e-ISSN: 3047-9754; and p-ISSN: 3047-9746 Page 376-389

DOI: <a href="https://doi.org/10.61132/ijecm.v1i3.187">https://doi.org/10.61132/ijecm.v1i3.187</a>
Available online at: <a href="https://international.areai.or.id/index.php/IJECM">https://international.areai.or.id/index.php/IJECM</a>

## The Role Of Waste Bank And The Concept Of Green Economy At Universitas Pembangunan Panca Budi

Dewi Mahrani Rangkuty 1\*, Muhammad Ilham Saputra 2, Siti Wardah 3

<sup>1,2,3</sup> Economics Department, Universitas Pembangunan Panca Budi, Indonesia dewimahrani@dosen.pancabudi.ac.id <sup>1\*</sup>, syahputrai459@gmail.com <sup>2</sup>, wardahs461@gmail.com <sup>3</sup>

Address: 4, Jl. Gatot Subroto No.km, Simpang Tj., Kec. Medan Sunggal, Kota Medan, Sumatera Utara 20122

Email correspondence: <u>dewimahrani@dosen.pancabudi.ac.id</u>

Abstract. Environmental problems are becoming an increasingly urgent global issue to be addressed. One of the problems faced is the uncontrolled increase in waste volume, especially in urban areas and large institutions. Universitas Pembangunan Panca Budi, as one of the higher education institutions, has the responsibility to participate in environmental conservation efforts. Waste bank is a program that aims to reduce the volume of waste by collecting, sorting, and recycling waste that can be resold or processed into useful products. There are several benefits of waste banks including, in terms of the environment, reducing the volume of waste disposed of in landfills, reducing pollution, and encouraging recycling. In terms of economy, it can provide economic value from waste, create jobs, and support the circular economy. The various roles of the Waste Bank at the University are as a means of education and environmental awareness that serves as an educational tool for students and staff about the importance of sustainable waste management. The Waste Bank also provides opportunities for students and staff to be actively involved in waste management programs. It not only improves practical skills in waste management but also fosters a sense of social and environmental responsibility. The Waste Bank addresses waste issues that benefit the environment and the economy of the community.

Keywords: Garbage Bank; Green Economy; Waste Management; Campus Area

#### 1. INTRODUCTION

Indonesia is a country with a very high population and tends to increase from year to year. Based on BPS data, Indonesia's population in 2019 reached 267 million people and based on the registration results in the second semester (December) of 2020 it was 271 million people. This proves that Indonesia's population has increased every year.

Environmental problems have become a global issue that is increasingly urgent to be addressed. One of the problems faced is the uncontrolled increase in waste volume, especially in urban areas and large institutions such as universities. Universitas Pembangunan Panca Budi, as one of the higher education institutions, has the responsibility to participate in environmental conservation efforts. One of the initiatives taken is the establishment of a waste bank that serves to manage waste in a more structured and sustainable manner.



Figure 1. Universitas Pembangunan Panca Budi's Waste Bank

Waste bank is a program that aims to reduce the volume of waste by collecting, sorting, and recycling waste that can be resold or processed into useful products. Through this mechanism, waste banks not only help reduce waste but also provide economic value to the campus community. This program is in line with the concept of green economy, which emphasizes the importance of sustainable and environmentally friendly economic development.

As the population increases, the amount of waste produced by the community increases. The Ministry of Environment noted that the average Indonesian produces around 2.5 liters of waste per day or 625 million liters from the total population. This condition will continue to grow in accordance with environmental conditions. This increase in waste volume becomes a big problem if not handled properly. In addition to damaging the environment, this waste is also often a source of disease for the community, especially people who live around landfills.

Waste Bank is a place used to collect waste that has been sorted. The results of the collection of waste that has been sorted will be deposited to the place of making crafts from waste or to the garbage collector. The waste bank is managed using a bank-like system by volunteer officers. Depositors are residents who live around the bank location and get a savings book like saving in a bank.

Waste banks were established because of people's concerns about the environment, which is increasingly filled with both organic and inorganic waste. More and more waste will certainly cause many problems, so it requires processing such as making waste into useful materials. Waste management with the waste bank system is expected to be able to help the government in handling waste and improve the community's economy.

One of the waste management in Medan City is the Waste Bank at Universitas Pembangunan Panca Budi which is located on one of the Universitas Pembangunan Panca Budi Campus 1, precisely on Jl.Gatot Subroto km.4.5 medan sunggal sub-district, medan city district, north Sumatra. In the concept of green economy as stated in the Regulation of the Minister of Environment of the Republic of Indonesia Article 1 "Activities reduce, reuse, and recycle. In this waste program for waste recycling". Bank Sampah perguruan Panca Budi Medan is engaged in waste management around the environment of the Panca Budi Medan College.

Based on observations made by researchers, the application of this green economy as an output of the waste bank provides enormous benefits to the community in the environment of the Panca Budi Medan College and the waste bank itself. The government also contributes in the form of transformation tools, namely garbage trucks. In collecting garbage every day, the Panca Budi College Waste Bank uses a garbage shuttle service that has been collected per each and delivered to the dump located in Belawan.





Figure 2. Survey Activities at Universitas Pembangunan Panca Budi's Waste Bank

#### 2. LITERATURE REVIEW

#### **Waste Bank**

Aryenti explained that the Waste Bank is a place to save waste that has been sorted according to the type of waste, the mechanism of waste banks in general is the existence of customers, bookkeeping records and management management. In banks, what customers generally deposit is money, but in the waste bank what is deposited is waste that has economic value.

According to the Regulation of the Minister of Environment of the Republic of Indonesia Number 13 of 2012 concerning guidelines for the Implementation of Reduce, Reuse and Recyle through Waste Banks. The waste bank is a place for sorting and collecting waste that can be recycled to have economic value.

The Waste Bank aims to provide exploitation as community knowledge and proficiency through following waste management. In meeting the needs of clothing and food for people who are less able. In addition, the benefits of the waste bank itself are for interest and connections in joint concern for managing waste.

The activities of the waste bank can be said to be an agent to invite the community to maintain cleanliness, and the culprit is called Da'i lingkungan.

## Waste Bank Working Mechanism

The first stage of the waste bank working mechanism is waste collection where community members bring sorted waste (organic and inorganic) to the waste bank. Then weighing and recording is carried out, the waste is weighed and recorded in a savings book or electronic system. Each type of waste has a different economic value. The next stage is waste management, where waste is further sorted and managed according to its type. Organic waste

can be processed into compost, while inorganic waste such as plastic, paper, and metal are sold to third parties for recycling. It is very beneficial for the community that there is a savings exchange where members can exchange the value of their waste savings for money or certain goods.

#### **Benefits of Waste Bank**

There are several benefits of waste banks including, in terms of the environment, reducing the volume of waste disposed to landfill, reducing pollution, and encouraging recycling. In terms of economy, it can provide economic value from waste, create jobs, and support the circular economy. And the social benefits can increase public awareness and participation in waste management, and strengthen social cohesion through collective activities.

### The role of Waste Bank at University

There are various roles of the Waste Bank at the University, namely as a means of education and environmental awareness that serves as an educational tool for students and staff about the importance of sustainable waste management. In addition, it has the role of effectively reducing campus waste reduction, reducing waste management costs, and improving the cleanliness of the campus environment. In addition, it plays a role as an innovation and research tool that can provide data and real cases for research related to waste management and green economy, and facilitate innovative student projects. As well as creating a role for student participation by involving students in waste bank operational activities, both as part of academic activities and student organizations.

#### **Green Economy**

According to the United Nations Environment Program green economy is a low carbon economy that does not produce emissions and environmental pollution. Minimizing the waste of natural resources and social justice with regard to per capita income and poverty. The Green Economy aims to improve human welfare and economic growth simultaneously in human and environmental development.

There are ten principles of green economy as follows:

- a. Prioritizing use value, instrinsic value, and quality
- b. Follow the flow of nature
- c. Waste is food
- d. Neatness and diversity of functions
- e. Appropriate scale/related scale
- f. Diversity

- g. Self-capability, self-organization and self-design
- h. Participation and democracy
- i. Creativity and community development
- j. Strategic role in built environment, landscape and spatial design

The proposed indicators are close to the measurements for green growth as proposed by the OECD (Organization for Economic Co-operation and Development), which includes five types of indicators, namely:

- a. Resource productivity
- b. Natural assets
- c. Quality of living environment
- d. Economic opportunities and policies
- e. Socio-economic context and growth characteristics

#### 3. METHOD

This study uses a qualitative and quantitative approach (mixed methods) aims to better provide a description of the state of the object under study based on the facts of a population which includes activities to assess attitudes or income towards individuals, organizations or procedures in realizing a sustainable green economy in the campus environment, with a case study at Universitas Pembangunan Panca Budi. Data were collected through in-depth interviews, questionnaires, observation, and document analysis.

#### 4. RESULTS AND DISCUSSION

## The Role Of The Waste Bank Towards Universitas Pembangunan Panca Budi

The role played by the waste bank on the Universitas Pembangunan Panca Budi environment has been carried out well, while the activities carried out by the Waste Bank unit have a positive impact on the environment to the impact from the economic side by increasing income for customers. In the social aspect, waste banks can increase income. In accordance with the results of interviews with the manager of the Waste Bank, economic benefits reached 25,000,000.00 / month.

The Garbage Bank/waste processing at UNPAB was established in 2017, significantly reducing the volume of waste generated by the campus community. With an organized system of collection, sorting, and recycling, waste that usually ends up in landfills can be processed and reused.



Figure 3. Waste Selection Process



Figure 4. Garbage Waste

Bank Sampah plays a role in raising environmental awareness among students, faculty and staff. Through educational activities such as seminars, workshops, and campaigns, the campus community becomes more aware of the importance of good waste management and its impact on the environment.

UNPAB Waste Bank provides a platform for students and lecturers to conduct research and develop innovations in the field of waste management. This includes research into more efficient recycling techniques and the use of waste materials for new products. By turning waste into economically valuable products, UNPAB Waste Bank helps to create a sustainable economy within the campus. Proceeds from the sale of recyclables can be used to fund other environmental programs or for social activities.

**Table 1.** Types of Waste in the University Waste Bank

Organic	Inorganic
Wood	Plastic
Tree Branches	Beverage Bottles/ Cans
Fruits	Metal
Leaves	Glass
Food Scraps	Iron
Paper	
Cardboard	





Figure 5. Organic Waste (Already Processed Into Eco Enzyme) and Inorganic Waste

The Waste Bank also provides opportunities for students and staff to be actively involved in waste management programs. This not only enhances their practical skills in waste management but also fosters a sense of social and environmental responsibility. Through the Waste Bank, UNPAB is able to establish cooperation with various parties, including local governments, companies, and non-governmental organizations (NGOs). This collaboration opens up opportunities for bigger and more impactful environmental programs.

The existence of the Waste Bank contributes to the creation of a cleaner and healthier campus environment. With good waste management, the campus area becomes more organized and free from the accumulation of waste that can cause health problems.

UNPAB's efforts in managing waste through the Waste Bank enhance the university's image and reputation as an institution that cares for the environment and is committed to sustainable practices. It can attract more students, staff and partners who share the same vision towards sustainability. With this role, UNPAB Waste Bank not only contributes to better waste management but also supports various other positive aspects that strengthen the campus community and environment.

## Green Economy Concept Towards at Universitas Pembangunan Panca Budi

Green economy is an economic model that aims to reduce environmental risks and ecological scarcity, while achieving sustainable development.





Figure 6. Waste That Has Been Selected and Processed Into Eco Enzyme

The United Nations Environment Program (UNEP) defines a green economy as a mechanism that results in increased human well-being while significantly reducing environmental risks and ecological resource scarcity.

The concept of green economy refers to an economic model that focuses on sustainable and environmentally friendly development. This model emphasizes the efficient use of natural resources, reduction of carbon emissions, improvement of environmental quality, and social welfare. In the context of Universitas Pembangunan Panca Budi (UNPAB), the green economy concept can be applied through several initiatives and programs. Simply put, this concept emphasizes the production of lower carbon emissions and accommodates all social groups well. The goal is to reduce pollution and carbon emissions by improving resource efficiency and energy consumption.

It is not without reason that the green economy concept is proposed as an effort to maintain the sustainability of the earth. Furthermore, it brings many benefits from various sides, including in terms of economic benefits, which can reduce poverty and inequality, resulting in increased economic growth and employment. In addition, the creation of positive activities such as training and skills that can help develop new markets and specializations. Increased productivity and improved agricultural commodities and products. Improved energy security. Improved competitiveness and balance of trade, As for social benefits including, reducing poverty and inequality, reducing social inequality, increasing employment, increasing training and skills, better public services, improving health outcomes. As well as environmental benefits, namely, sustainable management of natural assets and resources, reducing greenhouse gases and other emissions, better adaptation to climate change and resilience to natural disasters, improved environmental quality.

The role of Waste Bank and the concept of Green Economy in the environment have a very close and interrelated relationship. Waste Bank can transform into useful energy for the wider community through circular waste processing, thereby increasing the economic value of waste and reducing management costs. Processing waste into organic fertilizer can reduce the amount of waste generated and reduce negative impacts on the environment, one of which is processing waste into eco-enzymes has several significant benefits and can be integrated with the concept of green economy to create community welfare, reduce negative impacts on the environment, and improve the quality of life of the community.

#### 5. CONCLUSION

Indonesia has a high population and continues to increase every year. In 2019, Indonesia's population reached 267 million people and increased to 271 million people in the second semester of 2020. One of the problems faced is the increasing volume of waste, especially in urban areas and large institutions such as universities.

Universitas Pembangunan Panca Budi established a waste bank to manage waste in a more structured and sustainable manner. The waste bank aims to reduce the volume of waste by collecting, sorting, and recycling waste that can be resold or processed into useful products.

Waste banks also provide economic value to the campus community and are in line with the green economy concept.

The Ministry of Environment noted that the average Indonesian produces about 2.5 liters of waste per day, which will continue to grow according to the population.

The Waste Bank aims to address the problem of waste that is beneficial to the environment and the economy of the community. One of the waste management in Medan City is the Waste Bank at Panca Budi College in Medan. This is in line with the concept of green economy and provides great benefits to the community.

In collecting waste, the waste bank uses a shuttle service to take the collected waste to the disposal site located in Belawan.

#### **REFERENCES**

Adamowicz, Mieczysław. "Green deal, green growth and green economy as a means of support for attaining the sustainable development goals." Sustainability 14.10 (2022): 5901.

Ade Ruly Sumartini, Ni Made Vita Indriyani, I Wayan Gde Yogiswara Darma P (2021).

Pemasaran Komposter Pengolahan Sampah Organik Menjadi Pupuk Pada Kelompok

Usaha Tebe Komposter, Volume 5 Nomor 2 2021, pp 129-135

Amalia Zuhra; Wildani Angkasari (CA) (2023). Pengaturan Hukum Internasional Terhadap Limbah Makanan dan Dinamikanya di Indonesia, Uti Possidetis: Journal of International Law vol. 4 No. 3 (2023): 340-374

- Andy, Ayu dkk, 'Penerapan Konsep Green Economy Dalam Pengembangan Desa Wisata Sebagai Upaya Mewujudkan Pembangunan Berwawasan Lingkungan (Studi Pada Dusun Kungkuk, Desa Punten Kota Batu)', Jurnal Administrasi Publik (JAP), 2.4
- Astina, "Peran Bank Sampah Induk Dalam Meningkatkan Ekonomi Keluarga Di Pulau Sicanang Belawan", 2020
- Bakhri, Syamsul Boy, 'Perspektif Ekonomi Syariah Tentang Peranan Bank Sampah Terhadap Kesejahteraan Masyarakat Tempatan', Rumpun Ekonomi Syariah, 1.1 (2018)
- Balhri Syalmsul. Nalsalbalh Balnk Salmpalh Diski Malndiri, walwalncalral di Desal Sumber Melalti Diski. 2022
- Bugidin, Burhan, Metode Penelitian Kuantitatif: Komunikatif, Ekonomi, Kebijakan Public Dan Ilmu Sosial Lainnya (Jakarta: Kencana, 2006)
- Darmastuti, S., Cahyani, IP, Afrimadona, A., & Ali, S. (2020). Pendekatan Circular Economy Dalam Pengelolaan Sampah Plastik di Karang Taruna Desa Baros, Kecamatan Baros, Kabupaten Serang. Jurnal Keterlibatan Masyarakat Indonesia, 1 (2), 165-182.
- Efendi, B., Arifin, D., & Zebua, A. (2023). Analysis of the Application for Inflation Monetary Variables on the Income of Corn Farmers in Medan Krio Village. World Journal of Advanced Research and Reviews, 17(3), 780-786.
- Emilia, D. (2023). Pengelolaan Limbah Industri: Solusi Lingkungan untuk Industri yang Berkelanjutan. Circle Archive, 1(3).
- Fadlan, A., & Pratama, A. (2024). The Analysis of Tilapia Exports on Regional Original Revenue (ROR) of Dairi Regency, North Sumatra. Lead Journal of Economy and Administration, 2(3), 114-124.
- Faried, A. I., Hasanah, U., & Sembiring, R. (2023). Impact of Arabica Coffee Production on Social Welfare: A Comprehensive Analysis. International Journal of Management, Economic and Accounting, 1(2), 310-320.

- Hasanah, U., Fadlan, A., Sabilayana, S., & Monica, S. (2023). Affecting Rice Production On The Income And Welfare Of Rice Farmers In Desa Mangga. Prosiding Universitas Dharmawangsa, 3(1), 636-648.
- Hermawan, Keterkaitan Green Economy Dengan Pembangunan Berkelanjutan. Economic Review, 2010
- Imami, Ahmad Daudsyah, et al. "Peningkatan Penanganan Sampah Anorganik Melalui Digitalisasi Operasional Bank Sampah di Kecamatan Candipuro, Lampung Selatan." International Journal of Community Service Learning 7.3 (2023): 360-369.
- Imsar, Analisis Strategi Pengembangan Usaha Ucok Durian (Medan: Fakultas Ekonomi dan Bisnis Islam UIN-SU, 2018)
- Kebudayaan, Departemen Pendidikan dan, Kamus Bahasa Indonesia (Jakarta: Balai Pustaka, 1985)
- Khan, I. U., Hameed, Z., Khan, S. U., & Khan, M. A. (2023). Green banking practices, bank reputation, and environmental awareness: evidence from Islamic banks in a developing economy. Environment, Development and Sustainability, 1-21.
- Kurnia, Indah Ani (ed.), 'Rancangan Sistem Siklus Akuntansi Pada Bank Sampah', Akuntansi Dan Keuangan Islam, 3.1 (2015)
- Kurniawati, Ummi Fadlilah, and Vivin Setiani. "Analysis of Understanding of Community Waste Management at Surabaya Main Waste Bank (BSIS) through Knowledge Transfer." JST (Journal of Applied Science) 7.1 (2021): 49-56.
- Kusmina, I. L., 'Penyuluhan 4R (Reduce, Reuse, Recycle, Replace) Dan Kegunaan Bank Sampah Sebagai Langkah Menciptakan
- Lingkungan Yang Bersih Dan Ekonomus Di Desa Mojowuku Kabupaten Gresik', Pengabdian Masyarakat LPPM Untung: Surabaya, 2018
- Muanifah, S. ., & Cahyani, Y. . (2021). PENGELOLAAN BANK SAMPAH DALAM MENUMBUHKAN PELUANG USAHA NASABAH BANK SAMPAH. SCIENTIFIC JOURNAL OF REFLECTION: Economic, Accounting, Management and Business, 4(1), 150-159.

- Munasinahe, M. 1993. Environmental Economics and Sustainable Development, Environment Paper No. 3. Washington, D.C.: The World Bank, Pearce David William, Anil Markandya, Edward Barbier. 1992. Blueprint for Green Economy. London: Earthscan Publications.
- Nasution, L. N., Siregar, A., & Rangkuty, D. M. (2023, September). Integration of Financial Capability and The Economy of North Sumatra (Panel Regression Model). In The International Conference on Education, Social Sciences and Technology (ICESST) (Vol. 2, No. 2, pp. 182-190).
- Nurhalidalh. Nalsalbalh Balnk Salmpalh Diski Malndiri, walwalncalral di Desal Sumber Melalti Diski. 2022
- Nurmalidiyal. Selalku Direktur Unit Balnk Salmpalh Diski Malndiri. Walwalncalral di Desal Sumber Melalti Diski. 2022
- Pezzy, J. 1992. Sustainable Development Concepts: An Economics Analysis. Environment Paper No. 2. Washington, D.C.:The World Bank.
- PRASANTI, K. S. LAPORAN MAGANG MBKM DINAS LINGKUNGAN HIDUP PROVINSI JAWA TIMUR, SURABAYA PERAN BANK SAMPAH SEBAGAI INDIKATOR PROGRAM DESA/KELURAHAN BERSERI.
- Rangkuty, D. M., & Hidayat, M. (2021). Does Foreign Debt have an Impact on Indonesia's Foreign Exchange Reserves?. Ekuilibrium: Jurnal Ilmiah Bidang Ilmu Ekonomi, 16(1), 85-93.
- Rangkuty, D. M., Nasution, L. N., Hasyyati, Z., Siregar, S. D., & Firmansyah, D. (2024). The Monetary and Fiscal Policies on International Trade in Indonesia. The Es Economics and Entrepreneurship, 3(01), 1-11.
- Rangkuty, D. M., Nasution, L. N., Hasyyati, Z., Siregar, S. D., Firmansyah, D., & Rusiadi, R. (2024, February). How Is The Monetary And Fiscal Policy Related To International Trade?. In International Conference on Humanity Education and Society (ICHES) (Vol. 3, No. 1).

- Restuningdiah, Nurika, et al. "Waste bank literacy and waste insurance as an effort to improve community welfare." Journal of Community Service Innovation Results (JIPEMAS) 4.1 (2021): 144-152.
- Rusiadi, Hidayat, M., Rangkuty, D. M., Ferine, K. F., & Saputra, J. (2024). The Influence of Natural Resources, Energy Consumption, and Renewable Energy on Economic Growth in ASEAN Region Countries. International Journal of Energy Economics and Policy, 14(3), 332-338.
- Rusiadi, Yusuf, M., & Adivia, A. (2024). Mampuh Circular-Economy Mendukung Green Building dan Green Sustainable Development di ABRIC Coutries?. Jurnal Ilmiah Mahasiswa Perbankan Syariah (JIMPA), 4(1), 81-90.
- Sari, Multika Ayu dkk, 'Penerappan Konsep Green Economy Dalam Pengembangan Desa Wisata Sebagai Upaya Mewujudkan Pembangunan Berwawasan Lingkungan (Studi Pada Dusun Kungkuk, Desa Punten Kota Batu)', *Administrasi Publik (JAP)*, 2.4.
- Sari, W. I., Sanny, A., & Yanti, E. D. (2023, March). Analysis Of Digital Economic Transformation In Improving The Economy Of Home Industries In Kota Pari Village. In Proceeding of The International Conference on Economics and Business (Vol. 2, No. 1, pp. 01-16).
- Sintesis, Mewujudkan Pertumbuhan Ekonomi Hijau Untuk Indonesia YangSejahtera (Program Pertumbuhan Ekonomi Hijau Pemerintah Indonesia, 2015).
- Siregar, K. H. (2023, December). Analysis of Efficiency Islamic Banking In Indonesia: Stochastic Frontier Approach. In International Conference On Islamic Community Studies (Vol. 1, pp. 199-206).
- Sri Adiningsih. 2007. Pembangunan Berkelanjutan di Indonesia Ditinjau dari Aspek Ekonomi, Disampaikan dalam Seminar Ilmiah Musyawarah Nasional I Perhimpunan Cendekiawan Lingkungan Indonesia Jakarta, 24 November.
- Suhada, B., & Setyawan, D. (2017). Pengembangan bank SamPah Syariah ikhtiar Pemberdayaan memajukan ekonomi kreatif (Studi bank Sampah Cangkir hijau). *Akademika: Jurnal Pemikiran Islam*, 22(2), 245-266.

- Suhendi, S. (2023). Analisis Pembentukan Bumdes Dalam Mendukung Pembangunan Desa Mandiri Di Desa Lae Gambir Kecamatan Simpang Kanan Kabupaten Aceh Singkil. NUSANTARA: Jurnal Ilmu Pengetahuan Sosial, 10(6), 3136-3147.
- Suryani, Anih Sri. "Peran bank sampah dalam efektivitas pengelolaan sampah (studi kasus bank sampah Malang)." *Aspirasi: Jurnal Masalah-masalah Sosial* 5.1 (2014): 71-84.
- Utalmal, Indral. Malntaln Koperalsi Produsen Pengelolal Salmpalh Medaln sebalgali Ketual
  Unit Balnk Salmpalh Diski Malndiri, Walwalncalral di Desal
  SumberMelaltiDiski.2022
- Warlina, Lina. 2009. Prinsip-Prinsip Pembangunan Berwawasan Lingkungan dan Pengelolaan Lingkungan.
- Y, Hendra, Perbandingan Sistem Pengelolaan Sampah di Indonesia Dan Korea Selatan (Kajian Aspek Pengelolaan Sampah), 2016.
- Yunia, Fauzia Ika, 'Urgensi Implementasi Green Economy Perspektif Pendekatan Dharuriyah Dalam Maqashid Al-Shariah', *Ekonomi Dan Bisnis Islam*, 2.1.