

International Conference on Environment, Sustainability Issues, and Community Development (INCRID)



OF APPRECIATION

Number: 001/UN7.F3.5.8.TL/DL/IX/2022

THIS CERTIFICATE IS PRESENT TO

Dr. Sri Hartini

AS PRESENTER

"Supporting the Realization of Zero Carbon Environment by Implementing Circular Economy"

SEMARANG, 1st SEPTEMBER 2022

Chair of Organizing Committee

NIP. H.7. 199203122022022001





1 of 1

Cited by 0 documents

Inform me when this document

🛃 Download 🕒 Print 🐨 Save to PDF 🕁 Add to List More... >

IOP Conference Series: Earth and Environmental Science • Open Access • Volume 1098, Issue 1 • 2022 • Article number 012046 • 4th International Conference on Environment, Sustainability Issues, and Community Development 2022, INCRID 2022 • Semarang • 1 September 2022 • Code 184436

Document type Conference Paper • Bronze Open Access

Source type Conference Proceedings ISSN 17551307

DOI 10.1088/1755-1315/1098/1/012046

View more 🗸

A comparison of rap-tourism method and multi attribute aggregation in sustainability assessment of tourist destination

Putri A.A.A. 🖾 ; Purwaningsih R. 🖾 ; Hartini S. 🖾

^a Department of Industrial Engineering, Diponegoro University, Semarang, 50275, Indonesia

] Views count ⑦ ↗

View all metrics >

Full text options 🗸 🛛 Export 🗸

Abstract

Sustainable Development Goals 2022

SciVal Topics

Metrics

Abstract

The development of the tourism industry causes emergence of positive and negative impacts on tourist destinations. The development of the tourism industry has led the government to implement the concept of sustainable tourism. To assist the implementation of sustainable tourism, it is important to know the sustainability status of tourist destinations. The measuring tools used for calculated sustainability index values and identification of sensitive indicators. The method used must be easy to use and provide accurate results. This study compares between the rap-tourism and the multi attribute aggregation method. The aim is to choose which method better in measuring sustainability status when the objects of measurement are a lot of tourist destinations, better means easy to use and represent indicators condition briefly. The results of the assessment using both methods obtain the same sustainability status but there are differences in the sustainability index value. These two

is cited in Scopus:

Set citation alert >

Related documents

Rap-Tourism Method to Assess Tourism Objects Sustainability

Purwaningsih, R., Santoso, H., Khasanah, U. (2020) IOP Conference Series: Materials Science and Engineering

Sustainability analysis of ornamental plants farming in Makassar | Análise de sustentabilidade do cultivo de plantas ornamentais em Makassar

Tiasmalomo, R. , Rukmana, D. , Mahyuddin *(2021) Ornamental Horticulture*

Sustainability status of integrated rice-corn and beef cattle farming agriculture business in Jember regency

Sulistyono, N.B.E., Fanani, Z., Utami, M.M.D. (2018) IOP Conference Series: Earth and Environmental Science

View all related documents based on references

Find more related documents in Scopus based on:

Authors >



On behalf of the committee, I would like to express my sincere gratitude to all colleagues, professors, lecturers, researchers, and welcome you all to the 4th INCRID 2022 "Supporting the Realization of Zero Carbon Environment by Implementing Circular Economy". This conference provides a great opportunity for researchers, students, industries, and governments to communicate their research results on the fundamentals and application of sustainability issues and community development.

INCRID 2022 was held on 1 September 2022 in the online system and the theater room 5th floor of the Faculty of Engineering Diponegoro University, Semarang (hybrid). Keynote and invited speakers were Prof. Ramaraj Boopathy Nicholls State University, USA, Dr. Premakumara Jagath (Institute for Global Environmental Strategies, Japan), Prof. Pau Loke Show (University of Nottingham Malaysia), Prof. Sudharto P. Hadi, MES, Ph.D. (Universitas Diponegoro, Indonesia), Prof. Ir. Tjandra Setiadi, M.Eng., Ph.D. (Institut Teknologi Bandung, Indonesia), Prof. Dr. Soraya Heuss-Aßbichler (Ludwig-Maximilians-Universität München, Germany).

At this conference we have contributions from seven countries. We received about 118 submissions of papers for presentation at this meeting. Each paper was evaluated by a reviewer and about 85 of these are accepted for presentation, divided into 12 parallel presentation sessions. The topics of this conference include Environmental, Health and safety; environmental science, technology, and education; Green infrastructure; and Energy Conservation and Efficiency. It is my hope that the 4th INCRID 2022 will be able to achieve its objective of creating an international forum for researchers, students, industries, and governments to communicate their research results, to share and exchange ideas on the fundamentals and application of environmental, sustainability issues, and community development.

By bringing up this theme, the Department of Environmental Engineering and the INCRID 2022 Committee want to support the efforts of the World to achieve the goal of emission reduction and Net Zero Emission (Carbon neutrality). Furthermore, this activity is expected to support efforts to implement the concept of the circular economy.

Last but not least, my deepest gratitude goes to the Advisory Board, Organizing Committee, International Scientific Committee, institutions, companies, and volunteers who have directly and indirectly supported the success of this conference. Although we try our best to be professional, on behalf of the committee, we request you to accept our sincere apologies for any inconvenience.

Dr. Yustina Metanoia Pusparizkita, S.T., M.T. Chairman of the 4th INCRID 2022

NAME OF THE EVENT

The 4th International Conference on Environment, Sustainability Issues and Community Development 2022 (4th INCRID 2022)

THEME

"Supporting the Realization of Zero Carbon Environment by Implementing Circular

Economy."

The topics of the conference are as follows.

A. Environment, Health, & Safety

- Environment, health, and safety system
- Environmental modeling and computation
- Risk analysis

B. Environmental Science, Technology, and Education

- Waste management and treatment
- Water and wastewater engineering
- Environmental education

C. Green Infrastructure

- Life cycle assessment
- Green building and technology option

D. Energy Conservation and Efficiency

- Clean and renewable energy
- Climate change and global warming

OBJECTIVES OF THE EVENT

The objections of INCRID 2022 are as follows:

- To create an international forum for researchers, students, industries, and governments to communicate their research results on the fundamentals and application of environment, sustainability issues, and community development.
- To share and exchange ideas, thoughts, and discussions on all aspects of the environment, sustainability issues, and community development.
- Facilitate the formation of networks among participants to enhance the quality and benefits of research and development.

PARTICIPANTS

This international conference is open to academicians, researchers, students, and professionals worldwide.

SPEAKERS

Keynote Speakers

No	Name	Institution and Country
1	Prof. Ir. Tjandra Setiadi, M.Eng., Ph.D	Institut Teknologi Bandung, Indonesia
2	Prof. Sudharto P. Hadi, MES, Ph.D	Universitas Diponegoro, Indonesia
3	Prof. Dr. Soraya Heuss-Aßbichler	Ludwig-Maximilians-Universität München, Germany
4	Prof. Pau Loke Show	University of Nottingham, Malaysia
5	Dr. Ramaraj Boopathy	Nicholls State University, USA
6	Dr. Premakumara Jagath	Institute for Global Environmental Strategies, Japan

SCHEDULE

1st Round Submission

Deadline for Abstract Submission	7 June 2022
Notification of Abstract Submission	9 June 2022
Deadline for Full Paper Submission	23 June 2022
Review Result	1 July 2022
Revised Paper Submission	9 July 2022
Deadline for Registration and Payment	23 June 2022

doi:10.1088/1755-1315/1098/1/011001

2nd Round Submission

Deadline for Abstract Submission	10 July 2022
Notification of Abstract Submission	12 July 2022
Deadline for Full-Paper Submission	26 July 2022
Review Result	2 August 2022
Revised Paper Submission	10 August 2022
Deadline for Registration and Payment	26 July 2022

Presentation File Submission

(28th August 2022)

Conference Day

(1st September 2022)

VENUE

Online and 5th floor Faculty of Engineering Universitas Diponegoro Jl. Prof. H. Soedarto, S.H., Semarang, Indonesia

ADVISORY BOARD

- 1. Rector of Diponegoro University
- 2. Dean of Engineering Faculty, Diponegoro University
- 3. Head of Research and Community Service (LPPM), Diponegoro University

STEERING COMMITTEE

- 1. Prof. Dr. rer. nat. Heru Susanto, M.M., M.T. (Diponegoro University, Indonesia)
- 2. Prof. Ir. M Agung Wibowo, MM, M.Sc., Ph.D (Universitas Diponegoro, Indonesia)
- 3. Prof. Ir. Syafrudin, CES., M.T. (Universitas Diponegoro, Indonesia)
- 4. M. Arief Budihardjo, S.T., M. Eng.Sc., Ph.D. (Universitas Diponegoro, Indonesia)
- 5. Dr. Badrus Zaman, S.T., M.T. (Universitas Diponegoro, Indonesia)



Steering Commitee

Scientific Commitee

- Prof. Lam Khee Poh (National University Singapore, Singapore)
- Prof. MNV Prasad (University of Hyderabad, India)
- Prof. Mohd. Hamdan Ahmad (Universiti Teknologi Malaysia, Malaysia)
- Dr. Sunil Herat (Griffith University, Australia)
- Prof. Eddy Saputra (Universitas Riau, Indonesia)
- Dr. Sudarmanto Budi Nugroho (Institute for Global Environment Strategies, Japan)
- Dr. Ing. Sudarno, S.T., M.Sc. (Universitas Diponegoro, Indonesia)
- Dr. Budi Prasetyo Samadikun, S.T., M.Si. (Universitas Diponegoro, Indonesia)
- Dr. Ir. Anik Sarminingsih, M.T. (Universitas Diponegoro, Indonesia)

1098 (2022) 011001

ORGANIZING COMMITTEE

- 1. Dr. Ing. Sudarno, S.T., M.Sc (Head of Departement)
- 2. Dr. Yustina Metanoia Pusparizkita, S.T., M.T. (Chairman)
- 2. Dr. Ir. Haryono Setiyo Huboyo, S.T., M.T., IPM. (Vice Chairman)
- 3. Ir. Nurandani Hardyanti, S.T., M.T., IPM (Secretary)
- 4. Ir. Pertiwi Andarani, S.T., M.T., M.Eng., Ph.D., IPP (Publication and Indexing)

Table of contents

Volume 1098

2022

◆ Previous issue Next issue ▶

The 4th International Conference on Environment, Sustainability Issues, and Community Development (INCRID) 01/09/2022 - 01/09/2022 Semarang, Indonesia

Accepted papers received: 27 September 2022 Published online: 16 November 2022

Open all abstracts

Preface			
OPEN ACCESS Preface			011001
+ Open abstract	View article	🔁 PDF	
OPEN ACCESS Deer Review Statement			011002
+ Open abstract	View article	🔁 PDF	

Environment, Health and Safety

OPEN ACCESS Environmental management system: The internal and external impact of ISO 14001 implementation on the manufacturing companies					
				A K Widiatami, L K Pitaloka and A Nurkhin	
+ Open abstract Image: Second s					
OPEN ACCESS	012002				
Good Environmental Governance Model in Domestic Waste Management in Batang Arau, West Sumatera					
A Frinaldi, B Saputra, A Mubarak, Jumiati, I Renaldi and H Humaida					
+ Open abstract Image: Second s					
OPEN ACCESS	012003				
Assessment Of Health Service Facility Ash Waste Based On Policy (Case Study Of This site uses cookies. By continuing to use this site you agree to our use of cookies. To find out m Moewardi Hospital Surakarta), see our privacy and Cokies policy.	ore,				

✤ Open abstract	View article	🔁 PDF
-----------------	--------------	-------

OPEN ACCESS			012011
Environmental in Natural Gas Plan	npact assessment A t Case Study	pproach to Dynamic Safety Evaluation : A Liquefied	012011
Abderraouf Bouafia	a, Mohammed Bougof	fa, Bilal Zeroauli, Rabeh Kharzi, Ammar Chakhrit, Amin Baziz	Ζ,
Salah Aberkane, M	ohamed Salah Medjra	m and Ahmed Mebarki	
+ Open abstract	View article	🔁 PDF	
OPEN ACCESS			012012
Review of Seepa Simulation and C	ge Behaviour on Co Chemical Aspect	oncrete Facing Rockfill Dam Based on FEM	
G Pamungkas, T T	Putranto and Suharyan	nto	
+ Open abstract	View article	🔁 PDF	
OPEN ACCESS Analysis of Wate Destruction: Pers	er Quality Change in spectives on Science	n Tourist Attractions to Reduce Ecological e and Environmental Theology	012013
Zainul Abas, Dita P	Purwinda Anggrella, Fa	athurrohman Husen and Purwono Purwono	
+ Open abstract	View article	🔁 PDF	
OPEN ACCESS Review of the Ci Applications in I	rcular Economy of ndonesia	Plastic Waste in Various Countries and Potential	012014
Z Murti, Dharmawa	an, Siswanto, D Soedj	ati, A Barkah and P Rahardjo	
+ Open abstract	View article	🔁 PDF	
OPEN ACCESS Dynamic Availab System Case Stu	pility Assessment U dy	sing Dynamic Evidential Network: Water Deluge	012015
Mohammed Bougo	fa, Abderraouf Bouafi	a, Ammar Chakhrit, I H M Guetarni, Amin Baziz, Salah Aberk	tane,
Bilal Zerouali, Rab	eh Kharzi and Ahmed	Bellaouar	
+ Open abstract	View article	🔁 PDF	
OPEN ACCESS			012016
The impact of dis	sposable mask wast	te pollution in peat soil	
Alvi Eka Mentari, A	Adian Khoironi and H	adiyanto	
	View article	🔁 PDF	
OPEN ACCESS			012017
Stability Evaluat	ion of Bener Dam I	Siversion Tunnel During Construction To find out more,	

MSPUDBrivar Mank Woskikmpoliny T T Putranto

U

OPEN ACCESS Bibliometric Analy	ysis of Thermal Co	omfort and Sleep Quality Research Trends in	012025
Wiwik Budiawan K	azuvo Tsuzuki and H	eru Prastawa	
 Open abstract 	View article	PDF	
OPEN ACCESS Increasing The Eff Powder and Dry E	ficiency of Bone C Banana Peel Mediu	Charcoal in Water Defluoridation Using Eggshell Im (DBPM)	012026
P W Gathere, Sudarn	o and A Sarminingsi	h	
+ Open abstract	View article	🔁 PDF	
OPEN ACCESS Medical waste ma Asimah –Yemen	nagement improve	ement in several private hospitals in Amanat Al-	012027
Adeeb Hayel Zaid, S	ri Sumiyati and Hary	vono Setiyo Huboyo	
	View article	PDF	
 OPEN ACCESS A study of work-c Surya Gunanta Tarig + Open abstract 	ulture changes at p an, Khalid Abdul Ma I View article	Dost Covid-19 pandemic in greater Jakarta Innan and Nur Uddin PDF	012028
Environmental	Science, Techno	logy and Education	
OPEN ACCESS			012029
Study on the analy	vsis of demographi	ic data based on spatial information systems	
A P Wijaya, A L Nug	graha, A Sukmono and	d H S Firdaus	
	View article	🔁 PDF	
OPEN ACCESS Climate Change Is	ssue and Consume	r Behavior in Purchasing Beauty Product	012030
Lola Kurnia Pitaloka	and Anna Kania Wi	diatami	
	View article	PDF	
OPEN ACCESS Quality of surface Daerah Istimewa	water due to sand Yogyakarta Provin	mining activity: a case study from the Progo River, ce, Indonesia	012031

PhisTritenunes geo Zam Buicon Sugars to HSN this rate you S F Saga huand of Nebhritian Toahnd out more, see our Privacy and Cookies policy.

8

N Santi, I Barala ar	nd T T Putranto		
	View article	🔁 PDF	
OPEN ACCESS			012046
A comparison of	rap-tourism method	and multi attribute aggregation in sustainability	
assessment of tou	irist destination		
A A A Putri, R Purv	vaningsih and <mark>S</mark> Hartir	11	
	Tiew article	🔁 PDF	
OPEN ACCESS			012047
Investigation of t	time impact on elect	trocoagulation process to treat ablution wastewater	
Mudofir Mudofir, N	Aoh. Taufik, Ilzamha I	Hadijah Rusdan, Wahyu Dian Silviani and Purwono Purwono	
	View article	🔁 PDF	
OPEN ACCESS			012048
Tracing flow dire Gunungkidul, us	ections of the Pentur ing artificial tracer t	ng Allogenic River in Gunungsewu Karst Area, rest	
A Cahyadi, T N Ad	ji, E Haryono, M Widy	yastuti and R F Agniy	
+ Open abstract	View article	🔁 PDF	
OPEN ACCESS The Effect of All Pindul Cave Und	ogenic Recharge or lerground River, Gu	n Multi-Temporal Water Quality Variations in the nungkidul	012049
N F Tastian, T N A	dji and A Cahyadi		
	View article	🔁 PDF	
OPEN ACCESS Developing a Vis of Rivers in Sem	sual Counting Meth arang City, Indones	od to Quantify Riverine Plastic Litter: A Case Study ia	012050
A Sarminingsih, P A	Andarani and W D Nu	graha	
	Tiew article	PDF	
OPEN ACCESS			012051
Community base	d integrated sustain	able waste management in Lerep tourism village	
Maya Damayanti, V	Wido Prananing Tyas a	nd Luluh Cahya Pangestu Ningtyas	
	View article	🔁 PDF	
OPEN ACCESS			012052
Effect of drying	duration on the wate	er content of durian peel waste for bio pellet	
Yustina M Puspariz	kita, Alif F Hidayatull	ah, Norrisal F Anwar, J Junaidi and S Sudarno	
↓ Open abstract see our Privacy and	les. By continuing to u View article l Cookies policy.	se this site you agree to our use of cookies. To find out more,	8

OPEN ACCESS			012053
Effect of Glass C Stage Solar Still	Cover Thickness and	Inclination Angle on Distillate Efficiency of Single-	
Felicia, Riana Ayu	Kusumadewi, Winarni	and Rositayanti Hadisoebroto	
	View article	PDF	
OPEN ACCESS			012054
Selection of design drinking water tr	gn criteria for the co eatment plant	bagulation and flocculation unit in the cimanggis	
Anggi Tasya Megav	wati Putri, Riana Ayu	Kusumadewi and Winarni	
	View article	🔁 PDF	
OPEN ACCESS			012055
Potential Carbon (MMbNP) Resor	Storage In The For t Selo Central Java	est Area Of Mount Merbabu National Park	
Lia Kusumaningrun	m and Rinoa Salsabila	Izdihar	
+ Open abstract	View article	🔁 PDF	
OPEN ACCESS			012056
Planning for the	3R-based waste pro	cessing site in Aimas District, Sorong Regency	
Hermin Poedjiastoe	eti and Benny Syahput	ra	
+ Open abstract	View article	PDF	
OPEN ACCESS Addition of Loca	1 Microorganisms (MOL) Organic Waste as Compost Bioactivator	012057
S Sumivati, I B Priv	vambada. S A F Zahra	D R Pradhana, R T Haritsa, T Rahman, M F O Hag and A W F	P Harianti
 Open abstract 	View article	PDF	Juni
OPEN ACCESS			012058
Utilization of ma and adsorption ti	gnetic silica as tofu me)	wastewater treatment absorber (influence of mass	
Badrus Zaman, Nur	randani Hardyanti, Pur	wono Purwono and Jane Ivana	
	Tiew article	PDF	
OPEN ACCESS			012059
Solidification/Sta	abilization of waste	containing lead using flyash and bentonite	
T L Simangunsong	, Y Fransiscus, M I Pra	ayitno and S W H Pratama	
	View article	🔁 PDF	
OPEN ACCESS			012060
Emvinoninsentabli see our Privacy and IFS Wahyuningrui	ISCIBSURENAINDINGS (det Cookies policy m, MTAmal, SOktav	SETIMINANES you agree to our use of cookies. To find out more, ilia, A Setyadharma, M Khafid and M Lina	8

A comparison of rap-tourism method and multi attribute aggregation in sustainability assessment of tourist destination

A A A Putri¹, R Purwaningsih² and S Hartini³

^{1,2,3} Department of Industrial Engineering, Diponegoro University, Semarang, 50275, Indonesia

¹aisyaharifna@gmail.com, ²ratna.purwaningsih@ft.undip.ac.id, ³srihartini@lecturer.undip.ac.id

Abstract. The development of the tourism industry causes emergence of positive and negative impacts on tourist destinations. The development of the tourism industry has led the government to implement the concept of sustainable tourism. To assist the implementation of sustainable tourism, it is important to know the sustainability status of tourist destinations. The measuring tools used for calculated sustainability index values and identification of sensitive indicators. The method used must be easy to use and provide accurate results. This study compares between the rap-tourism and the multi attribute aggregation method. The aim is to choose which method better in measuring sustainability status when the objects of measurement are a lot of tourist destinations, better means easy to use and represent indicators condition briefly. The results of the assessment using both methods obtain the same sustainability status but there are differences in the sustainability index value. These two methods also use different approaches in determining sensitive indicators that should be improved to increase the sustainability index of tourist destinations.

1. Introduction

The tourism industry plays an important role in the economic growth of a country [1], [2], [3], 6,1% of Indonesian GDP contributed by tourism sector [4]. The development of the tourism industry leads to positive and negative impacts on the local livelihoods and tourist destinations [5]. Economic growth [6], preservation of the local culture [7], and improvement in quality of life [8] are some positive impacts of tourism industry. However, with the increase in tourism activities, environmental pollution [9], [10] and social conflict also increases [8].

Countries whose economies are heavily influenced by the tourism industry are becoming more concerned about the environmental and socio-cultural impacts caused by the tourism industry [11]. In Indonesia, sustainable tourism has been implemented by the national and local governments involving all tourism stakeholders and tourists [12].

Sustainable development leads not only to prosperity and profit but also to achieve environmental sustainability and social welfare [13]. Therefore, a sustainability assessment is needed to measure the sustainability performance [14]. Sustainability assessment can be performed using a set of indicators which function as a measuring tool for evaluating the impact of tourism on sustainability [15].

Timpsoteingequaditiy	esoBCODtianalysisu	usinhis AigNOg afguesvæsterwæter fangeles. Withinkight more,	•
OPEN ACCESS			012038
+ Open abstract	View article	🔁 PDF	
A Mahmud, N Susil	owati, A Susanti and I	P N Sari	
Does water accou	inting support susta	inable water management? A review	
OPEN ACCESS			012037
+ Open abstract	Tiew article	🔁 PDF	
S Muljaningsih, N k	K Indrawati and D A N	Jur Asrofi	
Economy Concep	ot	of the state bank in implementing the steen	
OPEN ACCESS Waste Manageme	ent Policy: A Study	of Malang Waste Bank in Implementing The Green	012036
+ Open abstract	View article	🔁 PDF	
I Munfarida, W Nila	andita and S W Auvari	ia	
An environmenta Alam Darajat, Ga	l impact assessmen rut-Indonesia	t of geothermal tourism: A case study of Awit Sinar	012035
			01000
	View article	🔁 PDF	
Yoyon Wahyono			
Rifqi Ahmad Baihad	qi, Kencana Ayudya P	rabahandari, Yogi Hariyono, Novita Indah Pratiwi, Heri Sutanto	o and
Application of an review	aerobic and aerobic	c bioreactors in detergent wastewater treatment: A	012034
OPEN ACCESS			012034
+ Open abstract	View article	🔁 PDF	
and Gavriel Enos Be	erlin		
Lia Kusumaningrun	n, Prabang Setyono, N	/uhammad Amin Sunarhadi, Muchammad Sholiqin, Bagus Herr	mawan
Analysis of Diver Resort Canokrino	sity Level and Veg an Mount Merani	etation Structural Composition Post Restoration at National Park	
OPEN ACCESS			012033
	Tiew article	🔁 PDF	
K A Prabahandari, Y	THariyono et al		
Y Wahyono, R Irvia	ndi, N K Lo, M I A R	ahman, F Herdiansyah, B T Haliza, A H Nurauliyaa, R A Baihao	qi,
Producing Fe and	Cu ions and oxide	s in water with electrolysis as artificial liquid waste	
OPEN ACCESS			012032
+ Open abstract	View article	▶ PDF	

_

stel oriderivanteentd Cookies policy.

New risk assessment and prioritization failure modes based approach in a gas turbine system

A Chakhrit^{1*}, M Bougofa², I H M Guetarni¹, N Nehal¹, A Bouafia³, F Z Ghazli¹, R Kharzi², and M Chennoufi¹

¹Institut de Maintenance et de Sécurité Industrielle, Laboratoire de l'Ingénierie de la Sécurité Industrielle et du Développement Durable, Université Mohamed Ben Ahmed Oran 2, Sécurité Industrielle et Environnement, Oran, Algérie

²Laboratory of Transportation Engineering and Environment, Frères Mentouri Constantine 1 University, BP 325 Constantine, 25017, Algeria.

³Chemical Engineering and Environment Laboratory, Skikda University, Skikda, 21000, Algeria

*chakhritammar@gmail.com

Abstract. The dependability occupies a strong place in the performance achievement of the system. It describes the mechanisms that lead to failures of systems. Failure mode and effects, analysis (FMEA) is a classical safety technique widely used in several safety critical industries. This method uses the risk priority number (RPN) to assess the criticality value and prioritize failure modes. However, it suffers from some drawbacks regarding the situation where the in-formation provided is ambiguous or uncertain. Thus, in this work, a fuzzy criticality assessment based approach is carried out to evaluate the failure modes of the relevant system and gives an alternate prioritizing to that obtained by the conventional method. In addition, a novel hybrid approach is proposed that combines the grey relational approach (GRA) and fuzzy analytic hierarchy process. This approach offers a new ranking of failure modes by solving the shortcoming concerning the lack of established rules of inference system which necessitate a lot of experience and shows the weightage or importance to the three parameters severity, detection, and frequency, which are considered to have equal importance in the traditional method. A real case study from a gas turbine system provides encouraging results regarding the risk evaluation and prioritizing failures mode with handling different forms of ambiguity, uncertainty, and divergent judgments of experts.

1. Introduction

Failure mode and effect analysis (FMEA) is vastly employed as an analytical methodology for recognizing, ranking, and reducing different failures modes[1]. For such failure mode, three criticality factors: severity (S), non-detection (ND), and frequency (F) are assessed, and a risk priority number (RPN) is computed by multiplying these factors to evaluate the risk value[2] [3, 4].

Moreover, it demonstrates in different of applications that the FMEA still has many flaws. First, different integration of severity, detection, and frequency factors can provide an equal RPN value. While, the risk assessment for the different criticality can be wildly different. Second, in the

The effectiveness of EM4 and Local Micro-organisms (LOM) **Activators in Organic Waste Processing in Brikama Market** West Coast Region, The Gambia

Babucarr Jassey^{1,2*}, Syafrudin¹, Badrus Zaman¹, Kemo Ceesay², Ibrahim Touray², Juma Ngum², and Habibi Prakoso¹

¹ Department of Environmental Engineering, Diponegoro University, Semarang Indonesia

² Public Health Directorate, Department of Public Health Services, Quadrangle, Banjul, Ministry of Health, The Gambia.

*baxjas@gmail.com, baxjas@alumni.undip.ac.id

Abstract. Compost is the result of decaying process of organic materials due to the interaction between decomposing microorganisms found within. Compost is a type of organic fertilizer that originates from decomposed organic materials. Observations at Brikama Market indicated 20 vegetable vendors with at least 5 pieces of vegetables decaying, market sales decline by approximately 5 kg for every transaction. This study aims to determine the effectiveness of organic waste treatment using EM4 and LOM. This research is purely experimental, uses Posttest Group design and Independent Sample T-Test. This research was conducted in groups, with different forms of waste-treatments which included the use of EM4 and local microorganism activators and observed as it decays. The results obtained differences in the average processing of organic waste using EM4 and LOM activators. The average temperature of EM4 activator 29.89°C while LOM 29.97°C. The average humidity 48.67 for EM4 activator while LOM 49.64 and the average pH of EM4 activator 5.96 while LOM 5.43. The research revealed significant changes in EM4 and LOM activators seen from the measurement of temperature, humidity and pH. It is recommended to the community to participate in managing waste, especially organic waste by making compost using EM4 and LOM activators.

1. Introduction

Waste according to Jassey et al., is something that is not used, not intended to be used, disliked, intended to be thrown away or something that is thrown away that comes from human activities and does not happen by itself [1]. The research conducted by Wang et al. [2] on renewable hydrogen production from municipal solid waste. The results of the study concluded that composting of various types organic waste has shown differently the effectiveness of the composting process. Composting is purely conducted on organic waste matter. It has been proven significantly reduce the volume inside country and provide solutions for agriculture as a substitute for fertilizer chemical fertilizers. This also has a similar findings with that of [3].

Other studies conducted by Kohlstock and Kraft [4] in the European Union found that organic waste that was converted into compost could be very beneficial for farmers. The process of recycling organic waste provides economic benefits for the community to mobilize unused waste.

Data from the environment unit of Brikama Area Council states that the estimated comparison data from 2017-2021, lagging waste produced in various places, namely Brikama Town 314,225.00m³/day,

Bibliometric Analysis of Thermal Comfort and Sleep Quality Research Trends in Indonesia

Wiwik Budiawan¹, Kazuvo Tsuzuki², Heru Prastawa³

¹Department of Industrial Engineering, Diponegoro University, Semarang, 50275, Indonesia

²Department of Architecture, Faculty of Environmental & Urban Engineering, Kansai University, Suita 564-8680, Japan

³Department of Industrial Engineering, Diponegoro University, Semarang, 50275, Indonesia

¹wiwikbudiawan@ft.undip.ac.id

Abstract. Using a bibliometric analysis of the publication output associated with research on thermal comfort and sleep quality in Indonesia during the ten-year period 2012–2022, the purpose of this study was to describe current trends and future research areas. The database Scopus was queried for information covering the years 2012 to 2022. We analyzed selected documents containing "thermal comfort," "Indonesia," and "sleep quality" as part of the title, abstract, or key words and reported the following parameters: publication output trends, cooccurrence, author institution, author key words, and index key words. We utilized Visualization of Similarities (VOS) viewer to analyze the files of a bibliographic database in which five co-occurrences occurred. Air conditioning, ventilation, and the tropics accounted for three main cluster of thermal comfort in Indonesia. Meanwhile, in the sleep quality, the main cluster consisted of human, adult, and major clinical study. This study provides a bibliometric analysis demonstrating that, over the past 26 years, the annual number of publications pertaining to sleep quality in Indonesia has increased at a significantly faster rate than literature on thermal comfort. The latest keywords (trend) of thermal comfort are energy efficiency, temperature effect, and field measurement. In the sleep quality topic, the latest keywords are pandemic, controlled study, and Pittsburgh Sleep Quality Index (PSQI).

1. Introduction

Sleep is primarily a behavior. The identification and classification of sleep was based on changes in posture, continued behavior throughout sleep, and an enhanced arousal threshold [1]. A third of the day is devoted to sleep [2], which is an essential daily activity for maintaining good health [3]. A quality night's sleep allows the body to recuperate and prepares them for the day ahead. Sleep is necessary for relieving physical and psychological exhaustion [4], enhancing work performance, and preserving wellness at both school and work [5]. During a typical sleep time, a person has four to six sleep cycles [6]. A newborn requires 12–18 hours of sleep. Between the ages of 5 and 10, children have a 10-hour sleep demand. As teenagers need around 8 and 9 hours while adults need around 7 and 8 hours, the