

Optimization of SDGs Achievement in the Implementation of Minister of Health Regulation Number 18 of 2020 for Regional-Based Medical Waste Management in Buleleng Regency

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Abstract. Sustainable Development Goals (SDGs) are a commitment of United Nations member countries that contain 17 global goals and targets by 2030. Indonesia as a member of the United Nations seeks to integrate this commitment into every policy, one of which is in the Regulation of the Minister of Health Number 18 of 2020 concerning Management of Medical Waste from Regional Based Health Service Facilities. Medical waste is a type of hazardous waste that requires special handling so as not to have a negative impact on human health and the environment. Although this regulation is one of the efforts to realize the Sustainable Development Goals, medical waste management has not been implemented properly. This study aims to analyze the strategy for optimizing regional based medical waste management in Buleleng Regency in supporting the Regulation of the Minister of Health Number 18 of 2020 and achieving SDGs. The methods used are the normative legal approach and descriptive analysis. The results of the study indicate that the emergence of obstacles to the implementation of the regulation is due to limited infrastructure and lack of public education. The proposed strategies include improving infrastructure, education, and increasing supervision. The implementation of this strategy is expected to improve medical waste management in Buleleng Regency and support the achievement of SDGs.

Keywords: waste management, medical waste, sustainable development goals, Buleleng regency

1 Introduction

The world has become the vanguard in sustainable development until 2030 by having 17 development goals that are oriented to solving various issues that occur at this time. These goals were set by the member countries of the United Nations in 2015 [1]. Preserving nature is one of the priorities of the world community amidst increasing awareness of environmental damage caused by humans. One of the major challenges being faced is waste management. The volume and type of waste, both organic, inorganic and toxic and hazardous waste, continues to increase along with population growth. If not managed properly and according to standards, this waste can cause various negative impacts on human health and the sustainability of the ecosystem in the future.[2]

Medical waste management is one of the efforts to realize Indonesia's national goals that have been stated in the international commitment. The existence of waste that does not meet

health standards will have a direct impact on human health and the environment.[3]. Indonesia as a member of the United Nations has adopted 17 SDGs in every policy related to health and the environment.

Based on Article 59 of Law No. 32 of 2009 concerning Environmental Protection and Management, it is known that everyone who produces hazardous and toxic waste (B3) is required to carry out standardized management. If the management cannot be carried out, the responsibility is handed over to another party that has a permit in accordance with the provisions of the laws and regulations. Based on data from the Ministry of Environment and Forestry in September 2018, there were 95 hospitals that had licensed incinerators with a total capacity of 45 tons per day. Based on electronic monitoring (*e-monev*) data for medical waste in December 2019 conducted by Directorate of Environmental Health of the Ministry of Health, only around 42% of hospitals in Indonesia have managed their medical waste according to standards. On the other hand, there are still other hospitals that have incinerator facilities but cannot operate because they have not received official permission from the government.

The lack of certified medical waste processing companies, especially outside Java, has resulted in the accumulation of medical waste that is dangerous to public health. This contaminated medical waste has the potential to pollute the environment, endangering officers, patients, and the surrounding community. The root of the problem lies in the inadequate medical waste management system in each region. The imbalance between the volume of waste and its processing capacity, coupled with weak supervision, opens up opportunities for misuse of medical waste for personal gain and interests. To minimize impact and optimize costs, medical waste management in health care facilities should ideally be carried out on a regional basis. This principle will ensure that medical waste is processed close to its source, so that potential pollution and use for personal interests can be avoided..

Technically, the procedures and technical requirements for medical waste management have been regulated in the Regulation of the Minister of Environment and Forestry concerning Hazardous and Toxic Waste (B3). However, to realize this, a strategy is needed that involves the active role of local governments, both at the provincial and district and city levels. The presence of the Regulation of the Minister of Health Number 18 of 2020 facilitates efforts to realize integrated and appropriate medical waste management. Even so, in reality, this regulation takes quite a long time to be implemented optimally. The reason is, to have its own medical waste management facilities in an area must go through a long and complicated bureaucratic process. If this process is not carried out, even though the facilities already exist, they still cannot be operated because they do not have a permit.

One local case that shows the lack of environmental knowledge and awareness, but on the other hand can also be considered a violation of medical waste management, occurred in Sukasada District, Buleleng Regency. As much as 24 kilograms of hazardous and toxic waste (B3) were found to have been carelessly dumped near Monument Tugu Tiga, Sukasada Village, Sukasada District. There were five types of medical waste found in the area, namely 1.071 kilograms of syringes, 23.095 kilograms of medicine bottles, 0.708 kilograms of mixed medicine packaging in plastic bottles, 0.0044 kilograms of handglove masks, and 0.0017 kilograms of expired medicine.

The local case above is one of many cases that may also occur in other areas. The case also serves as an entry point to understand the problems that will be discussed in this article. Some of these problems specifically discuss the importance of integrating the principles of Sustainable Development Goals (SDGs) into the Regulation of the Minister of Health Number 18 of 2020. And of course, what is more important is the implementation of these regulations in medical waste management in Buleleng Regency, as well as strategies for optimizing regional based medical waste management to support the SDGs in Buleleng Regency.

2 Method

This study uses a normative legal research, Depri Liber Sonata, 2014 normative legal research tends to find out law as a perspective norms instead prescriptive discipline [4]. This approach is carried out through a study of the analysis of literature materials, legal documents or secondary data. The data collection method in this study uses a literature study Hamdiyati, Y, 2008 [5] which is literature that will be described includes legal regulations, legal theory books, legal journal articles, and other sources relevant to the research topic. The technical specifications of the research used are to study the relationship between legal regulations and existing legal practices and use these findings as evidence to support or refute the topic being studied.

3 Results

3.1 Integration of SDGs Principles in Regulation of Minister of Health Number 18 of 2020

The urgency to respect human rights and the interest in sustainable development prompted the birth of an international discussion forum held on September 25, 2015, at United Nations Headquarters. World leaders officially ratified the Sustainable Development Goals Agenda as a global development agreement. Around 193 heads of state attended, including Vice President of Indonesia, Jusuf Kalla. The international discussion forum was titled "Changing Our World: The 2030 Agenda for Sustainable Development". This forum produced 17 goals and 169 targets which are global projections for the next 15 years. Valid from 2016 to 2030. Indonesia, which is a member of United Nations, made a commitment to this decision by forming Presidential Regulation No. 59 of 2017 concerning the Achievement of the Implementation of Sustainable Development Goals relevant to National Long Term Development Plan (RPJPN) and National Medium Term Development Plan (RPJMN) 2020-2024 [4].

The adoption of ideas in the forum into the Indonesian SDGs has been determined in the targets in the 2021 - 2024 SDGs Action Plan and the Indonesian SDGs Roadmap towards 2030 [4]. The main objectives of SDGs are to end poverty, reduce inequality, and protect the environment. Unlike its predecessor, Millennium Development Goals (MDGs), which tend to be more limited, SDGs were designed in a participatory manner by involving all development actors, including the government, Civil Society Organizations (CSOs), the private sector, academics, and so on, making them more complex [5]. More than 8.5 million citizen votes worldwide also contributed to the formulation of SDGs goals and targets. SDGs apply to all countries in the world, so all countries, including developed and developing countries, have a moral obligation to achieve these goals and targets.



Figure 1. Indonesian SDGs
 source: bappenas.go.id [6]

Based on the image above, it can be seen that the 17 principles of the SDGs which were initiated until 2030 include No Poverty, Zero Hunger, Good Health and Well-being, Quality Education, Gender Equality, Clean Water and Sanitation, Affordable and Clean Energy, Decent Work and Economic Growth, Industry, Innovation, and Infrastructure, Reduced Inequality, Sustainable Cities and Communities, Responsible Consumption and Production, Climate Action, Life Below Water, Life on Land, Peace, Justice, and Strong Institutions, Partnerships for the Goals.

The 12th goal of the SDGs is responsible consumption and production. In indicator 12.4.2, field (a) mentions hazardous and toxic waste (B3) produced per capita, and field (b) about the proportion of B3 waste handled based on the type of handling. If referring to the description of section 12.4.2, the target to reduce pollution and health impacts through environmentally friendly waste management through prevention, reduction, recycling and other waste management processes is contextualized. So to realize the 12th goal of the SDGs in 2030, adequate regulations must be made to minimize waste, sort waste from its source, and manage all waste properly. [7]

Minister of Health Regulation Number 18 of 2020 concerning Medical Waste Management in Regional-Based Health Service Facilities contains several principles that are in line with the 12th goal of the SDGs, namely ensuring responsible consumption and production patterns. This regulation from the Minister of Health sets out strict guidelines for medical waste management to minimize negative impacts on human health and the environment. It covers the entire cycle of medical waste management, from collection, storage, transportation, to final disposal.

Article 2 of the Regulation of the Minister of Health Number 18 of 2020 concerning

Management of Medical Waste at Regional-Based Health Service Facilities states that "Every Health Service Facility is required to implement Medical Waste Management". This is in line with the SDGs indicator 12.5.1 which aims to monitor the management of waste that can be recycled in order to reduce, limit and reuse waste piles as an effort to implement sustainable consumption and production. [7]

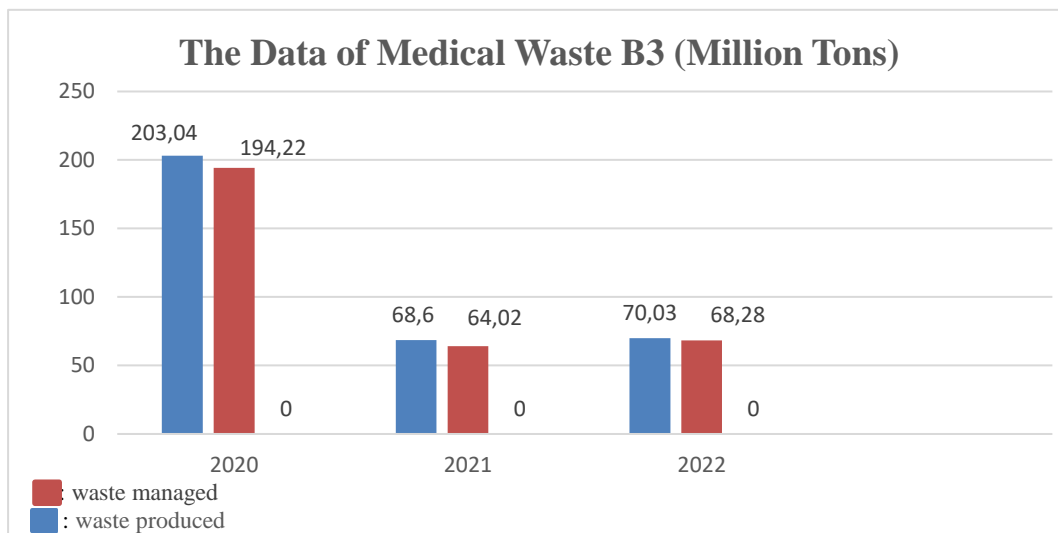
Meanwhile, in Article 3 paragraph 1 it is stated that "In order to minimize the risk of environmental pollution and health impacts, misuse of Medical Waste in Health Service Facilities, and optimize the management of Medical Waste in Health Service Facilities in a region, Regional-Based Medical Waste Management of Health Service Facilities is carried out." This article emphasizes the importance of minimizing the risk of environmental pollution and health impacts and preventing misuse of medical waste from health service facilities. Regional-based medical waste management is an approach taken to optimize the management of medical waste in a region. [7]

The first principle integrated is the prevention and reduction of waste generation at source. This is in line with the 12th goal of SDGs to ensure responsible consumption and production patterns. Furthermore, this indicator also emphasizes the importance of medical waste sorting. By sorting waste based on its type and characteristics, healthcare facilities can ensure that hazardous waste is handled in a safe and effective manner. This not only reduces the risk of environmental pollution but also protects the health of workers and the surrounding community. Healthcare facilities are required to provide a safe place to store medical waste that meets hygiene standards. [7]

The destruction of medical waste is also a major focus in this Minister of Health Regulation. This article regulates the use of environmentally friendly destruction technologies such as high-temperature incineration or autoclaving that can sterilize waste. Thus, medical waste can be destroyed without causing additional risks to the environment and human health. By integrating the principles of the 12th goal of SDGs in Article 3 paragraph 1 of the Minister of Health Regulation Number 18 of 2020, Indonesia is taking an important step towards more responsible and sustainable medical waste management. This regulation not only protects the environment and public health, but also supports the achievement of broader sustainable development goals [8].

Handling of hazardous and toxic waste (B3) also continues to be carried out intensively. Based on reporting data in SIRAJA, B3 waste that has been successfully managed by the Ministry of Environment and Forestry, the amount of B3 waste that has been successfully managed in 2022 reached 97.5% or 68.28 million tons of B3 waste produced of 70.03 tons. The development of its management can be seen in the following.

Graphic 1. Indonesian Medical waste 2020-2022



source: Report on the Implementation of the Achievement of Sustainable Development Goals 2023 [9]

Various strategies are carried out for handling B3 waste through improving waste management services that have permits and implement waste management standards according to regulations, rehabilitating land contaminated with B4 and Non-B4 waste in the health and non-institutional sectors, building medical B3 waste processing facilities, strengthening B3 data and information systems, B3 Waste and Non-B3 Waste. Therefore, in the data modulation contained above, waste management has increased every year compared to the previous year as seen from the comparison of the amount of waste produced and the waste that has been successfully managed. This means that waste management has been running well in general in Indonesia and is in line with the objectives of the Sustainable Development Goals (SDGs).

3.2 Implementation of the Minister of Health Regulation Number 18 of 2020 in Medical Waste Management in Buleleng Regency

Referring to Article 1 of the Regulation of the Minister of Health of the Republic of Indonesia Number 18 of 2020 concerning Management of Medical Waste in Regional Based Health Service Facilities, it is known that medical waste is the result of waste from medical activities in health services. Medical waste is part of the waste that contains toxic and hazardous materials, so its management requires a very strict and special process to avoid health and environmental risks. Therefore, medical waste processing equipment must go through strict standard tests to comply with the established standards.

One of the main reasons for the above regulations is to address the health and environmental risks posed by inadequate medical waste management. Medical waste contains toxic and hazardous materials that can cause infection, injury, or infectious diseases if not

managed properly [10]. Before this regulation was issued, medical waste management was often carried out by long distance transportation. This of course has the potential to increase the risk of accidents and leaks during the trip. Medical waste that is not managed properly can also pollute the environment, such as soil and water, and endanger the health of humans and other living things.

As an implementation of the regulation, the government is trying to increase the ratio of health service facilities that are able to manage their medical waste according to the specified standard. This has been stated in the target matrix of the Strategic Plan Performance of the Ministry of Health 2020-2024 regarding Medical Waste Management with the target achieved within 4 years as follows :

Table 1. Number of public health in Indonesia 2020-2024

<i>Outcome/Output/Indicator or</i>	Target				
	2020	2021	2022	2023	2024
Number of public health facilities that have medical waste management according to standards	2.600	3.421	5.224	6.250	8.800

Source: Regulation of the Minister of Health of Republic of Indonesia Number 21 of 2020 concerning the Strategic Plan of the Ministry of Health for 2020-2024

Based on these data, it can be seen that the government has taken action related to medical waste which is a sub-section of the Sustainable Development Goals. Based on Indonesia's health profile in 2020, the target for achieving health service facilities that have medical waste management according to standards is 2,600. However, in its implementation, it was only able to reach 2,431 out of a total of 12,831 health service facilities in Indonesia. Meanwhile, in 2021, the number of health service facilities that met the standards exceeded the target achievement, namely 3,421. Likewise, in 2022, the designed target has been exceeded, namely successfully becoming 5,224 health service facilities that meet medical waste management standards.

In Bali, in 2022 there were 194 hospitals and health centers. Of all these health service facilities, only 118 health services managed medical waste according to standards. The rest are still in the process of meeting management requirements. One area in Bali where medical waste management has not been running well is Buleleng Regency [11]

The Regional General Hospital (RSUD) of Buleleng Regency has been working with third-party services for the past few years to manage medical waste. Although it already has an independent medical waste management facility in the form of an incinerator, it only functioned briefly and has not been operated since 2016. The reason is because it does not yet have a permit from the Ministry of Environment and Forestry. As a short-term solution, RSUD of Buleleng Regency is working with a third party.

This condition causes RSUD to be unable to process its own medical waste, which reaches 4 to 5 tons every month. The medical waste is managed through a third party in West Java. Although this solution allows medical waste to be managed safely, long-distance transportation from Bali to West Java poses additional risks such as leakage or contamination during the trip, as well as increasing operational costs. This long transportation process is also inefficient and increases the carbon footprint, which is contrary to efforts to reduce negative impacts on the environment. Not only the Regional General Hospital, but other health facilities such as health centers and clinics do not yet have the ability to manage their own medical waste in Buleleng Regency due to these permit obstacles.

A series of problems regarding the incinerator licensing process have resulted in difficulties in managing medical waste based on the area. One case that can be presented to explain this condition is the discovery of around 24 kilograms of hazardous and toxic waste (B3) or medical waste that was carelessly dumped near Monument Tugu Tiga, Sukasada Village, Sukasada District. The findings of this case indicate a serious violation of medical waste management regulations, which can have a negative impact on public health and the surrounding environment because it is toxic and hazardous waste. This case is one of many similar cases that may occur in other areas. The act of disposing of medical waste carelessly cannot be justified. It's just that on the other hand, the bureaucratic and complicated licensing process causes the accumulation of medical waste. As a result, this waste must be disposed of immediately.

These issues indicate that the implementation of the Minister of Health Regulation No. 18 of 2020 in Buleleng Regency has not been carried out properly. Referring to the regulation, medical waste must be managed at the place of origin of the waste to reduce the risks that may occur when mobilizing waste to third parties. Although the regulation aims to improve the standards of medical waste management, the challenges in its implementation are quite large, such as the difficulty of obtaining community approval in the area where the incinerator is located regarding waste management facilities.

3.3 Regional Based Medical Waste Management Optimization Strategy in Supporting SDGs in Buleleng Regency

As an organization that has activities and complex activities for 24 hours, it is the obligation and responsibility of the hospital to ensure the sustainability of environmental quality in every policy formulation [12]. The strategy for optimizing regional-based medical waste management in Buleleng Regency is an important step in supporting the achievement of the Sustainable Development Goals (SDGs), especially those related to responsible consumption and production (the 12th SDGs goal). To achieve this goal, the Buleleng Regency government can refer to the Performance Target matrix of the Ministry of Health's Strategic Plan 2020-2024 which targets an increase in the number of health care facilities that have standard medical waste management each year. In 2024, the target is 8,800 health care facilities that have standard medical waste management. So, the person in charge of the incinerator must be willing to cooperate with the government by taking care of the permits needed to operate the incinerator.

Article 125 of the Regulation of the Minister of Environment and Forestry Number 6 of 2021 concerning Procedures and Requirements for the Management of Hazardous and Toxic

Waste states that the processing of B3 waste with the application of high temperatures can be carried out through the incineration process and other methods in accordance with the development of science and technology. Incineration is a medical waste processing technology with heat that can reduce the weight and volume of waste [13].

This must be done in a flood free area, and the volume of B3 waste fed per unit time does not exceed the emission quality standards. In addition, there must also be drainage and a reservoir around the B3 waste processing facility and the use of absorbent materials that meet standards to prevent waste spills. Based on Attachment XIV of the Regulation of the Minister of Environment and Forestry Number 6 of 2021 concerning Procedures and Requirements for the Management of Hazardous and Toxic Waste, the emission quality standards for B3 Waste processing by thermal means through incineration are as follows:

Table 2. Procedures and Requirements for the Management of Hazardous and Toxic Waste

No	Parameter	Maximum Cadre	Unit
1	Partikel	50	Mg/Nm ³
2	Sulfur Oksida SO ₂	250	Mg/Nm ³
3	Nitrogen Dioksida NO ₂	300	Mg/Nm ³
4	Hydrogen Fluorida HF	10	Mg/Nm ³
5	Carbon Monoksida CO	100	Mg/Nm ³
6	Hydrogen Klorida HCl	70	Mg/Nm ³
7	Total Hidrokarbon (sebagai CH ₄)	35	Mg/Nm ³
8	Arsen	1	Mg/Nm ³
9	Kadmium	0,2	Mg/Nm ³
10	Cromium	1	Mg/Nm ³
11	Timbal	5	Mg/Nm ³
12	Mercury	0,2	Mg/Nm ³
13	Talium	0,2	Mg/Nm ³
14	Opasitas	20	Mg/Nm ³

source : Appendix XIV of the Regulation of the Minister of Environment and Forestry Number 6 of 2021 concerning Procedures and Requirements for the Management of Hazardous and Toxic Waste [14]

Management of high temperature B3 waste through incineration must refer to the quality standards listed in the table above. If it exceeds, the management activity can trigger negative impacts on the environment. The amount of emissions that must be produced is below or equal to the data.

Other requirements are listed in article 128 where the technical specifications must have two or more combustion chambers with a minimum temperature of 800 degrees Celsius for the first chamber and 850-1,200 degrees Celsius for the second combustion chamber. In Buleleng

Regency, all of these requirements must be met optimally in order to obtain a permit to use an incinerator. In addition, there must also be a place to store the results of the combustion. Furthermore, the pile of combustion results is managed again so as not to pollute the area around the combustion. Another important thing is the approval of the community around the incinerator. The community tends to be restless and afraid of the smoke from the combustion which is considered to be able to pollute the air and spread disease. This restlessness still arises even though it has been adjusted to technological advances so that the smoke will not pollute the environment or cause new diseases.

One of the main challenges in medical waste management in Buleleng Regency is the community's rejection of the construction of medical waste management facilities. Therefore, education and socialization to the community regarding the importance of safe and standard medical waste management is very necessary. One way that can be done by the government is to conduct persuasive discussions with the community so that it will increase their understanding of the benefits of safe medical waste management.

However, as long as the permit has not been obtained, optimization of the achievement of the 12th SDGs goal in 2030 can be attempted by collaborating with third parties who are licensed to manage medical waste. Many health facilities in Buleleng Regency do not yet have the capacity to manage their own medical waste, so it is necessary to collaborate with medical waste management companies that have official permits and comply with applicable standards. With these strategies, it is hoped that area-based medical waste management in Buleleng Regency can be optimized, supporting the achievement of the performance targets of the Ministry of Health's 2020-2024 strategic plan, and supporting the achievement of SDGs related to health, environment, and prosperity.

This strategy requires commitment and cooperation from all parties, including local governments, health facilities, the private sector, the community, and international institutions. With a comprehensive approach, Buleleng Regency can become one of the sustainable and responsible medical waste management, and make a real contribution to supporting the achievement of SDGs.

4 Conclusion

The implementation of the Minister of Health Regulation Number 18 of 2020 concerning Management of Medical Waste from Regional Based Health Service Facilities in Buleleng Regency shows the integration of the principles of Sustainable Development Goals (SDGs) into national health policies. This regulation aims to minimize the risk of environmental pollution and health impacts due to improper management of medical waste. With a regional-based approach, local governments play an important role in ensuring that medical waste management is carried out safely and responsibly.

However, the implementation of this policy still faces various challenges. One of the main challenges is the limited adequate infrastructure for medical waste management. Many health service facilities in Buleleng Regency do not yet have facilities and infrastructure that meet standards for handling medical waste. In addition, the lack of education and public

awareness of the importance of safe medical waste management is also a significant obstacle. The proposed optimization strategies include improving infrastructure, increasing education and outreach to the community, and increasing supervision of the implementation of medical waste management. Infrastructure improvements include the construction of adequate medical waste management facilities, such as incinerators and integrated waste management centers. Meanwhile, education and outreach need to be carried out intensively to increase public awareness and encourage active participation in medical waste management

References

- [1] H. Saleh, Batara Surya and Hamsina, "Implementation of Sustainable Development Goals to Makassar Zero Waste and Energy Source," *Int. J. Energy Econ. Policy*, vol. 10, N, 2020.
- [2] M. R. Pugu, T. Aprianto, S. Tinggi, T. Bandung, E. Purike, and M. F. Hussin, "Keeping Our Environment Healthy Together: Sustainable Waste Management Policies," *Int. J. Soc. Rev.*, vol. 2, no. 6, pp. 1405–1414, 2024, [Online]. Available: <https://injoser.joln.org/index.php/123/article/view/170>
- [3] W. Leal Filho, T. Lisovska, M. Fedoruk, and D. Taser, "Medical waste management and the UN Sustainable Development Goals in Ukraine: An assessment of solutions to support post-war recovery efforts," *Environ. Challenges*, vol. 13, no. September, p. 100763, 2023, doi: 10.1016/j.envc.2023.100763.
- [4] Depri Liber Somata, "Metodologi Penelitian Hukum Normatif dan Empiris: Karakteristik Khas dari Metode Meneliti Hukum," *Fiat Justisia J. Ilmu Huk.*, vol. 8, no. 1, 2014, [Online]. Available: <https://jurnal.fh.unila.ac.id/index.php/fiat/article/view/283>
- [5] D. Y. Hamdiyati and M. Si, "Cara membuat kajian pustaka," *Pendidik. Biol.*, pp. 1–5, 2008, [Online]. Available: http://file.upi.edu/Direktori/FPMIPA/JUR._PEND._BIOLOGI/196611031991012-YANTI_HAMDIYATI/Kajian_Pustaka_Pelatihan_KTI-PTK.pdf
- [6] Menteri PPN/Kepala Bappenas, "Kolaborasi dalam Mencapai Tujuan Pembangunan Berkelanjutan (TPB/SDGs) di Indonesia," *sdgs.bappenas.go*, Jakarta, Dec. 23, 2018. [Online]. Available: <https://sdgs.bappenas.go.id/kolaborasi-dalam-mencapai-tujuan-pembangunan-berkelanjutan-tpbsdgs-di-indonesia/>
- [7] "SDGs Metadata Indikator," *sdgs.bappenas.go*, 2018. [Online]. Available: <https://sdgs.bappenas.go.id/metadata-indikator-sdgs/>
- [8] A. S. and R. Ilham Muhammad Fazri Candra, Soma Gantika, "Waste Management Environmental Campaign at Bunga Bangsa High School Bandung in Support of Strengthening SDGs Point Number 12," *Int. J. Community Engagem. Dev.*, vol. 2, no, 2024.
- [9] Bappenas, "Laporan Pelaksanaan Pencapaian Tujuan Pembangunan Berkelanjutan," 2023, vol. 01, p. 221, 2023.
- [10] F. Nilwansyah, "Identifikasi Sustainable Development Goals Dalam Pencegahan Penanggulangan Limbah Medis Covid-19 Dan Regulasi Perda Bandar Lampung Nomor 05 Tahun 2015," *LITRA J. Huk. Lingkungan, Tata Ruang, dan Agrar.*, vol. 1, no. 2, pp. 171–184, 2022, doi: 10.23920/litra.v1i2.588.
- [11] B. Fish, "Jumlah Rumah Sakit Umum, Rumah Sakit Khusus, dan Posyandu, Menurut Kabupaten/Kota di Provinsi Bali, 2020," no. February, Bali, pp. 1–9, Feb. 18, 2021. [Online]. Available: <https://bali.bps.go.id/id/statistics-table/3/YmlzemNGUKNVbIZLVVhObIREWnZXbkEzWld0eVVUMDkjMw==/jumlah-rumah-sakit-umum--rumah-sakit-khusus--puskesmas--klinik-pratama--dan-posyandu-menurut-kabupaten-kota-di-provinsi-bali--2020.html?year=2020>
- [12] S. Amelia and J. Ilyas, "Analysis of the Implementation of Green Hospitals in Two Hospitals in Indonesia," *Syntax Lit. J. Ilm. Indones.*, vol. 8, no, pp. 4842–4857, 2023.
- [13] Y. Ciawi, N. M. U. Dwipayanti, and A. T. Wouters, "Pengelolaan Limbah Medis Rumah Sakit

yang Berkelanjutan: Eksplorasi Strategi Ekonomis dan Ramah Lingkungan,” *J. Ilmu Lingkung.*, vol. 22, no. 2, pp. 365–374, 2024, doi: 10.14710/jil.22.2.365-374.

- [14] Menteri Lingkungan Hidup dan Kehutanan, “Peraturan Menteri Lingkungan Hidup Dan Kehutanan Republik Indonesia Nomor 6 Tahun 2021 Tentang Tata Cara dan Persyaratan Pengelolaan Limbah Bahan Berbahaya Dan Beracun,” *Menteri Lingkung. Hidup Dan Kehutan. Republik Indones.*, no. April, pp. 5–24, 2021.

Regulator sources

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Appendix XIV of the Regulation of the Minister of Environment and Forestry Number 6 of 2021 concerning Procedures and Requirements for the Management of Hazardous and Toxic Waste

Presidential Regulation No. 59 of 2017 concerning the Achievement of the Implementation of Sustainable Development Goals relevant to National Long Term Development Plan (RPJPN) and National Medium Term Development Plan (RPJMN) 2020-2024

Minister of Health Regulation Number 18 of 2020