C-14

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : PROSIDING

Judul karya ilmiah (paper) : Development of Ecotourism-Based Strategy: A Case Study of Tinjomoyo Tourism Forest
Jumlah Penulis : 4 orang (*Novie* Susanto, *Denny* Nurkertamanda, **Heru Prastawa**, *Aditya* R)
Status Pengus : Penulis ke-3
Identitas Makalah : a. Judul Prosiding : *ICENIS 2020*
b. ISBN/ISSN : 1551-7616 (Online)
c. Tahun Terbit, Tempat Pelaksanaan : August 7-8, 2019
d. Penerbit/organiser : E3S Web of Conferences **125**
e. Alamat repository PT/web prosiding:
https://doi.org/10.1051/e3sconf/201912522003
PROSIDING : https:// https://www.e3s-conferences.org/articles/e3sconf/abs/2020/62/contents/contents.html
ARTIKEL : https://doi.org/10.1051/e3sconf/202020203004
f. Terindeks di (jika ada) : SCOPUS
g. Turnitin Similarity : 2 %

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☐ *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional (30)	Nasional ( )	
a. Kelengkapan unsur isi prosiding (10%)	3		2,5
b. Ruang lingkup dan kedalaman pembahasan (30%)	9		8,2
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9		8,3
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9		8,4
Total = (100%)	30		27,4
Nilai Pengusul = (40/3%) * 27,4 =3,65			

Catatan Penilaian Paper oleh Reviewer :

1. Penulisan artikel sesuai dengan Author Guidelines (Title, Abstract, Introduction, Materials and Methods, Result and Discussion, Conclusion, Acknowledgement, References). Substansi artikel sesuai bidang ilmu pengusull/penulis pertama (Teknik Industri). Terdapat benang merah dalam struktur penulisannya.
2. Substansi artikel squat dengan ruang lingkup Seminar (International Conference on Energy, Environement. Epidemiologi and Information System, ECENIS). Artikel ini membahas tentang membahas penerapan HTA dan
Metode SHERPA untuk menilai salah satu situs jual beli online yang saat ini digunakan oleh masyarakat Indonesia,
yaitu B.com. Pembahasan dilakukan secara mendalam (6 dari 18 buah rujukannya dilibatkan dalam proses pembahasan).
3. Data-data hasil penelitian menunjukkan adanya kebaruan informasi. Kebaruan penelitian ini desain produk mempengaruhi dampak produk terhadap lingkungan, di mana desain modular memiliki dampak yang lebih kecil. Sebagian besar rujukan menunjukkan kemutakhiran. Sebagia besar rujukan merupakan jurnal.
4. Prosiding diterbitkan oleh penerbit prosiding Internasional, yaitu E3S Web of Conferences **125** Scopus, Inspec, CAS, ADS, SJR= 0,18 e-ISSN: 2267-1242

Semarang,
Reviewer 2

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NIP. 197706252003121001
Unit kerja : Dept. Teknik Industri UNS

C-14

LEMBAR
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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional 30	Nasional	
a. Kelengkapan unsur isi prosiding (10%)	3		2,5
b. Ruang lingkup dan kedalaman pembahasan (30%)	9		8,2
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9		8,4
d. Kelengkapan unsur dan kualitas terbitan/prosiding(30%)	9		8
Total = (100%)	30		27,1
Nilai Pengusul = (40/3) * 27,1 = 3,61			

Catatan Penilaian Paper oleh Reviewer :

1. **Kesesuaian dan kelengkapan unsur isi paper**: Penulisan artikel sesuai dengan Author Guidelines (Title, Abstract, Introduction, Materials and Methods, Result and Discussion, Conclusion, Acknowledgement, References). Substansi artikel sesuai bidang ilmu pengusull/penulis pertama (Teknik Industri). Terdapat benang merah dalam struktur penulisannya.
2. **Ruang lingkup dan kedalaman pembahasan**: Substansi artikel squat dengan ruang lingkup Seminar (International Conference on Energy, Environement. Epidemiologi and Information System, ECENIS). Artikel ini membahas tentang penerapan HTA dan Metode SHERPA untuk menilai salah satu situs jual beli online yang saat ini digunakan oleh masyarakat Indonesia, yaitu B.com. Pembahasan dilakukan secara mendalam (6 dari 18 buah rujukannya dilibatkan dalam proses pembahasan).
3. **Kecukupan dan kemutakhiran data/informasi dan metodologi**: Data-data hasil penelitian menunjukkan adanya kebaruan informasi. Kebaruan penelitian ini desain produk mempengaruhi dampak produk terhadap lingkungan, di mana desain modular memiliki dampak yang lebih kecil. Sebagian besar rujukan menunjukkan kemutakhiran (16 rujukan benisia kurang dari 10 tahun). Dari 18 rujukan, 15 diantaranya berupa jurnal.
4. **Kelengkapan unsur dan kualitas terbitan**: Prosiding diterbitkan oleh penerbit prosiding Internasional, yaitu E3S Web of Conferences **125** Scopus, Inspec, CAS, ADS, SJR= 0,18 e-ISSN: 2267-1242

Semarang,
Reviewer 1

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Unit kerja : Dept. Teknik Industri UNDIP

C-14

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : JURNAL ILMIAH

Judul karya ilmiah (paper) : Development of Ecotourism-Based Strategy: A Case Study of Tinjomoyo Tourism Forest
Jumlah Penulis : 4 orang (*Novie* Susanto, *Denny* Nurkertamanda, ***Heru* Prastawa**, *Aditya* R Nugraha)
Status Pengus : Penulis ke-3
Identitas Makalah : a. Judul Prosiding : *ICENIS 2020*
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Kategori Publikasi Makalah : ☐ √ *Prosiding* Forum Ilmiah Internasional
(beri ✓pada kategori yang tepat) ☐ *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer 1	Reviewer 2	
a. Kelengkapan unsur isi jurnal (10%)	2,5	2,5	2,5
b. Ruang lingkup dan kedalaman pembahasan (30%)	8,2	8,2	8,2
c. Kecukupan dan kemutahiran data/ informasi dan metodologi (30%)	8,4	8,3	8,35
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	8	8,4	8,2
Total = (100%)	27,1	27,4	27,25
Nilai Pengusul (Penulis ketiga)	3,61	3,65	**3,63**

Semarang,

Reviewer 1

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Development of Ecotourism-Based Strategy: A Case Study of Tinjomoyo Tourism Forest

Susanto N. , Nurkertamanda D., Prastawa H., R Nugraha A.

Save all to author list

Industrial Engineering Department, Faculty of Engineering, Diponegoro University, Semarang, Indonesia

Abstract

Tinjomoyo Tourism Forest Area is an object or tourist destination with the concept of ecotourism-based nature conservation in the city of Semarang, Central Java Province. The number of visitors, based on the tourist destination in the last three years (2015-2017) shows that the number of tourists visiting the Tinjomoyo Tourism Forest Area are 5,949 tourists in 2015, to 13,755 tourists in 2017. The area is inversely proportional to tourism in Semarang, including the park, Wildlife, Lele Park and Kreo Goa. To improve the visitor attention, it needs a development of potential strategy Ecotourism-based tourism

objects using strengths, weaknesses, opportunities, threats (SWOT) analysis and Quantitative Strategic Planning Matrix (QSPM) analysis. This study recommends development strategies that are analysed through data processing from internal and external factors and alternative strategies that become priority strategies that can be implemented. The results of the study found 23 indicators of strength indicators and 12 weakness indicators. While for external factors there are 12 indicators that appear with details of 6 opportunity indicators and 6 threat indicators. From the indicators found, a data processing is performed using the QSPM method that produces priority strategies. © The Authors, published by EDP Sciences, 2020.

Indexed keywords

SciVal Topics

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Santika Hotel Premier

Pandanaran No.116-120 Semarang 50134

Central Java – Indonesia

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5th International Conference on Energy, Environment, Epidemiology and Information System (5th ICENIS) 2020

Organized by

School of Postgraduate Studies
Universitas Diponegoro

12-13th August 2020

Preface

The 5th International Conference on Energy, Environment, Epidemiology and Information System 2020 (5th ICEN IS 2020) has been organized by the School of Postgradute Studies, Universitas Diponegoro, Indonesia with the support by World Class University (WCU) Program. The conference was held on Auguat 12th-13th 2020 in Semarang, Indonesia by using Online Conference System. The aim of the conference was to distribute research outcomes on multidisciplinary research area on energy, environment, health and epidemiology and information system.

The 5th ICENIS 2020 have presented 10(ten) international honorable keynote speakers from representative institutions and continents: i) Prof. Elco van Burg, Vrij University Amsterdam, The Netherlands; ii) Prof Peter Gell, Federation University, Australia., iii) Prof. Jerry Miller, Western Caroline University, USA; iv) Prof. Shabbir Gheewalla, Joint Graduate School of Energy and Environment (JGSEE), Kingmokut University, Thailand; v) Assoc. Prof. Zainul Zakaria, Chemical Engineering Department, UTM Malaysia; (vi) Dr Yurdi Yasmi; Regional representative of IRRI for Southeast Asia, Cambodia; (vii) Dr Nuki Agya Utama, Executive Director of Asean Energy research; (viii) Patrick van Schijndel, TU Delft, The Netherlands, (ix) Barokah Sri Utami, Former President Director of PT Phapros, Indonesia, and (x) Dr Liew Kian heng from Strategics Singapore. Pursuing the international network of researchers and industrial applications, this event also has been attended by overseas colleagues to share their best research works as well as local academia and practitioners. Over 320 representatives from various institutions participated in this event, involving more than 340 abstracts submitted. After a rigorous selection process, the Scientific & Editorial Board of 5th ICENIS 2020 made selection of 300 articles to be published in E3S Web of Conferences, an open-access proceedings in environment, energy and earth sciences, managed by EDP Sciences, and indexed on Scopus, Scimago, Conference Proceedings Citation Index-Science (CPCI-S) of Clarivate Analytics's Web of Science, DOAJ (Directory of Open Access Journals). The Proceedings of 5th ICENIS 2020 consists of selected articles from Kazakhstan, Libya, Netherlands, Thailand, Malaysia. The published papers have passed all necessary improvement requirements in accordance to the Web of Conferences standard, reviewer's comments, SI, similarity tests by Turnitin program.

We would like to express our gratitude to the official committee, scientific & editorial boards, organizing partners. A very special thanks to Universitas Diponegoro for financially supporting this conference especially for financing indexing of proceeding in E3S. Finally, we would like to briefly acknowledge all presenters and attendees for their efforts sharing the beautiful ideas and useful research outcomes to inspire further research and collaborations. Although, this time the conference has been successfully conducted via webinar, but the number of participants showed a great increases and we do hope that this also will be the same for the coming 6th ICENIS 2021.

See you again in the next year conference 5th ICENIS 2021

The chairman

Prof. Hadiyanto

SCIENTIFIC and EDITORIAL BOARD


The School Of Postgraduate Studies,
Diponegoro University
5th
ICENIS
2020
Online
International
Conference
Emphasizing Environment And Human Security Towards Global Sustainable Development Goals (SDGs) 2030
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Energy
Energy management and policy
Energy planning and Education
Energy conservation and efficiency
Energy conversion technology
Renewable energy
Nonrenewable energy / Fossil energy
Culture and Environmental Development in Coastal Community
Environment
Environmental Conservation
Environmental Policy, Planning and Education
Environmental Technology
Environmental Health and Toxicology
Environmental Epidemiology
Pollution Control
Waste Management
Green Infrastructure and Resilience
Epidemiology
Epidemiology related to disease and health event preventionand control
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http://www.icenis.org

The Organizing Committee

This conference has been organized by School of postgraduate studies, Universitas Diponegoro Semarang. The school currently coordinating 6 graduate multidisciplinary programs i.e Master program of environmental science, master program of energy, master program of epidemiology, master program of information system, doctoral program of environmental sciences, and doctorate program of Information system. The total students is currently 350 students among these 6 programs.

The website: https://pasca.undip.ac.id

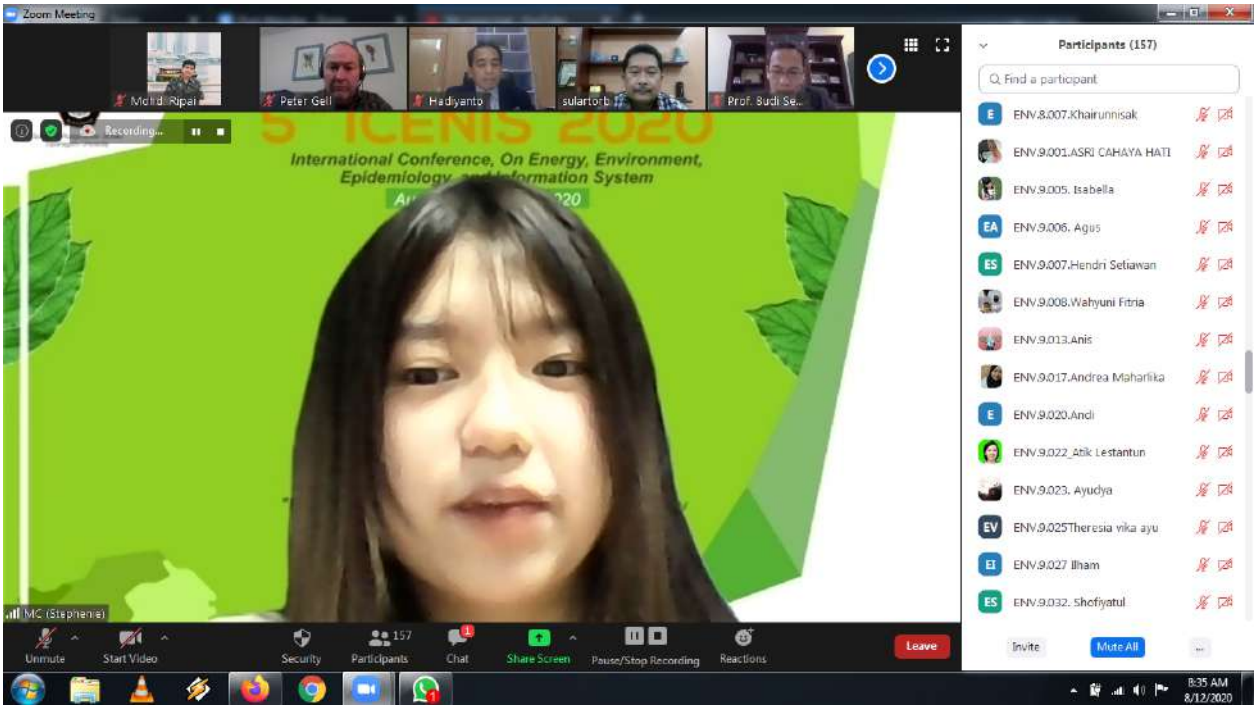
Website of conference: https://icenis.undip.ac.id

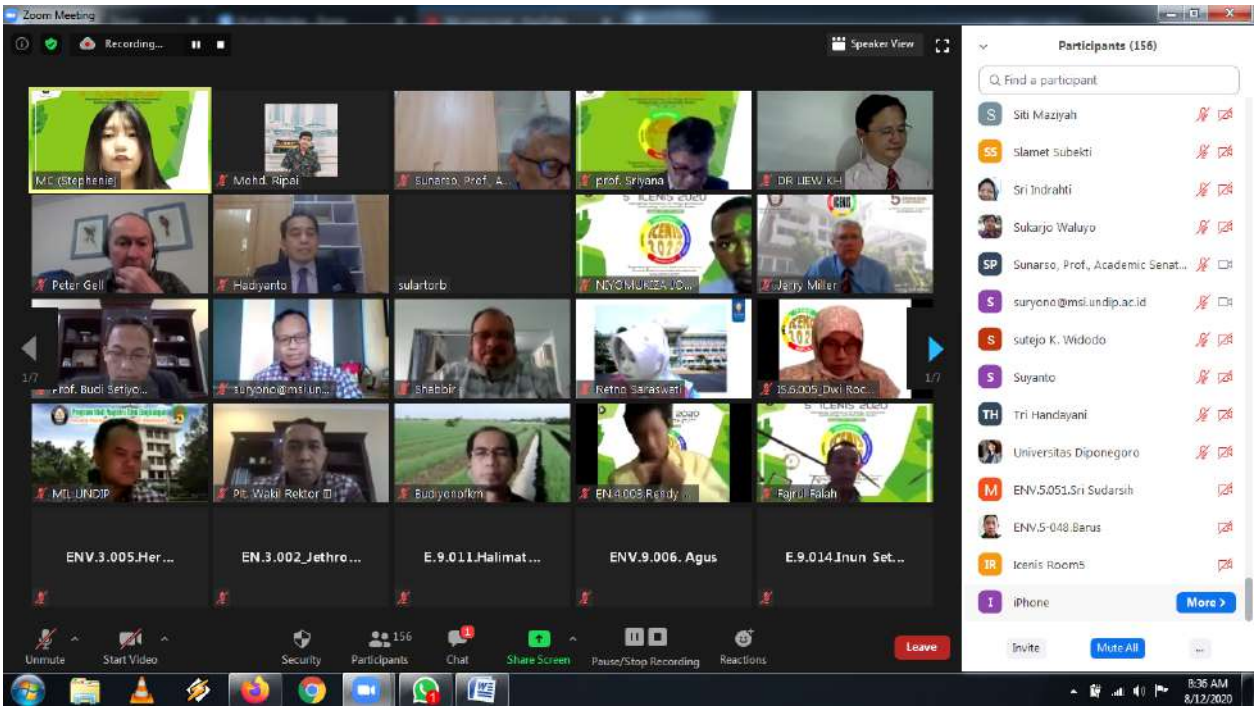
The committee of 5th ICENIS 2020

Chairman	: Prof. Hadiyanto, MSc
Vice chairman	: Dr Thomas Putranto Triadi
Programs	: Dr Fuad Muhammad
Publications	: Dr Budi Warsito
Supporting	: Yunis, Alwi, Doni, Silvia, Fitri Handayani, Eko, Emma, Imma, Hastomo, Hamim, Rohmad, Gito, Joko, Lila

Some pictures from the conference

Opening Ceremony





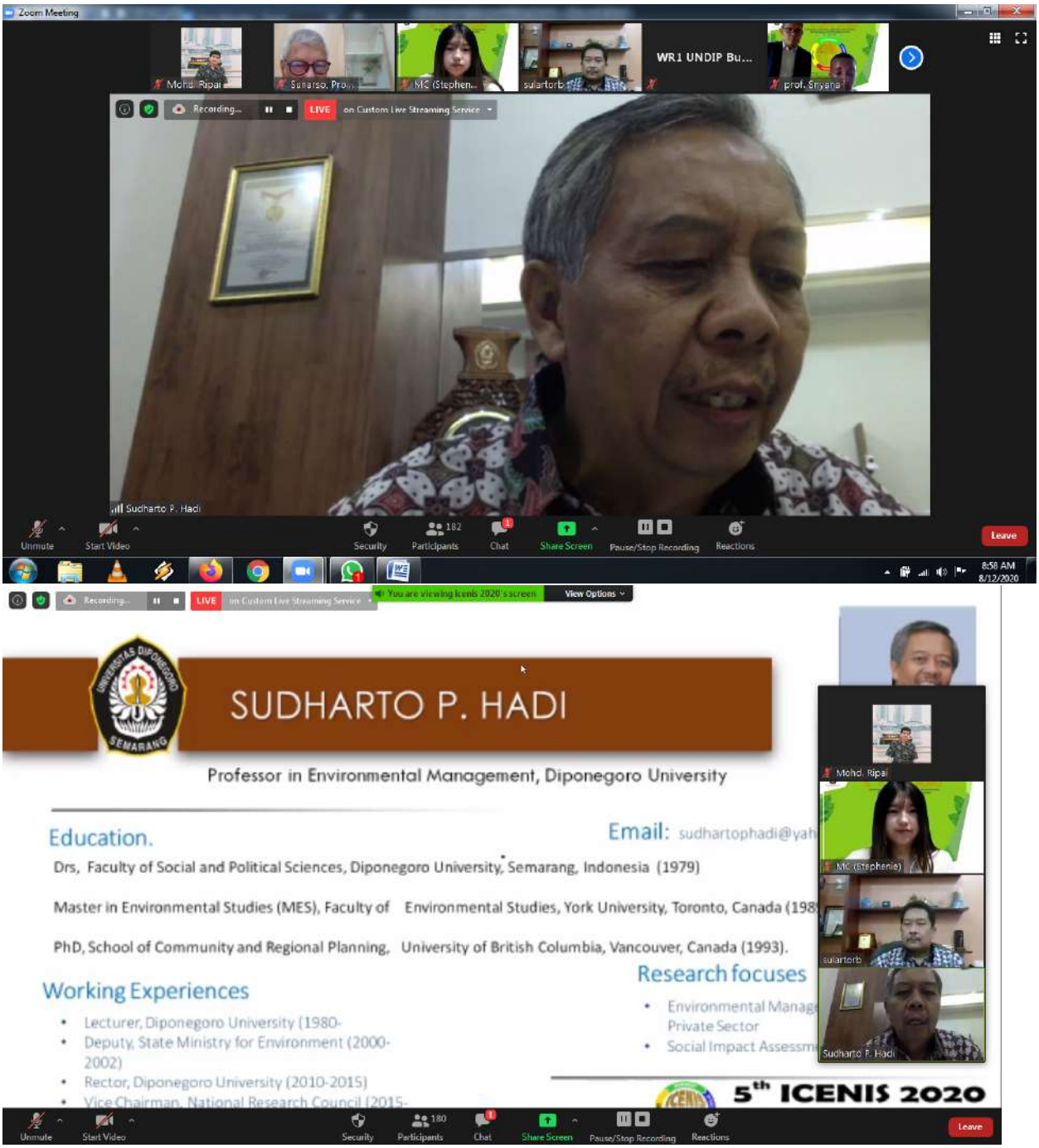
2. The Chairman report

3. The remarks form Dean of School of Postgraduate Studies

4. Opening Remarks by The vice Rector, Prof. Budi Setiyono

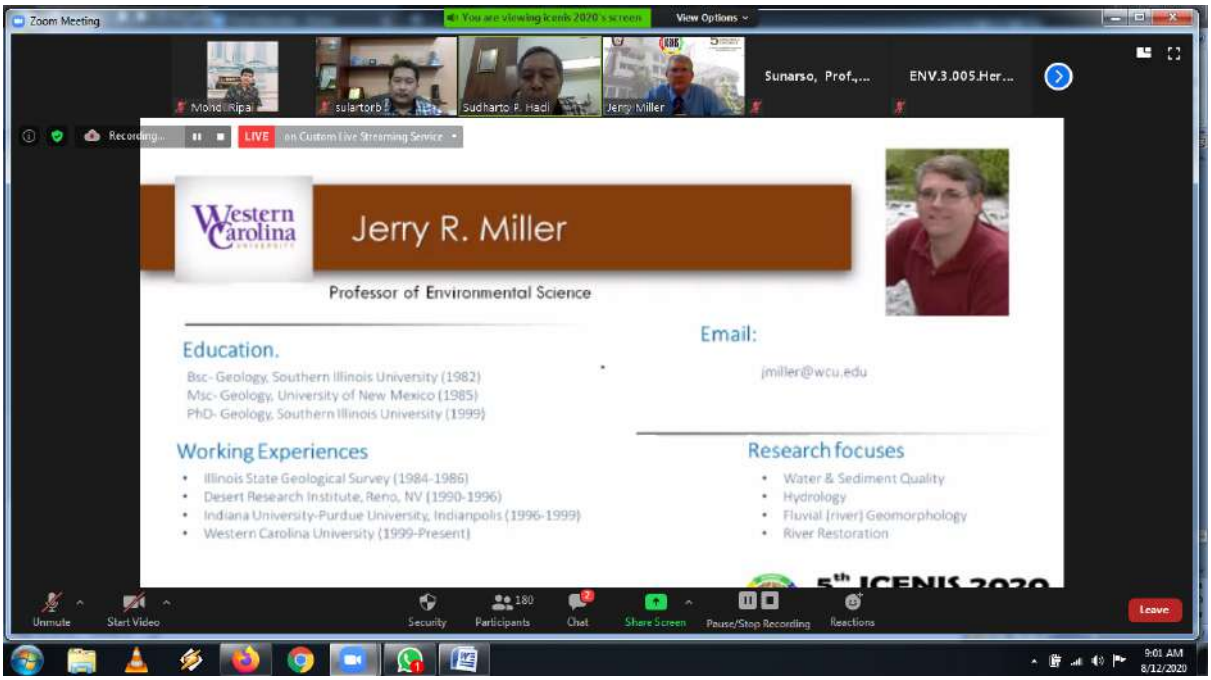
Participants

Keynote speaker Session I (Chaired by Prof. Sudharto P Hadi)



Keynote 1: Prof. Elco

2. Keynote 2 (Prof. Jerry Miller)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Msc- Geology, University of New Mexico (1985)
PhD- Geology, Southern Illinois University (1999)
Working Experiences
Illinois State Geological Survey (1984-1986)
Desert Research Institute, Reno, NV (1990-1996)
Indiana University-Purdue University, Indianpolis (1996-1999)
Western Carolina University (1999-Present)
Research focuses
Water & Sediment Quality
Hydrology
Fluvial (river) Geomorphology
River Restoration
Unmute
Start Video
Security
180
Participants
Chat
Share Screen
Pause/Stop Recording
Reactions
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Sunarso, Prof.,...
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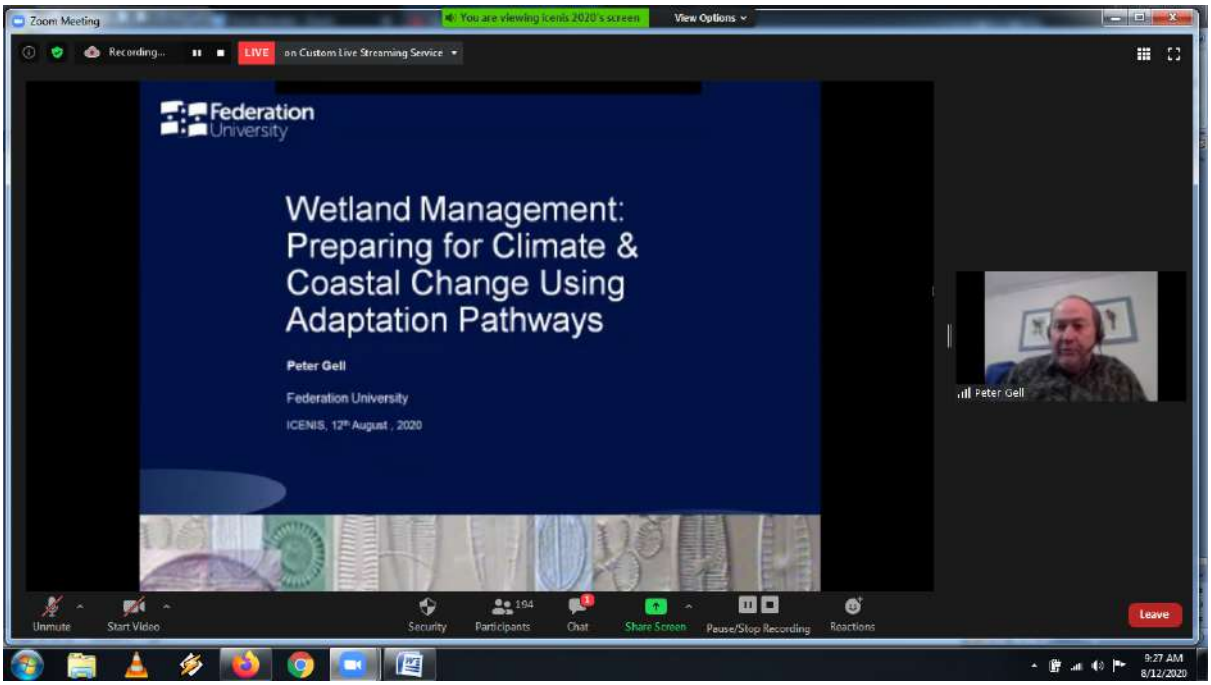
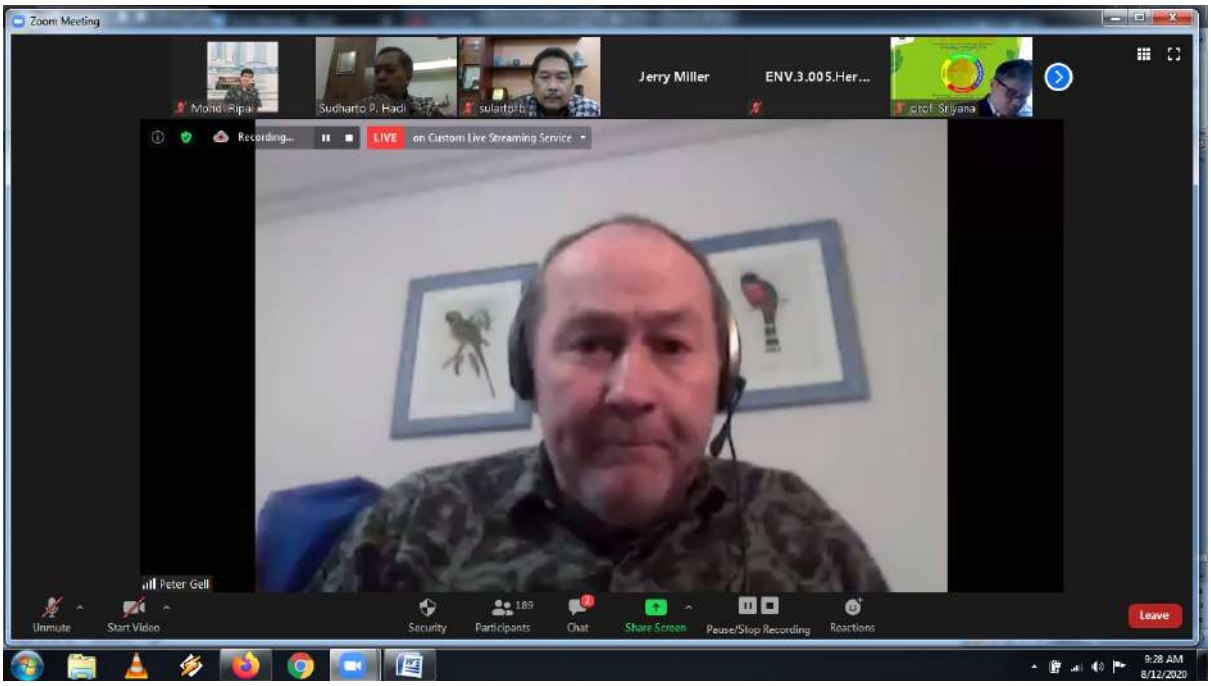
3. Keynote 3 (Prof. Peter Gell)

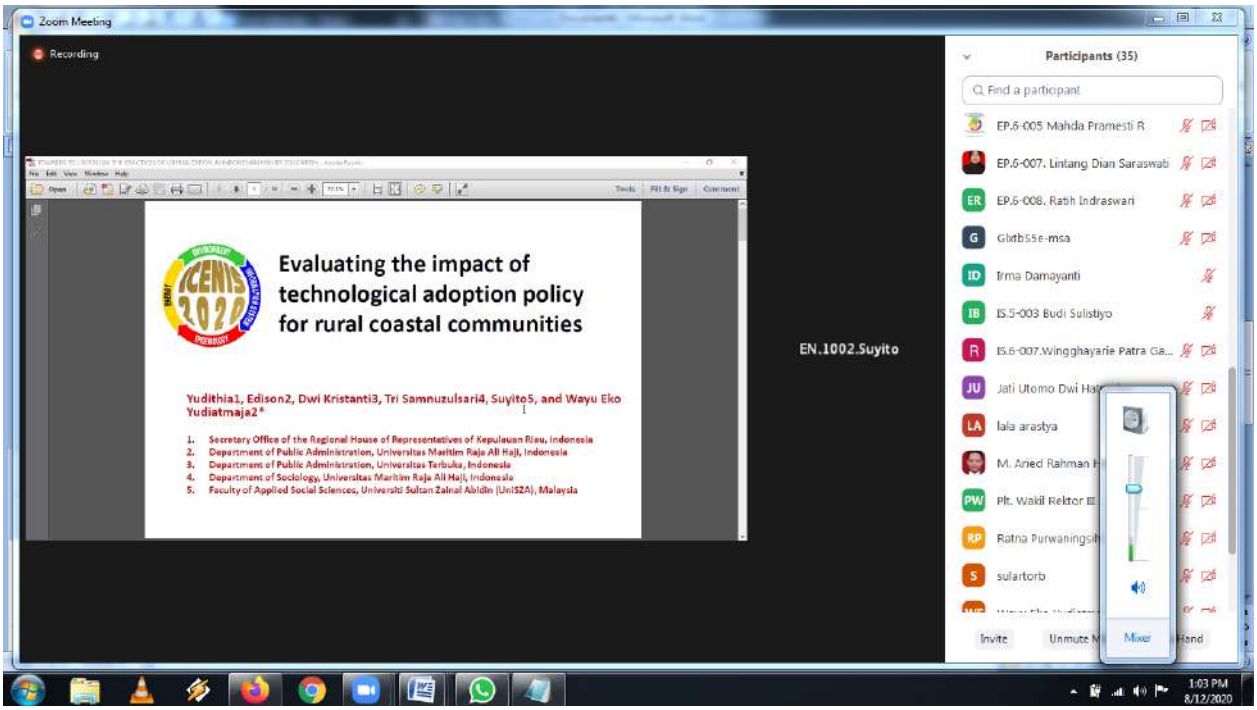




Keynote 5 (Dr Yurdi Yasmi)

Keynote 6(Dr Liew Kian Heng)

Example for Parallel Session
ROOM 1


Zoom Meeting
Recording
Evaluating the impact of technological adoption policy for rural coastal communities
Yudithia1, Edison2, Dwi Kristanti3, Tri Samnuzulsari4, Suyito5, and Wayu Eko Yudiatmaja2*
1. Secretary Office of the Regional House of Representatives of Kepulauan Riau, Indonesia
2. Department of Public Administration, Universitas Maritim Raja Ali Haji, Indonesia
3. Department of Public Administration, Universitas Terbuka, Indonesia
4. Department of Sociology, Universitas Maritim Raja Ali Haji, Indonesia
5. Faculty of Applied Social Sciences, Universiti Sultan Zainal Abidin (UniSZA), Malaysia
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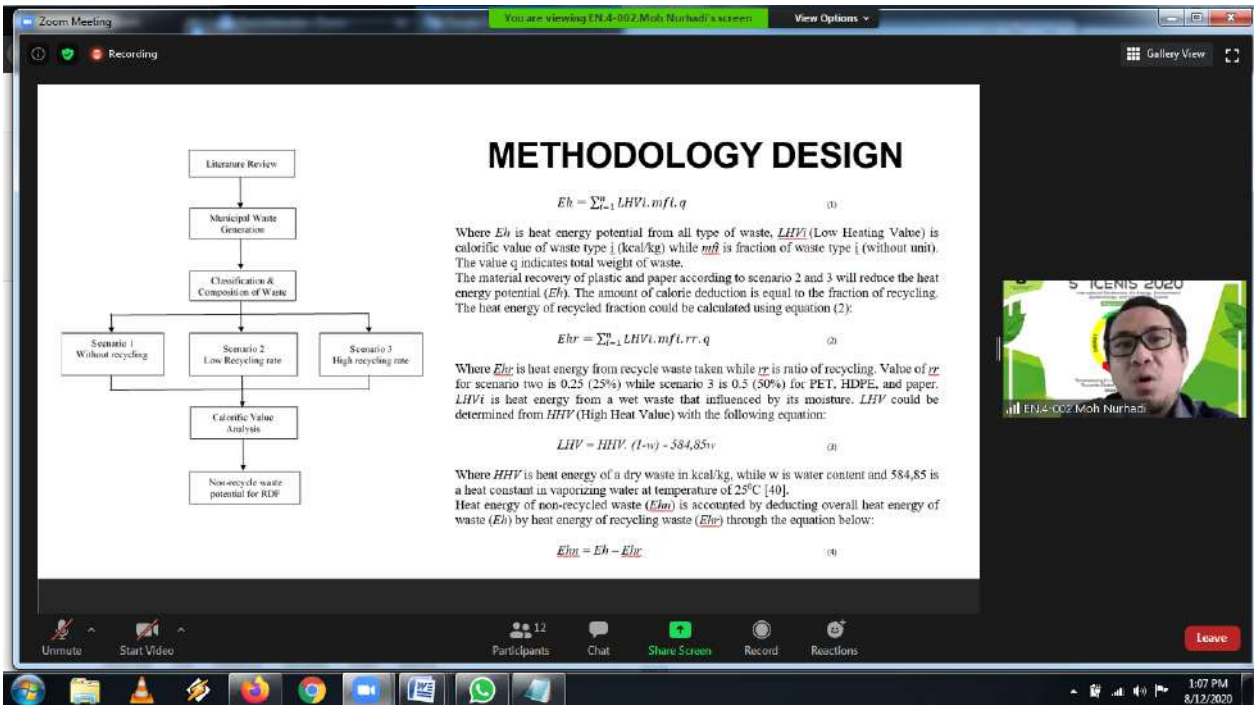
ROOM 2


Zoom Meeting
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METHODOLOGY DESIGN
Literature Review
Municipal Waste Generation
Classification & Composition of Waste
Scenario 1 Without recycling
Scenario 2 Low Recycling rate
Scenario 3 High recycling rate
Calorific Value Analysis
Non-recycle waste potential for RDF
$Eh = \sum_{i=1}^{n} LHVi.mfi.q$ (1)
Where Eh is heat energy potential from all type of waste, LHVi (Low Heating Valve) is calorific value of waste type i (kcal/kg) while mfi is fraction of waste type i (without unit). The value q indicates total weight of waste.
The material recovery of plastic and paper according to scenario 2 and 3 will reduce the heat energy potential (Eh). The amount of calorie deduction is equal to the fraction of recycling. The heat energy of recycled fraction could be calculated using equation (2):
$Ehr = \sum_{i=1}^{n} LHVi.mfi.rr.q$ (2)
Where Ehr is heat energy from recycle waste taken while rr is ratio of recycling. Value of rr for scenario two is 0.25 (25%) while scenario 3 is 0.5 (50%) for PET, HDPE, and paper. LHVi is heat energy from a wet waste that influenced by its moisture. LHV could be determined from HHV (High Heat Value) with the following equation:
$LHV = HHV.\ (1\text{-}w) - 584{,}85w$ (3)
Where HHV is heat energy of a dry waste in kcal/kg, while w is water content and 584,85 is a heat constant in vaporizing water at temperature of 25°C [40].
Heat energy of non-recycled waste (Ehn) is accounted by deducting overall heat energy of waste (Eh) by heat energy of recycling waste (Ehr) through the equation below:
$Ehn = Eh - Ehr$ (4)
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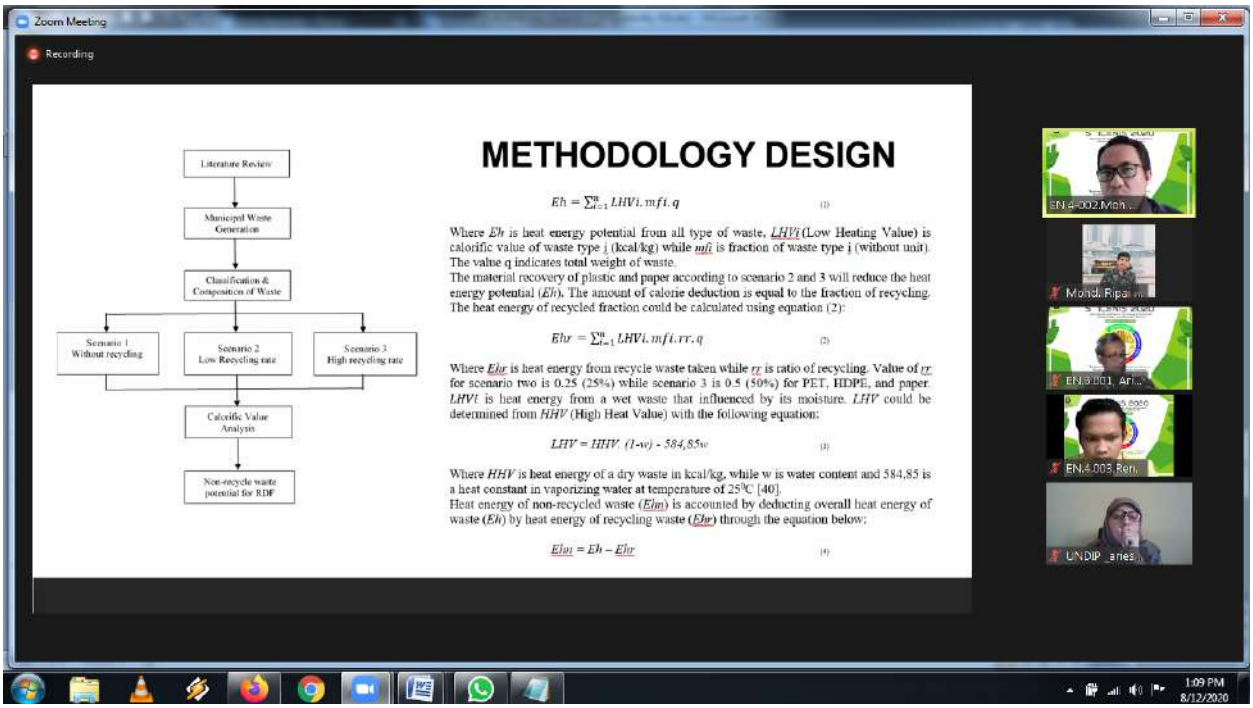
Zoom Meeting
Recording
Literature Review
Municipal Waste Generation
Classification & Composition of Waste
Scenario 1 Without recycling
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Where Ehr is heat energy from recycle waste taken while rr is ratio of recycling. Value of rr for scenario two is 0.25 (25%) while scenario 3 is 0.5 (50%) for PET, HDPE, and paper. LHVi is heat energy from a wet waste that influenced by its moisture. LHV could be determined from HHV (High Heat Value) with the following equation:
$LHV = HHV.(1-w) - 584,85w$ (3)
Where HHV is heat energy of a dry waste in kcal/kg, while w is water content and 584,85 is a heat constant in vaporizing water at temperature of 25°C [40].
Heat energy of non-recycled waste (Elnr) is accounted by deducting overall heat energy of waste (Eh) by heat energy of recycling waste (Ehr) through the equation below:
$Elnr = Eh - Ehr$ (4)
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EN.5.001. Ari...
EN.4.003.Ren...
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ROOM 3


Zoom Meeting
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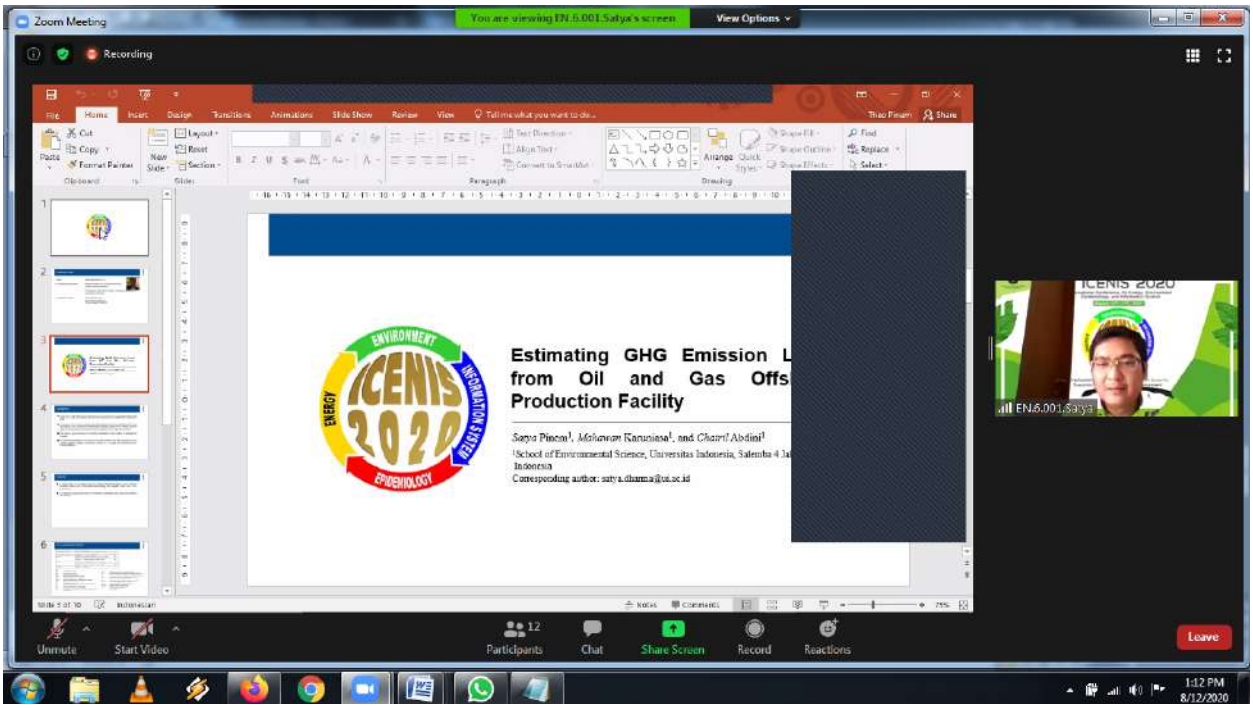
Zoom Meeting
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Recording
Estimating GHG Emission L
from Oil and Gas Offs
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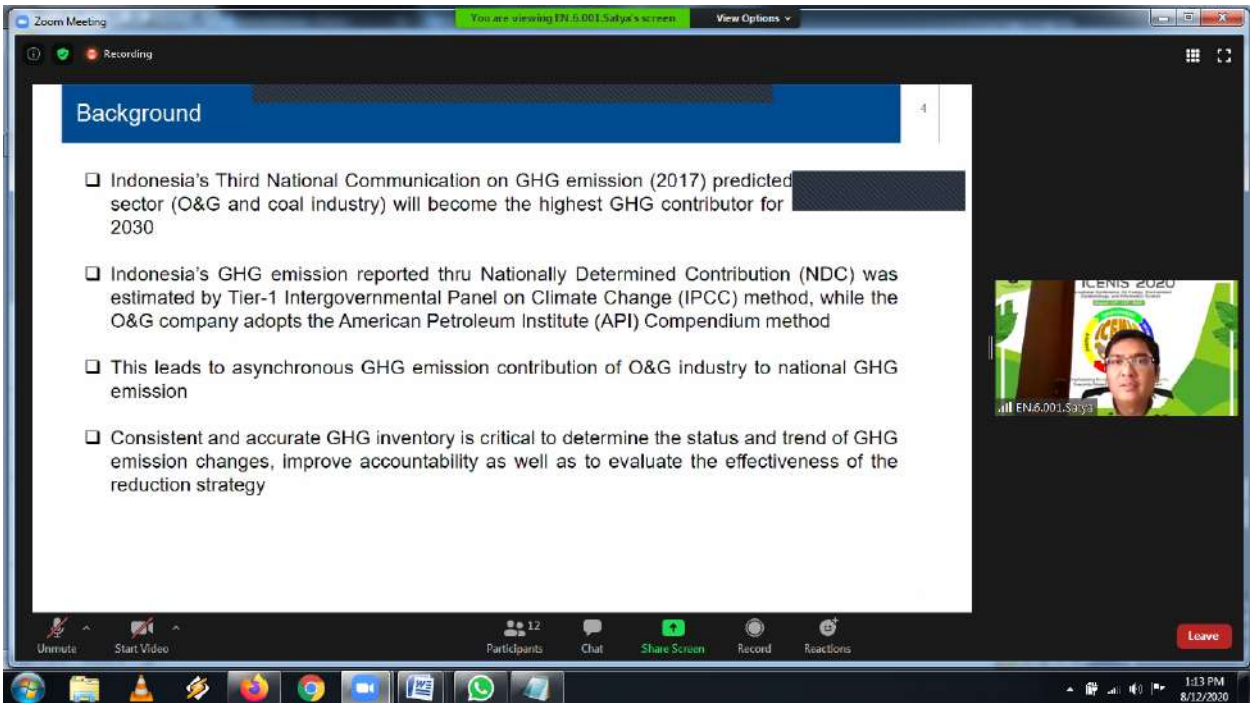
Zoom Meeting
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Recording
Background
Indonesia's Third National Communication on GHG emission (2017) predicted
sector (O&G and coal industry) will become the highest GHG contributor for
2030
Indonesia's GHG emission reported thru Nationally Determined Contribution (NDC) was estimated by Tier-1 Intergovernmental Panel on Climate Change (IPCC) method, while the O&G company adopts the American Petroleum Institute (API) Compendium method
This leads to asynchronous GHG emission contribution of O&G industry to national GHG emission
Consistent and accurate GHG inventory is critical to determine the status and trend of GHG emission changes, improve accountability as well as to evaluate the effectiveness of the reduction strategy
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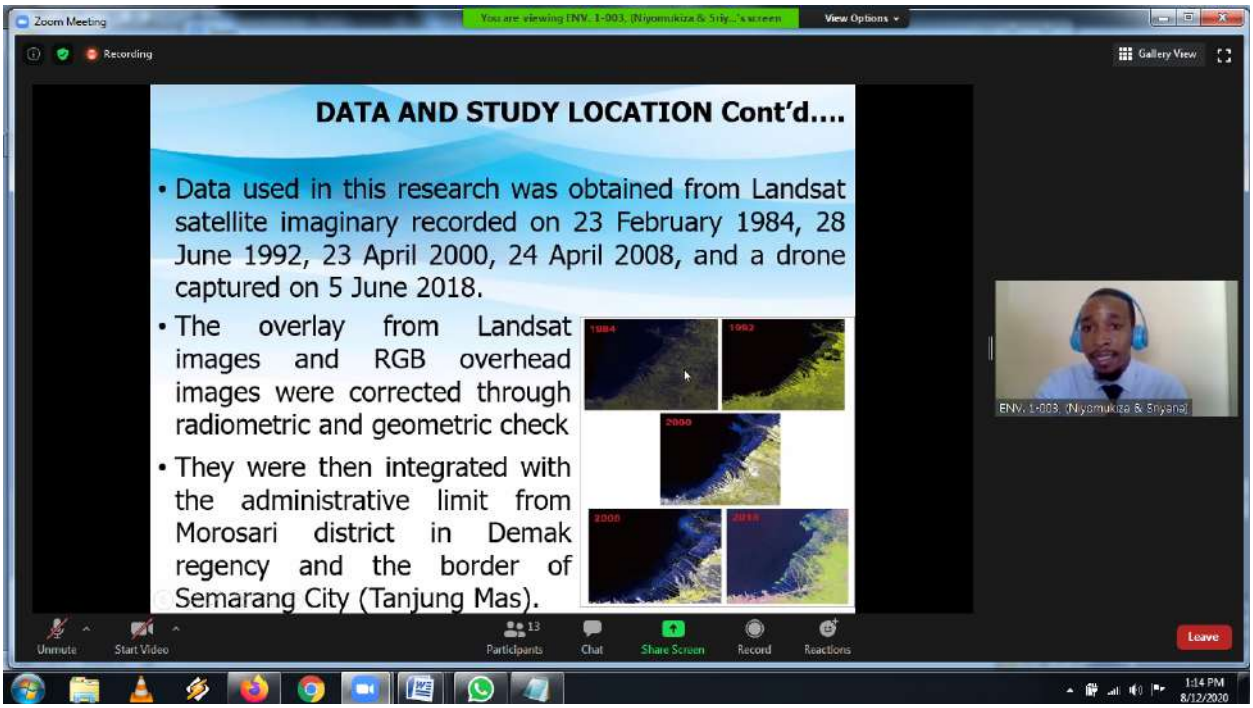
ROOM 4


Zoom Meeting
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Recording
Gallery View
DATA AND STUDY LOCATION Cont'd....
• Data used in this research was obtained from Landsat satellite imaginary recorded on 23 February 1984, 28 June 1992, 23 April 2000, 24 April 2008, and a drone captured on 5 June 2018.
• The overlay from Landsat images and RGB overhead images were corrected through radiometric and geometric check
• They were then integrated with the administrative limit from Morosari district in Demak regency and the border of Semarang City (Tanjung Mas).
1984
1992
2000
2008
2018
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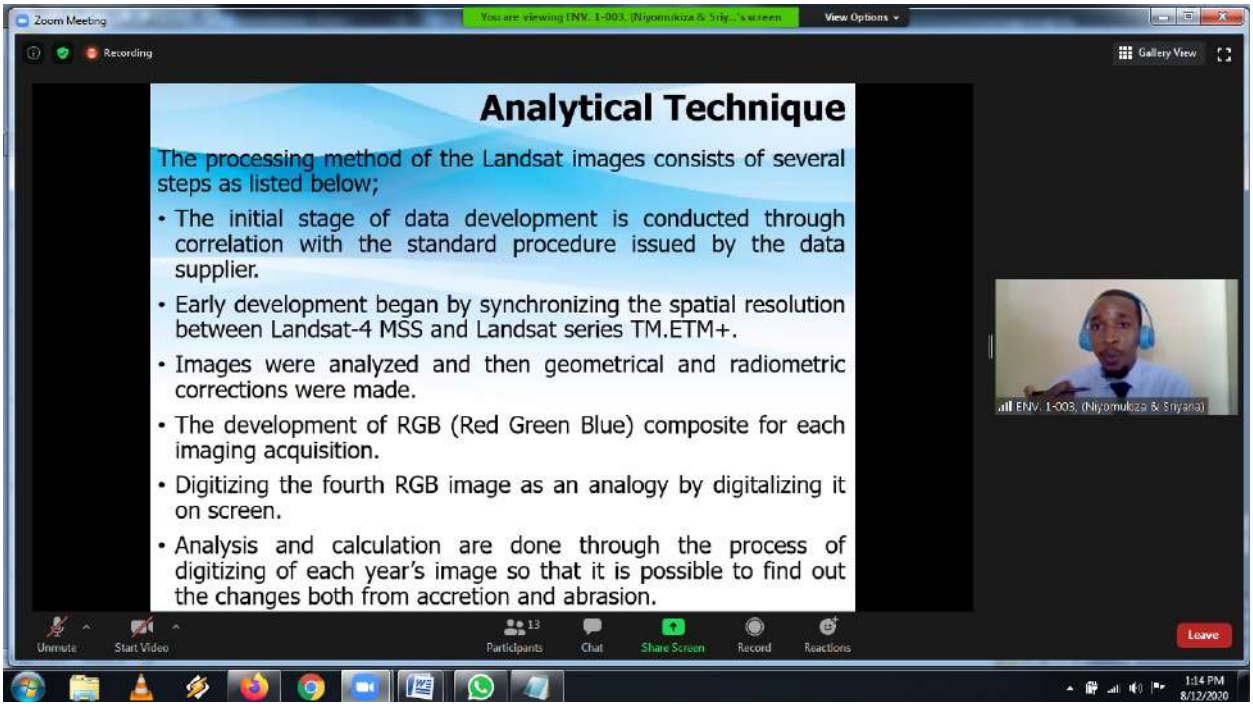
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Gallery View
Analytical Technique
The processing method of the Landsat images consists of several steps as listed below;
• The initial stage of data development is conducted through correlation with the standard procedure issued by the data supplier.
• Early development began by synchronizing the spatial resolution between Landsat-4 MSS and Landsat series TM.ETM+.
• Images were analyzed and then geometrical and radiometric corrections were made.
• The development of RGB (Red Green Blue) composite for each imaging acquisition.
• Digitizing the fourth RGB image as an analogy by digitalizing it on screen.
• Analysis and calculation are done through the process of digitizing of each year's image so that it is possible to find out the changes both from accretion and abrasion.
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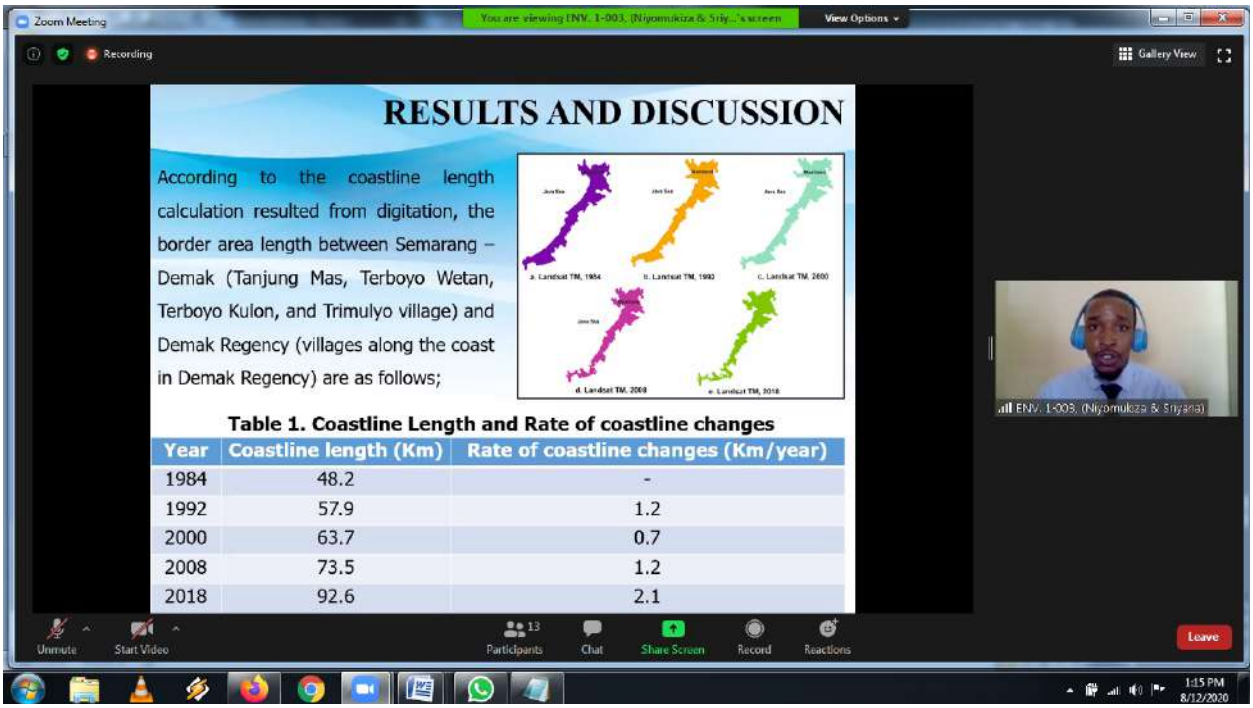
Zoom Meeting
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Gallery View
RESULTS AND DISCUSSION
According to the coastline length calculation resulted from digitation, the border area length between Semarang – Demak (Tanjung Mas, Terboyo Wetan, Terboyo Kulon, and Trimulyo village) and Demak Regency (villages along the coast in Demak Regency) are as follows;
Table 1. Coastline Length and Rate of coastline changes
Year | Coastline length (Km) | Rate of coastline changes (Km/year)
1984 | 48.2 | -
1992 | 57.9 | 1.2
2000 | 63.7 | 0.7
2008 | 73.5 | 1.2
2018 | 92.6 | 2.1
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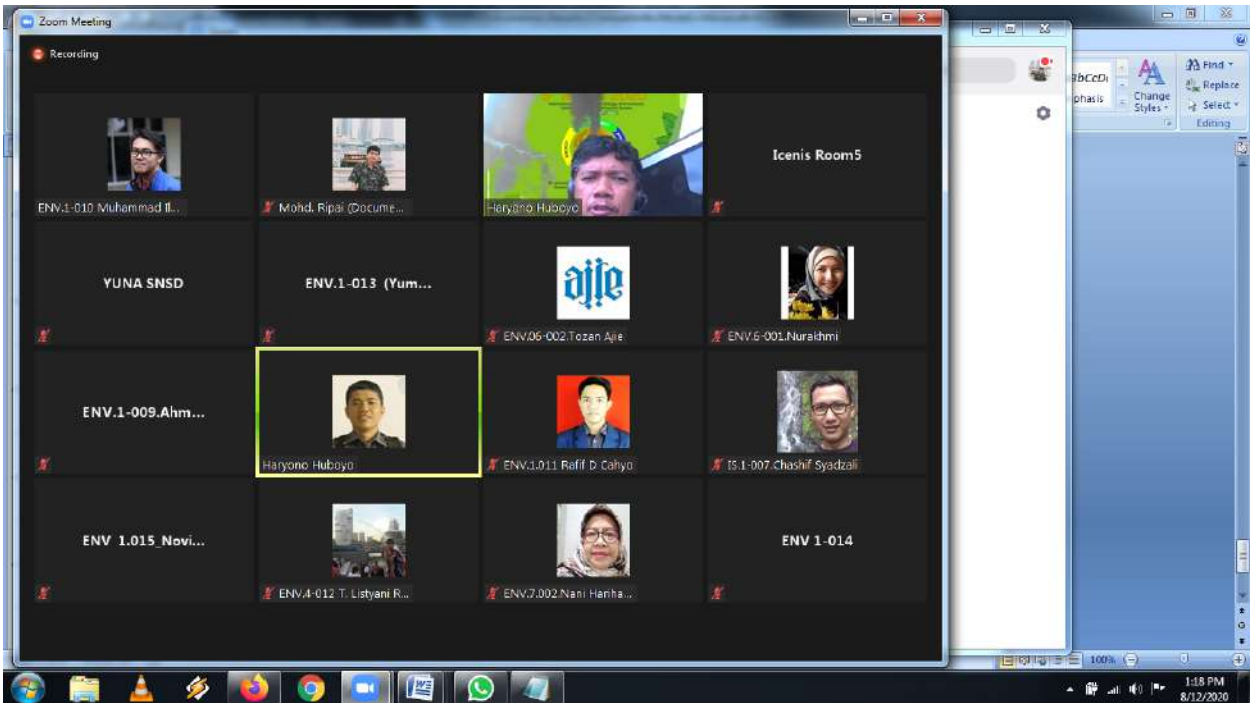
ROOM 5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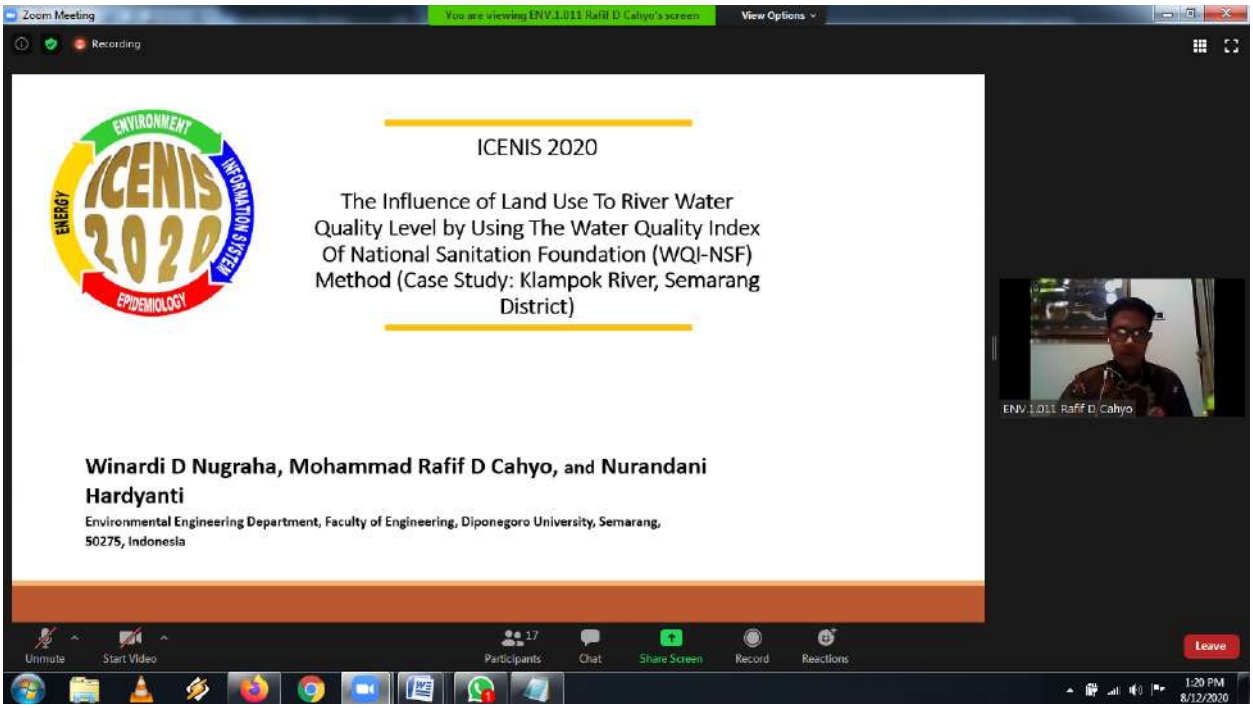
Zoom Meeting
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Recording
ICENIS 2020
The Influence of Land Use To River Water Quality Level by Using The Water Quality Index Of National Sanitation Foundation (WQI-NSF) Method (Case Study: Klampok River, Semarang District)
Winardi D Nugraha, Mohammad Rafif D Cahyo, and Nurandani Hardyanti
Environmental Engineering Department, Faculty of Engineering, Diponegoro University, Semarang, 50275, Indonesia
ENV.1.011 Rafif D Cahyo
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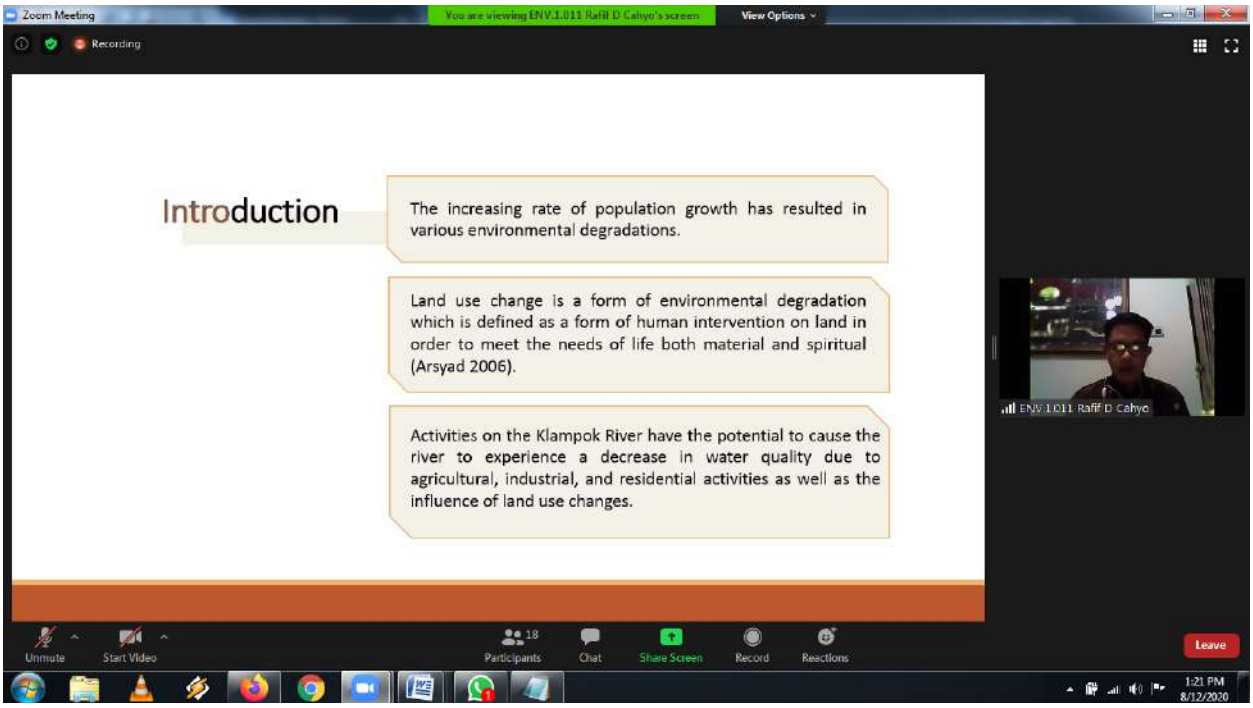
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Introduction
The increasing rate of population growth has resulted in various environmental degradations.
Land use change is a form of environmental degradation which is defined as a form of human intervention on land in order to meet the needs of life both material and spiritual (Arsyad 2006).
Activities on the Klampok River have the potential to cause the river to experience a decrease in water quality due to agricultural, industrial, and residential activities as well as the influence of land use changes.
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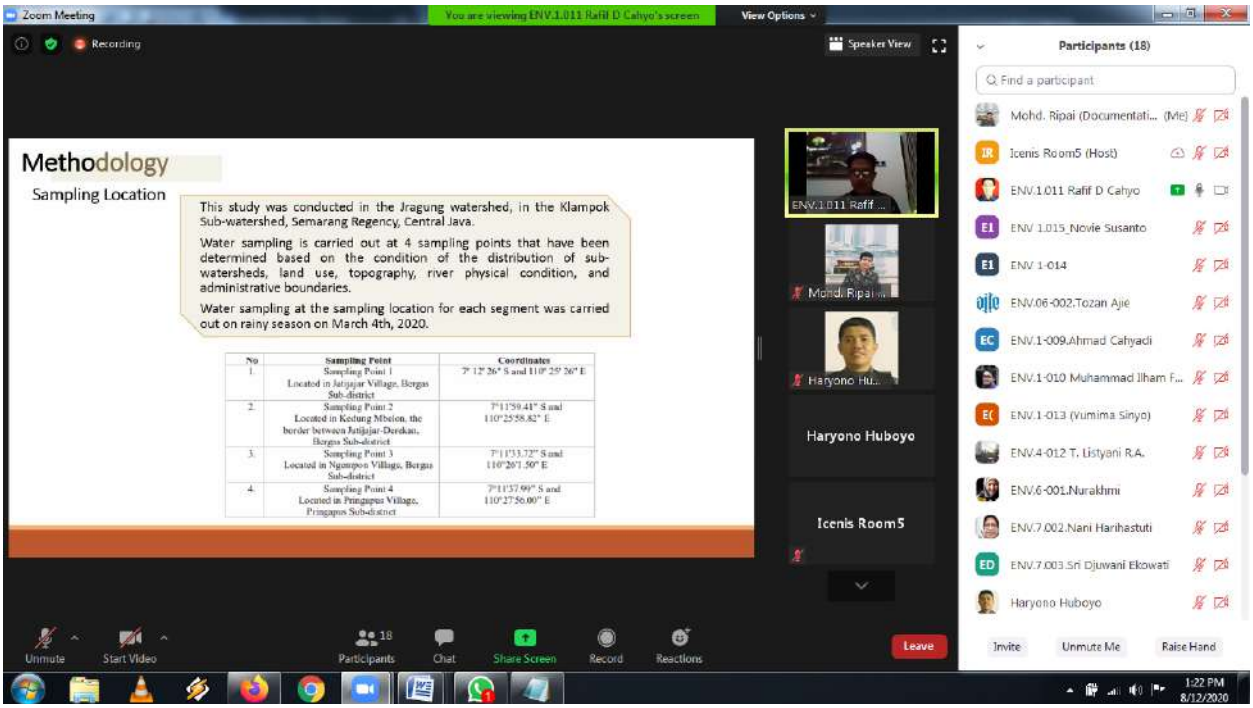
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ENV 1-014
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ENV.1-009.Ahmad Cahyadi
ENV.1-010 Muhammad Ilham F...
ENV.1-013 (Yumima Sinyo)
ENV.4-012 T. Listyani R.A.
ENV.6-001.Nurakhmi
ENV.7.002.Nani Harihastuti
ENV.7.003.Sri Djuwani Ekowati
Haryono Huboyo
Invite
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Methodology
Sampling Location
This study was conducted in the Jragung watershed, in the Klampok Sub-watershed, Semarang Regency, Central Java.
Water sampling is carried out at 4 sampling points that have been determined based on the condition of the distribution of sub-watersheds, land use, topography, river physical condition, and administrative boundaries.
Water sampling at the sampling location for each segment was carried out on rainy season on March 4th, 2020.
No
Sampling Point
Coordinates
1.
Sampling Point 1
Located in Jatijajar Village, Bergas Sub-district
7° 12' 26" S and 110° 25' 26" E
2.
Sampling Point 2
Located in Kedung Mbelon, the border between Jatijajar-Derekan, Bergas Sub-district
7°11'59.41" S and 110°25'58.82" E
3.
Sampling Point 3
Located in Ngempon Village, Bergas Sub-district
7°11'33.72" S and 110°26'1.50" E
4.
Sampling Point 4
Located in Pringapus Village, Pringapus Sub-district
7°11'37.99" S and 110°27'56.00" E
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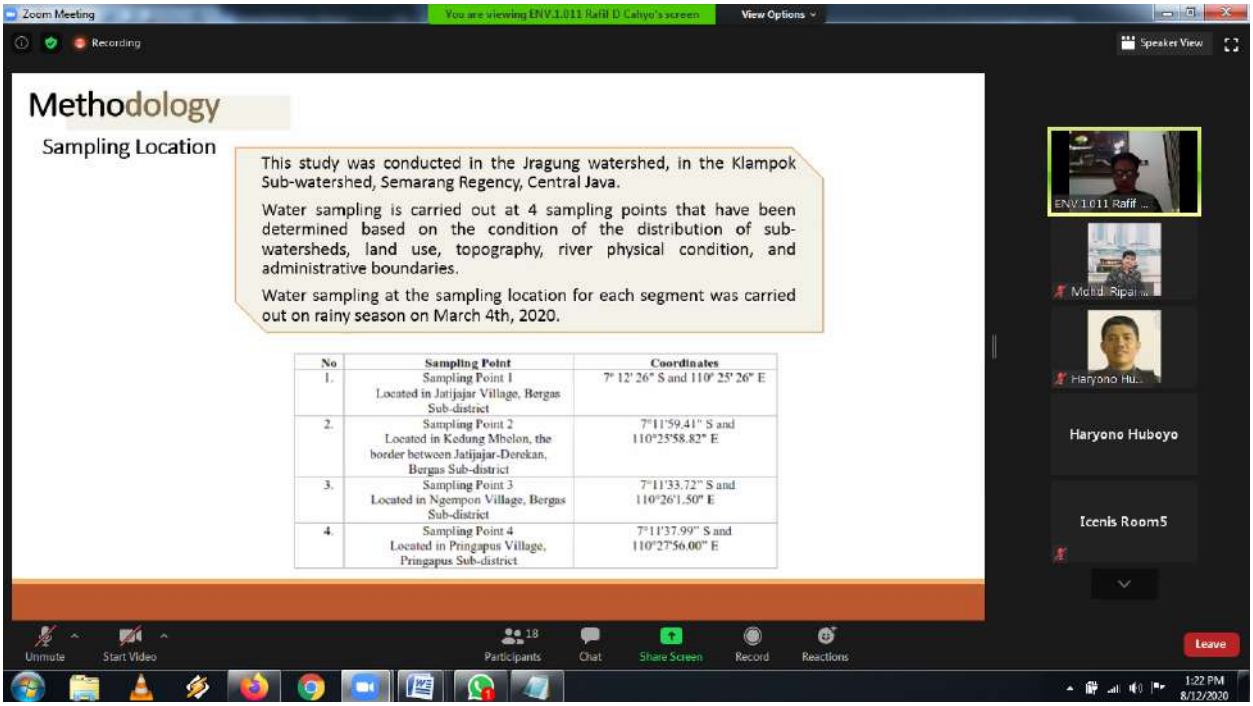
Zoom Meeting
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Recording
Speaker View
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7°11'59.41" S and 110°25'58.82" E
3.
Sampling Point 3
Located in Ngempon Village, Bergas Sub-district
7°11'33.72" S and 110°26'1.50" E
4.
Sampling Point 4
Located in Pringapus Village, Pringapus Sub-district
7°11'37.99" S and 110°27'56.00" E
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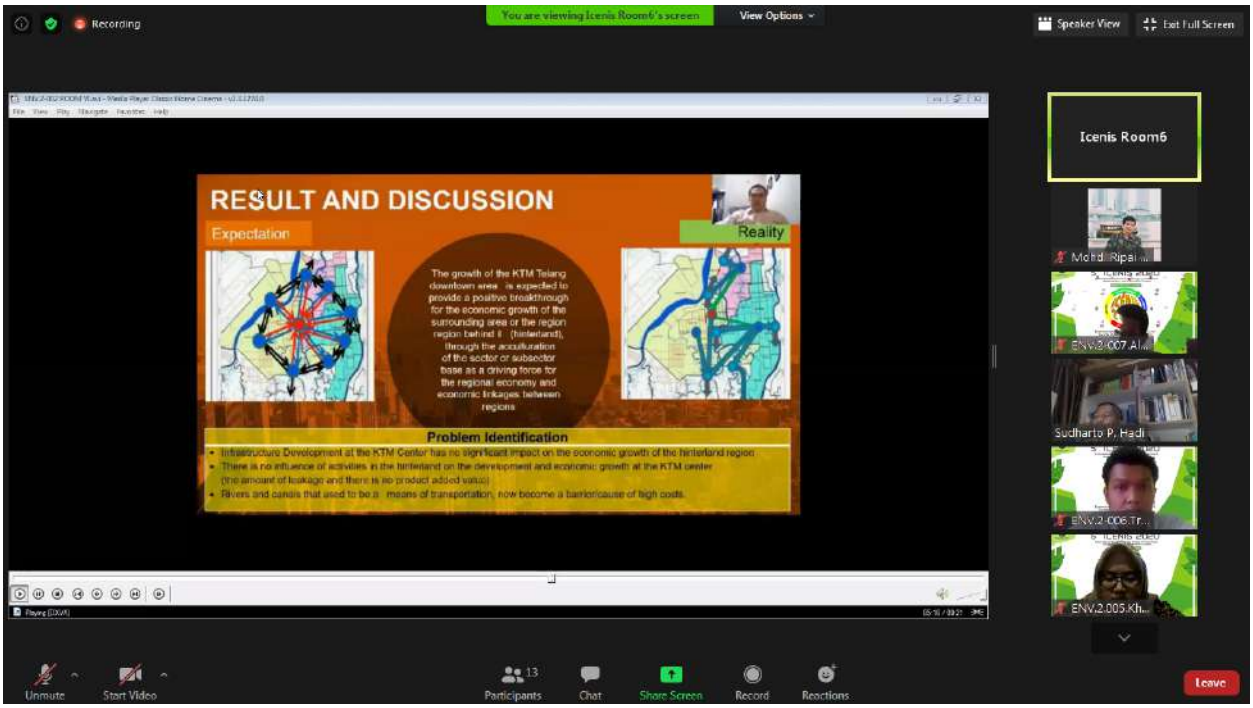
ROOM 6


Recording
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RESULT AND DISCUSSION
Expectation
Reality
The growth of the KTM Telang downtown area is expected to provide a positive breakthrough for the economic growth of the surrounding area or the region region behind it (hinterland), through the acculturation of the sector or subsector base as a driving force for the regional economy and economic linkages between regions
Problem Identification
Infrastructure Development at the KTM Center has no significant impact on the economic growth of the hinterland region
There is no influence of activities in the hinterland on the development and economic growth at the KTM center
(The amount of leakage and there is no product added value)
Rivers and canals that used to be a means of transportation, now become a barrier/cause of high costs.
Icenis Room6
Mohd. Ripai...
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Sudharto P. Hadi
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12-13 August 2020, Semarang Indonesia

Proceedings editor(s):

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Development of Ecotourism-Based Strategy: A Case Study of Tinjomoyo Tourism Forest

by Heru Prastawa

E3S Web of Conferences **202**, 03004 (2020) https://doi.org/10.1051/e3sconf/202020203004
ICENIS 2020

Development of Ecotourism-Based Strategy: A Case Study of Tinjomoyo Tourism Forest

Novie Susanto*, *Denny* Nurkertamanda, *Heru* Prastawa, and *Aditya* R Nugraha

Industrial Engineering Department, Faculty of Engineering, Diponegoro University, Semarang, Indonesia

Abstract. Tinjomoyo Tourism Forest Area is an object or tourist destination with the concept of ecotourism-based nature conservation in the city of Semarang, Central Java Province. The number of visitors, based on the tourist destination in the last three years (2015-2017) shows that the number of tourists visiting the Tinjomoyo Tourism Forest Area are 5,949 tourists in 2015, to 13,755 tourists in 2017. The area is inversely proportional to tourism in Semarang, including the park, Wildlife, Lele Park and Kreo Goa. To improve the visitor attention, it needs a development of potential strategy Ecotourism-based tourism objects using strengths, weaknesses, opportunities, threats (SWOT) analysis and Quantitative Strategic Planning Matrix (QSPM) analysis. This study recommends development strategies that are analysed through data processing from internal and external factors and alternative strategies that become priority strategies that can be implemented. The results of the study found 23 indicators of strength indicators and 12 weakness indicators. While for external factors there are 12 indicators that appear with details of 6 opportunity indicators and 6 threat indicators. From the indicators found, a data processing is performed using the QSPM method that produces priority strategies.

1 Introduction

The development of potential in the tourism industry is currently being carried out by the city/regency governments in Indonesia. The city of Semarang with its Tinjomoyo Tourism Forest (TTF) Area is currently carrying out an ecotourism-based development program, TTF Area is a natural tourist destination which is currently being carried out in more depth development efforts by the Semarang City Government and Semarang City Culture and Tourism Office. The development of tourist destinations in the tourism area of Tinjomoyo Forest included in the development of ecotourism as well as a means of bringing together conservation and community activists travel. Ecotourism is a form of a real tourism strategy to protect the environment and create income for local communities or managers based on principles that are always considered in its sustainability. Development with the ecotourism concept is carried out because in the main elements of the development concept also includes the concept of green tourism and sustainable tourism. The concept of green tourism is a concept of tourism development that applies to any activity or facility that operates in an

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environmentally friendly manner and orientation. The difference with ecotourism is that this concept is controlled centrally by the institution or company that regulates it, therefore the concept can focus solely on the conservation or preservation of existing flora and fauna education or both at once. Sustainable tourism is a concept of tourism development that has a way and orientation not to spend natural resources or other resources with the aim that these resources are maintained sustainably [1]. The ecotourism strategy will greatly impact economic development and conservation of natural resources [2-4]. With this, anyone who visits the Tinjomoyo Tourism Forest area will enter the environment and ecotourism activities. Tourists are required to know and adhere to the basic principles and goals of ecotourism which consist of minimizing environmental impacts, building awareness and caring for the environment and culture, providing positive experiences for visitors and managers, providing direct financial benefits for conservation, providing financial financial benefits to local communities and increasing sensitivity to the state, politics, environment and social climate [5-8].

TTF Area is a tourist attraction located in Semarang City, Central Java Province. Tourism potential in the Tinjomoyo Tourism Forest area consists of natural tourism destinations, destinations with concepts adventure and camping ground areas. Based on data on tourist destinations in the last three years, namely between 2015-2017, collected by the Disbudpar of Semarang City, the number of tourists visiting the TTF Area increased from 5,949 tourists in 2015 to 13,755 tourists in the year 2017. However, the increase in the number of tourists in the Tinjomoyo Tourism Forest area is inversely proportional to the increase in the number of tourists in three tourist attractions with other Ecotourism-based nature conservation concepts in Semarang, including Wildlife Park, Lele Park and Kreo Cave. When compared with the increase in the number of tourists in these three tourist destinations, the increase in the number of tourists in the TTF Area has the lowest increase in the number of tourists with a total of only 13,755 tourists compared to Wildlife Parks which have a total of 284,237 tourists in 2017 tourists, Goa Kreo has total tourists in 2017 which reached 174,019 tourists and Lele Park attractions which in 2017 reached 29,137 tourists [9].

From the above problems, optimal and strategy for developing the TTF Area is in sustainable line with environmental conservation programs, social, cultural and community empowerment and economic improvement based on the principles that exist in Ecotourism. This research was conducted for the design process of developing strategies on tourism potentials in the TTF Area of Semarang City and to determine and identify strategies based on existing internal and external environmental analysis. It also conducts measurement of alternative strategies that are considered to be developed from the analysis results using the methods of Strengths, Weaknesses, Opportunities, Threats (SWOT) and determining the optimal strategy of the overall strategy design using the Quantitative Strategic Planning Matrix (QSPM) method [10]. From the analysis results, identification and analysis of alternative strategies using the methods of Strengths, Weaknesses, Opportunities, Threats (SWOT) and the results of optimal strategy determination [11] using Quantitative Strategic Planning Matrix (QSPM) are considered. The next form of recommendations based on the optimal strategy or priority strategy chosen for the development of tourism potential in the Tinjomoyo Tourism Forest area that can be implemented by managers and stakeholders is performed. Recent studies related this research are discussed using different method such as development of marine tourism in Jember using Delphi [12], island tourism in Banda [13], tourism object in Semarang [14], SWOT-ANP-FANP model for prioritizing strategies in Serbia [15], SWOT analysis for tourism development strategy in Iran [16].

2 Research Method

The research design conducted in this research is observational with the support of qualitative and quantitative approaches. This research was conducted to design a development strategy based on the current conditions of the TTF Area. This research was conducted using the method of strengths, weaknesses, opportunities, threats (SWOT) and Quantitative Strategic Planning Matrix (QSPM) analysis to identify internal and external factors in the TTF Area. From the results of identification of internal and external factors, it is continued by conducting a validation process of these internal and external factors, weighting the factors that meet the requirements, identifying the alternative strategies that are formed and finally determining the priority strategies using the QSPM method.

This study consists of primary data and secondary data. Primary data was obtained by researchers through the process of identifying internal factors (strengths and weaknesses) and identification of external factors (opportunities and threats) from the TTF Area. Primary data in this study also obtained by researchers from the results of quantification of data in the questionnaire that has been weighted on the existing factors using Analytical Hierarchy Process (AHP) method [17]. Furthermore, from the results of data, the alternative strategies using Quantitative Strategic Planning Matrix (QSPM) can be performed. Secondary data was obtained by researchers from data on tourist visits for the period 2015-2017 Disbudpar Semarang City. For primary data in this study is data obtained from the quantification of data based on several questionnaires, among others:

1. Factor validation data based on the validation questionnaire of internal and external factors [11].
2. Internal and external factor weighting data through expert choice software.
3. Rating and score calculation data on internal and external factor indicators
4. Data on the calculation of Attractive Score/ AS and the value of Total Attractive Score/ TAS, alternative strategy formation data to prioritize data formation strategies through Quantitative Strategic Planning Matrix (QSPM) method.

Matrix Strengths, Weaknesses, Opportunities, Threats (SWOT) is an important matching tool that helps managers or managers to develop four types of strategies: SO Strategy (strength-opportunity), WO Strategy (weakness-opportunity), ST Strategy (threat power), and WT Strategy (weaknesses). Finding the compatibility of major external and internal factors is the hardest part in developing a matrix of Strengths, Weaknesses, Opportunities, Threats (SWOT) and requires good judgment and none of the most correct alloys.

Apart from ranking strategies to get a priority list, there is only one analytical technique in the literature designed to determine the relative attractiveness of various alternative actions. The technique is the Quantitative Strategic Planning Matrix Quantitative Strategic Planning Matrix (QSPM), which composes Phase 3 of the analytical framework of strategy formulation. This technique objectively shows which strategy is the best. QSPM uses input analysis from Phase 1 and matching results from Phase 2 analysis to objectively determine the strategies to be implemented among alternative strategies. That means External Factor Analysis Summary (EFAS) and Internal Factor Analysis Summary (IFAS) Matrix, and the Competitive Profile Matrix that composes Phase 1, plus Strengths, Weaknesses, Opportunities, Threats (SWOT) Matrix, IE Matrix, and Grand Strategy Matrix that comprise Phase 2, provide information needed to compile QSPM (Stage 3). QSPM is a tool that allows strategy makers to objectively evaluate various alternative strategies based on important external and internal success factors identified previously. As with other strategy formulation analytical tools, QSPM requires good intuitive assessment. The implementation of the strategy requires companies to set prisoner goals, make policies, motivate employees, and allocate resources, so that the formulated strategies can be implemented. The final stage in QSPM is the assessment of strategies in strategic management. Strategy evaluation and

evaluation are the main ways to obtain this information. Three basic strategy assessment activities are a review of internal and external factors, performance measurement, and corrective steps [10].

3 Result and Discussion

3.1 Internal Factors

The results of the research process and calculations have been carried out on the internal factors are supported by in-depth discussion and study of the two managers, two stakeholders and travellers of TTF Region 3. The results get a total number of 11 strengths and 12 weaknesses. The main strength of the TTF Area is S8 about ownership of the camping ground area in this area with a score of 0.247. In the process of operating and developing tourism objects, the TTF Area is the only nature conservation ecotourism tourism object in Semarang supported by a camping ground area that can be used as a tour with the concept of tracking and outbound adventure. The TTF Area also has several tourist attractions in terms of observing varied vegetation.

Judging from the results of the indicator score calculation Weaknesses, it shows that the highest weakness indicator score is W16 about many people who do not know Tinjomoyo Forest and what attractions are offered by Tinjomoyo Forest with a score of 0.697. The location of TTF Area is far enough from the center of Semarang City and it causes a lack of economic distribution flows. Besides, it causes less attraction of many people and by doing so, detail about the potential and tourist attractions of the TTF Area arelimited. The Semarang City Government and the Semarang City Culture and Tourism Office not focusing its development the Tinjomoyo Forest area. In addition, the management of tourism destinations in the TTF Zone itself still requires a lot of innovation related to the specific spots and identities of existing tourism to support tourism branding to be able to compete with other existing tourist destinations Semarang City such as the Central Java Grand Mosque, Lawang Sewu, Old City Area and Sam Poo Kong Temple.

3.2 External Factors

The results of the research process and calculations carried out on external factors supported by in-depth studies of 2 stakeholders, 2 managers and 3 tourists from the TTF Area received a total of 6 opportunities and 6 Threats. Based on the results of the calculation of the scores, the main opportunity for the TTF Area is O4. It is the condition of the development of social media that is increasingly prevalent with a score of 0.297. This situation is a potential opportunity in the development of tourism potential in the TTF Area because today the wider community can easily access the flow of information from social media. In addition, the level of publication and branding related to tourism potential will also be easier to increase and spread more widely.

Judging from the results of calculation of score indicators threats show that the highest threat score indicator is T4 with a score of 0.271 which is about the lack of access conditions to the Tinjomoyo with local transport. This condition is due to the integration of transportation and infrastructure facilities related to public transportation which are still under construction and do not meet the standards. There are still many road accesses that are not yet feasible, there is no access to integration of the Rapid Trans Bus (BRT) to be able to meet the needs of route routes to and from the TTF Area.

3.3 IFAS and EFAS Matrix

In the formation of the IFAS EFAS matrix it can be described through a SWOT analysis diagram that shows the position of the quadrant in determining the appropriate strategy so that it can be implemented into the process of developing tourist destinations in the TTF Area (Figure 1). The following is a calculation in the process of finding a point (X, Y):

Point X	= Strength (S) - Weakness (W)
Total weight strength rating	= 3.282
Total weight rating weakness	= 4.138
Point X	= - 0.856
Point Y	= Opportunity (O) - Threat (T)
Total opportunity rating weight	= 2.353
Total threat rating weight	= 2.077
Point Y	= 0. 276

IFAS EFAS matrix (Figure 1) shows that the combined strategy was selected in quadrant II, strategy Weakness-Opportunity (WO). The results of the matrix with points that are at point (X,Y) = (-0.856,0.276) in quadrant II was developed more deeply to maximize tourism potential, development of tourist attraction and market development. The Strategy for Weakness-Opportunity (WO) then be compiled according to the conditions of the TTF Zone in determining proportional alternative strategies.

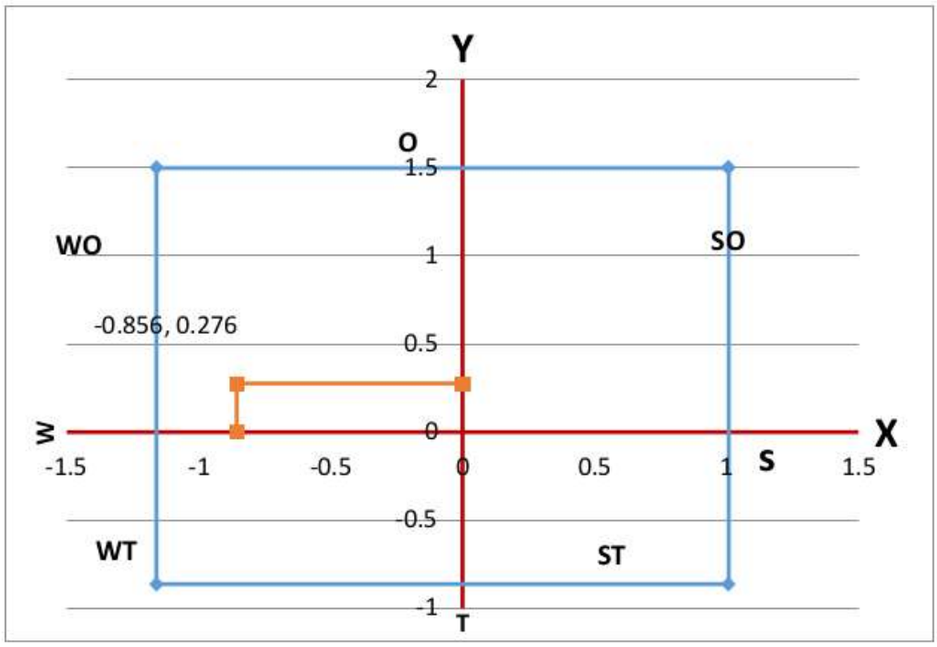

Fig. 1. IFAS Matrix and EFAS for TTF Area.

3.4 Alternative Strategies

Based on the results of sharing and discussion with managers and stakeholders related, a strategy has been formed with weakness and opportunity (WO) factors. Then from these strategies several alternative strategies are formed which can be observed in table 1.

Table 1. WO Strategy with Alternative Strategies.

	Alternative strategies
A1	Developing the tourism concept of one day night camp tracking were followed by innovating publication through these activities
A2	Developing certain distinctive spots and developing disability-friendly tourism concepts as well as routinely holding art and cultural performances to develop tourism concepts not only focuses on nature conservation
A3	Conducting localization of Semarangan culinary area in TTF Area and making innovative products such as the Tinjomoyo Forest mascot
A4	Revitalizing access to the location, facilities and infrastructure and innovation development of tourist attractions with concept of flowerbird park in FFT area

A1's alternative strategies about developing the tourism concept of one day one-night camp tracking and followed by innovating publications through these activities. Strategy A2 about developing certain distinctive spots and developing disability-friendly tourism concepts as well as routinely holding art and cultural performances to develop tourism concepts not only focuses on nature conservation. A3 Strategy about conducting localization of Semarangan culinary area in the TTF Area and making innovative products such as the Tinjomoyo Forest mascot. Strategy A4 on revitalizing access to the location, facilities and infrastructure and innovation development of tourist attractions with concept flowerbird park in forest tourism area Tinjomoyo.

3.5 QSPM Analysis

The results of the calculation of alternative strategies using the method Quantitative Strategic Planning Matrix (QSPM) can be seen in Table 2. The results of the QSPM matrix calculation show that TTF Area have several rating values of strategies based on each calculation of the indicator weight value and Attractive Score value (US) that has been done. The first priority strategy is revitalizing access to tourism facilities and infrastructure and innovating the development of tourist attractions with the concept of flower bird park in the TTF Area with a value of 15.264.

Table 2. QSPM Calculation Results.

Nr	Indicator	Weight	Strategy 1		Strategy 2		Strategy 3		Strategy 4	
			AS	TAS	AS	TAS	AS	TAS	AS	TAS
1	S1	0.042	2	0.084	3	0.126	4	0.168	3	0.126
2	S2	0.065	4	0.260	3	0.195	3	0.195	2	0.130
3	S3	0.098	4	0.392	4	0.392	3	0.294	4	0.392
4	S4	0.080	4	0.320	4	0.320	3	0.240	2	0.160
5	S5	0.121	4	0.484	4	0.484	4	0.484	4	0.484
6	S6	0.091	3	0.273	3	0.273	3	0.273	4	0.364
7	S7	0.104	4	0.416	4	0.416	4	0.416	3	0.312
8	S8	0.133	4	0.532	4	0.532	3	0.399	4	0.532
9	S9	0.100	3	0.300	3	0.300	4	0.400	3	0.300
10	S10	0.087	2	0.174	4	0.348	3	0.261	4	0.348
11	S11	0.079	4	0.316	3	0.237	4	0.316	3	0.237
12	W1	0.051	2	0.102	3	0.153	3	0.153	4	0.204
13	W4	0.027	3	0.081	4	0.108	3	0.081	4	0.108
14	W5	0.030	3	0.090	4	0.120	4	0.120	4	0.120
15	W7	0.052	4	0.208	4	0.208	3	0.156	4	0.208
16	W9	0.090	4	0.360	3	0.270	3	0.270	3	0.270
17	W11	0.084	4	0.336	3	0.252	4	0.336	4	0.336
18	W12	0.071	3	0.213	4	0.284	3	0.213	4	0.284
19	W13	0.069	3	0.207	4	0.276	3	0.207	3	0.207
20	W14	0.090	3	0.270	2	0.180	4	0.360	3	0.270
21	W15	0.410	3	1.230	4	1.640	4	1.640	4	1.640
22	W16	0.610	3	1.830	3	1.830	3	1.830	4	2.440
23	W17	0.040	3	0.120	3	0.120	4	0.160	3	0.120
24	O1	0.066	4	0.264	4	0.264	3	0.198	3	0.198
25	O3	0.105	3	0.315	4	0.242	4	0.420	4	0.420
26	O4	0.173	4	0.692	3	0.519	3	0.519	3	0.519
27	O5	0.201	2	0.603	2	0.401	4	0.804	4	0.804
28	O6	0.198	4	0.792	4	0.792	3	0.594	4	0.792
29	O7	0.106	4	0.212	3	0.318	3	0.318	4	0.424
30	T1	0.071	4	0.284	3	0.213	3	0.213	4	0.284
31	T2	0.136	4	0.544	4	0.408	3	0.408	3	0.408
32	T3	0.143	4	0.572	3	0.286	2	0.286	4	0.572
33	T4	0.200	4	0.800	3	0.800	4	0.800	3	0.600
34	T5	0.157	4	0.628	4	0.628	4	0.628	3	0.471
35	T8	0.060	3	0.180	3	0.180	3	0.180	3	0.180
TAS Total			14.484		14.373		14.340		15.264	
Ranking			2		3		4		1	

4 Conclusion

The TTF Area is influenced by internal and external situations and conditions. In the internal conditions there are 11 power indicators that exist in the TTF Area. The strengthest indicator is ownership of the camping ground area, while the strength indicator with the lowest score is ownership land area of 57.5 hectares. As for the weakness indicators, there are 12 weaknesses in the TTF Area, with the highest weakness score indicator is about the many people who do not know about the Tinjomoyo Forest and the attractions offered in the TTF Area. The weakness indicator with the lowest score value is about the amount of resources

owned by the TTF Area. On external conditions there are 6 opportunities indicators that exist in the TTF Zone. The opportunity indicator that has the highest score is the growing and development of social media, while the lowest score is growing tourism. The threat indicator including 6 threats that exist in the TTF Zone consist of the condition of integrated transportation access to the TTF Area as the highest score and vandalism carried out by visitors as lowest score.

From the calculation of Quantitative Strategic Planning Matrix (QSPM), it produces a top priority strategy based on the concept of Ecotourism which is the principle in this study. The main priority strategy is developing and revitalizing access to the location of the TTF Area, developing and revitalizing tourism facilities and infrastructure as well as innovating the development of tourist attractions with the concept of flower bird park in the TTF Area.

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