



DAFTAR PUSTAKA

- Abdullah I dan Mahmood W.H.W., Fauadi, M.H.F.D., Rahman, M.N.A., & Ahmad, F. 2015. Sustainability in Malaysian Palm Oil: A Review on Manufacturing Perspective. *Polish Journal of Environmental Studies*, 24(4):1463–1475.
- Agus F, Sari NK, & Mahlia TMI. 2021. Environmental impact assessment of palm oil production in Indonesia. *Jurnal Teknologi Lingkungan*, 22(2):88-97.
- Ahmadi, Mahidin, Faisal, M., Hamdani, Siregar, K., Erdiwansyah, Masturah, R., & Nasrullah. 2021. Cradle to Gate Life Cycle Assessment of Palm Oil Industry. *IOP Conference Series: Materials Science and Engineering*, 1143(1), 012044. <https://doi.org/10.1088/1757-899x/1143/1/012044>
- Althaus, H. J., Bauer, C., Doka, G., Frischknecht, R., Hellweg, S., Humbert, S., & Jungbluth, N. 2020. Life cycle inventories of chemicals: Methods, data quality and applications. *The International Journal of Life Cycle Assessment*, 25(5), 904-912.
- Altomonte, Sergio. 2009. Environmental Education for Sustainable Architecture. *Review of European Studies*, 1(2).
- Amar Ma'ruf, Cik Zulia, & Safruddin. Legume Cover Crop di Perkebunan Kelapa Sawit. Cetakan Pertama: Maret, 2017. *Forthisa Karya* ISBN: 978-602-14628-2-9.
- Amzul Rifn. 2017. Efisiensi Perusahaan Crude Palm Oil (CPO) di Indonesia. *Jurnal Manajemen & Agribisnis*, 14(2).
- anak Erison, A. E., Tan, Y. H., Mubarak, N. M., Kansedo, J., Khalid, M., Abdullah, M. O., & Ghasemi, M. (2022). Life cycle assessment of biodiesel production by using impregnated magnetic biochar derived from waste palm kernel shell. *Environmental Research*, 214. <https://doi.org/10.1016/j.envres.2022.114149>
- Arieftiara, D., Theresa, R. M., & Sari, R. 2021. Sustainability in health service industry: The implementation of Material Flow Cost Accounting (MFCA) as an eco-efficient analysis. *IBIMA Business Review*, 2021. <https://doi.org/10.5171/2021.747009>.
- Asian Productivity Organization. 2014. *Manual on Material Flow Cost Accounting: ISO 14051*. Tokyo-Japan.
- Asif, M., Searcy, C., Zutshi, A., & Ahmad, N. 2010. An integrated management systems approach to corporate sustainability. *European Business Review*. 23(4), pp. 353-367.
- Asnawi, R., & Gusmanizar, N. 2020. Impact of the use of chemical fertilizers and pesticides in oil palm plantations on soil, water and human health. *Journal of Environmental Chemical Engineering*, 8(2), 103833.



- Asnawi, R., Ramadhani, D. P., Fauzi, M. A., & Ilyas, S. 2020. Analysis of water footprint of palm oil production in Indonesia. In *E3S Web of Conferences*, 156, 01006. EDP Sciences.
- Austinl. 2019. The impacts of oil palm cultivation on environmental integrity and social sustainability in Indonesia. *Journal of Environmental Management*, 240, 432-443.
- Austin, K.G., Mosnier, A., Pirker, J., McCallum, I., Fritz, S., & Kasibhatla, P.S. 2017. Shifting patterns of oil palm driven deforestation in Indonesia and implications for zero-deforestation commitments. *Land Use Policy*, 69, 41-48.
- Ayu, D., Sari, P., Rahmah, A., & Sasongko, N. A. 2023. Life Cycle Assessment (LCA) in Palm Oil Plantation and Mill with Impact Categories Global Warming Potential, Acidification, and Eutrophication. In *International Journal of Membrane Science and Technology*, 10(2).
- Aziz, M., Oda, T., & Kashiwagi, T. 2015. Design and Analysis of Energy-Efficient Integrated Crude Palm Oil and Palm Kernel Oil Processes. *Journal of the Japan Institute of Energy*, 94, 143-150.
- Aziz, N.I.H.A. & Hanafiah, M.M. 2020. Life cycle analysis of biogas production from anaerobic digestion of palm oil mill effluent. *Renewable Energy*, 145, 847-857.
- Badan Pusat Statistik. 2018. *Luas Areal dan Produksi Perkebunan Besar Negara Menurut Jenis Tanaman di Jawa Barat, 2016*. Dalam <https://jabar.bps.go.id/statictable/2018/03/29/519/-luas-areal-dan-produksi-perkebunan-besar-negara-menurut-jenis-tanaman-di-jawa-barat-2016.html>. Diakses 23 Januari 2019.
- Baek C.Y., Park K.H., Tahara K. & Chun Y.Y. 2017. Data Quality Assessment of the Uncertainty Analysis Applied to the Greenhouse Gas Emissions of a Dairy Cow System. *Sustainability*, 9, 1676; doi:10.3390/su9101676
- Bakar, N. A. A., Lim, J. S., Hamid, F. S., & Baharuddin, A. S. 2020. An overview of human health and environmental impacts of oil palm cultivation. *Journal of Environmental Management*, 258, 109968.
- Barchia, M.F. 2016. International Conference on Inventions & Innovations for Sustainable Agriculture 2016, ICIISA 2016 Carbon Release from Agricultural Cultivated Peats at Sungai Hitam Wetland, Bengkulu Province, Indonesia. *Agriculture and Agricultural Science Procedia*, 11, 71-76.
- Basyuni, M., Amri, N., Putri, L.A.P., Syahputra, I., & Arifiyanto, D. 2017. Characteristics of Fresh Fruit Bunch Yield and the Physicochemical Qualities of Palm Oil during Storage in North Sumatra, Indonesia. *Indonesian Journal of Chemistry*, 17 (2), 182 – 190.
- Bell, D.R., Silalertruksa, T., Gheewala, S.H., & Kamens, R. 2001. The net cost of biofuels in Thailand-An economic analysis. *Energy Policy*, 39, 834-843.



- Bello-Mendoza, R., Díaz-Ramírez, J., & González-Rojas, J. I. 2019. Environmental impacts of oil palm production and its sustainability challenges. *Sustainability*, 11(22), 6306.
- Bessou, C., Henson, I. E., da Costa, H. L., & Muhamad, H. 2021. Water scarcity and oil palm cultivation: A review of current knowledge and future research directions. *Journal of Cleaner Production*, 297, 126631.
- Bhakar, V., Digalwar, A.K., & Sangwan, K.S. 2018. Sustainability assessment framework for manufacturing sector a conceptual model. *Procedia CIRP* 69, 248 – 253.
- Bok, C.H., Lim, C.H., Ngan, S.L., How, B.S., Ng, W.P.Q, & Lam, H.L. 2022. Life cycle assessment and life cycle costing analysis for uncertified and Malaysia sustainable palm oil - MSPO-certified independent smallholders. *Journal of Cleaner Production*, 379, 134646.
- Boonsohonsatit K., Kara S., Ibbotson S., & Kayis B. 2015. Development of a Generic decision support system based on multi-Objective Optimisation for Green supply chain network design (GOOG). *Journal of Manufacturing Technology Management*, 26(7), 1069-1084.
- Bux, C., & Amicarelli, V. 2022. Material flow cost accounting (MFCA) to enhance environmental entrepreneurship in the meat sector: Challenges and opportunities. *Journal of Environmental Management*, 313. <https://doi.org/10.1016/j.jenvman.2022.115001>.
- Chaiwan, W., Boonmee, C., & Kasemset, C. 2015. Waste reduction in meat processing industry: The application of MFCA (ISO 14051). In *Toward Sustainable Operations of Supply Chain and Logistics Systems*; Kachitvichyanukul, V., Sethanan, K., Golinska-Dawson, P., Eds.; Springer International Publishing: Cham, Switzerland, pp. 183–193, ISBN 978-3-319-19005-1.
- Chattinnawat, W., Suriya, W., & Jindapanpisan, P. 2018. Application of MFCA with LEAN to improve pajama production process: A case study of Confederate International Co., Ltd. In *Accounting for Sustainability: Asia Pacific Perspectives*; Lee, K.-H., Schaltegger, S., Eds.; Springer International Publishing: Cham, Switzerland, pp. 209–235, ISBN 978-3-319-70898-0.
- Chavalparit, Orathai. 2006. *Clean Technology for the Crude Palm Oil Industry in Thailand*. PhD Thesis Wageningen University. ISBN 90-8504-446-4.
- Chew, Z.L., Tan, E.H., Palaniandy, S.A.I., Woon, K.S., & Phuang Z.X., 2023. An integrated life-cycle greenhouse gas protocol accounting on oil palm trunk and empty fruit bunch biofuel production. *Science of the Total Environment*, 856.
- Chompu-inwai R., Jaimjit B., & Premsuriyanunt P. 2015. A combination of Material Flow Cost Accounting and design of experiments techniques in an SME: the case of a wood products manufacturing company in northern



- Thailand. *Journal of Cleaner Production*, 108, 1352-1364.
- Chompu-inwai, R. & Apinun, T. 2015. The application of Material Flow Cost Accounting for loss reduction in the pottery and decorative ceramics production process. In Proceedings of the 2015 International Conference on Logistics, Informatics and Service Sciences (LISS), Barcelona, Spain, 27–29 July 2015; Zhang, Z., Zhang, R., Fernandez, V., Liu, S., Eds.; IEEE: New York, NY, USA, pp. 1–6.
- Chungsiriporn, J., Prasertsan, S., & Bunyakan, C. 2006. Minimization of water consumption and process optimization of palm oil mills. *Clean Technology Environment Policy*, 8, 151–158. DOI 10.1007/s10098-005-0002-y
- Ciroth, Andreas. 2007. ICT for environment in life cycle applications openLCA - A new open-source software for Life Cycle Assessment. *The International Journal of Life Cycle Assessment*, 12(4):209-210. 10.1065/lca2007.06.337
- Claus Stig Pedersen. 2018. The UN Sustainable Development Goals (SDGs) are a great gift to business!. *Procedia CIRP* 69:21-24. 25th CIRP Life Cycle Engineering (LCE) Conference, 30 April-2 May 2018, Copenhagen, Denmark.
- Cock J., Donough C.R., Oberthür T., Indrasuara K., Rahmadsyah, Gatot A. R., & Dolong T. 2014. Increasing Palm Oil Yields by Measuring Oil Recovery Efficiency from The Fields to The Mills. *Proceeding on the 5th International Oil Palm Conference (IOPC): Food Security and Renewable Energy*. <http://iopc2014.iopri.org/index.php/the-conference>.
- Crenna, E., Secchi, M., Benini, L., & Sala, S. 2019. Global environmental impacts: data sources and methodological choices for calculating normalization factors for LCA. *The International Journal of Life Cycle Assessment*, 24, 1851–1877.
- Curran. 2019. "Environmental and social impacts of oil palm cultivation in Indonesia." *Biological Conservation*, 237, 297-305.
- Daddi T., Nucci B., & Iraldo F. 2017. Using Life Cycle Assessment (LCA) to measure the environmental benefits of industrial symbiosis in an industrial cluster of SMEs. *Journal of Cleaner Production*, 147, 157-164.
- Darmosarkoro, W., E.S. Sutarta & Winarna. 2003. *Teknologi pemupukan tanaman kelapa sawit dalam lahan dan pemupukan kelapa sawit*. Pusat Penelitian Kelapa Sawit. Medan. Hal:113-134
- Darojat, K., Hadi, W., & Rahayu, D. E. 2019. Life Cycle Assessment (LCA) utilization of oil palm empty fruit bunches as bioenergy. *AIP Conference Proceedings*, 2194. <https://doi.org/10.1063/1.5139751>
- Dechampai, D., Homrossukon, S., Wongthatsanekorn, W., & Ekkachai, K. 2021. Applying material flow cost accounting and two-dimensional, irregularly shaped cutting stock problems in the lingerie manufacturing industry. *Applied Sciences (Switzerland)*, 11(7).

[https://doi.org/10.3390/app11073142.](https://doi.org/10.3390/app11073142)

- Dekamin M. & Barmaki M. 2019. Implementation of material flow cost accounting (MFCA) in soybean production. *Journal of Cleaner Production*, 210, 459-465.
- Delivnd M.K. & Gnansounou E. 2013. Life cycle environmental impacts of a prospective palm based biorefinery in Pará State-Brazil. *Bioresource Technology*, 150, 438-446.
- Denny KS Ng & Rex TL Ng. 2013. Applications of process system engineering in palm-based biomass processing industry. *Current Opinion in Chemical Engineering*, 2, 448–454.
- Dev N.K., Shankar R, & Choudhary A. 2017. Strategic design for inventory and production planning in closed-loop hybrid systems. *International Journal Production Economics*, 183, 345-353.
- Dewi M.S., Hartono D.M., Moersidik S.S., & Kustiwan I. 2016. CITIES 2015 International Conference, Intelligent Planning Towards Smart Cities, CITIES 2015, 3-4 November 2015, Surabaya, Indonesia. Green housing evaluation through carbon footprint dynamic model: questioned the urban policy sustainability. *Procedia - Social and Behavioral Sciences*, 227, 317-324.
- Dewi, N. 2009. Respon Bibit Kelapa Sawit Terhadap Lama Penggenangan dan Pupuk Pelengkap Cair. *Agronobis*, 1(1), Maret 2009.
- Dierkes S. & Siepelmeyer D. 2019. Production and cost theory-based material flow cost accounting. *Journal of Cleaner Production*, 235, pp. 483-492.
- Dinas Perkebunan Provinsi Riau. 2009. *Data Statistik Perkebunan Provinsi Riau Tahun 2008*. Pekanbaru.
- Directorate General of Estate Crops. 2019. *Palm Oil: Tree Crop Estate Statistics of Indonesia 2018 – 2020*. Ministry of Agriculture Republic of Indonesia, Jakarta.
- Dong Y., Miraglia S., Manzo S., Georgiadis S., Sorup H.J.D., Boriani E., Hald T., Thons S., & Hauschild M.Z. 2018. Environmental sustainable decision making-The need and obstacles for integration of LCA into decision analysis. *Environmental Science and Policy*, 87, 33–44.
- Donough, C.R., Cock, J., Oberthür, T., Indrasuara, K., Rahmadsyah, Gatot, A.R., & Dolong, T. 2015. Estimating Oil Content of Commercially Harvested Oil Palm Fresh Fruit Bunches – A Step towards Increasing Palm Oil Yields. *Oil Palm Bulletin*, 70, p. 8-12.
- Doorasamy, M. 2014. The effectiveness of Material Flow Cost Accounting (MFCA) in identifying non-product output costs and its impact on environmental performance in paper manufacturing companies: A case study in Kwa-Zulu Natal. *J. Account. Manag.*, 4, 51–69



- Dunuwila, P., Rodrigo, V. H. L., & Goto, N. 2020. Improving financial and environmental sustainability in concentrated latex manufacture. *Journal of Cleaner Production*, 255. <https://doi.org/10.1016/j.jclepro.2020.120202>.
- Dunuwila P., Rodrigo V.H.L., & Goto N. 2018. Financial and environmental sustainability in manufacturing of crepe rubber in terms of material flow analysis, material flow cost accounting and life cycle assessment. *Journal of Cleaner Production*, 182, 587-599.
- Edelen, A. & Ingwersen, W. 2016. *Guidance on Data Quality Assessment for Life Cycle Inventory Data*. National Risk Management Research Laboratory. Office of Research and Development. United States Environmental Protection Agency.
- Editorial. 2015. Material Flow Cost Accounting e looking back and ahead. *Journal of Cleaner Production*, 108, 1249-1254.
- Effendi, B.J. 2010. *Peran Air bagi Tanaman*. <http://oyie.blog.com/2010/04/17/peranan-air-bagi-tanaman/>. Diakses pada tanggal 16 September 2013.
- Fabiani, C., Pisello, A. L., Barbanera, M., & Cabeza, L. F. 2020. Palm oil-based bio-PCM for energy efficient building applications: Multipurpose thermal investigation and life cycle assessment. *Journal of Energy Storage*, 28. <https://doi.org/10.1016/j.est.2019.101129>
- Fakoya, M.B. 2015. Adopting material flow cost accounting model for improved waste-reduction decisions in a micro-brewery. *Environmental Development and Sustainability*, 17, 1017–1030. 10.1007/s10668-014-9586-x.
- Fakoya, M.B. & van der Poll, H.M. 2013. Integrating ERP and MFCA systems for improved waste-reduction decisions in a brewery in South Africa. *J. Clean. Prod.*, 40, 136–140.
- Fauzi, Y., Y. E. Widyastuti, I. Satyawibawa & R. Hartono. 2005. *Kelapa Sawit*. Penebar Swadaya. Jakarta.
- Favi, C., Formentini, G., & Rodríguez, N.B. 2020. Eco-design of cooking appliances based on food habits and diets. *Procedia CIRP*, 90, 372–376.
- Felice, F., D., Vigano, G., dan Delogu, M. 2018. Development of a Data Quality Assessment Framework for LCA Inventory Databases. *Environmental Science and Pollution Research*.
- Finnan. J., Styles, D., Fitzgerald, J., Connolly, J., & Donnelly, A. 2012. Using a Strategic Environmental Assessment framework to quantify the environmental impact of bioenergy plans. *GCB Bioenergy*, 4, 311–329. 10.1111/j.1757-1707.2011.01143.x.
- Food and Agriculture Organization of the United Nations Statistics Division (FAOSTAT), Emissions-Land use total, viewed on February 24, 2017
- Foong S.Z.Y., Goh C.K.M., Supramaniam C.V., & Denny K.S.N. 2019. Research article: Input-output optimisation model for sustainable oil palm plantation



development. *Sustainable Production and Consumption*, 17, 31-46.

- Foong, S.Z.Y., Lam, Y.L., Andiappan, V., Foo, D.C.Y., & Ng, D.K.S. 2018. A Systematic Approach for the Synthesis and Optimization of Palm Oil Milling Processes. *Industrial Engineering Chemical and Research*, 57, 2945–2955
- Fricke. T.B. 2009. *Buku Panduan Pabrik Kelapa Sawit Skala Kecil untuk Produksi Bahan Baku Bahan Bakar Nabati (BBN)*. Environmental Services Program, DAI Project Number: 5300201. USAID/Indonesia, 497-M-00-05-00005-00.
- Fridrihsone, A., Romagnoli, F., Kirsanovs, V., & Cabulis, U. 2020. Life Cycle Assessment of vegetable oil-based polyols for polyurethane Production. *Journal of Cleaner Production*, 266, 121403.
- Frischknecht, R., Jungbluth, N., Althaus, J.A., Bauer, C., Doka, G., Dones, R., Hischier, R., Hellweg, S., Humbert, S., Kollner, T., Loerincik, Y., Margni, M., & Nemecek. T. 2007. *Implementation of Life Cycle Impact Assessment Methods Data v2.0. Ecoinvent report No. 3*. Dübendorf, Swiss Centre for Life Cycle Inventories.
- Gao G., Yue W., Ou W., & Tang H. 2018. Vulnerability evaluation method applied to manufacturing systems. *Reliability Engineering and System Safety*, 180, 255-265.
- García, S.R., Laso, J., & Rodríguez, M.A. 2016. Developing a Pedigree Matrix to Assess Data Quality in Life Cycle Inventory. *International Journal of Life Cycle Assessment*.
- Genovese A., Acquaye A.A., Figueroa A., & Koh S.C.L. 2017. Sustainable supply chain management and the transition towards a circular economy: Evidence and some applications. *Omega*, 66, 344-357.
- Ghadimi P., Li W., Kara S., & Herrmann C. 2014. Integrated Material and Energy Flow Analysis towards Energy Efficient Manufacturing. *Procedia CIRP*, 15, pp.117-122.
- Goh C.S., Wicke B., Verstegen J., Faaij A., & Junginger M. 2016. Review: Linking carbon stock change from land-use change to consumption of agricultural products: A review with Indonesian palm oil as a case study. *Journal of Environmental Management*, 184, 340-352.
- Goh, K. H., & Lee, K. T. 2019. A review on renewable energy sources, sustainability issues and climate change mitigation in the Malaysian palm oil industry. *Renewable and Sustainable Energy Reviews*, 110, 147-174.
- Gomez J.C., Mokhtar M.N., Sulaiman A., Zakaria R., Baharuddin A.S., & Busu Z. 2015. Study on Residual Oil Recovery from Empty Fruit Bunch by Combination of Water and Steam Process. *Journal of Food Process Engineering*, 38, pp.385–394.
- Gouda P.J., Harahap F., Silveira S., & Schrack, D. 2017. Material flow cost

accounting in the light of the traditional cost accounting. *Springer-uwf*, 25, 5–14.

- Guinee, B.J., Gorrée, M., Heijungs, R., Huppes, G., Kleijn, R., Koning, A., Sleeswijk, L.O.A.W., Suh, S., Haes, H.A.U., Bruijn, H., Duin, R., Huijbregts, M.A.J., Lindeijer, E., Roorda, A A.H., van der Ven, B.L., & Weidema, B.P. 2004. *Handbook on Life Cycle Assessment: Operational Guide to the ISO Standards*. Kluwer Academic Publisher. Dordrecht.
- Gunarso *et al.* 2018. "Oil palm and land-use change in Indonesia, Malaysia and Papua New Guinea." *Environmental Research Letters*, 13(12), 123001.
- Gunawan J., Lestari R. 2018. Persepsi Dosen Akuntansi Perguruan Tinggi di Jakarta atas Implementasi Material Flow Cost Accounting (MFCA). *Jurnal Akuntansi Trisakti*, 5(1), pp. 53-64. ISSN: 2339-0832 (Online).
- Haase, H., Babenhauserheide, N., & Rösch, C. 2020. Multi criteria decision analysis for sustainability assessment of 2nd generation biofuels. *Procedia CIRP*, 90, 226–231.
- Hadi, P., & Suryantini, A. 2020. Water Footprint of Crude Palm Oil Production and Sustainability Aspect in West Kalimantan Province. *IOP Conference Series: Earth and Environmental Science*, 423(1), 012054.
- Hadiguna R.A. & Machfud. 2008. Model Perencanaan Produksi Pada Rantai Pasok Crude Palm Oil Dengan Mempertimbangkan Preferensi Pengambil Keputusan. *Jurnal Teknik Industri*, 10(1), 38-49.
- Hafiza Fadhilah & Budiyanto. 2018. Pengaruh Tandan Kosong Kelapa Sawit Sebagai Media Tumbuh Jamur Terhadap Produksi Dan Sifat Fisik Jamur Merang (Volvariella volvacea). *Jurnal Agroindustri*, 8(1), 80-96.
- Halimah, M., Hassan, O., Ai, T.Y., & Ismail, B.S., 2012. An Improved Method For The Determination of Chlorpyrifos In Palm Oil Matrices Using Gas Chromatography. *Journal of Oil Palm Research*, 24, 1404-1411.
- Hambali E. & Rivai, M. 2017. The Potential of Palm Oil Waste Biomass in Indonesia in 2020 and 2030. *IOP Conf. Series: Earth and Environmental Science*, 65, 012050.
- Hanafi, N.H, Hassim, M.H., & Yusuf, M.R.M. 2015. Emission Factor Establishment for Palm Oil Mill Boiler. *Journal of Engineering Science and Technology. Special Issue on SOMCHE 2014 & RSCE 2014 Conference, January*, 50 – 60. School Of Engineering, Taylor's University.
- Hannouf, M. & Assefa, G. 2017. Article: Life Cycle Sustainability Assessment for Sustainability Improvements: A Case Study of High-Density Polyethylene Production in Alberta, Canada. *MDPI-Sustainability*, 9, 2332; doi:10.3390/su9122332
- Harahap F., Silveira S., & Khatiwada D. 2019. Cost competitiveness of palm oil biodiesel production in Indonesia. *Energy*, 170, 62-72. <https://doi.org/10.1016/j.energy.2018.12.115>.



- Harahap, I. Y. 2006. Penataan Ruang Pertanaman Kelapa Sawit Berdasar Pada Konsep Optimalisasi Pemanfaatan Cahaya Matahari. *Warta PPKS*, 14 (1), 9-15.
- Harimurti, D., Hariyadi, & Noor, E. 2021. Reducing greenhouse gas emissions in oil palm plantations using a life cycle assessment approach. *Jurnal Pengelolaan Sumberdaya Alam Dan Lingkungan*, 11(1), 1–9. <https://doi.org/10.29244/jpsl.11.1.1-9>
- Hartanto, L.B., Sibarani, M., & Tuapelte, J.V. 2020. Analisa Teknis dan Biaya Penggunaan Bahan Bakar Cangkang Kelapa Sawit dan Batu Bara pada Boiler DZL4 di PT. Lautan Luas Tbk. *Jurnal Teknik Mesin – ITI*, 4(1).
- Haryanto, A., Lanya, B., Triyono, S., Saputra, M., & Setyowati, N. 2011. Analisis Energi Masukan-Keluaran Pada Proses Produksi Kelapa Sawit (Elaesis guineensis jacq.). *AGRITECH*, 31(3).
- Hashim Z., Vijaya S., Harun M.H., & Kamarudin N. 2017. Carbon footprint of oil palm planted on peat in Malaysia. *International Journal Life Cycle Assessment*. DOI 10.1007/s11367-017-1367-y.
- Hashim, Z., Muhamad, H., Subramaniam, V., & May, C.Y. 2014. Water Footprint: Part 2 - FFB Production for Oil Palm Planted in Malaysia. *Journal of Oil Palm Research*, 26 (4), p. 282-291.
- Hauschild, M.Z., Rosenbaum, R.K., & Olsen, S.I. 2018. *Life Cycle Assessment: Theory and Practice*. Springer Nature. Gewerbestrasse 11, 6330 Cham, Switzerland.
- Hazmi, A., Desmiarti, R., Waldi, E.P., & Emeraldi, P. 2016. Preliminary Study on Treatment of Palm Oil Mill Effluent by Sand Filtration-Dielectric Barrier Discharge System. *Journal of Engineering, Technology, and Science*, 48(1), 21-30.
- Henders. 2020. "Impacts of oil palm expansion on peatland conversion in Sarawak, Malaysia and the resulting losses of ecosystem services." *Global Environmental Change*, 63, 102093.
- Herzig, C., Viere, T., Schaltegger, S., & Burritt, R.L. 2012. EMA for eco-efficiency in a towel production firm. In Environmental Management Accounting: Case Studies of South-East Asian Companies; Herzig, C., Viere, T., Schaltegger, S., Burritt, R.L., Eds.; Routledge: London, UK, pp. 59–75, ISBN 9780203125366.
- Herzig, C., Viere, T., Schaltegger, S., & Burritt, R.L. 2012. Environmental impact assessment, compliance monitoring and reporting in electroplating. In Environmental Management Accounting: Case Studies of South-East Asian Companies; Herzig, C., Viere, T., Schaltegger, S., Burritt, R.L., Eds.; Routledge: London, UK, pp. 148–172, ISBN 9780203125366.
- Herzig, C., Viere, T., Schaltegger, S., & Burritt, R.L. 2012. Material flow cost accounting in a snack producer. In Environmental Management

Accounting: Case Studies of South-East Asian Companies; Herzig, C., Viere, T., Schaltegger, S., Burritt, R.L., Eds.; Routledge: London, UK, pp. 98–116, ISBN 9780203125366

Herzig, C., Viere, T., Schaltegger, S., & Burritt, R.L. 2012. Relevant environmental costing and decision-making in a SAA paper manufacturer. In Environmental Management Accounting: Case Studies of South-East Asian Companies; Herzig, C., Viere, T., Schaltegger, S., Burritt, R.L., Eds.; Routledge: London, UK, pp. 173–190, ISBN 9780203125366.

Hetland J., Yowargana P., Leduc S., & Kraxner F. 2016. Carbon-negative emissions: Systemic impacts of biomass conversion. A case study on CO₂ capture and storage options. *International Journal of Greenhouse Gas Control*, 49, 330-342.

Hidayat S & Ridwan M. 2013. Applying Netlogo Simulation Model to Balance The Upstream Palm Oil Supply Chain. *Proceeding, 6th International Seminar on Industrial Engineering and Management*. ISSN : 1978-774X.

Hidayat, L., Electrika, F., Surawan, D., & Raja, A.H.L. 2017. Kajian Sumber Energi Pada Pengolahan Kelapa Sawit Menjadi Crude Palm Oil (CPO) di PT. Alno Agro Utama Sumindo Oil Mill, Bengkulu Utara. *AGROINTEK*, 11(2).

Hidayati, Hidayat M.R. & Asmawit. 2015. Pemanfaatan Serat Tandan Kosong Kelapa Sawit Sebagai Media Pertumbuhan Jamur Tiram Putih. *Biopropal Industri*, 6(2), 73-80.

Hischier, R., Weidema, B., Althaus, H.J., Bauer, C., Doka, G., Dones, R., Frischknecht, R., Hellweg, S., Humbert, S., Jungbluth, N., Köllner, T., Loerincik, Y., Margni, M., & Nemecek, T. 2010. *Implementation of Life Cycle Impact Assessment Methods Data v.2.2*. Dübendorf, Swiss Centre for Life Cycle Inventories.

Ho, J. Y., Ng, D. K. S., Wan, Y. K., & Andiappan, V. 2021. Synthesis of wastewater treatment plant based on minimal waste generation cost: A material flow cost accounting (MFCA) approach. *Process Safety and Environmental Protection*, 148, 559–578. <https://doi.org/10.1016/j.psep.2020.10.013>.

Hong-Chao Zhang. 2003. Design for Environment: Methodologies, Tools, and Implementation. *Journal of Integrated Design and Process Science*. <https://www.researchgatefabianie.net/publication/234792075>.

Huang, S.Y., Chiu A.A., Chao P.C. & Wang, N. 2019. Article: The Application of Material Flow Cost Accounting in Waste Reduction. *MDPI-Sustainability*, 11, 1270; doi:10.3390/su11051270.

Huijbregts, M.A.J., Steinmann, Z.J.N., Elshout, P.M.F., Stam, G., Verones, F., Vieira, M., Zijp, M., Hollander, A., & Zelm, R. 2017. ReCiPe2016: a harmonised life cycle impact assessment method at midpoint and endpoint level. *Internasional Journal of Life Cycle Assessment*, 22, 138–147.

Husin, S., Gafur, H.S., Siscawati, M., Kristiadi, Y., & Tangkudung, A.G. 2021.



Sustainable Palm Oil Industry: Literature Study with Bibliometric Analysis.
Budapest International Research and Critics Institute-Journal (BIRCI-Journal), 4(4), 10273-10284.

Hyrslava, J., Wagner, M., & Palasek, J. 2011. Material Flow Cost Accounting (MFCA) – Tool for The Optimization of Corporate Production Processes. *Business, Management and Education*, 9(1): 5–18.

Idris M.N.M, Hashim H., & Razak N.H. 2018. Spatial optimisation of oil palm biomass co-firing for emissions reduction in coal-fired power plant. *Journal of Cleaner Production*, 172, 3428-3447.

Indonesia Eximbank Institute dan University Network bikFor Indonesia Export Development (UNIED) diwakili oleh Institut Pertanian Bogor (IPB). 2019. *Proyeksi Ekspor Berdasarkan Industri: Komoditas Unggulan*. Indonesia Eximbank.

Indonesia Palm Oil. 2019. <https://www.indonesiapalmoilfacts.com/ispo/> (ISPO (Indonesia Sustainable Palm Oil).

Instruksi Presiden (INPRES) tentang Rencana Aksi Nasional Perkebunan Kelapa Sawit Berkelanjutan Tahun 2019-2024. <https://peraturan.bpk.go.id/Home/Details/127666/inpres-no-6-tahun-2019>

Inyang J., Munot M.A., Shazali S.T.S, & Tanjong S.J. 2019. A Model to Manage Crude Palm Oil Production System. *MATEC Web of Conferences*, 255, 02001.

IPCC. 2007. *Intergovernmental Panel on Climate Change*. Emission Factors Database. <http://www.ipcc-nggip.iges.or.jp/EFDB/main.php>.

Ismail, W. R., Marzuki, A., Baharuddin, A. S., & Sulaiman, N. H. 2020. The influence of water management practices on the performance of oil palm plantations. *Water*, 12(10), 2823.

ISO 14067. 2013. *Greenhouse Gases-Carbon Footprint of Products-Requirements and Guidelines for Quantification and Communication*. International Organization for Standardization, Geneva, Switzerland.

Issam, L., Gupta, S., Bose, I., Stekelorum, R., & Laguir, L. 2022. Analytics capabilities and organizational competitiveness: Unveiling the impact of management control systems and environmental uncertainty. *Decision Support Systems*, 156, 113744

Jakrawatana, N., Pingmuangleka, P., & Gheewala, S.H. 2016. Material flow management and cleaner production of cassava processing for future food, feed and fuel in Thailand. *J. Clean. Prod.*, 134, 633–641.

Jasiulewicz-Kaczmarek M., & Saniuk A. 2015. Human factor in Sustainable Manufacturing, Editors:M. Antona, C. Stephanidis , Universal Access in Human-Computer Interaction. *Access to the Human Environment and Culture, LNCS*, 9178, pp.444 – 455, DOI 10.1007/978-3-319-20687-5_43.



- Jeong K., Hong T., & Kim J. 2018. Development of a CO₂ emission benchmark for achieving the national CO₂ emission reduction target by 2030. *Energy and Buildings*, 158, 86–94.
- Kamahara H., Faisal M., Hasanudin U., Fujie K., & Daimon H. 2018. Material flow analysis for resource management towards resilient palm oil production. *3rd ICChESA 2017: IOP Conf. Series. Materials Science and Engineering*, 334.
- Kamaruddin, M. A., Zakaria, Z. A., Ahmad, Z. A., & Yusoff, M. K. 2020. Occupational exposure and potential health risk assessment of polycyclic aromatic hydrocarbons (PAHs) among oil palm workers in Malaysia. *Environmental science and pollution research international*, 27(32), 40553-40565.
- Kasemset, C. & Boonmee, C. 2017. An integration method of MFCA, dynamic programming, and multiple criteria decision making in operations improvement: A case study. In Proceedings of the 2017 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM), Singapore, 10–13 December 2017; IEEE: New York, NY, USA, pp. 745–749, ISBN 978-1-5386-0948-4.
- Kasemset, C., Chernsupornchai, J., & Pala-Ud, W. 2015. Application of MFCA in waste reduction: Case study on a small textile factory in Thailand. *J. Clean. Prod.*, 108, 1342–1351.
- Kasemset, C., Sasiopars, S., & Suwiphat, S. 2013. The application of MFCA analysis in process improvement: A case study of plastics packaging factory in Thailand. In Proceedings of the Institute of Industrial Engineers Asian Conference 2013; Lin, Y.-K., Tsao, Y.-C., Lin, S.-W., Eds.; Springer: Singapore, pp. 353–361, ISBN 978-981-4451-97-0.
- Kazim Sari. 2017. A novel multi-criteria decision framework for evaluating green supply chain management practices. *Computers & Industrial Engineering* 105, 338-347.
- Kemausuor, F., Xiong, S., & Shahbazi, A. 2019. A review of water usage and crop yield in oil palm cultivation. *Agricultural Water Management*, 219, 129-139.
- Kementerian Perdagangan Republik Indonesia. 2013. *Market Brief Kelapa Sawit Sawit dan Olahannya*. ITPC Hamburg.
- Kementerian Pertanian. 2020. *Peraturan Presiden (PERPRES) Nomor 44 Tahun 2020 tentang Sistem Sertifikasi Perkebunan Kelapa Sawit Berkelanjutan Indonesia*. Jakarta
- Khameneh, A.Z. & Kilicman, A. 2019. Multi-attribute decision-making based on soft set theory: a systematic review. *Soft Computing*, 23, 6899–6920. Springer-Verlag GmbH Germany.
- Khang,D.S., Tan, R.R., Uy, O.M., Promentilla, M.A.B., Tuan,P.D., Abe, N., & Razon, L.F. 2018. A design of experiments approach to the sensitivity



analysis of the life cycle cost of biodiesel. *Clean Technology Environment Policy*, 20, 573–580.

Khasreen M.M., Banfill P.F.G., & Menzies G.F. 2009. Life-Cycle Assessment and the Environmental Impact of Buildings: A Review. *Sustainability*, 1, 674-701; doi:10.3390/su1030674.

KLH Jepang/KLH Indonesia. 2013. *Panduan Penanganan Air Limbah di Pabrik Pengolahan Kelapa Sawit*. KLH RI Deputi Bidang Sarana Teknis Lingkungan dan Peningkatan Kapasitas dan KLH Jepang Direktorat Air dan Udara, Bidang Umum, Sub Bidang Teknologi Pengendalian LH.

KLHK. 2019. *Database B3 dan POPs*. Dalam <https://sib3pop.menlhk.go.id/pop>.

Klöpffer, Walter. 2005. Life Cycle Assessment as Part of Sustainability Assessment for Chemicals. *Environmental Science and Pollution Research*, 12 (3) 173 – 177.

Kolarz, K.C., Korol, J., Pardała, M.L., & Ponikiewska, K. 2014. Material and Energy Flow Analysis (MEFA) of The Unconventional Method of Electricity Production Based on Underground Coal Gasification. *Journal of Sustainable Mining*, 13(3), 41–47.

Korol J., Kruczek M, & Pichlak M. 2016. Material and Energy Flow Analysis (MEFA)-First Step in Eco-Innovation Approach to Assessment of Steel Production. *Metalurgija*, 554, 818-820.

Krisi, S. A., Jami'in, M. A., & Apriani, M. 2022. Potensi Dampak Lingkungan Pada Industri Minyak Goreng Sawit Dengan Metode Life Cycle Assessment. *Jurnal Ilmu Lingkungan*, 20(3), 672–677. <https://doi.org/10.14710/jil.20.3.672-677>

Kurnin, N.A.A, Ismail, M.H.S., Yoshida, H., & Izhar, S. 2016. Recovery of Palm Oil and Valuable Material from Oil Palm Empty Fruit Bunch by Sub-critical Water. *Journal of Oleo Science*, 65(4) 283-289.

Kusin F.M., Akhir N.I.M., Yusuff F.M., & Awang M. 2017. Greenhouse gas emissions during plantation stage of palm oil-based biofuel production addressing different land conversion scenarios in Malaysia. *Environ Sci Pollut Res.*, 24, 5293–5304. DOI 10.1007/s11356-016-8270-0.

Kusumaningtyas, R. & van Gelder, J.W. 2017. Towards responsible and inclusive financing of the palm oil sector. Occasional Paper 175. *Center for International Forestry Research (CIFOR)*, Indonesia. ISBN 978-602-387-058-5. DOI: 10.17528/cifor/006601

Lam C.M., Iris K.M. Yu, Francisco Medel, Daniel C.W. Tsang, Shu-Chien Hsu, & Chi Sun Poon. 2018. Life-cycle cost-benefit analysis on sustainable food waste management: The case of Hong Kong International Airport. *Journal of Cleaner Production*, 187, 751-762.

Lam, W.Y., Kulak, M., Sim, S., King, H., Huijbregts, M.A.J., & Kramer, R.C. 2019. Greenhouse gas footprints of palm oil production in Indonesia over space

- and time. *Science of the Total Environment*, 688, 827–837.
- Lecoq L., Flick D., Derens E., Hoang H.M., & Laguerre O. 2016. Simplified heat and mass transfer modeling in a food processing plant. *Journal of Food Engineering*, 171, 1-13.
- Liang, H., Chen, A., Ding, C., & Li, Z. 2011. Influence of 1,2-Dichlorobenzene on Microbial and Enzyme Activities in Wetland Soil. *Procedia Environmental Sciences*, 10, 122 – 127.
- Lin, Y., Wang, X., Liu, Y., Zhao, M., & Huang, J. 2019. Ecotoxicological risks of heavy metals in soil and water environment related to oil palm agriculture in Southeast Asia: A review. *Science of The Total Environment*, 654, 1042-1056.
- Lopata, A. L., Jeebhay, M. F., & Reese, G. 2020. Allergenicity and cross-reactivity of coconut and oil palm pollen. *Journal of Allergy and Clinical Immunology*, 146(1), 50-57.
- Lopes, C.M., Scavarda, A., Hofmeister, L.F., Thome, A.M.T., & Vaccaro, G.L.R. 2017. An analysis of the interplay between organizational sustainability, knowledge management, and open innovation. *Journal of Cleaner Production*, 142, 476-488.
- Lubis, A.U. 2008. *Kelapa Sawit (Elaeis guineensis Jacq.) di Indonesia Edisi 2.* (94-96). Pusat Penelitian Kelapa Sawit.
- Mahmoudi, E., Jodeiri, N., & Fatehifar, E. 2017. Implementation of material flow cost accounting for efficiency improvement in wastewater treatment unit of Tabriz oil refining company. *J. Clean. Prod.*, 165, 530–536.
- Mahmud, J., Marimin, Hambali, E., Arkeman, Y., & Hoetman, A.R. 2015. The Design of Net Energy Balance Optimization Model for Crude Palm Oil Production. *Conference Paper in Communications in Computer and Information Science*. DOI: 10.1007/978-3-662-46742-8 7.
- Mahmud, N. & Rosentrater, K.A. 2020. Article: Life-Cycle Assessment (LCA) of Different Pretreatment and Product Separation Technologies for Butanol Bioprocessing from Oil Palm Frond. *MDPI-Energies* 13, 155. doi:10.3390/en13010155.
- Majalah Sawit Indonesia. (2014). *Pemuliaan Kelapa Sawit : Teknologi Merakit Varietas Unggul. [Daring]*. Dalam [https://sawitindonesia.com/pemuliaan-kelapa-sawit-teknologi-merakit-varietas-unggul/amp/](https://sawitindonesia.com/pemuliaan-kelapa-sawit-teknologi-merakit-varietas-unggul/). Diakses tanggal 28 Oktober 2021.
- Marlina L., Sukotjo S., & Marsudi S. 2015. Potential of oil palm empty fruit bunch (EFB) as media for oyster mushroom, *Pleurotus ostreatus* Cultivation. *Procedia Chemistry*, 16, 427-431.
- Marota R., Marimin, & Sasongko. 2015. Design and Application of Material Flow Cost Accounting for Improving the Sustainability of PT XYZ. *Journal of Management and Agribusiness*, 12(2).



- Marota, R. 2017. Green Concepts & Material Flow Cost Accounting Application for Company Sustainability. *Indonesian Journal of Business and Entrepreneurship*, 3(1). 10.17358/IJBE.3.1.43. P-ISSN: 2407-5434, E-ISSN: 2407-7321.
- May, N., & Guenther, E. 2020. Shared benefit by Material Flow Cost Accounting in the food supply chain – The case of berry pomace as upcycled by-product of a black currant juice production. *Journal of Cleaner Production*, 245. <https://doi.org/10.1016/j.jclepro.2019.118946>.
- Media Indonesia. (2021). *Astra Agro Lestari Luncurkan 3 Varietas Bibit Unggul Kelapa Sawit. [Daring]*. Dalam <https://mediaindonesia.com/ekonomi/383899/astra-agro-lestari-luncurkan-3-varietas-bibit-unggul-kelapa-sawit>. Diakses tanggal 30 Oktober 2021.
- Mendez Y.D.R, Rodríguez D.T., & Romero H.M. 2017. Carbon footprint of the production of oil palm (*Elaeis guineensis*) fresh fruit bunches in Colombia. *Journal of Cleaner Production*, 149, 743-750.
- Moghaddam, K. Rezaei. 2016. Green management of human resources in organizations: An approach to the sustainable environmental management. *Journal of Agricultural Technology*, 12(3), 509-522.
- Mohajeri A., & Fallah M. (2016). A carbon footprint-based closed-loop supply chain model under uncertainty with risk analysis: A case study. *Transportation Research Part D*, 48, 425-450.
- Mohan, A., Nimisha, K.V., & Janardanan, C. 2017. Removal of chlorobenzene and 1,4-dichlorobenzene using novel poly-o-toluidine zirconium (IV) phosphotellurite exchanger. *Resource-Efficient Technologies*, 3, 317–328.
- Muhamad H., Ai T.Y., Khairuddin N.S.K, Amiruddin M.D., & May C.Y. 2014. Life Cycle Assessment for the Production of Oil Palm Seeds. *Tropical Life Sciences Research*, 25(2), 41–51.
- Munasinghe M., Jayasinghe P., Deraniyagala Y., Matlaba J.V., Santos J.F., Maneschy M.C., & Mota J.A. 2019. Research article: Value–Supply Chain Analysis (VSCA) of crude palm oil production in Brazil, focusing on economic, environmental and social sustainability. *Sustainable Production and Consumption*, 17, 161-175.
- Murad, S.M.A., Hashim, H., Jusoh, M., & Zakaria, Z.Y. 2021. Integration of Roundtable on Sustainable Palm Oil-Environmental Sustainability Index for the Development of Quantitative Environmental Sustainability Index. *Chemical Engineering Transactions*, 83, ISBN 978-88-95608-81-5; ISSN 2283-9216.
- Murtilaksono, K.S. Sutarta, N.H. Darlan, & Sudarmo. 2007. Penerapan Teknik Konservasi Tanah dan Air dalam Upaya Peningkatan Produksi Kelapa Sawit. *Prosiding HITI*. Yogyakarta, 9, 311-314.
- Nadzim U.K.H.M., Yunus R., Omar R., & Lim B.Y. 2020. Factors Contributing to



Oil Losses in Crude Palm Oil Production Process in Malaysia: A Review.
International Journal of Biomass & Renewables, 9(1), pp. 10 – 24.

- Nasution, A., Fajri, Karim, A., & Romano. 2021. A Study of Sustainable Palm Oil Model as Energy Source Considering the Economic, Social, Environmental and Security Balance Variables. *International Journal of Energy Economics and Policy*, 11(1), 388-393.
- Nasution, M.A., Herawan, T., & Rivania, M. 2014. Analysis of Palm Biomass as Electricity from Palm Oil Mills in North Sumatera. *Energy Procedia*, 47, 166 – 172.
- Nasution, M.A., Wibawa, D.S., Ahamed, T., & Noguchi, R. 2018. Comparative environmental impact evaluation of palm oil mill effluent treatment using a life cycle assessment approach: A case study based on composting and a combination for biogas technologies in North Sumatera of Indonesia. *Journal of Cleaner Production*, 184, 1028-1040.
- Ng K.I., Sipaut, C.S., Nasri, M., & Janaun, J.A. 2005. Oil Extraction from Oil Palm Empty Fruit Bunches with Crystallization Technique. *Sains Malaysiana*, 49(8): 2005-2011.
- Ng, Y.G., Bahri, M.T.S., Syah, M.Y.I., Mori, I., & Hashim, Z. 2013. *Ergonomics Observation: Harvesting Tasks at Oil Palm Plantation*, 55, 405–414.
- Ngadi & Mita Noveria. 2017. *Keberlanjutan Perkebunan Kelapa Sawit Di Indonesia dan Prospek Pengembangan di Kawasan Perbatasan*. <https://www.researchgate.net/publication/324054965>.
- Nguyen, D.T.T. 2018. Is Japanese Material Flow Cost Accounting useful to Vietnam? A case study of a Vietnamese seafood processing company. In Accounting for Sustainability: Asia Pacific Perspectives; Lee, K.-H., Schaltegger, S., Eds.; Springer International Publishing: Cham, Switzerland, pp. 237–258, ISBN 978-3-319-70898-0.
- Nishimura, S., Ohtsuki, T., Goto, N., & Hanaki, K. 2021. Technical-knowledge-integrated material flow cost accounting model for energy reduction in industrial wastewater treatment. *Cleaner Environmental Systems*, 3. <https://doi.org/10.1016/j.cesys.2021.100043>.
- Nithethpattaraphong, S., Midet, P., Srikul, S., & Korawis, C. 2004. *Effect of levels of N, P, K and Mg fertilizers on yield of oil palms*. Surat Thani Horticulture Research Center, Department of Agriculture, Bangkok, Thailand. ISSN 0857-2399. <https://agris.fao.org/agris-search/search.do?recordID=TH2001002621>.
- Noor M.M., Simeh M.A., Ismail A., & Latif J.. 2004. Analysis of Palm Oil Cost of Production Survey, 2002. *Oil Palm Industry Economic Journal*, 4(1).
- Noorshamsiana, A.W., Astimar, A.A., Nor Hayati, M., Nor Faizah, J., Mohamadiah, B. & Norhayati, S. 2013. Optimisation of Enzymatic Sludge Palm loss from Palm Oil Mill Effluent Using Response Surface



Methodology. *Journal of Oil Palm Research*, 25(3), pp. 348-356.

- Norhasmillah, A.H., Puah, C.W., Ibrahim, N.A., Baharuddin, A.S., & Choo, Y.M. 2013. Life cycle inventory of the commercial production of compost from oil palm biomass: a case study. *Environmental and Development Sustainability*, 15, 1663–1670.
- Nunez J.A.G., Rodriguez D.T., Fontanilla C.A., Ramirez N.E., Lora E.E.S., Frear C.S., Stockle C., Amonette, J., & Perez, M.G. 2016. Research paper: Evaluation of alternatives for the evolution of palm oil mills into biorefineries. *Biomass and Bioenergy*, 95, pp. 310-329.
- Nurfadilah, S., Nurzaman, M., & Akbar, F., 2021. Life cycle assessment of palm oil production in Riau Province, Indonesia. *IOP Conference Series: Earth and Environmental Science*, 857(1), 012025.
- Nyide, C.J. 2016. Material flow cost accounting as a tool for improved resource efficiency in the hotel sector: A case of emerging market. *Risk Gov. Control: Financ. Mark. Inst.*, 6, 428–435.
- Obidzinski *et al.* (2019). "Oil palm and land-use change in Indonesia, Malaysia and Papua New Guinea: a spatially-explicit comparison." *Environmental Research Letters*, 14(7), 074006.
- Obidzinski, K., R. Andriani, H. Komarudin, & A. Andrianto. 2012. Environmental and social impacts of oil palm plantations and their implications for biofuel production in Indonesia. *Ecology and Society*, 17(1), 25. <http://dx.doi.org/10.5751/ES-04775-170125>.
- Ong H.C., Mahlia T.M.I., Masjuki H.H., & Honnery D. 2012. Life cycle cost and sensitivity analysis of palm biodiesel production. *Fuel*, 98, 131–139.
- Othman, F., Osman, N. H., & Abdullah, N. 2020. Environmental and health impacts of oil palm plantations and their mitigation. *Journal of Environmental Chemical Engineering*, 8(1), 102127.
- Paminto, A. K., Karuniasa, M., & Frimawaty, E. 2022. Potential environmental impact of biodiesel production from palm oil using LCA (Life Cycle Assessment) in Indonesia. *Jurnal Pengelolaan Sumberdaya Alam Dan Lingkungan*, 12(1), 64–71. <https://doi.org/10.29244/jpsl.12.1.64-71>
- Pangaribowo, E.H., Irawan, A., & Rahutomo, S. 2021. Life cycle assessment of palm oil biodiesel production in Indonesia. *Journal of Cleaner Production*, 280, 124319.
- Pangaribowo, E.H., Rahutomo, S., & Irawan A. 2020. Life cycle assessment of palm oil production and its alternatives in Indonesia. *Journal of Cleaner Production*, 251, 119583.
- Paoli G.D., Gillespie P., Wells P.L., Hovani L., Sileuw A.E., Franklin N., & Schweithelm J. 2013. *Sawit di Indonesia: Tata kelola, Pengambilan Keputusan dan Implikasi bagi Pembangunan Berkelanjutan*. The Nature Conservancy, Jakarta, Indonesia.



Pardamean, Maruli. 2017. *Kupas Tuntas Agribisnis Kelapa Sawit*. Jakarta : Penebar Swadaya.

Peraturan Menteri Lingkungan Hidup Republik Indonesia. Nomor 01 Tahun 2021. Tentang Program Penilaian Peringkat Kerja Perusahaan dalam Pengelolaan Lingkungan Hidup. Deputi Pengendalian Pencemaran Lingkungan Kementerian Lingkungan Hidup.

Peraturan Menteri Negara Lingkungan Hidup Nomor 07 Tahun 2007 Tentang Baku Mutu Emisi Sumber Tidak Bergerak Bagi Ketel Uap. Kementerian Lingkungan Hidup dan Kehutanan, Republik Indonesia.

Permentan RI Nomor 01/KB.120/1/2018 tentang Pedoman Penetapan Harga Pembelian Tandan Buah Segar Kelapa Sawit Produksi Pekebun. Kementerian Pertanian Republik Indonesia.

Perseroan Terbatas Perkebunan Nusantara V. 1998. *Vademecum Budidaya Kelapa Sawit*. PTPN V. Pekanbaru.

Phuang, Z. X., Lin, Z., Liew, P. Y., Hanafiah, M. M., & Woon, K. S. 2022. The dilemma in energy transition in Malaysia: A comparative life cycle assessment of large scale solar and biodiesel production from palm oil. *Journal of Cleaner Production*, 350. <https://doi.org/10.1016/j.jclepro.2022.131475>

Prabasari, I.G. & Pusparani.N. 2022. Model Persebaran Emisi pada Pembangkit Listrik Tenaga Uap Berbahan Bakar Serat dan Cangkang Kelapa Sawit Menggunakan Perangkat Pemodelan Aermod. *Jurnal Daur Lingkungan*, 5 (2), 75-79.

Pranadi A.D., Haramaini Q., Setiawan A., Setiawan A.E., & Ali C. 2019. Sensitivity Analysis of Financial Parameters in Varying PV Penetrations in the Optimum Location of a Feeder. *Energi Procedia*, 156, 95-99.

Prinz R., Vaatainen K., Laitila J., Sikanen L., & Asikainen A. 2019. Analysis of energy efficiency of forest chip supply systems using discrete event simulation. *Applied Energy*, 235, 1369-1380.

PROPER. 2019. *Program Penilaian Peringkat Kinerja Perusahaan dalam Pengelolaan Lingkungan Hidup: PROPER 4.0 as SIMPEL as it is*. Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia.

PTPN IV. 2020. *Annual report: Moving Forward with Strategic Focus*. PT.Perkebunan Nusantara.

PTPN VIII. *Annual Report: Asset and Optimization Through Property Investment 2016 - 2018*. <https://www.ptpn8.co.id/laporan-annual-report/>

Purnomo, H., Okarda, B., Dermawana, A., Ilham, Q.P., Pacheco, P., Nurfatriani, F., & Suhendang, E. 2020. Reconciling oil palm economic development and environmental conservation in Indonesia: A value chain dynamic approach. *Forest Policy and Economics*, 111, 102089.



Pusat Penelitian Kelapa Sawit. 2003. *Budidaya Kelapa Sawit*. Modul M: 100 – 203. Medan.

Rahmad, M., Chairani, S., & Siregar, K. 2018. Audit Energi Pada Proses Produksi CPO (Crude Palm Oil) di PT. Socfindo Lae Butar, Aceh Singkil. *Jurnal Ilmiah Mahasiswa Pertanian Unsyiah*, 3(1).

Rahmadhania, F., Sembiring, P., & Sinaga, M.A. 2019. Pengaruh Kematangan Buah Kelapa Sawit Varietas DXP Bah Lias Terhadap Kadar Minyak Sawit Mentah (CPO). *Jurnal Agro Estate*.

Rajeev Pratap Singh. 2013. *Palm oil mill waste utilization: Sustainability in Malaysian context*. <https://www.researchgate.net/publication/303682126>.

Ramadhani, L.I., Damayanti, S.I., Sudibyo, H., Azis, M.M., & Budhijanto, W. 2021. The Impact of Hydraulic Retention Time on the Biomethane Production from Palm Oil Mill Effluent (POME) in Two-Stage Anaerobic Fluidized Bed Reactor. *Int. Journal of Renewable Energy Development*, 10 (1), 11-16.

Razman, K. K., Hanafiah, M. M., Mohammad, A. W., & Lun, A. W. (2022). Life Cycle Assessment of an Integrated Membrane Treatment System of Anaerobic-Treated Palm Oil Mill Effluent (POME). *Membranes*, 12(2). <https://doi.org/10.3390/membranes12020246>

Richard Dutu. 2016. Challenges and policies in Indonesia's energy sector. *Energy Policy*, 98, 513-519.

Rinaldo, R., Suprihatin, S., & Yani, M. 2023. Life cycle assessment produksi crude palm oil (CPO) (studi kasus: PT X Provinsi Bengkulu). *Agrointek : Jurnal Teknologi Industri Pertanian*, 17(3), 651–659. <https://doi.org/10.21107/agrointek.v17i3.17131>

Rioa M., Riela A., & Brissaud D. 2017. Design to Environment: Information Model Characteristics. *27th CIRP Design 2017: Procedia CIRP* 60, 494-499.

Rissman, J., & H. Chrysolite. 2017. *A Tool for Designing a Policy Package to Achieve Indonesia's Climate Targets*. Technical Note. Jakarta, Indonesia: World Resources Institute. Available online at: <http://www.wri.org/publication/indonesia-eps-tech-note>.

Risza, S. 2001. *Kelapa Sawit Upaya Peningkatan Produktivitas*. Penerbit Kanisius. Yogyakarta.

Rodhiah, Ifdal, Syarfi I.W., & Hasnah. 2019. The impact of ISPO certification on economic, social and environmental aspect in the palm oil plantation. *IOP Conf. Series: Earth and Environmental Science*, 336. doi:10.1088/1755-1315/336/1/012013.

Ronnachai, C., Boonsawang, P., Poonsuk, P., & Chaiprapat, S. 2007. Effect of organic loading rate on methane and volatile fatty acids productions from anaerobic treatment of palm oil mill effluent in UASB and UFAF reactors. *Songklanakarin Journal Science and Technology*, 29 (2).

Roundtable on Sustainable Palm Oil (RSPO). 2006. *Prinsip dan Kriteria RSPO untuk Produksi Minyak Sawit Berkelanjutan*. Dokumen Panduan: Naskah final untuk Kelompok Kerja Kriteria RSPO. Dalam www.rspo.org. Diakses 28 Desember 2018.

Sabli, N.S.M., Noor, Z.Z., Kanniah, K.D., & Kamaruddin, S.N. 2020. Estimating Water Footprint of Palm Oil Production: Case Study in Malaysia. *Journal of Environmental Treatment Techniques*, 8(3), 1163-1167.

Safitri, L., Hermantoro, Purboseno, S., Kautsar, V., Saptomo, S.K., & Kurniawan, A. 2019. Article: Water Footprint and Crop Water Usage of Oil Palm (*Elaeis guineensis*) in Central Kalimantan: Environmental Sustainability Indicators for Different Crop Age and Soil Conditions. *MDPI-Water*, 11, 35. doi:10.3390/w11010035.

Sahu, A. K., Padhy, R. K., Das, D., & Gautam, A. 2021. Improving financial and environmental performance through MFCA: A SME case study. *Journal of Cleaner Production*, 279. <https://doi.org/10.1016/j.jclepro.2020.123751>.

Sala S., Crenna E., Secchi M., & Pant, R. 2017. Global normalisation factors for the Environmental Footprint and Life Cycle Assessment, EUR (28984), *Publications Office of the European Union, Luxembourg*, ISBN 978-92-79-77213-9, doi:10.2760/88930, JRC109878.

Sala, S., Ciuffo, B., & Nijkamp, P., 2015. Analysis: A systemic framework for sustainability assessment. *Ecological Economics*, 119, 314–325.

Salim, K.M.A., Amir, A.M., & Sulaiman, M. 2017. Material Flow Cost Accounting, perceived ecological environmental uncertainty, supplier integration and business performance: A study of manufacturing sector in Malaysia. *Asian J. Account. Gov.*, 8, 107–121.

Samadi, A., Sharifi, H., Ghobadi Nejad, Z., & Yaghmaei, S. 2019. Biodegradation of Polychlorinated Biphenyls by Lysinibacillus macrolides and Bacillus firmus Isolated from Contaminated Soil, *International Journal of Engineering Transactions Bulletin: Applications*, 32(5), 628-633.

Samsul Rijal & Masykur. 2022. Analisa Kehilangan Panas Pada Boiler Type SFW 7000 di PT. Socfindo Kebun Seunagan. *Jurnal Dinamika Vokasional Teknik Mesin*, 7(2), 129-136.

Sari N.K, Agus F., & Mahlia, T.M.I. 2021. Life cycle assessment of crude palm oil production in Riau Province, Indonesia. *International Journal of Life Cycle Assessment*, 26(8), 1461-1477.

Sari, D. A. P., Nikmah, M., & Sasongko, N. A. 2023. Life Cycle Assessment In The Production Process Of Crude Palm Oil (Cpo) On Palm Oil Plantation And Mills. *International Journal of GEOMATE*, 25(111), 177–184. <https://doi.org/10.21660/2023.111.s8616>

Saswattecha K., Kroeze C., Jawjit W., & Hein L. 2017. Improving environmental sustainability of Thai palm oil production in 2050. *Journal of Cleaner*



Production, 147, 572-588.

- Schaltegger, S., Viere, T., & Zvezdov, D. 2012. Tapping environmental accounting potentials of beer brewing. *J. Clean. Prod.*
- Schmidt, M. & Nakajima, M. 2013. Article: Material Flow Cost Accounting as an Approach to Improve Resource Efficiency in Manufacturing Companies. *Resources* 2, 358-369. doi:10.3390/resources2030358.
- Schrijvers, D., Loubet, P., & Sonnemann, G. 2020. Archetypes of Goal and Scope Definitions for Consistent Allocation in LCA. *Sustainability*, 12, 5587. doi:10.3390/su12145587.
- Scientific Application of International Corporation (SAIC), 2006. *Life Cycle Assessment: Principles and Practice*. National Risk Management and Research Laboratory. Office of Research and Development. US Environmental Protection Agency. Cincinnati, Ohio. 45268.
- Sekretariat Jenderal Dewan Energi Nasional. *Outlook Energi Indonesia 2016*. ISSN 2527-3000. Jakarta.
- Sequino A.C. & Avenido J.M. 2015. The World's Leader in the Palm Oil Industry: Indonesia. *International Journal of Ecology and Conservation* pp.152-164. Vol. 13: Print ISSN 2244-1573.
- Shafie S.M., Othman Z., & Hami N. 2018. Life Cycle of Biomass Blending in Electricity Generation: An Environmental and Economic Assessment. *International Journal of Technology*, 8, 1681-1691 ISSN 2086-9614.
- Sharvini, S. R., Noor, Z. Z., Chong, C. S., Stringer, L. C., & Glew, D. (2020). Energy generation from palm oil mill effluent: A life cycle assessment of two biogas technologies. *Energy*, 191. <https://doi.org/10.1016/j.energy.2019.116513>
- Shehu, U.E., Mokhtar, M.N., Nor, M.Z.M., Baharuddin, A.S., & Nawi, N.M. 2019. Article: A Study on the Use of Water as a Medium for the Thermal Inactivation of Endogenous Lipase in Oil of Palm Fruit. *Energies*, 12, 3981; doi:10.3390/en12203981.
- Silalertruksa T., Bonnet S., & Gheewala S.H. 2012. Life cycle costing and externalities of palm oil biodiesel in Thailand. *Journal of Cleaner Production*. 28, 225-232.
- Siregar K., Tambunan A.H., Irwanto A.K., Wirawan S.S., & Araki T. 2015. Conference and Exhibition Indonesia - New, Renewable Energy and Energy Conservation (The 3rd Indo-EBTKE ConEx 2014): A Comparison of Life Cycle Assessment on Oil Palm (*Elaeis guineensis Jacq.*) and Physic nut (*Jatropha curcas Linn.*) as Feedstock for Biodiesel Production in Indonesia. *Energy Procedia*, 65, 170-179.
- SNI 01-2901-2006. Minyak Kelapa Sawit. Badan Standardisasi Nasional Indonesia.



- SNI ISO 14040:2016. National Standardization Bureau of Indonesia. ICS 13.020.60; 13.020.10
- SNI ISO 14044:2017. National Standardization Bureau of Indonesia. ICS 13.020.60; 13.020.10
- SNI-01-2901-2006. *Minyak Kelapa Sawit Mentah (Crude Palm Oil)*. Badan Standardisasi Nasional.
- Sophie A. Archer, Richard J. Murphy, & Robert Steinberger-Wilckens. 2018. Methodological analysis of palm oil biodiesel life cycle studies. *Renewable and Sustainable Energy Reviews*, 94, 694–704.
- Statistik Kelapa Sawit Indonesia 2017. ISSN / ISBN: 1978-9947. 2018. <https://www.bps.go.id/publication/2018/11/13/b73ff9a5dc9f8d694d74635f/statistik-kelapa-sawit-indonesia-2017.html>. Diakses 2 Januari 2019.
- Statistik Perkebunan Indonesia 2015-2017. *Kelapa Sawit*. Direktorat Jenderal Perkebunan. Indonesia. <https://www.bps.go.id/publication/2018/11/13/b73ff9a5dc9f8d694d74635f/statistik-kelapa-sawit-indonesia-2017.html>
- Stichnothe, H. and Schuchardt, F. 2011. Life cycle assessment of two palm oil production systems. *Biomass and Bioenergy*, 35, 3976-3984.
- Suandi A., Supardi N.I., & Puspawan A. 2016. Analisa Pengolahan Kelapa Sawit dengan Kapasitas Olah 30 ton/jam di PT. BIO Nusantara Teknologi. *Teknosia*, 2(17), Tahun X.
- Subramaniam V., Menon N.R., Sin H., & May C.Y. 2013. The Development of a Residual Oil Recovery System to Increase the Revenue of a Palm Oil Mill. *Journal of Oil Palm Research*, 25(1), 116-122.
- Subramaniam, V., Hashim, Z., Loh, S. K., & Astimar, A. A. 2020. Assessing water footprint for the oil palm supply chain- a cradle to gate study. *Agricultural Water Management*, 237. <https://doi.org/10.1016/j.agwat.2020.106184>
- Sukamto, E. 2001. *Upaya Meningkatkan Produksi Kelapa*. Penebar Swadaya. Jakarta Tim Penulis PS. 2000. *Kelapa Sawit Usaha Budidaya, Pemanfaatan Hasil Dan Pemasaran*. Penebar Swadaya. Jakarta.
- Sulong, F., Sulaiman, M., & Norhayati, M.A. 2015. Material Flow Cost Accounting (MFCA) enablers and barriers: The case of a Malaysian small and medium-sized enterprise (SME). *J. Clean. Prod.*, 108, 1365–1374.
- Sun, M. & Sun, Y. 2014. Integration of Material Flow Cost Accounting and ERP Software. *Science and Information Conference*. www.conference.thesai.org.
- Surahmana A., Sonic P., & Shivakoti G.P. (2018). Reducing CO₂ emissions and supporting food security in Central Kalimantan, Indonesia, with improved peatland management. *Land Use Policy*, 72, 325-332.
- Syahza, Almasdi. 2019. The potential of environmental impact as a result of the



- development of palm oil plantation. *Management of Environmental Quality: An International Journal*, 30(5), 1072-1094.
- Tachikawa, H. 2014. *Manual on Material Flow Cost Accounting. ISO 14051*. Asian Productivity Organization. Tokyo-Japan. ISBN 978-92-833-2450-8 (PDF).
- Tan R.R., Aviso K.B., & Foo D.C.Y. (2017). P-graph and Monte Carlo simulation approach to planning carbon management networks. *Computers and Chemical Engineering*, 106, 872-882.
- Trappey, A.J.C., Yeh, M.F.M., Wu, S.C.-Y., & Kuo, A.Y.F. 2013. ISO14051-based Material Flow Cost Accounting system framework for collaborative green manufacturing. In Proceedings of the 17th International Conference on Computer Supported Cooperative Work in Design (CSCWD), Whistler, BC, Canada, 27–29 June 2013; IEEE: Piscataway, NJ, USA, pp. 639–644, ISBN 978-1-4673-6085-2.
- Tu J.C. & Huang H.S., 2019. Review: Relationship between Green Design and Material Flow Cost Accounting in the Context of Effective Resource Utilization. *Sustainability*, 11, 1974.
- Ulhasanah, N. & Goto, N. 2012. Preliminary design of eco-city by using industrial symbiosis and waste co-processing based on MFA, LCA, and MFCA of cement industry in Indonesia. *Int. J. Environ. Sci. Dev.*, 553–561.
- Verones, F., Vieira, M., Zijp, M., Hollander, A., & Zelm, R. 2017. ReCiPe2016: a harmonised life cycle impact assessment method at midpoint and endpoint level. *International Journal of Life Cycle Assessment*, 22, 138–147.
- Vijaya, S, Ma, A N, Choo,Y.M., & Nik Meriam, N.S. 2008. Life Cycle Inventory of The Production of Crude Palm Oil - A Gate to Gate Case Study of 12 Palm Oil Mills. *Journal of Oil Palm Research*, 20, 484-494.
- Wahyono, Y., Hadiyanto, H., Budihardjo, M.A., & Adiansyah, J.A. 2020. Assessing the Environmental Performance of Palm Oil Biodiesel Production in Indonesia: A Life Cycle Assessment Approach. *MDPI-Energies*, 13, 3248; doi:10.3390/en13123248.
- Walat O. & Bock N.S. 2013. Palm Oil Mill OER and Total Oil Losses. *Palm Oil Engineering Bulletin*, 108. Malaysian Palm Oil Board.
- Walls, C., Putri, A. R. K., & Beck, G. 2023. Material Flow Cost Accounting as a Resource-Saving Tool for Emerging Recycling Technologies. *Clean Technologies*, 5(2), 652–674. <https://doi.org/10.3390/cleantechol5020033>.
- Wang, J. Z., Tang, Y. C., & Shen, Y. H. 2023. Prioritizing the acid leaching system of spent SmCo magnets through material flow cost accounting and carbon emission analysis. *Journal of Cleaner Production*, 417. <https://doi.org/10.1016/j.jclepro.2023.138064>.
- Warman, E., Iqbal, M.N., & Fahmi., F. 2019. Efficiency analysis of electric energy use in palm oil processing (case study Bandar Pulau). *IOP Conference Series: Materials Science and Engineering*, 505, 012048.



- Wassmann, B., Siegrist, M., & Hartmann, C. 2023. Palm oil and the Roundtable of Sustainable Palm Oil (RSPO) label: Are Swiss consumers aware and concerned? *Food Quality and Preference*, 103, 104686.
- Weidong, Z., Ryoichi, N., Chen, Z., & Pinlong, C. 2009. A case study on the implementation of MFCA in SMEs: HNJC company. *Asia-Pac. Manag. Account. J.*, 42, 29–42.
- Wijaya, A., H. Chrysolite, M. Ge, C. Wibowo, A. Pradana, A. Utami, & K. Austin. 2017. *How Can Indonesia Achieve its Climate Change Mitigation Goal? An Analysis of Potential Emissions Reductions from Energy and Land-Use Policies*. Working Paper. Jakarta, Indonesia: World Resources Institute.
- Woittiez, L.S., Wijk, M.T., Slingerland, M., Noordwijk, M., & Giller, K.E. 2017. Review article: Yield gaps in oil palm: A quantitative review of contributing factors. *European Journal of Agronomy*, 83, 57-77.
- Wulandari, A., Hartono, D. M., & Dahlan, A. V. 2023. Life cycle assessment analysis of empty oil palm fruit bunches waste from palm oil mill activities. *E3S Web of Conferences*, 422. <https://doi.org/10.1051/e3sconf/202342201001>
- Xu, H., Lee , U., & Wang, M. 2020. Life-cycle energy use and greenhouse gas emissions of palm fatty acid distillate derived renewable diesel. *Renewable and Sustainable Energy Reviews*, 134, 110144.
- Yagi, M. & Kokubu, K. 2018 Corporate material flow management in Thailand: The way to material flow cost accounting. *J. Clean. Prod.*, 198, 763–775.
- Yi-Xuan Wang, Chien-Hung Kuo, Rui Song, Allen H. Hu, & Shu-Shen Zhang. 2017. Article Potentials for Improvement of Resource Efficiency in Printed Circuit Board Manufacturing: A Case Study Based on Material Flow Cost Accounting. *MDPI-Sustainability*, 9, 907; doi:10.3390/su9060907.
- Yusmartato & Parinduri, L. 2018. Perbaikan Alat Pengutip Minyak dalam Sludge dan Condensate. *Buletin Utama Teknik*, 13(3).
- Yusniati, Parinduri, L., & Sulaiman, O.K. 2018. Biomass analysis at palm oil factory as an electric power plant. *IOP Conf. Series: Journal of Physics*, 1007, 012053.
- Yusoff, S., & Hansen, S.B. (2007). Feasibility Study of Performing an Life Cycle Assessment on Crude Palm Oil Production in Malaysia. *International Journal of Life Cycle Assessment*, 12 (1) 50-58.
- Yusuf M.F., Ashari H., & Razalli M.R. 2018. Environmental Technological Innovation and Its Contribution to Sustainable Development. *International Journal of Technology*, 8, 1569-1578 ISSN 2086-9614.
- Zain H., Mahmood N.Z., & Mustafa W.A. 2017. Material Flow Analysis of Carbon in Palm Oil Mill and Oil Palm Plantation: Towards Low Carbon Industry. *Journal of Advanced Research in Engineering Knowledge*, 1, 1, 30-39.
- Zeng, H., Zhou, Z., & Xiao, X. 2021. MFCA extension from a life cycle



perspective: Methodical refinements and use case. *Resources Policy*, 74. <https://doi.org/10.1016/j.resourpol.2019.101507>.

Zhang, X., Chua, L. S., Yeo, Y. M., & Heng, P. W. (2019). A critical review of the effects of palm oil mill effluent (POME) generated from palm oil industry on environment and human health. *Environment international*, 130, 104880.

Zhang, B. & Liu, J. 2015. Empirical study on MFCA introduced in Sekisui Chemical Group and its enlightenment. In Proceedings of the 3rd International Conference on Advances in Energy and Environmental Science 2015, Zhuhai, China, 25–26 July 2015; Yarlagadda, P., Ed.; Atlantis Press: Paris, France, pp. 1456–1460, ISBN 978-94-6252-130-8

Zhou, Z., Zhao, W., Chen, X., & Zeng, H. 2017. MFCA extension from a circular economy perspective: Model modifications and case study. *J. Clean. Prod.*, 149, 110–125

Zhu Q., Dou Y., & Sarkis J., (2010). A portfolio-based analysis for green supplier management using the analytical network process. *Supply Chain Management: An International Journal*, 15(4), pp.306-319, <https://doi.org/10.1108/13598541011054670>