs to be done is to instill a culture of literacy. It can be done by providing small library facilities with an outdoor concept in certain parts of the urban forest, for example providing reading books that can be read freely by the community with good supervision by urban forest managers. According to Dafit et al. (2020), cultivating the habit of reading will improve literacy skills which can easily be done in urban forests. In addition, the observation of wildlife and rare plants in the urban forest can also be one of the efforts to develop urban forests for educational tourism. There is a public interest in other living things as well as the desire to enjoy the diversity of wildlife and plants around the urban forest. To realize the observing animals and plants' activities by collecting data in the urban forest where wild animals and plants are found. The introduction of animal and plant species can also provide knowledge for the public or visitors, especially if there is special guidance from the manager.

Another educational tour that can be carried out is the management of beekeeping. According to Permadi et al. (2021), honey bee cultivation is one of the uses of non-timber forest products. Honey bees in Indonesia include *Apis andreniformis*, *Apis dorsata dorsata*, *Apis dorsata binghami*, *Apis cerana*, *Apis koschevnikovi*, *Apis nigrocincta*, *Apis florea*, *Apis nulensis*, and *Apis mellifera*. The activities such as the installation of the apiary, feeding honey, and how to harvest honey can be attractions equipped with safety equipment and special guidance for visitors. It will be a good activity because honey is a functional food that is good for health. There needs to be the availability of honey and adequate feed for bees. The existence of unusual experiences in urban forest tourism attractions can increase the motivation of visitors to visit the urban forest.

Culinary tourism

People's preferences for culinary activities are quite liked. The potential attractions in the urban forest can be by introducing regional specialties. Urban forest managers can provide special areas for special culinary tours followed by food hygiene and environmental cleanliness monitoring. According to (Seyitoğlu 2020), regional specialties have a traditional taste that has a pleasure to consume and has an element of learning in it, so it can attract visitors to seek a unique taste experience that has never been felt before. The existence of culinary tourism will attract visitors so that it can increase the livelihoods of the surrounding community.

Panoramas and landscapes

Tourism attractions in the form of panoramas can be supported by building areas that are arranged according to the location of the panorama and equipped with adequate facilities such as seats with attractive materials. Landscapes represent the primary contact between visitors and their destinations. Visitors will start the journey because of the beautiful panorama to see. The relationship between tourism and a panorama cannot be separated. Tourism may not exist without landscapes, and there would be no landscapes without tourists watching, so urban forests can plan landscapes and plan their marketing (Terkenli et al. 2021). In addition, it is focused on the landscape and the provision of facilities and good organizational structures in tourism development for the community to enjoy with their families.

CONCLUSION

The potential of the Bekasi "Eduforest" Urban Forest in cultural environmental services can consider the micro climatic condition and biomass potential for urban forest development. Air temperature is 30.88 °C, relative humidity is 74.02%, and THI value is 27.27 means uncomfortable. The potential of biomass from dominant species is 133.104 kg/ha, stored carbon stock is 66.552 kg/ha, and CO₂ sequestration is 244.245 kg/ha. The potential for cultural environmental services can be through the provision of massive information and counseling either directly or through interpretation boards, as well as the development of tourist attractions which can be in the form of health therapy tours, educational tours, culinary tours, and landscape attractions. The development of tourist attractions can be reconsidered with microclimatic conditions and urban forest biomass. It is necessary to reduce the air temperature by adding and selecting species, besides that there will be an increase in biomass so that the absorption of carbon dioxide is greater.

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