

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

Judul Jurnal Ilmiah (Artikel) : The Multiplier Effects of Waste Management in RT-07 of Guntung Village, In Bontang, East Kalimantan, Indonesia

Nama/ Jumlah Penulis : 3 Orang

Status Pengusul : Penulis ke-3

Identitas Jurnal Ilmiah :

- a. Judul Prosiding : E3S Web of Conferences
- b. ISBN/ISSN : 2267-1242
- c. Thn Terbit, Tempat Pelaks. : 2020, The 5th International Conference on Energy, Environmental and Information System (ICENIS 2020)
- d. Penerbit/Organiser : EDP Sciences
- e. Alamat Repository/Web : <https://www.e3s-conferences.org/>
- f. Alamat Artikel : https://www.e3s-conferences.org/articles/e3sconf/abs/2020/62/e3sconf_icenis2020_07039/e3sconf_icenis2020_07039.html
- g. Terindeks di (jika ada) : Scopus (Scimagojr (index=0,24)

Kategori Publikasi Jurnal Ilmiah : ☒ *Prosiding* Forum Ilmiah Internasional/ Internasional Bereputasi
(beri ✓ pada kategori yang tepat) ☐ *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi prosiding (10%)	2,5	2,3	2,4
b. Ruang lingkup dan kedalaman pembahasan (30%)	7,2	7,2	7,2
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	7,2	7,2	7,2
d. Kelengkapan unsur dan kualitas penerbit (30%)	7,2	7,2	7,2
Total = (100%)			24
Nilai untuk Pengusul : $(40\% \times 24) / 2 = 4,8$			

Semarang, 4 Oktober 2022

Reviewer 1



anto, S.Si, M.Si
9802 1 001

Unit Kerja :FSM Universitas Diponegoro
Bidang Ilmu: Fisika

Reviewer 2



Prof. Dr. Rahmat Gernowo, M.Si
NIP. 19651123 199403 1 003
Unit Kerja :FSM Universitas Diponegoro
Bidang Ilmu: Fisika

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

Judul Jurnal Ilmiah (Artikel) : The Multiplier Effects of Waste Management in RT-07 of Guntung Village, In Bontang, East Kalimantan, Indonesia

Nama/ Jumlah Penulis : 3 Orang

Status Pengusul : Penulis ke-3

Identitas Jurnal Ilmiah :

- a. Judul Prosiding : E3S Web of Conferences
- b. ISBN/ISSN : 2267-1242
- c. Thn Terbit, Tempat Pelaks. : 2020, The 5th International Conference on Energy, Environmental and Information System (ICENIS 2020)
- d. Penerbit/Organiser : EDP Sciences
- e. Alamat Repository/Web : <https://www.e3s-conferences.org/>
- f. Alamat Artikel : https://www.e3s-conferences.org/articles/e3sconf/abs/2020/62/e3sconf_icenis2020_07039/e3sconf_icenis2020_07039.html
- g. Terindeks di (jika ada) : Scopus (Scimagojr (index=0,24)

Kategori Publikasi Jurnal Ilmiah : ☒ *Prosiding* Forum Ilmiah Internasional/ Internasional Bereputasi
(beri ✓ pada kategori yang tepat) ☐ *Prosiding* Forum Ilmiah Nasional

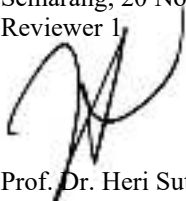
Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir Yang Diperoleh
	Internasional <input type="text"/>	Nasional Terakreditasi <input type="text"/>	Nasional Tidak Terakreditasi <input type="text"/>	
a. Kelengkapan unsur isi jurnal (10%)	2,50			2,5
b. Ruang lingkup dan kedalaman pembahasan (30%)	7,50			7,2
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	7,50			7,2
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	7,50			7,2
Total = (100%)	25,00			24,1
Nilai Pengusul = (40% x 19,7)/2 = 3,94				

Catatan Penilaian artikel oleh Reviewer :

- Kelengkapan unsur isi jurnal:**
Artikel telah ditulis secara lengkap (Judul, abstrak, pendahuluan s/d referensi) sesuai dengan format E3S Web of Conferences. Topik artikel masuk scope E3S Web of Conferences.
- Ruang lingkup dan kedalaman pembahasan:**
Lingkup artikel terkait kajian efek pengganda pengolahan sampah di Bontang untuk pembangunan berkelanjutan. Data hasil penelitian yang berupa hasil wawancara dibahas dengan baik namun belum mendalam. Pembahasan telah membandingkan dengan refernsi lain.
- Kecukupan dan kemutakhiran data/informasi dan metodologi:**
Metode yang digunakan adalah metode penelitian kualitatif dengan observasi partisipatif dan teknik pengumpulan data dengan wawancara. Data yang diperoleh cukup memadai. Referensi kategori minim namun mutakhir.
- Kelengkapan unsur dan kualitas terbitan:**
Kualitas penerbitan kurang baik ditunjukkan dengan tidak seragamnya penulisan referensi. Paper berasal dari konferensi dimuat di E3S Web of Conferences, namun terindeks Scopus. Nilai Maksimal: 25.

Semarang, 20 November 2022
Reviewer 1


Prof. Dr. Heri Sutanto, S.Si., M.Si.
NIP. 197502151998021001
Unit Kerja: FSM Universitas Diponegoro
Bidang Ilmu: Fisika

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

Judul Jurnal Ilmiah (Artikel) : The Multiplier Effects of Waste Management in RT-07 of Guntung Village, In Bontang, East Kalimantan, Indonesia

Nama/ Jumlah Penulis : 3 Orang

Status Pengusul : Penulis ke-3

Identitas Jurnal Ilmiah :

- a. Judul Prosiding : E3S Web of Conferences
- b. ISBN/ISSN : 2267-1242
- c. Thn Terbit, Tempat Pelaks. : 2020, The 5th International Conference on Energy, Environmental and Information System (ICENIS 2020)
- d. Penerbit/Organiser : EDP Sciences
- e. Alamat Repository/Web : <https://www.e3s-conferences.org/>
- f. Alamat Artikel : https://www.e3s-conferences.org/articles/e3sconf/abs/2020/62/e3sconf_icenis2020_07039/e3sconf_icenis2020_07039.html
- g. Terindeks di (jika ada) : Scopus (Scimagojr (index=0,24)

Kategori Publikasi Jurnal Ilmiah : ☒ *Prosiding* Forum Ilmiah Internasional/ Internasional Bereputasi
(beri ✓ pada kategori yang tepat) ☐ *Prosiding* Forum Ilmiah Nasional

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir Yang Diperoleh
	Internasional <input checked="" type="checkbox"/>	Nasional Terakreditasi <input type="checkbox"/>	Nasional Tidak Terakreditasi <input type="checkbox"/>	
a. Kelengkapan unsur isi jurnal (10%)	2,50			2,3
b. Ruang lingkup dan kedalaman pembahasan (30%)	7,50			7,2
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	7,50			7,2
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	7,50			7,2
Total = (100%)	25,00			23,9
Nilai Pengusul = (40% x 23,9) / 2 = 4,78				

Catatan Penilaian artikel oleh Reviewer :

- Kelengkapan unsur isi jurnal:**
Artikel telah ditulis sesuai dengan format E3S Web of Conferences. Latar belakang sangat singkat dan kebaruan tidak dikemukakan secara eksplisit. Unsur-unsur artikel lengkap.
- Ruang lingkup dan kedalaman pembahasan:**
Ruang lingkup tidak begitu luas. Pembahasan sudah baik lengkap, juga ditemukan dengan jelas terdapat diskusi/pembahasan sebagai pembandingan dengan hasil penelitian dalam referensi yang digunakan
- Kecukupan dan kemutakhiran data/informasi dan metodologi:**
Referensi cukup mutakhir. Metoda standard dan dapat direfleksikan oleh peneliti lain.
- Kelengkapan unsur dan kualitas terbitan:**
Kualitas penerbitan cukup baik. Penataan masih ada yang terlewatkan.. Paper berasal dari konferensi dimuat di E3S Web of Conferences.

Semarang, 4 Oktober 2022
Reviewer 2


Prof. Dr. Rahmat Gernowo, M.Si
NIP. 19651123 199403 1 003
Unit Kerja :FSM Universitas Diponegoro
Bidang Ilmu: Fisika



Indexed keywords

1 of 1 Sustainable Development Goals 2022

[Download Topics](#) [Print](#) [Save to PDF](#) [Save to list](#) [More... >](#)

Metrics

E3S Web of Conferences • [Open Access](#) • Volume 202 • 10 November 2020 • Article number 07039 • 5th International Conference on Energy, Environmental and Information System, ICENIS 2020 • Semarang • 12 August 2020 through 13 August 2020 • Code 164805

Document typeConference Paper • [Gold Open Access](#) • [Green Open Access](#)**Source type**

Conference Proceedings

ISSN



25550403

DOI



10.1051/e3sconf/202020207039

View more 

The Multiplier Effects of Waste Management in RT-07 of Guntung Village, in Bontang, East Kalimantan, Indonesia

Djuwani Ekowati, Sri^a  ; [Hadi, Sudharto^a](#); [Sasongko, Dwi^b](#) [Save all to author list](#)^a Program in Environmental Sciences, Diponegoro University, Semarang, Indonesia^b Departement of Physics, Faculty of Science and Mathematics, Diponegoro University, Indonesia

17

Views count  [View all metrics >](#)
[View PDF](#) [Full text options](#)  [Export](#) 

Cited by 0 documents

Inform me when this document is cited in Scopus:

[Set citation alert >](#)**Related documents**

The Impact of Pupuk Kaltim's Creating Shared Value (CSV) program for Fishermen on Tanjung Limau Bontang

Ekowati, S.D. , Hadi, S.P. (2019) *E3S Web of Conferences*

An Introduction Assessment of Household Waste Management Strategy Problems and its Impact in Capital City of Dili: A Preliminary Literature Review

Almeida da Silva, A. , Maryono, M. , Hermawan, F. (2021) *E3S Web of Conferences*

The Changes of Mangrove Area in Pati Regency of the Year 2011-2015 and Their Impact Analysis: A Literature Review

Prihantoro, A.N. , Anggoro, S. , Muhammad, F. (2019) *E3S Web of Conferences*

View all related documents based on references

Find more related documents in Scopus based on:

[Authors >](#) [Keywords >](#)**Abstract**


In 2010, Neighborhood area 07 in Guntung Village received Black Award from Bontang government due to environmental issues. The issues are included the mounting trash resulted from this area which is not managed well, dirty and slum environment, unpleasant odors from the rubbish heap and scabies

suffered by residents. As the company located next to Guntung Village, PT. Pupuk Kalimantan Timur (PKT) is very concerned about environmental problems. It encouraged these residents to initiate establishing Groups through Corporate Social Responsibility. It aims to ;change the slum area to be healthy and great;. This program is established to solve the waste problem and exploring economic opportunities. Mekarsari Group turns leaves into compost and its development innovates by processing food waste into liquid organic fertilizer (Indonesia called POC). To improve the group's institutional status, the joint venture group Mekarsari formed and in extending process its competitiveness, change to Mekarsari Cooperative, this paper observes a legal status. The research method is qualitative with participative observation and technique of data collection employed with interviews. The changing waste into compost and POC, have various effects on sustainable development. The slum village changed to green village. The residents receive additional income and reducing Greenhouse Gases. © The Authors, published by EDP Sciences, 2020.

Author keywords

Black Award; Green Village; Greenhouse Gases

Indexed keywords






Sustainable Development Goals 2022  New

SciVal Topics 

Metrics

References (10) View in search results format >

☐ All

 Export  Print  E-mail  Save to PDF  Create bibliography

☐ 1 (2020) *Laporan Csv Mekarsari Binaan Pkt*
Departemen CSR PKT, ,;; Bontang, ()

☐ 2 Sunaryo, B.
(2020) *Meizar Effendi, Indahnya Berbagi Masyarakat Mandiri: Potret Program Corporate Social Responsibility Pupuk Kaltim*
Jakarta: Balai Pustaka, ()

☐ 3 Hadi, S.P.
(2019) *Tanggung Jawab Sosial Dan Lingkungan Perusahaan*. Cited 2 times.
Semarang: Undip Press Semarang, ()

☐ 4 Tanjung, M.A.
(2017) *Koperasi Dan Umk*
Jakarta: Penerbit Buku Erlangga.

- 5 Darma Susetya, S.P.
(2018) *Panduan Lengkap Membuat Pupuk Organik*
Bantul: Pustaka baru Press, ()

Abstract

Author keywords

Indexed keywords

Sustainable Development Goals 2022

SciVal Topics

Metrics

- 6 Herlambang, A., Sutanto, H., Wibowo, K.
(2016) *Produksi Gas Metana Dari Pengolahan Sampah Perkotaan Dengan Sistem SEL*,; J. Teknol. Lingkung

- 7 Hadi, S.P.
(2017) *Metodologi Penelitian Lingkungan Bidang Sosial, Cetakan Pe*. Cited 3 times.
Semarang: Undip Press Semarang

- 8 Sukoharsono, E.G.
Sustaining a sustainability report by modifying triple bottom line to pentaple bottom line: An imaginary research dialogue
(2019) *Int. J. Account. Bus. Soc.* Cited 3 times.

- 9 Rosyidah, N.A.
(2017) *Analisis Pengungkapan Triple Bottom Line Dan Faktor Yang Mempengaruhi*,; Equity. Cited 2 times.

- 10 (2017) *Eng Waste Manag*, 2 (2), pp. 69-78.
Reni Marsida, ;KAJIAN TIMBULAN DAN KOMPOSISI SAMPAH SEBAGAI DASAR PENGELOLAAN SAMPAH DI KAMPUS II UNIVERSITAS BHAYANGKARA JAKARTA RAYA,; J. Env

✎ Djuwani Ekowati, S.; Program in Environmental Sciences, Diponegoro University, Semarang, Indonesia; email:sekowati@pupukkaltim.com
© Copyright 2020 Elsevier B.V., All rights reserved.

Source details

Journal of Physics: Conference Series

Scopus coverage years: from 2005 to Present

Publisher: Institute of Physics Publishing

ISSN: 1742-6588 E-ISSN: 1742-6596

Subject area: Physics and Astronomy: General Physics and Astronomy

View all documents >Set document alertSave to source listJournal Homepage

CiteScore 2019

0.7

Add CiteScore to your site ⓘ

SJR 2019

0.227

ⓘ

SNIP 2019

0.574

ⓘ

CiteScoreCiteScore rank & trendScopus content coverage

i

Improved CiteScore methodology

ⓘ

CiteScore 2019 counts the citations received in 2016-2019 to articles, reviews, conference papers, book chapters and data papers published in 2016-2019, and divides this by the number of publications published in 2016-2019. Learn more >

CiteScore

2019

▼

0.7

=

35.313 Citations 2016 - 2019

53.520 Documents 2016 - 2019

Calculated on 06 May, 2020

CiteScoreTracker 2020

ⓘ

0.6

=

37.237 Citations to date

60.771 Documents to date

Last updated on 07 September, 2020 • Updated monthly

CiteScore rank 2019 ⓘ

Category	Rank	Percentile
Physics and Astronomy		
General Physics and Astronomy	#186/224	17th

View CiteScore methodology >CiteScore FAQ >

🔗



**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 ICENIS 2020) has been organized by the School of Postgraduate Studies, Universitas Diponegoro, Indonesia with the support by World Class University (WCU) Program. The conference was held on August 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, Vrije University Amsterdam, The Netherlands; ii) Prof Peter Gell, Federation University, Australia., iii) Prof. Jerry Miller, Western Carolina University, USA; iv) Prof. Shabbir Gheewalla, Joint Graduate School of Energy and Environment (JGSEE), King Mongkut 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

1. Prof. Tri Retnaningsih Soeprobawati (Graduate Program of Environmental Sciences, Universitas Diponegoro, Indonesia)
2. Prof. Sudahrto P Hadi (Graduate Program of Environmental Sciences, Universitas Diponegoro, Indonesia)
3. Prof Purwanto (Chemical Engineering Department , Universitas Diponegoro, Indonesia)
4. Prof. Henk Heijnis, (ANSTO Australia)
5. Dr Zainul Zakaria (UTM Malaysia)
6. Prof. Shabbir Gheewala (JGSEE, Thailand)
7. Prof. Hadiyanto (School of Postgraduate Studies, Universitas Diponegoro, Indonesia)
8. Prof. Peter Gell (Federation University, Australia)
9. Prof. Elco van Burg (Vrij University, The Netherlands)
10. Dr Thomas Putranto Triadi (Faculty of Engineering, Universitas Diponegoro, Indonesia)
11. Dr Hartuti Purnaweni (Graduate Program of Environmental Sciences, Universitas Diponegoro, Indonesia)
12. Dr Sudarno (Graduate Program of Environmental Sciences, Universitas Diponegoro, Indonesia)
13. Dr Budi Warsito (Graduate Program of Information System, Universitas Diponegoro, Indonesia)
14. Dr Suryono (Graduate Program of Information System, Universitas Diponegoro, Indonesia)
15. Dr Maryono (Graduate Program of Environmental Science, Universitas Diponegoro, Indonesia)

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

[All issues](#) ▶ Volume 202 (2020)[◀ Previous issue](#)[Table of Contents](#)[Next issue ▶](#)[Free Access](#) to the whole issue

E3S Web of Conferences

Volume 202 (2020)

The 5th International Conference on Energy, Environmental and Information System (ICENIS 2020)

Semarang, Indonesia, August 12-13, 2020

B. Warsito, Sudarno and T. Triadi Putranto (Eds.)

Export the citation of the selected articles [Export](#)

[Select all](#)

Open Access

About the conference

Published online: 10 November 2020

PDF (24.3 MB)

Open Access

Statement of Peer review

Published online: 10 November 2020

Fajria Noviana

By using this website, you agree that EDP Sciences may store web audience measurement

OK

Published online: 10 November 2020

DOI: <https://doi.org/10.1051/e3sconf/202020207038>[PDF \(204.8 KB\)](#) | [References](#) | [NASA ADS Abstract Service](#)☐ Open Access

The Multiplier Effects of Waste Management in RT-07 of Guntung Village, In Bontang, East Kalimantan, Indonesia 07039

Sri Djuwani Ekowati, Sudharto P Hadi and Dwi P Sasongko

Published online: 10 November 2020

DOI: <https://doi.org/10.1051/e3sconf/202020207039>[PDF \(223.4 KB\)](#) | [References](#) | [NASA ADS Abstract Service](#)☐ Open Access

Zine as a Media of Subculture and Literacy in Semarang 07040

Khothibul Umam and Gregorius Tri Hendrawan

Published online: 10 November 2020

DOI: <https://doi.org/10.1051/e3sconf/202020207040>[PDF \(195.4 KB\)](#) | [References](#) | [NASA ADS Abstract Service](#)☐ Open Access

Arab Symbols in Coastal Communities for the Development of Multicultural Environment in Semarang 07041

Rabith Jihan Amaruli, Singgih Tri Sulistiyono, Endang Susilowati and Dewi Yuliaty

Published online: 10 November 2020

DOI: <https://doi.org/10.1051/e3sconf/202020207041>[PDF \(356.3 KB\)](#) | [References](#) | [NASA ADS Abstract Service](#)☐ Open Access

Coastal Ecosystem as Salt Production Centre in Indonesia 07042

M. Zaki Mahasin, Yety Rochwulaningsih and Singgih Tri Sulistiyono

Published online: 10 November 2020

DOI: <https://doi.org/10.1051/e3sconf/202020207042>[PDF \(283.2 KB\)](#) | [References](#) | [NASA ADS Abstract Service](#)☐ Open Access

Foreign Language Learning, Environment, and their Influence on Moslem Teenage

Life Cycle Thinking for Sustainable Consumption and Production towards a Circular Economy

Shabbir H. Gheewala ^{1,2*}

¹The Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, 126 Prachauthit, Bangmod, Tungkru, Bangkok 10140, Thailand

²Center of Excellence on Energy Technology and Environment, PERDO, Ministry of Higher Education, Science, Research and Innovation, Bangkok, Thailand

Abstract. The current model of a linear economy with end-of-pipe waste treatment is not sustainable. Cleaner production helps reduce resource use and emissions, but is still not an optimal solution without considering a life cycle perspective. Life cycle-based tools such as life cycle assessment and life cycle costing are useful for identifying optimal environmental and economic options for product systems. SDG 12 dealing with responsible consumption and production is key for sustainability. Developing of a circular economy requires life cycle thinking and life cycle-based tools for assessment. All these issues are discussed along with illustrative examples.

1 Introduction

Every activity is associated with some consequences; the desired objective of the activity usually leading to some benefit to society but also with some undesired outcomes which are unplanned, but inevitable. In practice, thermodynamics does not allow us to break even and we will end up losing some utility whenever there is an activity or transformation. Activities in nature must also follow this law, but a decrease in entropy is powered by energy from the sun. Activities in nature are part of ecosystems, large and small, which are very delicately but efficiently balanced in a way that there is no waste per se. All elements/substances move in cycles which is, for example, easily evident in the hydrological cycle which represents the cyclic movement of water on earth. There are many such biogeochemical cycles for nitrogen, sulphur and so on. Industrial activities, on the other hand, have largely been developed in a linear format – so called take, make, use and dispose (Figure 1). We take valuable resources from nature, transform them to products which are then used and finally go back to nature in the form of waste – solid, liquid or gaseous. The loop is not “closed”. Hence, every activity must somehow lead to some form of pollution being produced.

* Corresponding author: shabbir_g@jgsee.kmutt.ac.th; shabbirg@hotmail.com

A Geomorphic Framework for the Analysis of Microplastics in Riverine Sediments

Jerry Miller^{1,} and Suzanne M. Orbock Miller²*

¹Department of Geosciences & Natural Resources, Western Carolina University, Cullowhee, USA

²Tuscola High School, Waynesville, NC, USA

Abstract. The wide-spread use and persistence of plastics in the environment have placed them on the list of significant emerging pollutants. In contrast to marine environments, the analysis of plastic debris, including microplastics (particles <5 mm in maximum diameter), in freshwater systems is limited, and even fewer studies have examined microplastics in riverine sediments. Nonetheless, it has become clear that microplastics are now a ubiquitous component of riverine ecosystems and their distribution is dependent on anthropogenic inputs and the physical and chemical processes that control their transport, transformation, and deposition along the drainage network. In many ways, the transport and fate of microplastics will parallel that of other particulate matter that has been extensively studied for at least the last 50 years. Here, we briefly explore the application of a geomorphic approach to the assessment of sediment-contaminated rivers to the microplastic problem, and argue that future studies can significantly benefit by incorporating the principles of this approach into their analyses.

1 Introduction

The ability to mold synthetic polymers (plastics) into an infinite variety of shapes, combined with their versatile nature in terms of weight, strength, durability, melting point, and chemical reactivity have made them virtually indispensable in modern manufacturing. There are about 20 distinct groups of plastics that are extensively used in everything from cosmetic products and cleansers to clothing, to plumbing, to packaging and ropes, among a host of other products. The development of synthetic polymers began in the late 1800s [1], but it was not until the 1950s that plastics were produced on an industrial scale. Since then, plastic production has increased exponentially, reaching 359 million metric tons [2], and is expected to increase significantly in the coming years [3].

Unfortunately, plastics released to the environment represent a significant emerging pollutant found in atmospheric, terrestrial, freshwater and marine systems. Microplastics (MPs), in particular, have received considerable attention as a global pollutant. While the definition of what constitutes a MP is a topic of debate, the most widely used definition is any plastic item measuring <5 mm in its maximum (long) dimension, a size that can be

* Corresponding author: jmiller@email.wcu.edu

Faith and development: The role of local religious organization in community change in Papua

*Elco van Burg**

Vrije Universiteit Amsterdam, School of Business and Economics, De Boelelaan 1105, 1081HV
Amsterdam

Abstract. Religious organizations have an important role in development aid. For a long time, this role was not acknowledged by the main players in the development arena, but this has changed over the last few decades. Yet, this role is not without tensions, as in particular western donors hold secular perspectives on development and find it hard to deal with organizations that want to provide help as well as spread their religion. In this study, I review the literature on faith-based organizations (FBOs) and present a case-study of how churches in rural areas of Indonesia's Papua province fulfill key roles in local development. To come to a fruitful cooperation between large development organizations and such indigenous churches, an important condition is that the role of religion in daily life of these Papuans needs to be acknowledged.

1 Introduction

In 1998, the World Bank's president James Wolfensohn started the World Faiths Development Dialogue (WFDD) as an independent think-tank and established a 'Directorate on Faith' within the World Bank. Both initiatives targeted to facilitate the cooperation between development donors such as the World Bank and faith-based organizations (FBOs). Soon, these initiatives received broad criticism, as many were afraid this would blur the boundaries between church and state [1]. Despite these criticisms, the World Bank has initiated – or exemplified – a trend towards involving FBOs more in the development agenda. At the same time, the criticism around the role of FBOs remains the same: blurring church-state boundaries, only linked to one faith-group, evangelism, et cetera. In this study, I will first review the role of faith-based organizations in local development and next present a case study of how churches help in developing local communities the Papua province in Indonesia.

2 Development aid and religion

For a long time, FBOs did not get much attention in development aid policies and studies. The main opinion was that development aid policy should focus on economic aspects:

* Corresponding author: j.c.van.burg@vu.nl

Wetland management: preparing for climate and coastal change using adaptation pathways

Peter Gell^{a,b,1}

^aSchool of Sciences, Psychology and Sport, Federation University Australia,

^bDiponegoro University, Semarang, **Indonesia**

Abstract. Freshwater ecosystems are among the most threatened in the world. The list of threatened species in freshwater ecosystems is greater than that in terrestrial or marine systems and freshwater vertebrates are particularly at risk. Freshwater wetlands have evolved in coastal zones protected from tidal influence by barrier dune systems. Similarly, estuaries have supported zones of low salinity diluted by flows from land, but water resource development has limited these flows and driven ecological change in estuarine systems. These historical uses of river flows, and the impacts of catchment development on water quality and yields, have combined to threaten coastal wetland ecosystems. They are now under increasing threat through climate change driven alterations to hydroclimatic conditions, as well as rising sea levels which risk inundation of low lying coastal regions, including wetlands. Coastal freshwater systems offer considerable ecosystem services to human systems and host significant biodiversity assets. These have been subjected to increased risk through catchment and coastal development, but are now acutely threatened through changed river flows and elevated sea levels that result from climate change. Managing these systems requires an adaptation pathways approach that accommodates human needs, and society's obligations to global biodiversity.

1 Introduction

Freshwater ecosystems have been identified as being exposed to great risk, owing to factors such as pollutants and river regulation, for many decades. Dudgeon and others [1] identified the five major threats to aquatic biodiversity (Table 1). There are many more species at risk in freshwater systems than in either terrestrial or marine settings, and this is particularly the case for freshwater vertebrates [2]. More recently Reid et al. [3] recognised these major threats as being persistent, and identified twelve emerging risks to freshwater biodiversity systems (Table 1) including the risk of synergistic effects whereby one or more risks interact to create unexpected challenges for management. The challenge for freshwater management still lies very much in the sphere of the legacy effects of past land clearance, waterway modification and human water consumption however global warming will lead to critical impact associated with changing climates as well as rising sea levels. This will ensure the

¹ Corresponding author: p.gell@federation.edu.au