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ORIGINAL ARTICLE

A Review of the Recreational Benefits of Cultural Ecosystem Service (CES) Indicators in the Urban Area

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ABSTRACT - Cultural ecosystem services (CES) are the intangible, invisible, and non-consumable benefits of the ecosystem to human welfare. Nevertheless, due to the not a practical conceptual framework, there are lacking information on CES studies in the urban area. So, the aim of this paper systematically analyzes the works of literature on the recreational benefits of CES. A total of 38 journal paper systematical analysis found that MEA and TEEB are often to be used rather than CICES because it is still new in this field. Moreover, a total of 23 indicators indicate the value of recreation in the green space. Recreation should define as the natural landscape of people's preference for spending their leisure time interacting with physical and experiential facilitating outdoor activities to promote health and enjoyment. Subsequently, this study can also conclude that non-monetary assessments are the best approach to conducting empirical studies of CES. Simultaneously, in-depth studies are needed to look at the feasibility of these indicators for the ecosystem of the global.

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INTRODUCTION

In globalization, ecosystem service (ES) benefits are a concern for human beings. The ecosystem plays an essential role in sustainable human welfare by providing basic needs for a good life for human beings, security, and more. The famous typology of ecosystem service as Millennium Ecosystem Assessment (MEA/MA) classified the ecosystem services into four vital functions as provision, regulation, cultural, and ecological integrity (supporting) [1]. While the terminology of "ecological integrity" should replace the term "supporting" in the MEA classification because "ecological integrity" represented the comprehensive service by nature, which includes, "supporting services" as well. Meanwhile, cultural ecosystem services (CES) define the ecosystem that benefits human welfare from intangible, invisible, and non-consumable products [4];[11] For example, the “experience of nature" would only sense by a human when interacting with the natural environment such as recreation.

However, few philosophers argued that either MEA or The Economics of Ecosystem and Biodiversity (TEEB) comprehensively accesses CES's benefits [4]. By reviewing the literature, ES benefits classify into four categories: direct use value, indirect use value, non-use value, and options use-value [7]. See [9], CICES did complete access to all ES benefits compared to MEA and TEEB. Since the typologies are not standardized, therefore it is difficult to conceptualize the CES in a model. Moreover, CES such intangible benefits should measure by non-monetary assessment [7]. While sometimes CES benefits are measured by a market-mediated approach such as state or revealed preference method, all these are just an assumption value to CES.

Therefore, a better way to study CES is the non-monetary approach. From the past study, most philosophers selected consultative methods such as questionnaires and in-depth interviews to assess CES studies. Since questionnaires and in-depth interviews are the necessary techniques to reach the CES information, sometimes these methods use in contingent valuation methods (CVM) (E.g., Willingness to

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Pay). Although the systematic review is the most challenging method in accessing CES value, it helps to pre-study the CES benefits scientifically, such as information and database. Therefore, this study aims to systematically analyze the published journal for CES's recreational benefits by using CICES V5.1 [15]. Since CICES is the most comprehensive classification system, it was selected to identify the recreational benefits indicators of CES from constituencies worldwide.

MATERIALS AND METHODOLOGY

In this study, three search engines were selected to conduct the paper review approach from the internet, such as "Science Direct website (https://www.sciencedirect.com/), Google Scholar (https://scholar.google.com/), and Springer Link (https://link.springer.com/). The reason for selecting these search engines to review papers is because these three platforms provided the major open-access articles for philosophers to study related fields. Since this study focuses on CES, the keywords that enter to reach the papers from the platform shown in Table 1, each keyword represents a different description and defines this study's field.

Furthermore, select these specific keywords because the CES field is still underrated to study in an urban area. Therefore, instead of choosing the broad field of ES, it is better to scope the study to CES and produce productive information for future studies. Moreover, the "systematic review" method selected as an indicator for this review study is because CES such intangible benefits are difficult to access through monetary assessment. So, non-monetary ways are best to choose for studying CES [7]. Sometimes financial assessment workouts for CES such as revealed and state preference methods, but these methods are assumed to be CES truth value.

Besides, this study conducts a selective and filtering approach to review journal papers for the past five years from 2020. The recent study provides updated information needed in this study. From the platform filtering approach, select journal papers from the selected years, such as 2021 until 2016. Further, the title and matches the chosen characteristics and/ or indicators of this study will choose to conduct a review information process from those papers. Meanwhile, specific important article [8];[2];[12];[22];[4];[11];[20];[3];[24] valuable to study CES information. Therefore, these journal papers select to conduct the review process and indicated the CES beneficial values by comparing the past and present studies.

Table 1. Terminology of searching CES

Keywords	**Description**
Cultural ecosystem services	The ecosystem cultural utilities beneficial intangible, invisible, and non-consumable to a person or holistic welfare [11]
Cultural ecosystem services + urban	The urban ecosystem is functional as a cultural benefit for human welfare. Modified from [2]
Cultural ecosystem services + recreation	The cultural ecosystem services beneficial human recreational aspects. Modified from [15]
Cultural ecosystem services + urban + recreation	The urban cultural ecosystem services beneficial human recreational aspects. Modified from [2];[15]
Systematic review + cultural ecosystem services	The method of systematic reviewing published papers for cultural ecosystem services. Modified from [7]

RESULTS AND DISCUSSION

From the technique of selective and filtering, 38 journal papers reviewed information that contributed to the recreational benefits of CES in the urban area. Figure 1 shows that MEA and TEEB typologies are greater than CICES. Since MEA publish in the year 2005, TEEB in the year 2013, While CICES V5.1 publish in the year 2018. The information contributed by MEA is more depth compare to CICES. Since CICES has more updated information, so, this study would encourage future philosophers to apply CICES in their studies because CICES is more comprehensive than MEA and TEEB. See MEA [13], TEEB [23], and CICES V5.1 [15]. By comparing these three typologies, CICES is more comprehensive than MEA and TEEB.

Furthermore, by reviewing those journal papers' methodologies, CES is usually evaluated through a non-monetary assessment. Figure 2 shows 19 articles apply consultative methods in their CES studies. Follow by 16 review papers and ten papers on non-monetary deliberative approaches. From this perspective, CES is intangible and non-consumable that is difficult to quantify through a quantitative method. Even literature (2 articles) using state preference method a kind of monetary assessment, the market mediates just an assumption value to CES.

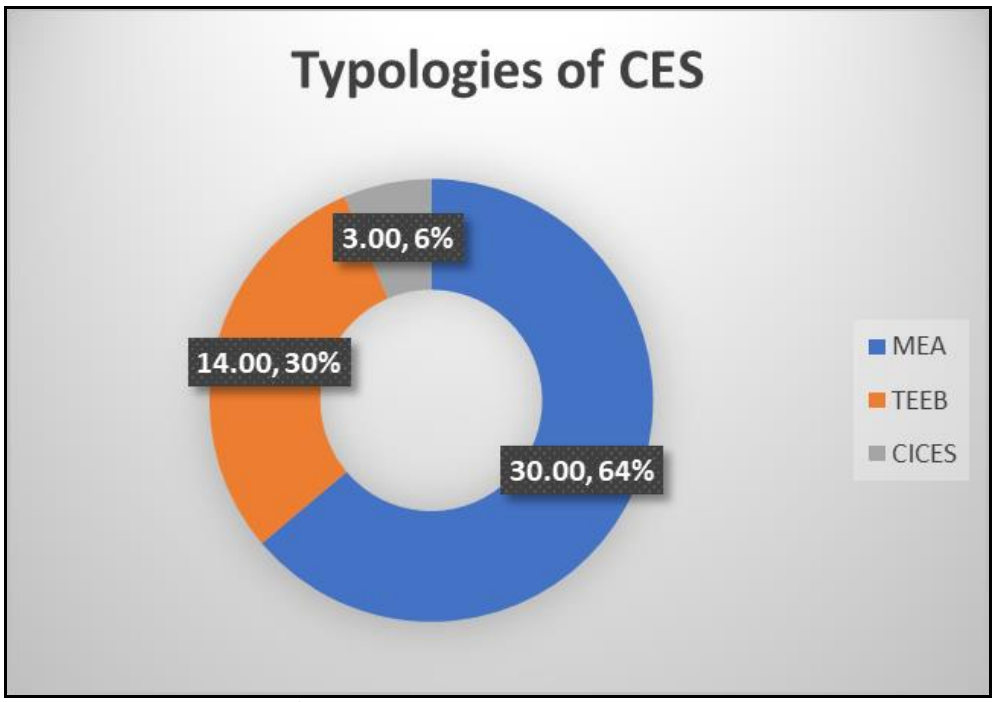

Figure 1. Typologies of CES assessment

Compared to the non-monetary approach, these kinds of ways produce preliminary information and general existing CES values [7]. This study would like to introduce future philosophers to the use of qualitative text data analysis tools to analyze CES values. Since QDA (qualitative text data analysis) software is a kind of open-access qualitative text data analysis software available to interpret qualitative data into quantitative data. So, the data value from QDA would have a better contribution to solving the issues of difficulty quantify CES in a practical conceptual model. But before that, philosophers must clarify the potential factors that influence the values that are difficult to show CES values, such as preference.

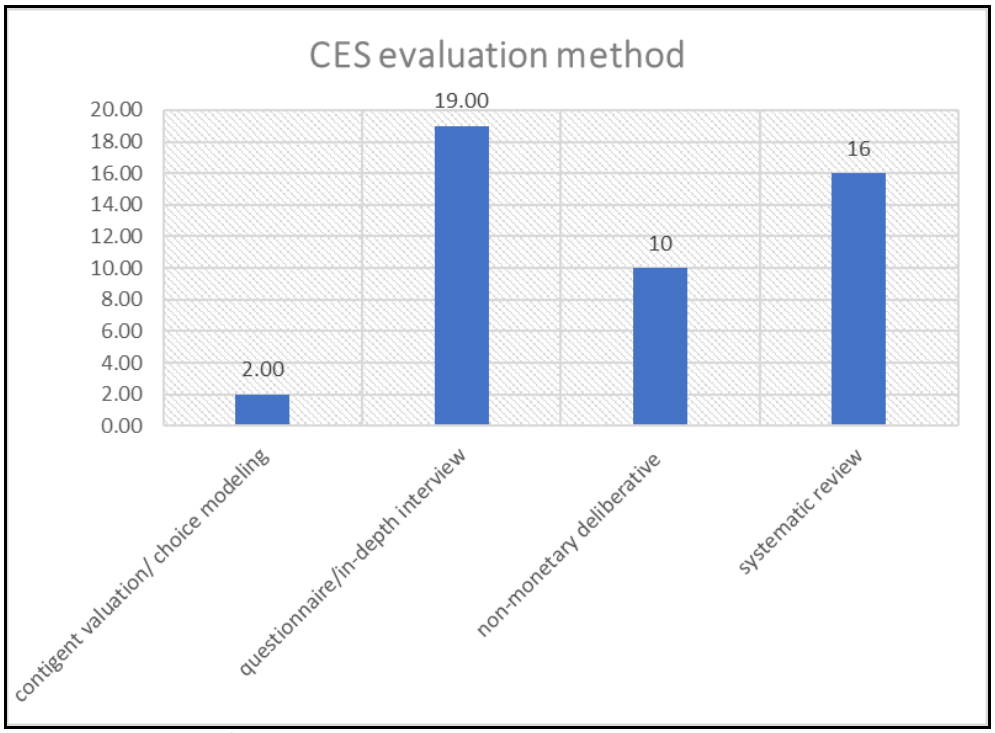

Figure 2. Standardize evaluation approaches of CES

Subsequently, reviewing journals in the data platform, there is not much study focus on the urban area. So, this study is trying to give information that lacks in the field. At the same time, recreation is the primary service provided in the urban ecosystem. Table 2 shows the terminology of 'recreational' used by a different philosopher. From this perspective, once again proved that preference is a reason that influences CES's challenge to have standard indicators. After reviewing those journal papers, this study defined recreation as the natural landscape of people's preference for spending their leisure time interacting with physical and experiential facilitating outdoor activities to promote health and enjoyment purpose. From this description, this study suggested that the indicators of recreation must fulfill the below characteristic:

- Physical interaction promoting health or enjoyment
- Experiential interaction promoting health or enjoyment
- Natural or cultivated landscapes in an urban area
- Facilitating outdoor activities
- During leisure time
- Therapeutic

Table 2. Terminology of Recreation

Value	Description/indicators/definition	References
Direct, outdoor interaction	Physical and experiential interactions with the natural environment	[15]
Recreation	Recreation	[5]
Recreation	People often choose where to spend their leisure time-based in part on the characteristic of the natural or cultivated landscapes in a particular area	[6]
Recreation	Enjoyment of outdoor recreational uses such as biking, walking, running, swimming, fishing, playing sports, dog-walking, collecting wild herbs & fruits, or just getting away from it all	[21]
Recreation	Nature-based leisure-oriented activities, physical and intellectual activities, as well as activities performed for enjoyment or entertainment.	[1]
Recreation	Facilitating outdoor activities for recreation and leisure activities such as walking and relaxing (activities relating to health such as regular outdoor exercise is classified separately)	[17]
Health	Providing regular and continuous activity space for the promotion of mental and physical health	[17]
Leisure activities	Promoting recreation and tourism by providing pleasant places for walking, running, cycling.	[14]
Sense of place	Fostering a sense of attachment to a place and the city	[14]
Recreational	Sites used for recreational activities (such as walking and dog walking)	[25]
Therapeutic	Sites that physically and mentally make people feel better	[25]

So, by reviewing the literature, the potential indicators used to measure recreation are shown in table 3. In Table 3 shows that the blacken indicators have similarity measurement of entertainment used by different philosophers in their papers. Physical interaction is describing as passive interaction with nature, but its purpose of promoting health and enjoyment welfare. So, the activities or indicators as tranquility and relaxation, nature observation, and animal observation. This kind of activity producing "experience" for human psychological benefits such as "feel happy," "comfortable," and "calm."

In contrast, experiential interaction is defining as active interaction with nature, such as having an individual or a team activity by spending their leisure time. The indicators are walking, picnics, camping, athletic activities, playing with pets, and more. Experiential interaction that humans have physical activities such as exercise helps improve their bodies and mental health.

Table 3. Potential indicators of the recreational benefits of CES.

Class	Recreational indicators/ marker/ tags	References
Physical interaction (passively)	• Tranquillity and resting • Unique landscape • Nature observation / enjoy views of nature • Animal observation/ watch bird • Breath fresh air • Relaxation • Listen to nature sound • Mediate in nature	• [24] • [1] • [18] • [19] • [10] • [26]
Experiential interaction	• Walking • Shopping • Eat and drinks/ Outdoor meals/picnic • Farm-based camping/ boot camp • Athletic activities / sports/ running/ jogging/ gymnastic • Pet-walking / walk a dong • Fun area for children/ spend time with children • Team sports/ play sports • Sports on wheels/ Cycling/ biking • Entertainment • Pick berries, herbs • Pursue hobbies/ Swim • Equipment • Taking part in events • Caring about vegetation	• [24] • [1] • [18] • [19] • [22] • [10] • [26]

CONCLUSION

In conclusion, the selection of CES typologies depends on the specific studies and viewpoints of the scope of the studies. Although philosophers contend that MEA and TEEB are not the ideal assessments for CES in this study, the MEA and TEEB investigations have been crucial to CES research in the past. CICES won't exist without MEA and TEEB because they serve as their references. The outcome demonstrates that MEA and TEEB are more well-known among philosophers than CICES. The CICES classification did, however, correspond with all ecosystem services when discussing the actual situation internationally. This study suggests that future philosophers can choose the CICES typology to examine either ES or CES. Therefore, this study can also draw the conclusion that the optimum method for performing CES empirical studies is non-monetary evaluations. CES is an example of an ecosystem's intangible service or good. Basic data required for CES investigations was gathered using a consultative method such a questionnaire and in-depth interview. A qualitative text data tool like QDA can also be used to analyze qualitative data, which is another benefit of society's improved technology. This study suggests that future philosophers employ qualitative research to provide the additional database they'll need to conceptualize CES. The natural environment in which individuals want to spend their free time engaging in physical and experiential outdoor activities that support good health and enjoyment should be the final definition of recreation. Additionally, there are 15 markers for experiential business that are utilized by constituencies

from all over the world, including eight indications for physical engagement. These signs are all consistent with the definition used in this study. Future study is necessary to determine the viability of these indicators and whether they are appropriate for this global context.

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