

[Add to Marked List](#)

◀ 1 of 1 ▶

Sustainability of Palm Biodiesel in Transportation: a Review on Biofuel Standard, Policy and International Collaboration Between Malaysia and Colombia

By: Yusoff, MNAM (Yusoff, Mohd Nur Ashraf Mohd)^[1,2]; Zulkifli, NWM (Zulkifli, Nurin Wahidah Mohd)^[1]; Sukiman, NL (Sukiman, Nazatul Liana)^[1,2]; Chyuan, OH (Chyuan, Ong Hwai)^[3]; Hassan, MH (Hassan, Masjuki Haji)^[4]; Hasnul, MH (Hasnul, Muhammad Harith)^[1]; Zulkifli, MSA (Zulkifli, Muhammad Syahir Amzar)^[1]; Abbas, MM (Abbas, Muhammad Mujtaba)^[1,5]; Zakaria, MZ (Zakaria, Muhammad Zulfattah)^[1]

[View Web of Science ResearcherID and ORCID](#)

BIOENERGY RESEARCH

DOI: 10.1007/s12155-020-10165-0

Early Access: JUL 2020

Document Type: Review; Early Access

[View Journal Impact](#)

Abstract

Biodiesel is gaining prominence as a superior alternative source of energy to replace petroleum-based fuel in transportation. As of today, the biodiesel market continuous to rise up as the biofuel has been introduced to more than 60 countries worldwide. The aim of the present review is to highlight on the scenario of the biofuel implementation in transportation sector towards sustainable development in Colombia and Malaysia. Colombia serves as an ideal comparative case for Malaysia in terms of biodiesel development since the country is the main palm oil producer in Latin America region and the pioneer in bioethanol industry. The first section shows an overview on the biodiesel as an alternative fuel in transportation. The next section will focus on a comparative study between Malaysia and Colombia biodiesel sector in terms of energy supply, resource, production and consumption, standards, techno-economic cost and their biodiesel policies. A comprehensive review was studied to discuss on the sustainability of palm cultivation and biodiesel, impact of palm industry and biodiesel policy in transportation sector and potential international collaboration between Malaysia and Colombia to improve their existing policies, strategies and blueprints related to the palm biodiesel industry, thus overcoming the challenges when dealing with global energy issue.

Keywords

Author Keywords: Alternative fuel; Technology development; Socio-economy; Deforestation

KeyWords Plus: OIL BIODIESEL; PERFORMANCE

Author Information

Reprint Address:

Fac Engn, Dept Mech Engn, Kuala Lumpur 50603, Malaysia.

Universiti Malaya Univ Malaya, Ctr Latin Amer Studies, Kuala Lumpur 50603, Malaysia.

Corresponding Address: Yusoff, MNAM; Zulkifli, NWM (corresponding author)

Fac Engn, Dept Mech Engn, Kuala Lumpur 50603, Malaysia.

Corresponding Address: Yusoff, MNAM (corresponding author)

Univ Malaya, Ctr Latin Amer Studies, Kuala Lumpur 50603, Malaysia.

Addresses:

[1] Fac Engn, Dept Mech Engn, Kuala Lumpur 50603, Malaysia

[2] Univ Malaya, Ctr Latin Amer Studies, Kuala Lumpur 50603, Malaysia

[3] Univ Technol Sydney, Fac Engn & Informat Technol, Sch Informat Syst & Modelling, Sydney, NSW, Australia

[4] Int Islamic Univ Malaysia, Fac Engn, Dept Mech Engn, Kuala Lumpur, Malaysia

[5] Univ Engn & Technol, Dept Mech Engn, City Campus Lahore, Lahore, Pakistan

E-mail Addresses: ashraf@um.edu.my; nurinmz@um.edu.my

Funding

Funding Agency	Grant Number
University of Malaya under the Equitable Society Research Cluster (ESRC)	GC003D-17SBS

[View funding text](#)

Citation Network

In Web of Science Core Collection

0

Times Cited

Create Citation Alert

60

Cited References

[View Related Records](#)

Use in Web of Science

Web of Science Usage Count

0

Last 180 Days

0

Since 2013

[Learn more](#)

This record is from:

Web of Science Core Collection

- Science Citation Index Expanded

Suggest a correction

If you would like to improve the quality of the data in this record, please [suggest a correction](#).

Publisher

SPRINGER, ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES

Categories / Classification

Research Areas: Energy & Fuels; Environmental Sciences & Ecology

Web of Science Categories: Energy & Fuels; Environmental Sciences

See more data fields

◀ 1 of 1 ▶

Cited References: 60Showing 30 of 60 [View All in Cited References page](#)*(from Web of Science Core Collection)*

1. [PRODUCTION TECHNOLOGY OF BIODIESEL FROM PALM FATTY ACID DISTILLATE USING MILD ACID CATALYST](#) Times Cited: 5
By: Abd Wafti, Nur Sulihatimarsyila; Lau, Harrison Lik Nang; Choo, Y. M.
JOURNAL OF OIL PALM RESEARCH Volume: 27 Issue: 4 Pages: 352-359 Published: DEC 2015
2. [Current status and policies on biodiesel industry in Malaysia as the world's leading producer of palm oil](#) Times Cited: 93
By: Abdullah, A. Z.; Salamatinia, B.; Mootabadi, H.; et al.
ENERGY POLICY Volume: 37 Issue: 12 Pages: 5440-5448 Published: DEC 2009
3. [Performance, emissions, and heat losses of palm and jatropha biodiesel blends in a diesel engine](#) Times Cited: 63
By: Abedin, M. J.; Masjuki, H. H.; Kalam, M. A.; et al.
INDUSTRIAL CROPS AND PRODUCTS Volume: 59 Pages: 96-104 Published: AUG 2014
4. [Analysis of operating costs for producing biodiesel from palm oil at pilot-scale in Colombia](#) Times Cited: 36
By: Acevedo, Juan C.; Hernandez, Jorge A.; Valdes, Carlos F.; et al.
BIORESOURCE TECHNOLOGY Volume: 188 Pages: 117-123 Published: JUL 2015
5. Title: [not available] Times Cited: 1
By: [Anonymous].
Diesel Fuels Technical Review Published: 2007
Publisher: Chevron Corporation, San Ramon
6. Title: [not available] Times Cited: 3
By: [Anonymous].
National Energy Balance 2016 Published: 2018
Publisher: Energy Commission Malaysia, Putrajaya
7. Title: [not available] Times Cited: 1
By: [Anonymous].
OECD-FAO Agricultural Outlook 2019-2028 Published: 2019
Publisher: OECD Publishing, Paris
8. Title: [not available] Times Cited: 6
By: [Anonymous].
The national biofuel policy Published: 2006
Publisher: MPIC, Kuala Lumpur
9. Title: [not available] Times Cited: 1
By: [Anonymous].
The national green technology policy Published: 2010
Publisher: KeTTHA, Malaysia
10. [Waste animal fats as feedstocks for biodiesel production](#) Times Cited: 144
By: Bankovic-Ilie, Ivana B.; Stojkovic, Ivan J.; Stamenkovic, Olivera S.; et al.
RENEWABLE & SUSTAINABLE ENERGY REVIEWS Volume: 32 Pages: 238-254 Published: APR 2014
11. [Basic properties of palm oil biodiesel-diesel blends](#) Times Cited: 292
By: Benjumea, Pedro; Agudelo, John; Agudejo, Andres
FUEL Volume: 87 Issue: 10-11 Pages: 2069-2075 Published: AUG 2008
12. Title: [not available] Times Cited: 2
Group Author(s): Bernama
Malaysia to go into tin mining again Published: 2019

13. **Sustainable oil-palm cultivation: we need to use 'gene technology' to boost palm-oil production** Times Cited: 2
By: Bhore, S.
Gene Tech Volume: 2 Pages: e105 Published: 2013
14. **Biofuels in Malaysia: an analysis of the legal and institutional framework** Times Cited: 3
By: Chin, M.
Working Paper 64 Published: 2011
Publisher: Center for International Forestry Research, Bogor, Indonesia
15. Title: [not available] Times Cited: 1
By: Choo, YM; Harrison, LLN; Yung, CL.
Biodiesel standard development & impacts of palm biodiesel on engines and emissions
Publisher: Malaysian Palm Oil Berhad, Selangor
16. Title: [not available] Times Cited: 1
By: Choo, YM; Ma, AN; Yusof, B.
Palm oil methyl esters as fuel: palm diesel. Palm Oil Research Institute of Malaysia Published: 1993
Publisher: Ministry of Primary Industries, Malaysia
17. Title: [not available] Times Cited: 3
By: Crutchfield, J.
Indonesia: palm oil production prospects continue to grow Published: 2007
Accessed 10 July 2019
Publisher: United States Department of Agriculture-Foreign Agriculture Services
URL: https://ipad.fas.usda.gov/highlights/2007/12/indonesia_palmoil/
18. Title: [not available] Times Cited: 2
Group Author(s): Economic Planning Unit Malaysia
Eleventh Malaysia plan, 2016-2020: Anchoring growth on people Published: 2015
Accessed 9 October 2019
Publisher: Prime Minister's Department
19. Title: [not available] Times Cited: 1
Group Author(s): EIA
Country Analysis Brief: Colombia Published: 2016
Accessed 1 July 2019
Publisher: U.S. Energy Information Administration
20. Title: [not available] Times Cited: 2
Group Author(s): EIA
Country Analysis Brief: Malaysia Published: 2017
Accessed 30 June 2019
Publisher: U.S. Energy Information Administration
21. Title: [not available] Times Cited: 1
Group Author(s): EIA
Country analysis executive summary: Colombia Published: 2019
Accessed 1 July 2019
Publisher: U.S. Energy Information Administration
22. Title: [not available] Times Cited: 1
Group Author(s): EMIS
Colombia Transportation Sector Report 2016/2017 Published: 2017
Accessed 5 July 2019
23. **African palm oil *elaeis guineensis*: alternative energy resource to biodiesel production in Colombia and its environmental impact** Times Cited: 1
By: Fontalvo Gomez, M; Vecino Perez, R; Barrios Sarmiento, A.
Prospectiva Volume: 12 Issue: 1 Pages: 90-98 Published: 2014
24. **Biodiesel production from mahua (*Madhuca indica*) oil having high free fatty acids** Times Cited: 394
By: Ghadge, SV; Raheman, H
BIOMASS & BIOENERGY Volume: 28 Issue: 6 Pages: 601-605 Published: 2005
25. Title: [not available] Times Cited: 3,869
Group Author(s): IPCC
Climate Change 2014: Impacts, Adaptation, and Vulnerability Published: 2014
26. **Climate change 2001: Impacts, adaptation and vulnerability** Times Cited: 1,063
Group Author(s): IPCC
Technical Summary Published: 2001
viewed 23 October 2017, from

27. Title: [not available] Times Cited: 5
By: Jaaskelainen, H.
Biodiesel Standards & Properties Published: 2009
Publisher: DieselNet.com
28. **Sustainability of biofuels in Latin America: Risks and opportunities** Times Cited: 95
By: Janssen, Rainer; Rutz, Dominik Damian
ENERGY POLICY Volume: 39 Issue: 10 Pages: 5717-5725 Published: OCT 2011
29. Title: [not available] Times Cited: 1
By: Jezeer, R; Slingerland, M; van der Laan, C; et al.
Improving smallholder inclusiveness in palm oil production-a global review Published: 2019
Accessed 6 August 2019
Publisher: Tropenbos International
URL:
<https://www.tropenbos.org/resources/publications/improving+smallholder+inclusiveness+in+palm+oil+production+%E2%80%94+a+global+review>
[\[Show additional data\]](#)
-