

Sustainable Financing for Infrastructure Development to Support Tourism Connectivity: A Systematic Literature Review

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ABSTRACT

The tourism sector is the sector that has been most affected by the COVID-19 pandemic. This is due to travel restrictions to reduce the spread of Covid-19. One of the efforts for economic recovery in the tourism sector is to increase tourism competitiveness through infrastructure improvements. Indonesia has many tourist destinations, but they have not been utilized optimally. This is due to the low accessibility and quality of infrastructure that supports tourism connectivity. The tourism sector has a significant contribution to national economic development as an instrument for increasing foreign exchange earnings. There are 3 (three) important elements for tourism development, namely attractions, amenities, and accessibility. accessibility in good condition will affect tourist satisfaction and increase tourism competitiveness. The government plays an important role, especially in providing access and connectivity to tourism areas. This role includes increasing accessibility in tourism areas by developing infrastructure and facilities for all modes of transportation, increasing transportation safety, and providing intermodal transportation. Port is one of the transportation infrastructure that supports the connectivity of Indonesian tourism as a maritime and an archipelagic country. The number of ports and the limited budget owned by the government, requires the government to be able to find alternative infrastructure financing outside the State Budget to build ports to support tourism connectivity. To realize sustainable infrastructure development, green economy based financing alternatives are needed to align economic, social, and environmental development to achieve the Sustainable Development Goals targets. This study aims to determine the development of research and various future research issues related to alternative infrastructure sustainable financing. The method used in this study is a Systematic Literature Review (SLR) of journals published from 2010-2020. Search articles that are considered relevant to the discussion keywords are entered into 2 (two) search citations, namely Scopus and Google Scholar. There are two research questions set out in this study. First, how the trend of alternative infrastructure sustainable financing studies? and how the research gap studies of alternative sustainable financing infrastructure development to support tourism? The results of this study are expected to complement the literature review on alternative infrastructure sustainable financing and can provide views on future research topics. The managerial implications of this research are expected to be a reference for alternative sustainable financing for policy makers and private parties who are interested in investing in the development of infrastructure that supports tourism connectivity.

Keywords: *Sustainable Financing, Infrastructure, Tourism, Green Economy, SLR*

1. INTRODUCTION

The Unitary State of the Republic of Indonesia (NKRI) is the largest archipelagic country in the world. Indonesia has an area of 1,916,862.20 km² and the number of registered islands reaches 16,056 islands. The total length of the coastline owned by Indonesia reaches

95,181 km² which is the second-longest in the world. Geo-strategically, Indonesia's position is very advantageous, which is located between 2 (two) continents (Asia and Australia), between 2 (two) Oceans (the Indian Ocean and the Pacific Ocean), as well as on the busiest sea trade route in the world (Malacca Strait). This geographical location makes Indonesia have a tropical climate and has a diversity of natural panoramas,

flora, and fauna which are the main attractions of natural and cultural tourism potential.

Tourism plays an important role in the economic development of a country which is indicated by the increase in economic welfare that is getting better and more advanced. Tourism development also has a significant contribution to national economic development as an instrument for increasing foreign exchange earnings. According to data from the Central Statistics Agency, the tourism sector contributed to the economy in 2019 of 7%. This can be seen in the Table 1:

Table 1. Contribution of Tourism to the Indonesian Economy 2016-2019

Year	2016	2017	2018	2019
Current Value (Billion Rupiah)				
Gross value Added Tourism Industries/ GVAT	849.353	925.290	996.892	1.085.447
Tourism Direct Gross Value Added/ TDGVA	553.404	609.711	698.255	753.973
Tourism Direct Gross Domestic Product/ TDGDP	576.758	635.277	728.791	786.182
Gross Value Added/ GVA	11.958.856	13.066.596	14.237.382	15.183.730
Gross Domestic Product/ GDP	12.401.729	13.589.826	14.838.312	15.833.943
Tourism Contribution (%)				
Gross Value Added Tourism Industries (GVATI)	7,10	7,08	7,00	7,15
Tourism Direct Gross Value Added (TDGVA)	4,63	4,67	4,90	4,97
Tourism Direct Gross Domestic Product (TDGDP)	4,65	4,67	4,91	4,97
Growth (%)				
Tourism Direct Gross Domestic Product (TDGDP)	-	7,40	6,30	3,16
Gross Domestic Product/ GDP	5,03	5,07	5,17	5,02

Source : Tourism Satellite Accounts Indonesia 2016-2019, BPS, 2021

The strength of Indonesia as a country that has the 2nd longest coastline and the largest archipelagic country makes it the basic capital for competitive and sustainable tourism development. The government is aggressively promoting tourism both through national and international events. The increase in tourist visits is not only caused by promotion, but is also needed connectivity and accessibility. Increasing tourism competitiveness must at least include the components of attraction attractions, amenities and accessibility. Accessibility includes transportation system support which includes transportation routes or routes, terminal facilities, airports, ports and other modes of transportation [1]. The provision of infrastructure that supports accessibility is the main key in supporting the development of the tourism sector.

Tourism relies on transportation to bring visitors, and vice versa transportation requires tourists to fulfill the demand for its services [2]. Improved transportation infrastructure will increase the number of tourist visits

and an increase in tourist arrivals will affect the demand for transportation. Tourists will use various types of transportation modes to reach tourist destinations. To increase foreign tourist arrivals, Indonesia needs to improve tourism competitiveness in terms of accessibility which is reflected in the availability of infrastructure. The government plays an important role, especially in providing access and connectivity to tourism areas. This role includes increasing accessibility in tourism areas by developing infrastructure and facilities for all modes of transportation, increasing transportation safety, and providing intermodal transportation. The competitiveness of tourism in Indonesia from the availability of infrastructure is very low under Singapore and Malaysia.

The number of existing ports in Indonesia is 636 ports, while the planned port location reaches 1322 ports. Of the 636 ports, 70 are operated by the Port Business Entity PT Pelindo (Persero) while 566 non-commercial ports are managed by the Government through the Port Unit of the Directorate General of Sea Transportation. The number of ports being managed and the number of tourist destinations that need to be developed for connectivity, the Government needs to establish a policy framework by setting a priority scale in the development of connectivity infrastructure in this case is the port. In addition, in terms of the limited capacity of the Government's budget, alternative financing outside the State Revenue and Expenditure Budget (APBN) is needed which can ensure the ongoing development of infrastructure to support tourism connectivity.

To realize sustainable infrastructure development, green economy-based financing alternatives are needed that harmonize economic, social and environmental development to achieve the target of the Sustainable Development Goals. This study aims to determine the development of research and various future research related to alternative sustainable infrastructure financing.

2. MATERIALS AND METHODS

Systematic reviews have an important role in research. A systematic review can identify future research developments that should be improved upon from previous research as well as provide a synthesis of knowledge in one area. A systematic review can provide answers to questions that cannot be answered by individual research. A systematic review can be defined as a systematic study that can be used to develop theories, build evidence and solve problems. From the results of a systematic review, research development from previous research and new research can be carried out [3]. The purpose of a systematic review is to synthesize the state of knowledge in a field, provide answers to questions that have not been answered by individual research, improve previous research, evaluate theories about how or why phenomena occur, create knowledge for different users of the review.

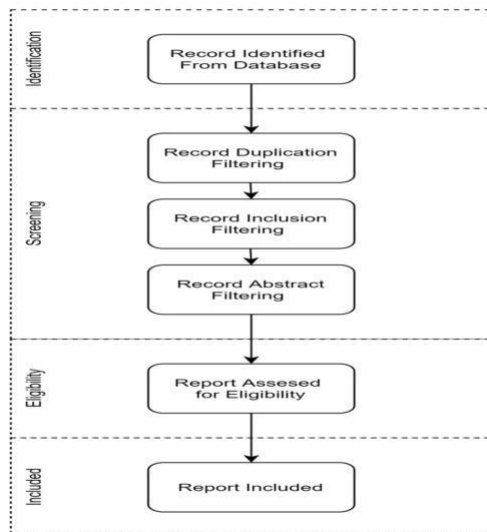
2.1. Research Question

Based on the background of the problem as described in the introduction, the following research questions were obtained: Research Question 1 : how the trend of alternative infrastructure green financing studies?. Research Question 2: how the research gap studies of alternative green financing infrastructure development to support tourism.

2.2. Search Strategy

To answer the problem formulation in this study, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method will be used. The database used as a reference source are Scopus and Google scholar. In this method there are four stages, namely identification, screening, eligibility, dan included as illustrated in the following Figure 1 :

Figure 1 PRISMA Diagram



2.2.1. Identification

At the identification stage, a literature search is carried out from the database using the appropriate keywords. The keywords used in this stage include (infrastructure) AND (Type OR Challenge) AND (Green Financing) in journals from 2010 to 2020. Using these keywords, literature is obtained from various databases as follows (Table 2):

Table 2. Search Results on Database

No	Database	Amount
1	Google Scholar	100
2	Scopus	109

2.2.2. Screening

There are three steps of literature screening carried out at this stage, namely duplication screening, inclusion screening, and abstract screening. Duplication screening

was performed to eliminate literature stored in both databases. The parameters used to perform this duplication filtering are the title of the literature and the author. The results of the filtering can be seen in the following Table 3:

Table 3. Results of Duplication Filtering

No	Database	Amount
1	Google Scholar	98
2	Scopus	107

At the next screening stage, the type of literature is filtered. The selected literature is in the form of journals or articles. Literature in the form of text books and conferences was removed from the database. The results of inclusion screening are as follows (Table 4):

Table 4. Results of Inclusion Filtering (1)

No	Database	Criteria	Amount
1	Google Scholar	Article	52
2	Scopus	Article	51

From the results of the screening above, then another screening is carried out based on the criteria for having DOI, and is included in the journal Q1/Q2/Q3. Based on the screening process, some literatures were obtained that met the conditions inclusion above. Q1/Q2/Q3 journal screening is done through checking on <https://www.scimagojr.com/journalsearch.php> (Table 5).

Table 5. Results of Inclusion Filtering (2)

No	Database	Criteria					Amount
		Non DOI	Q0	Q1	Q2	Q3	
1	Google Scholar	21	16	6	4	5	52
2	Scopus	16	3	14	12	6	51

Then the final filtering is carried out based on the content of the abstract. Abstracts are filtered according to the context of green financing infrastructure. Based on abstract screening, the literature is obtained as seen in the following Table 6:

Table 6. Results of Abstract Filtering

No	Database	Criteria	Amount
1	Google Scholar	Abstract	11
2	Scopus	Abstract	9

2.2.3. Eligibility

The next stage is to download literature that has passed the abstract screening. Literature that is considered worthy of analysis is literature that does not use research methodologies in the form of literature review, overview, or discuss topics that have low relevance to the questions in this study.

2.2.4. Included

At this stage we determine the amount of literature relevant to the research question after selecting the full-text literature. Based on the eligibility criteria referring to the research question, the number of literature that was declared relevant for analysis was 20 articles (Table 7 and Table 8).

Table 7. Result of Relevant Literature from Scopus Database

No	Authors	Title	Years
1	E. Sartzetakis [4]	Green bonds as an instrument to finance low carbon	2020
2	J. Gulid [5]	The political and institutional constraints on green finance in Indonesia	2020
3	LM Mankata [6]	Analysis of success-dependent factors for green bond financing of infrastructure projects in Ghana	2020
4	TTT Tran [7]	The factors affecting green investment for sustainable development	2020
5	IJ Musah Surugu	Migrants remittances: A Complementary Source of Financing Adaptation to Climate Change at the Local Level in Ghana	2018
6	A. Lazurko	Financing high performance climate adaptation in agriculture: Climate Bonds for Multi-Functional Water Harvesting Infrastructure on Canadian Prairies	2017
7	C. Kennedy	Infrastructure for China's Ecologically Balanced Civilization	2016
8	M. Aglietta	Financing Transition in An Adverse Context: Climate Finance Beyond Carbon Finance	2015
9	H. Francis [8]	Developing A Self-Sustaining Protected Area System: A Feasibility Study of National Tourism Fee and Green	2012

Table 8. Result of Relevant Literature from Google Scholar Database

No	Authors	Title	Years
1	F Taghizadeh Hesary, N Yoshino [9]	Sustainable solutions for green financing and investment in renewable energy projects	2020
2	S Ray, J Bisbey	Financing infrastructure in Asia through bonds and capital markets	2020
3	Julia, S Kassim	How serious are Islamic banks in offering green financing?: An exploratory study on Bangladesh banking sector	2020
4	N Yoshino, F Taghi	Modelling the social funding and spill-over tax for addressing the green energy financing gap	2020
5	AO Zhagyparova, LM Sembiyeva	AIFC in the development of mechanisms of green financing for the modernization of the Kazakhstan economy	2019
6	R White, S Wahba	Addressing constraints to private financing of urban (climate) infrastructure in developing countries	2019
7	AM Hallauer, A Tyagi, G Behrend, D Bell [10]	Environmental impact bond: An innovative financing mechanism for enhancing resilience in the City of Atlanta through green infrastructure	2019
8	F Taghizadeh-Hesary, N Yoshino	The way to induce private participation in green finance and investment	2019
9	T Julia, S Kassim	Exploring green banking performance of Islamic banks vs conventional banks in Bangladesh based on Maqasid Shariah framework	2019
10	AW Ng [11]	From sustainability accounting to a green financing system: Institutional legitimacy and market heterogeneity in a global financial centre	2018
11	MHU Rashid, MM Uddin [12]	Green financing for sustainability: analysing the trends with challenges and prospects in the context of Bangladesh	2018

3. RESULTS AND DISCUSSION

There are three topics that will be discussed in this section, namely the profile of the literature, research method, types of green financing, and types of infrastructure financed with green financing.

3.1. Profile Literature

In the literature profile, the data analyzed are the quartile distribution of the journal, the year of publication, and the name of the journal. The articles contained in the search database are articles published from 2010 to 2020. Based on the identification and screening of articles containing green financing, on average, they were published from 2012 to 2020. 2019 was the year with the most research on green financing infrastructure. The trend of increasing research on this subject began to be seen after 2017 (Figure 2).

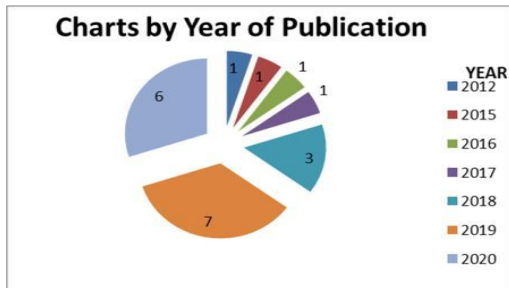


Figure 2 Literature Profile by Year of Publication

Based on the Scopus index ranking by schimago it was found that two journals had a Q1, ten journals ranked Q2, and eight journals had a Q3 rating. The literature distribution graph based on the Scopus index can be seen in the following graph (Figure 3):

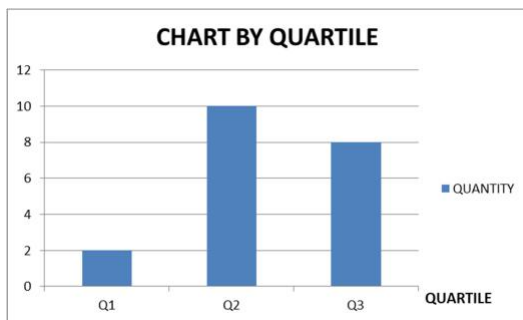


Figure 3 Literature Profile by Year of Quartile Index of Scopus

The next literature profile is to map the selected literature based on the distribution of journals or research areas. On average, selected articles are published in the journals of sustainability and financial economics. The distribution of article profiles based on the research area can be seen as follows (Figure 4) :

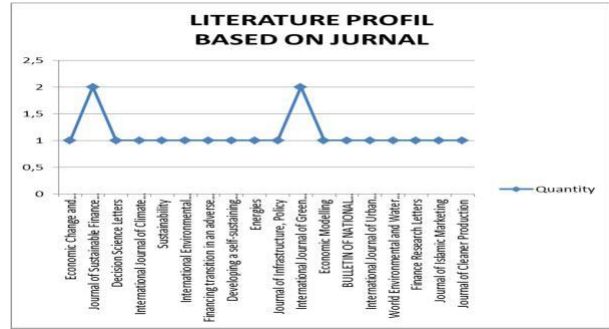


Figure 4 Literature Profile Based on Journal

3.2. Research Method

From the 20 selected articles, an analysis of the method used was carried out. Research methods that are widely used in the topic of green financing infrastructure research are descriptive analysis. Six studies are using the descriptive method. The six studies explain the definition of green finance, then the types of infrastructure financed by green finance, as well as obstacles in the implementation of the financing.

Then another method that is widely used by selected articles is risk analysis. There are three studies that use the risk analysis method. They use Risk-return analysis to see the risk-taking tendency of the Islamic banks using the Return Of Equity (ROE) and Return Of Deposit of banks for the same period. The research entitled “Sustainable solutions for green financing and investment in renewable energy projects” discusses the risks of green financing and how to overcome them. Risks that often occur in green finance are the lack of long-term financing, low rates of return, and the lack of capacity of market participants.

Other research methods used in the selected articles include mathematical modelling, content analysis, Cost-Benefit Analysis, multiple case studies, behavioural analysis, Multiple Linear Regression and Institutional frameworks

3.3. Types of Green Financing

Green financing is an innovation in alternative financing with private and public funding sources. The financing instruments used are credit, grants, guarantees, pension funds and so on. They are usually used to finance sustainable development, including renewable energy. The most studied type of green financing is the green bond. Six articles examine green bonds. Other types of green financing studied are green climate funds, Environmental Trust Funds, Green Credit Finance, popular green equity finance, environmental impact bonds (EIB), Hometown Investment Trusts, pension funds or insurance companies.

3.4. Types of Infrastructure Financed with Green Financing

Of the 20 selected articles, the most discussed types of infrastructure are the construction of energy sources, irrigation systems, and waste treatment systems. The development of energy sources is closely related to the climate change crisis. The type of green financing used to finance renewable energy is usually in the form of a green climate fund. Research on green financing to finance transportation infrastructure has not been widely carried out, even though transportation also has an effect on climate change and the greenhouse effect. One alternative that is quite attractive is the management of the protected area system in the Solomon Islands, which is funded from tourism revenues. Tourist visitors to the Solomon Islands will be subject to taxes that are used to finance environmental protection. Hal ini diteliti oleh Hoasiuhu Francis dengan judul *Developing a self-sustaining protected area system: a feasibility study of national tourism fee and green infrastructure in the Solomon Islands*.

3.5. Green Financing in Indonesia

Alternative financing for infrastructure in the form of green financing has been used in Indonesia. In 2014 the Financial Services Authority established a roadmap for sustainable financing. In 2018 the Government issued green sukuk or Islamic green bonds to support sustainable development and in accordance with Islamic legal principles [5]. Indonesia is carrying out development in various fields, especially the development of transportation infrastructure. Due to the limited government budget, it becomes an opportunity for green financing as an alternative in infrastructure financing. The government needs to encourage private actors to use environmentally sound and sustainable financing.

4. CONCLUSION

Research on green financing has not been done much. This can be seen from the number of studies that fall into the category of sustainable financing. Most of the materials on green financing are working papers from banking institutions such as the Asian Development Bank and the Islamic Development Bank. The trend of research on sustainable financing began to grow after 2017. This answers the first research question, namely, how is the trend of research on sustainable financing. For the second research question, there is no specific green financing to finance infrastructure that supports tourism. There is one study that uses tourism income tax to manage environmental protection. Indonesia is carrying out development in various fields, especially the development of transportation infrastructure.

Due to the limited government budget, it becomes an opportunity for green financing to participate in financing the infrastructure development. The method widely used in green financing research is the descriptive method. The object of infrastructure research is widely studied in the field of renewable energy sources and waste management. The types of financing that are widely researched and green bonds. The weakness in this research is that it only uses two databases sources and limits the number of articles to only 100 articles. Green financing has not been widely applied in infrastructure financing due to the high-risk factor in financing. In future research, it is necessary to research alternative types of green financing other than green bonds.

The next research opportunity is alternative green financing for transportation infrastructure funding. Because transportation infrastructure is quite significant in contributing to the climate change crisis and the greenhouse effect. To realize sustainable development in line with the Sustainable Development Goals, a collaboration between academics, policymakers, business actors and other stakeholders is needed to unify the vision, mission and goals in applying green financing in infrastructure development. Green financing as an alternative in infrastructure financing that will simultaneously provide two benefits: supporting sustainable development and alternative funding outside the state budget. The government needs to encourage private actors to use environmentally and sustainable financing.

AUTHORS' CONTRIBUTIONS

Andi Hardianto performed writing original draft conceptualization, preparing data, and analysis. Marimin, Luky Adrianto, and Idqan Fahmi for reviewing, directing, supervising and providing suggestions for the perfection of article writing.

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REFERENCES

- [1] Chee-Hua Chin, *The Impact of Accessibility Quality and Accommodation Quality on Tourists' Satisfaction and Revisit Intention to Rural Tourism Destination in Sarawak: The Moderating Role of Local Communities' Attitude*”, *Global Business and Management Research: An International Journal* Vol. 10, No. 2 (2018, Special Issue), 2018 .
- [2] Prasadja Ricardianto et al, *Air Transport and Tourism in Indonesia*, *IOSR Journal of Applied Chemistry (IOSR-JAC)* e-ISSN: 2278-

5736. Volume 10, Issue 5 Ver. I (May. 2017), PP 01-19, <https://doi.org/10.9790/5736-1005010119>
- [3] David Gough, Sandy Oliver, James Thomas, *An Introduction to systematic reviews*, SAGE Publications Ltd, 2012.
- [4] E. Sartzetakis, Green bonds as an instrument to finance low carbon transition, *Economic Change and Restructuring*, 2020. <https://doi.org/10.1007/s10644-020-09266-9>
- [5] J. Guild, The political and institutional constraints on green finance in Indonesia, *Journal of Sustainable Finance and Investment* 10(2), 2020, pp. 157-170, I. <https://doi.org/10.1080/20430795.2019.1706312>
- [6] L.M. Mankata, Analysis of success-dependent factors for green bond financing of infrastructure projects in Ghana, *Journal of Sustainable Finance and Investment*, 2020. <https://doi.org/10.1080/20430795.2020.1803640>
- [7] T.T.T. Tran, The factors affecting green investment for sustainable development *Decision Science Letters* 9 (3), 2020, pp. 365-386. <https://doi.org/10.5267/j.dsl.2020.4.002>
- [8] H. Francis, 2012 Developing a self-sustaining protected area system: a feasibility study of national tourism fee and green infrastructure in the Solomon Islands, *Journal of Sustainable Finance and Investment* 2(3), pp. 287-302, H. Francis 2012. <https://doi.org/10.1080/20430795.2012.715576>
- [9] N. Yoshino, F. Taghizadeh – Hesary, M. Nakahigashi, *Modelling the social funding and spill-over tax for addressing the green energy financing gap economic modelling*, Elsevier, Volume 195, September 2018, pages 585-592, 2019 <https://doi.org/10.1016/j.jclepro.2018.05.250>
- [10] AM Hallauer, A Tyagi, G Behrend, D Bell, *Environmental impact bond: An innovative financing mechanism for enhancing resilience in the City of Atlanta through green infrastructure*, 2019. <https://doi.org/10.1061/9780784482322.008>
- [11] AW Ng, From sustainability accounting to a green financing system: Institutional legitimacy and market heterogeneity in a global financial centre *Journal of Cleaner Production*, Elsevier, 2018.
- [12] MHU Rashid, MM Uddin, *Green financing for sustainability: analysing the trends with challenges and prospects in the context of Bangladesh* *International Journal of Green*, 2018. <https://doi.org/10.1504/IJGE.2018.097876>