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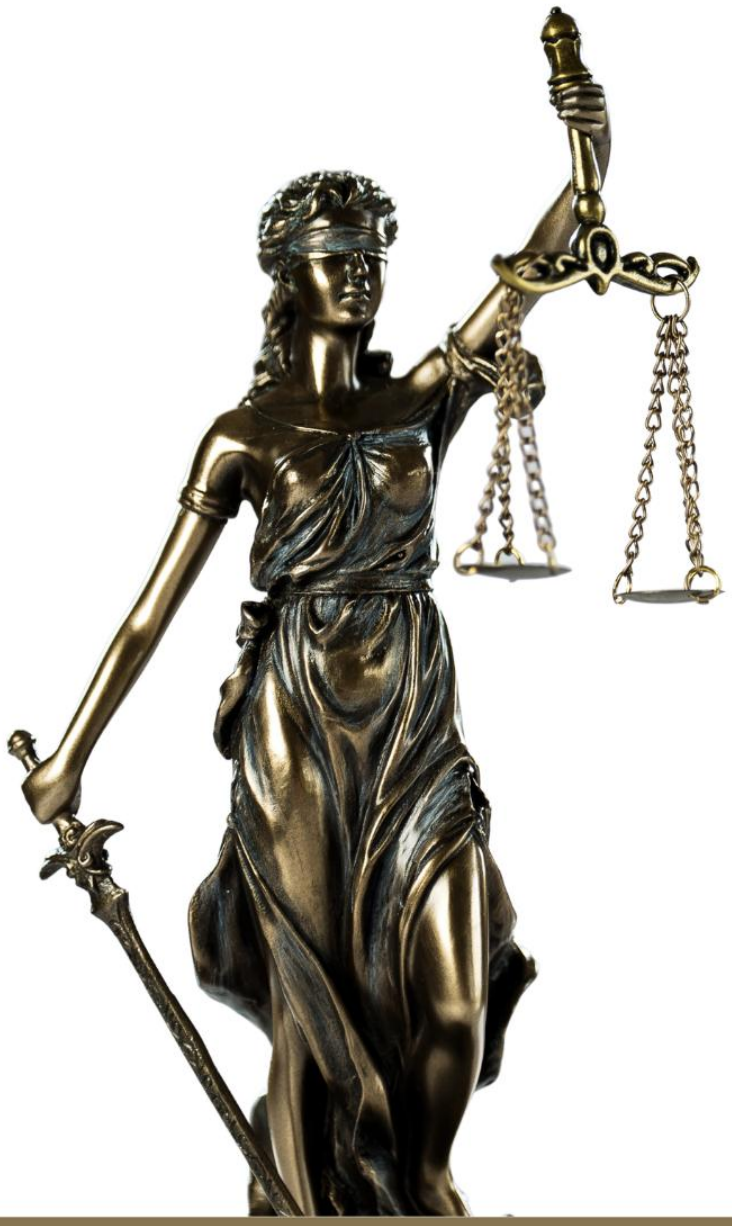

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Penegakan Hukum Terhadap Peraturan Daerah Kota Sukabumi Nomor 2 Tahun 2021 Perubahan Atas Peraturan Daerah Nomor 17 Tahun 2011 Tentang Pengelolaan Sampah

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Law Enforcement Against Sukabumi City Regional Regulation Number 2 of 2021 Amendment to Regional Regulation Number 17 of 2011 Concerning Waste Management

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ABSTRACT

This research is motivated by the importance of law enforcement against Regional Regulations in waste management related to wise structuring and supervision by considering development and development in Sukabumi City. The government of Sukabumi has established and enforced Sukabumi City Regional Regulation Number 2 of 2021 Amendments to Regional Regulation Number 17 of 2011 concerning Waste Management, in order to create a comfortable, clean and beautiful Sukabumi City. The main problems in this research are how the role of Law Enforcement and what obstacles are faced by the Office in Law Enforcement efforts against Sukabumi City Regional Regulation Number 2 of 2021 amendments to Regional Regulation Number 17 of 2011 concerning Waste Management. The research method used is a qualitative method with the type of empirical juridical research, namely research that combines normative legal provisions on every legal event that occurs in society or in other words combines secondary data in the form of regulations, laws and books, and primary data, namely data obtained from the field directly based on real events. The research uses the theory of Law Enforcement and Legal Certainty Theory. The results of the study explain that the role of law enforcers in carrying out their duties is still not optimal so that it is very difficult to overcome the problem of waste and the obstacles that exist in overcoming the problem of waste are the absence of socialization related to the sanctions for littering, the lack of cleaning personnel, and low human resources.

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1. Pendahuluan

Sampah merupakan permasalahan yang membutuhkan pengelolaan serius[2]. Jika hal ini tidak diurus maka sampah akan membawa bencana pada lingkungan dan kehidupan manusia[3]. Sampah merupakan bagian yang tidak dapat dipisahkan dari kehidupan manusia karena pada dasarnya setiap manusia pasti menghasilkan sampah. Sampah merupakan suatu limbah yang dihasilkan dari seluruh aktivitas manusia. Ketika konsumsi manusia meningkat, jumlah sampah juga meningkat. Seiring dengan bertambahnya jumlah penduduk, aktivitas manusia dalam mengelola sumber daya guna memenuhi kebutuhan sehari-hari menjadi semakin beragam. Pertumbuhan jumlah penduduk telah membawa perubahan besar pada lingkungan hidup[4]. Pertambahan jumlah penduduk sebanding dengan peningkatan konsumsi sehingga berdampak pada peningkatan jumlah sampah di Kota Sukabumi. Hal inilah yang menjadi alasan penting mengapa permasalahan sampah menjadi besar dan perlu diselesaikan dalam jangka pendek, menengah, dan panjang[5]. Selain itu, sampah-sampah produk teknologi tinggi yang mengandung unsur berbahaya dan berdampak negatif terhadap lingkungan semakin meningkatkan kualitas sampah, semakin berat dan berbahaya bagi lingkungan. Hal ini akan mempengaruhi dampak besar terhadap lingkungan dan pada akhirnya akan mempengaruhi pada kesehatan masyarakat[6].

Kota Sukabumi yang berpenduduk kurang lebih 365.735 orang ini menjadi tempat berbagai aktifitas. Selain aktifitas manusia yang dilakukan perorangan maupun kelompok akan menghasilkan sampah baik sampah organik maupun sampah an-organik, baik sampah rumah tangga, kantor, pinggir jalan, pasar, maupun sekolah, terdapat juga kegiatan industri baik industri besar, menengah, dan kecil. Seluruh aktivitas di Kota Sukabumi menghasilkan kurang lebih 180 ton sampah setiap harinya, kurang lebih 60% diantaranya berasal dari sampah makanan dan sampah rumah tangga. Sampah yang dihasilkan oleh masyarakat sangat besar dan tersebar di wilayah Kota Sukabumi. Kota Sukabumi yang memiliki luas wilayah 48.0023 KM^2 menjadi permasalahan bagi Pemerintah Kota Sukabumi, karena telah mengembangkan cara mengendalikan pengelolaan sampah, agar tidak meresahkan masyarakat setempat[7]. Untuk mencegah

[2] Budihardjo, Mochamad Arief, Natasya Ghinna Humaira, Bimastyaji Surya Ramadan, Indah Fajarini Sri Wahyuningrum, and Haryono Setiyo Huboyo. 2023. "Strategies to Reduce Greenhouse Gas Emissions from Municipal Solid Waste Management in Indonesia: The Case of Semarang City." *Alexandria Engineering Journal* 69: 771–83. https://doi.org/10.1016/j.aej.2023.02.029

[3] Kurniawan, Tonni Agustiono, Christia Meidiana, Mohd Hafiz Dzarfan Othman, Hui Hwang Goh, and Kit Wayne Chew. 2023. "Strengthening Waste Recycling Industry in Malang (Indonesia): Lessons from Waste Management in the Era of Industry 4.0." *Journal of Cleaner Production* 382: 135296. https://doi.org/https://doi.org/10.1016/j.jclepro.2022.135296

[4] Brotosusilo, Agus, and Dwini Handayani. 2020. "Dataset on Waste Management Behaviors of Urban Citizens in Large Cities of Indonesia." *Data in Brief* 32: 106053. https://doi.org/10.1016/j.dib.2020.106053

[5] Nagong, Adrianus. 2021. "Studi Tentang Pengelolaan Sampah Oleh Dinas Lingkungan Hidup Kota Samarinda Berdasarkan Peraturan Daerah Kota Samarinda Nomor 02 Tahun 2011 Tentang Pengelolaan Sampah." *Jurnal Administrative Reform* 8 (2): 105–14. https://doi.org/10.52239/jar.v8i2.4540

[6] Grandhi, Sai Preetham, Pranav Prashant Dagwar, and Deblina Dutta. 2024. "Policy Pathways to Sustainable E-Waste Management: A Global Review." *Journal of Hazardous Materials Advances* 16 (April): 100473. https://doi.org/10.1016/j.hazadv.2024.100473

[7] BPS. 2024. *Kecamatan Sukabumi Dalam Angka 2024*. Sukabumi: BPS Kabupaten Sukabumi

permasalahan tersebut, Pemerintah Kota Sukabumi telah membentuk Peraturan Daerah Nomor 2 Tahun 2021 Perubahan Atas Peraturan Daerah Nomor 17 Tahun 2011 tentang Pengelolaan Sampah[8].

Pengelolaan sampah yang tidak tepat menimbulkan berbagai permasalahan seperti air rembesan ke dalam tanah/sungai, berkembang biaknya lalat, kecoa dan tikus, asap dari pembakaran sampah secara liar, buruknya estetika lingkungan, dan pemanasan global. Agar pengelolaan sampah tidak menimbulkan penyakit dan tidak membahayakan lingkungan, maka sampah harus dikelola dengan baik agar tidak mencemari lingkungan[9]. Pengelolaan sampah dapat dilakukan dengan mengurangi sampah dengan menggunakan sumber 3R yaitu *reduction* (pengurangan), *reuse* (pemanfaatan kembali), *recyle* (pendaurulangan), pemisahan sampah sebelum dibuang yaitu pewadahan, pengumpulan, pengangkutan, pembuangan TPA (tempat pembuangan akhir) ramah lingkungan. Jika pemerintah dan masyarakat bekerja sama, pengelolaan sampah dapat berjalan efektif dan efisien [10] . Kendalanya, terletak pada penerapan dan penegakan hukum tehadap pengelolaan sampah, terutama dalam penerapan sanksinya.

Penegakan Hukum dapat dilaksanakan melalui berbagai cara dan menggunakan sanksi yang berbeda, seperti sanksi administrasi, sanksi perdata maupun sanksi pidana. Di Indonesia, terdapat beberapa peraturan perundang-undangan yang berkaitan dengan pengelolaan sampah yaitu, Undang-undang Nomor 23 Tahun 2014 tentang Pemerintahan Daerah, Undang-undang Nomor 18 Tahun 2008 tentang Pengelolaan Sampah dan beberapa peraturan daerah yang sudah dibentuk oleh pemerintah daerah baik di tingkat Kabupaten atau Kota seperti Peraturan Daerah Kota Sukabumi Nomor 2 Tahun 2021 perubahan atas Peraturan Daerah Nomor 17 Tahun 2011 tentang Pengelolaan Sampah. Sanksi-sanksi yang terdapat dalam peraturan terutama yang menyangkut pengelolaan sampah tidak efektif dalam memberikan jera bagi masyarakat yang tidak bertanggungjawab membuang sampah sembarangan atau melakukan pengelolaan sampah dengan tidak berwawasan lingkungan. Oleh karena itu, perlu adanya kajian mengenai sanksi terhadap penegakan hukum dalam pengelolaan sampah. Selain itu, peran pemerintah daerah juga sangat penting dalam mengeluuarkan kebijakan terhadap pengelolaan sampah[11].

Berdasarkan latar belakang masalah di atas, penegakan hukum terhadap penataan, pengawasan dan pengelolaan sampah secara bijaksana penting sekali sekaligus mempertimbangkan pengembangan dan pembangunan di Kota Sukabumi. Dengan demikian, Kota Sukabumi yang nyaman, bersih dan indah dapat tercipta. Dengan

[8] Muslih, M. 2016. "Efektifitas Peraturan Daerah Kota Jambi No. 8 Tahun 2013 Tentang Pengelolaan Sampah Dalam Mewujudkan Lingkungan Sehat dan Bersih di Kota Jambi." *Legelittas: Jurnal Hukum* 8 (2): 1–19. https://doi.org/10.33087/legalitas.v8i2.22

[9] Suryawan, I Wayan Koko, and Chun-Hung Lee. 2024. "Exploring Citizens' Cluster Attitudes and Importance-Performance Policy for Adopting Sustainable Waste Management Practices." *Waste Management Bulletin* 2 (3): 204–15. https://doi.org/10.1016/j.wmb.2024.07.011

[10] Theresia, Louise. 2021. "Tata Kelola Sampah Dalam Perspektif Hukum Lingkungan." *Palangka Law Review* 1 (1): 56–69. https://doi.org/10.52850/palarev.v1i1.2554

[11] Candrakirana, Rosita. 2015. "Penegakan Hukum Lingkungan Dalam Bidang Pengelolaan Sampah Sebagai Perwujudan Prinsip Good Environmental Governance Di Kota Surakarta." *Yustisia Jurnal Hukum* 4 (3): 581–601. https://doi.org/10.20961/yustisia.v93i0.3686

demikian, penelitian ini bertujuan untuk menganalisis faktor dan bentuk penegakan hukum terhadap peraturan daerah Kota Sukabumi nomor 2 tahun 2021 perubahan atas peraturan daerah nomor 17 tahun 2011 tentang pengelolaan sampah.

2. Metode dan Bahan Hukum

Penelitian ini merupakan penelitian deskriptif kualitatif. Penelitian ini dilakukan berdasarkan analisis data dari berbagai sumber baik tertulis maupun lisan dari sumber yang akan diamati (survei). Metode pendekatan yang digunakan dalam penelitian ini adalah Yuridis Empiris[12]. Penelitian ini menggunakan teori Penegakan Hukum dan Teori Kepastian Hukum untuk mengkaji hukum dan kendala yang dihadapi Dinas dalam upaya penegakan hukum terhadap Peraturan Daerah Kota Sukabumi Nomor 2 Tahun 2021 perubahan atas Peraturan Daerah Nomor 17 Tahun 2011 tentang pengelolaan sampah. Teknik pengumpulan data yang dilakukan dalam penelitan ini adalah teknik pengumpulan data wawancara dan studi pustaka. Metode analisis data yang digunakan dalam penelitian ini adalah metode kualitatif, yaitu suatu pembahasan yang dilakukan dengan cara memadukan antara penelitian kepustakaan dan penelitian lapangan[13].

3. Hasil dan Pembahasan

3.1 Peranan Penegak Hukum terhadap Peraturan Daerah Kota Sukabumi Nomor 2 Tahun 2021 Perubahan Atas Peraturan Daerah Nomor 17 Tahun 2011 Tentang Pengelolaan Sampah

Menurut Soerjono Soekanto masalah pokok penegakan hukum sebenarnya terletak pada faktor-faktor yang mempengaruhinya. Faktor-faktor tersebut mempunyai arti yang netral, sehingga dampak positif atau negatifnya terletak pada isi faktor-faktor tersebut[14].

Penegakan hukum dalam mengatasi permasalahan sampah di Kota Sukabumi dapat dilihat dari beberapa indikator diantaranya:

1. Fungsi hukum yang mana menekankan pada sarana dalam penegakan pembangunan dalam suatu masyarakat. Pada mekanisme ini dapat dilihat dari penegakan atas masih banyaknya sampah yang berserakan di Kota Sukabumi yang masih belum terselesaikan. Sehubungan dengan hal tersebut hasil wawancara dengan Satuan Polisi Pamong Praja menyatakan bahwa:

   > *"Memang untuk pengelolaan sampah tidak begitu terlaksana dengan maksimal. Tetapi sejauh ini ada perubahan pengelolaan sampah menjadi maju, tergantung pada bagaimana penerapan dan dukungan dari masyarakat dalam menjalankan regulasi tersebut"* (Wawancara pada 9 Juli 2024).

   Sedangkan hasil wawancara dengan Dinas Lingkungan Hidup menyatakan bahwa:

   > *"Untuk tumpukan sampah di Kota Sukabumi cukup memprihatinkan dimana*

[12] Soekanto, Soerjono. 1998. *Pengantar Penilitian Hukum*. 3rd ed. Malang: Nusantara
[13] Amiruddin, and Zainal Asikin. 2012. *Pengantar Metode Penelitian Hukum*. 6th ed. Jakarta: Raja Grafindo Persada
[14] Soekanto. Soerjono. 2012. *Faktor-Faktor Yang Mempengaruhi Penegakan Hukum*. 12th ed. Jakarta: Raja Grafindo Persada

adanya regulasi yang mengatur terkait pengelolaan sampah namun masih saja tidak bisa menjadikan masyarakat sadar atas mekanisme membuang sampah yang tepat. Regulasi itu diterapkan dengan cara melaksanakan pengelolaan sampah berdasarkan peraturan-peraturan yang ada" (Wawancara pada 14 Mei 2024).

Berdasarkan pemaparan yang telah dikemukakan dapat dikatakan fungsi hukum yang seharusnya berjalan dengan adanya regulasi yang mengatur tetap saja tidak menjadikan lingkungan bersih dari sampah. Masih banyak sampah yang tidak dapat terselesaikan sekalipun ada payung hukum yang mengatur.

Di dalam Peraturan Daerah Nomor 2 Tahun 2021 Perubahan atas Peraturan Daerah Nomor 17 Tahun 2011 tentang Pengelolaan Sampah terdapat adanya ketentuan pengelolaan sampah, larangan dan sanksi. Agar peraturan diketahui oleh masyarakat yaitu melakukan sosialisasi, agar masyarakat mengetahui apa isi dari Peraturan Daerah tersebut, apa yang harus dilakukan dan tidak boleh dilakukan. Kemudian adaya sanksi yaitu untuk membuat masyarakat mematuhi ketentuan-ketentuan di dalam Peraturan Daerah tersebut, serta memberikan efek jera kepada pelaku pelanggaran atau oknum. Dengan adanya Peraturan Daerah ini diharapkan Pemerintah dapat mengatasi atau mengelola sampah dengan baik.

2. Faktor masyarakat dimana rendahnya sumber daya manusia atau oknum yang tidak bertanggung jawab mereka sangat sulit membuang sampah pada tempatnya. Sehubungan dengan hal tersebut hasil wawancara dengan Dinas Lingkungan Hidup menyatakan bahwa:

   "Tergantung pada masyarakat setempat, karena dengan adanya peraturan yang berlaku mengenai pengelolaan sampah, bisa menjadi pedoman bagaimana alur pengelolaan tersebut dilaksanakan. Dalam pengelolaan sampah, masyarakat merupakan bagian yang tidak dapat terpisahkan. Tentunya masyarakat mampu membantu, karena sejatinya pengelolaan sampah yang dilakukan langsung dari sumber akan mengurangi sampah yang masuk kedalam TPA. Masyarakat harus mematuhi, namun dalam kondisi sekarang belum semua masyarakat sadar akan pengelolaan sampah langsung dari sumber, sehingga perlu adanya sosialisasi dan edukasi dalam pelaksanaan peraturan" (Wawancara pada 14 Mei 2024).

   Sependapat dengan hal tersebut diperkuat dengan argumen salah satu masyarakat (RT) yang menyatakan bahwa :

   "Memang warga disini masih banyak yang membuang sampah tidak di TPS kadang ya di solokan atau pinggir jalan dan juga membuang sampahnya sembarangan saja, tapi kalo ada yang membuang sampah sembarangan pasti saya tindak untuk membuang sampah pada tempatnya" (wawancara pada 23 Juli 2024).

   Berdasarkan pemaparan yang telah dikemukakan maka dapat dikatakan bahwa masyarakat dalam membuang sampah pada tempatnya belum memiliki kesadaran sehingga adanya regulasi tidak menjadikan suatu kepatuhan yang harus

dilaksanakan.

3. Kebudayaan dimana lingkungan sekitar juga mempengaruhi bagaimana kebiasaan membuang sampah sembarangan menjadi kebiasaan yang menjamur. Mereka saling melihat satu sama lain membuang sampah sembarangan sehingga secara tidak langsung mekanisme ini terjadi secara berulang-ulang dan terus-menerus. Sehubungan dengan hal tersebut hasil wawancara dengan Satuan Polisi Pamong Praja menyatakan bahwa:

   "Budaya membuang sampah itu memang sangat sulit diterapkan karena beberapa masyarakat masih ada yang membuang sampah sembarangan. Untuk dapat merealisasikan budaya membuang sampah pada tempatnya harus mempunyai komitmen bersama dari semua pihak atau masyarakat. Langkahnya yaitu dalam sosialisasi mungkin akan membantu mengubah perilaku masyarakat menjadi lebih peduli terhadap lingkungan dan mematuhi aturan pengelolaan sampah" (Wawancara pada 9 Juli 2024).

   Sedangkan hasil wawancara dengan Dinas Lingkungan Hidup menyatakan bahwa:

   "Budaya membuang sampah pada tempatnya dapat direalisasikan, apabila semua elemen dan steakholder sama-sama melaksanakan hak dan kewajiban sebagai penghasil sampah. Masyarakat dalam membuang sampah sembarangan sudah menjadi kebiasaan mungkin yang membudaya dimana mereka melihat sekeliling mereka membuang sampah tidak pada tempatnya namun tetap dibiarkan sehingga hal tersebut bisa memicu masyarakat lainya untuk turut serta membuang sampah tidak pada tempatnya" (Wawancara pada 14 Mei 2024).

   Sedangkan hasil wawancara dengan masyarakat (RT) yang menyatakan bahwa :

   "Ada yang paham, kebanyakan ada yang membuang sampah sembarangan saya sering liat bagaimana masyarakatnya, orang yang sadar akan kebersihan lingkungannya pasti membuang sampah pada tempatnya sedangkan orang yang tidak bertanggung jawab membuang sampah dengan sembarangan" (Wawancara pada 23 Juli 2024).

   Berdasarkan pemaparan yang telah dikemukakan maka dapat dikatakan kebudayaan membuang sampah telah menjadi suatu hal yang biasa di mata masyarakat sehingga sangat susah dalam membimbing masyarakat untuk bisa membuang sampah pada tempatnya. Meskipun sampah tidak bisa dihilangkan semua tetapi paling tidak ada upaya pengurangan dan penanganan yang dilakukan oleh Pemerintah.

4. Sarana dan fasilitas dimana mekanisme penanganan sampah masih sangat sulit dilakukan mengingat setiap tahunnya angka pembersih sampah yang ditugaskan semakin menurun. Selain itu, jumlah bank sampah di Kota Sukabumi juga hanya dua sehingga sangat sulit sekali mengatasi permasalahan terkait dengan sampah. Sehubungan dengan hal tersebut hasil wawancara dengan Dinas Lingkungan Hidup menyatakan bahwa :

"Masih banyak kekurangan sarana prasarana, dan kami selalu mengusahakan untuk meminta bantuan pemerintah provinsi dalam hal pengadaan fasilitas pengelolaan sampah" (Wawancara pada 14 Mei 2024).

Sedangkan hasil wawancara dengan masyarakat (RT) yang menyatakan bahwa :

"Sebetulnya tidak sulit karena ada sarana dan fasilitas yang sudah di sediakan oleh pemerintah, tetapi masih belum maksimal dan sulit itu kalo tidak ada bak atau tempat sampahnya, sehingga masyarakat membuang sampah sembarangan" (Wawancara pada 23 Juli 2024).

Berdasarkan pemaparan yang telah dikemukakan maka dapat dikatakan persoalan sampah menjadi suatu bentuk keseriusan karena kurangnya sarana dan prasarana yang memadahi.

5. Penegak hukum dimana penegakan hukum ini juga dapat dilihat dari organisasi yang baik dimana dalam mekanisme ini dapat dilihat dari upaya Satuan Polisi Pamong Praja dalam penindakan. Namun Satuan Polisi Pamong Praja tidak menjalankan Peraturan Daerah Kota Sukabumi Nomor 2 Tahun 2021 Perubahan atas Peraturan Daerah Nomor 17 Tahun 2011 tentang Pengelolaan Sampah ini. Adapun Regulasi yang mengatur dalam penegakan hukum terhadap pengelolaan sampah ini adalah Peraturan Daerah Kota Sukabumi Nomor 2 Tahun 2004 tentang Ketertiban Umum. Sehubungan dengan hal tersebut hasil wawancara dengan pamong praja menyatakan bahwa:

   "Untuk penindakan ada yaitu tindakan administratif, Satpol PP di Kota Sukabumi pernah melakukan kegiatan terkait pengelolaan sampah dalam penegakan hukumnya di daerah jembatan situ gunung, Satpol PP memberikan himbauan dan edukasi kepada masyarakat setempat untuk membuang sampah pada tempatnya supaya lingkungan di Kota Sukabumi bersih dan sehat, memang kita masih sulit meskipun sudah ada regulasi yang mengatur mengingat tidak ada komunikasi yang terjalin sehingga masalah sampah ini masih sulit diatasi" (Wawancara pada 9 Juli 2024).

   Sedangkan hasil wawancara dengan salah satu masyarakat (RT) menyatakan bahwa :

   "Saya tau kalau buang sampah sembarangan itu ada hukumnya atau sanksi nya. Bagaimanapun membuang sampah tidak pada tempatnya saya tindak atau saya tegur, ada sampah yang berserakan di depan rumahnya saya tindak tetap salah besar karena harus membuang sampah pada tempatnya. Tetapi teguran-teguran seperti itu ya orang-orang masih sangat susah untuk patuh, sepertinya harus penegak hukum yang menindak dan diberi hukuman atau sanksinya supaya masyarakat mendapatkan efek jera" (Wawancara pada 19 Juni 2024).

   Berdasarkan pemaparan yang telah dikemukakan dapat dikatakan bahwa penegak hukum dalam menjalankan tugasnya masih belum maksimal sehingga sangat sulit dalam mengatasi persoalan sampah.

3.2 Kendala dalam Upaya Penegak Hukum terhadap Peraturan Daerah Kota Sukabumi Nomor 2 Tahun 2021 Perubahan Atas Peraturan Daerah Nomor 17 Tahun 2011 Tentang Pengelolaan Sampah

Beberapa kendala yang dihadapi dalam penegakan hukum Peraturan Daerah Kota Sukabumi Nomor 2 tahun 2021 perubahan atas Peraturan Daerah Nomor 17 Tahun 2011 tentang Pengelolaan Sampah diantaranya adalah:

1. Tidak adanya sosialisasi terkait dengan sanksi membuang sampah sembarangan sehingga budaya membuang sampah sembarangan masih tetap dilakukan. Sehubungan dengan hal tersebut hasil wawancara dengan Dinas Lingkungan Hidup menyatakan bahwa:

   "Tentunya ada, karena itu sudah menjadi kewajiban dinas lingkungan hidup memberikan sosialisasi dan edukasi terhadap masyarakat tapi masih belum merata sehingga penyampaian tidak dapat diterima oleh seluruh masyarakat. Untuk kedepanya kami berupaya agar sosialisasi dapat terlaksana sehingga budaya membuang sampah sembarangan dapat dihilangkan" (Wawancara pada 14 Mei 2024).
2. Minimnya tenaga kebersihan dimana tenaga kebersihan disini semakin lama semakin berkurang sehingga banyaknya sampah yang tidak teratasi semakin besar. Sehubungan dengan hal tersebut hasil wawancara dengan Dinas Lingkungan Hidup menyatakan bahwa:

   "Masih banyak kekurangan sarana prasarana, dan kami selalu mengusahakan untuk meminta bantuan pemerintah provinsi dalam hal pengadaan fasilitas pengelolaan sampah. Tenaga kebersihan memang dari tiga tahun terakhir ini mengalami penurunan sehingga kami juga kesulitan dalam mengoptimalkan penanganan sampah mengingat sangat banyak sekali permasalahan sampah yang ada di Kota Sukabumi" (Wawancara pada 14 Mei 2024).
3. SDM yang rendah sehingga sangat sulit dalam menyadarkan mereka atas pentingnya membuang sampah pada tempatnya. Sehubungan dengan hal tersebut hasil wawancara dengan Dinas Lingkungan Hidup menyatakan bahwa :

   "Belum semua masyarakat, sulitnya penanganan sampah ini juga disebabkan karena SDM yang rendah dimana hal tersebut menjadi permasalahan pembuangan sampah sembarangan karena mereka tidak mengetahui pentingnya membuang sampah pada tempatnya yang akan menyebabkan merusak lingkungan dan kesehatan" (Wawancara pada 14 Mei 2024).

   Berdasarkan pemaparan yang telah dikemukakan maka dapat dikatakan bahwa kendala yang ada dalam mengatasi permasalahan sampah adalah tidak adanya sosialisasi terkait dengan sanksi membuang sampah sembarangan, minimnya tenaga kebersihan dan rendahnya SDM.

Penegakan hukum dari Peraturan Daerah Kota Sukabumi Nomor 2 Tahun 2021 perubahan atas Peraturan Daerah Nomor 17 Tahun 2011 tentang Pengelolaan Sampah memiliki berbagai permasalahan dimana hal tersebut menjadikan tumpukan sampah

banyak yang tidak dapat diselesaikan. Hal ini disebabkan oleh berbagai faktor yaitu:

1. Tingkat pendidikan atau wawasan masyarakat berhubungan dengan tingkat partisipasi masyarakat dalam pengelolaan sampah.

   Tingkat pendidikan mempunyai pengaruh yang signifikan terhadap partisipasi masyarakat dalam mengelola sampah. Semakin besar pengetahuan yang dimiliki oleh masyarakat mengenai pengelolaan sampah, maka akan semakin besar juga tingkat partisipasi masyarakat karena semakin sadarnya masyarakat akan pentingnya kebersihan lingkungan di wilayah tempat tinggalnya. Namun jika dilihat dari fenomena yang terjadi di Kota Sukabumi masyarakat sangat minim sekali memahami dan berpartisipasi dalam pembuangan sampah. Hal ini menjadi salah satu bukti bahwa pendidikan menjadi salah satu pendorong masyarakat peduli atas pentingnya membuang sampah pada tempatnya.

   Partisipasi masyarakat adalah ikut sertanya seluruh anggota masyarakat memecahkan permasalahan-permasalahan masyarakat tersebut. Partisipasi yang dapat dilakukan masyarakat bisa dalam beberapa bentuk diantaranya partisipasi dalam proses pembuatan keputusan, partisipasi dalam pelaksanaan, partisipasi dalam memanfaatkan hasil, dan partisipasi dalam evaluasi. Pada mekanisme ini pengelolaan sampah yang ada di Sukabumi tidak menunjukkan adanya partisipasi yang maksimal dari masyarakat. Hal ini semakin diperkuat adanya indikasi bahwa pendidikan yang dimiliki masyarakat sangat berpengaruh atas partisipasi mereka dalam menyelesaikan permasalahan sampah dimana mekanisme ini sesuai dengan penelitian yang dilakukan oleh Fitri Arifah yang menyatakan adanya keterkaitan antara tingkat pendidikan dan kepedulian masyarakat untuk berpartisipasi dalam melakukan pengelolaan sampah[15].

   Namun, hal ini berbeda dengan penelitian yang dilakukan oleh Ina Yuliana dimana tingkat pendidikan yang ada dalam lingkup masyarakat tidak memberikan pengaruh terhadap partisipasi masyarakat dalam pengelolaan sampah [16] . Hubungan yang tidak signifikan pada faktor tingkat pendidikan dengan partisipasi masyarakat, dimungkinkan karena terdapat faktor lain yang mempengaruhi partisipasi masyarakat.

   Kedua perbedaan hasil penelitian diatas dapat ditarik benang merah dimana dalam memunculkan partisipasi masyarakat tidak harus dilihat dari tingkat pendidikan melainkan upaya dalam suatu lingkungan mampu mendukung masyarakat untuk berperan aktif dalam mengatasi sampah di lingkunganya sehingga kesadaran masyarakat mampu tercipta dari kebiasaan yang dilakukan.

   Tujuan pengelolaan sampah dapat tercapai dengan baik ketika adanya partisipasi berbagai pihak termasuk dari masyarakat[17]. Faktor utama keberhasilan

[15] Arifa, Fitri, Fitriah Permata Cita, and Abdul Hadi. 2019. "Partisipasi Masyarakat Dalam Program Bank Sampah Di Kabupaten Sumbawa (Studi Kasus Bank Sampah Desa Nijang)." *NJE Nusantara Journal of Economics* 1 (1): 14–27. https://doi.org/10.37673/nje.v1i01.321

[16] Yuliana, Ina, and Yuni Wijayanti. 2019. "Partisipasi Masyarakat Pada Program Bank Sampah." *HIGEIA Journal of Public Health Research and Development* 3 (4): 545–55. https://doi.org/10.15294 /higeia/v3i4/30681

[17] Ivakdalam, Lydia Maria, and Risyarth A. Far Far. 2021. "Persepsi Masyarakat Pada Pengelolaan Sampah (Studi

pengelolaan sampah adalah manusia. Keinginan masyarakat untuk berpartisipasi. Masyarakat sebagai salah satu penghasil sampah, pemerintah kota mempunyai tanggung jawab besar dalam pengelolaan sampah. Salah satu bentuk kepedulian masyarakat terhadap pengurangan jumlah sampah adalah kegiatan masyarakat terhadap pengelolaan sampah yang bernilai tambah bagi masyarakat yang mencakup pengelolaan terhadap sampah.

2. Pengetahuan yang dimiliki masyarakat mengenai pengelolaan sampah merupakan faktor yang mempengaruhi partisipasi masyarakat dalam mengelola sampah. Pengetahuan masyarakat tentang pengelolaan sampah akan menentukan tingkat partisipasi masyarakat dalam pengelolaan sampah untuk menjaga kebersihan lingkungan.

   Pada mekanisme ini pengetahuan masyarakat atas pentingnya membuang sampah sembarangan menjadi salah satu yang dapat membahayakan lingkungan. Namun, pengetahuan ini tidak tersampaikan secara maksimal mengingat Dinas Lingkungan hidup dalam menjalankan sosialisasi tidak berjalan secara merata sehingga pengetahuan pada masyarakat Kota Sukabumi tidak dapat diterima secara maksimal.

   Pengetahuan pengelolaan sampah menjadi salah satu urgensi yang harus ditekankan kepada masyarakat dimana Menurut Undang-Undang Nomor 18 Tahun 2008 tentang Pengelolaan Sampah (UUPS), yang dimaksud dengan sampah adalah adalah sisa kegiatan sehari-hari manusia dan/atau proses alam yang berbentuk padat. Sampah yang merupakan sisa dari kegiatan manusia harus dikelola agar tidak menimbulkan pencemaran lingkungan dan gangguan kesehatan. Pengelolaan sampah adalah kegiatan yang sistematis, menyeluruh, dan berkesinambungan yang meliputi pengurangan dan penanganan sampah.

   Secara umum, pengelolaan sampah di perkotaan dilakukan melalui 3 tahapan kegiatan, yakni pengumpulan, pengangkutan dan pembuangan akhir. Tahapan-tahapan dari proses kegiatan dalam pengelolaan sampah sebagai berikut:

   a. Pengumpulan, adalah pengelolaan sampah dari tempat asalnya sampai ke tempat pembuangan sementara sebelum dilanjutkan ke tahapan berikutnya. Pada tahap ini digunakan fasilitas penunjang seperti tong sampah, bak sampah, peti kemas sampah, gerobak dorong, atau tempat pembuangan sementara. Untuk melakukan pengumpulan, umumnya melibatkan sejumlah tenaga yang mengumpulkan sampah setiap periode waktu tertentu
   b. Pengangkutan, yaitu mengangkut sampah dengan menggunakan sarana bantu berupa alat angkat khusus tertentu sampai ke tempat pembuangan atau pengelolaan akhir. Pada tahapan ini juga mencakup tenaga yang mengangkut sampah dari tempat pembuangan sementara ke tempat pembuangan akhir (TPA) dalam jangka waktu tertentu

Kasus: Bank Sampah Bumi Maluku Lestari Kota Ambon) (Community Perception on Waste Management (Case Study: Bumi Maluku Lestari Waste Bank, Ambon City))." *Jurnal Agribisnis Perikanan* 14 (1): 161–71. https://doi.org/10.29239/j.agrikan.14.1.161-171

c. Pembuangan akhir, dimana sampah akan mengalami pemrosesan baik secara fisik, kimia maupun biologis hingga tuntas penyelesaian seluruh proses.

Menurut Dinas Lingkungan Hidup, prinsip 3R (*Reduce, Reuse, Recycle*) merupakan salah satu cara yang efektif untuk mengelola sampah. Prinsip ini bertujuan untuk mengurangi jumlah sampah yang dihasilkan dan memanfaatkan kembali sampah yang dapat didaur ulang.

a. Prinsip *Reduce* (kurangi) berarti kita harus berusaha mengurangi jumlah sampah yang dihasilkan. Hal ini dapat dilakukan dengan cara menghindari penggunaan barang-barang yang tidak diperlukan, seperti kantong plastik sekali pakai, botol air minum, dan kemasan makanan sekali pakai. Sebagai gantinya, kita dapat menggunakan kantong belanja yang dapat digunakan kembali, botol air minum yang dapat diisi ulang, dan kemasan makanan yang dapat digunakan kembali. Dengan mengurangi jumlah sampah yang dihasilkan, kita juga dapat mengurangi dampak negatif pada lingkungan.
b. Prinsip *Reuse* (gunakan kembali) berarti kita harus memanfaatkan kembali barang-barang yang masih dapat digunakan. Misalnya, botol kaca atau botol plastik bekas dapat kita gunakan kembali untuk menyimpan minuman atau makanan. Kita juga dapat memanfaatkan kembali kertas bekas untuk membuat catatan atau memo. Dengan memanfaatkan kembali barang-barang tersebut, kita dapat mengurangi jumlah sampah yang dihasilkan dan juga menghemat uang.
c. Prinsip *Recycle* (daur ulang) berarti kita harus memanfaatkan sampah yang dapat didaur ulang. Sampah yang dapat didaur ulang meliputi kertas, plastik, logam, dan kaca. Daur ulang adalah proses pengolahan kembali sampah menjadi bahan baku baru yang dapat digunakan untuk membuat produk baru. Dengan mendaur ulang sampah, kita dapat mengurangi jumlah sampah yang dibuang ke tempat pembuangan sampah dan juga menghemat sumber daya alam yang terbatas.

Beberapa mekanisme pengelolaan sampah yang telah disebutkan diatas menjadi suatu perhatian penting untuk ditanamkan kepada masyarakat agar mekera bisa menyadari bagaimana mekanisme pengelolaan sampah dengan baik.

3. Persepsi masyarakat terhadap lingkungan yang sehat dan bersih berpengaruh pada partisipasi masyarakat dalam menjaga kebersihan lingkungan dari sampah.

Mekanisme ini juga tidak dapat terlaksana di Kota Sukabumi dimana persepsi yang tercipta di masyarakat adalah tidak menjadi suatu permasalahan dalam membuang sampah sembarangan karena dipengaruhi oleh lingkungan masyarakat yang sama-sama melakukan tindakan tersebut. Oleh karena itu, permasalahan sampah tidak dapat terselesaikan secara maksimal.

4. Pendapatan berkaitan dengan partisipasi masyarakat secara tidak langsung dalam pengelolaan sampah.

Kegiatan pengelolaan sampah memerlukan biaya operasional, seperti pengangkutan sampah ke tempat pembuangan sampah TPA untuk diolah. Serta

pelayananan lainnya untuk menjaga kebersihan lingkungan. Biaya operasional tersebut ditanggung oleh pembayaran retribusi atau pajak daerah yang dilakukan oleh masyarakat. Oleh karena itu, pendapatan masyarakat berhubungan dengan tingkat partisipasi masyarakat dalam pengelolaan sampah. Pendapatan yang diperoleh dari kegiatan masyarakat mempengaruhi pada tingkat partisipasi dalam pengelolaan sampah.

Mekanisme ini dapat dianalisis melalui ketidak pedulian masyarakat dimana biaya operasional yang tinggi dalam menjalankan kebersihan lingkungan tidak didukung oleh pemerintah sehingga mereka enggan untuk melakukannya.

5. Peran pemerintah ataupun tokoh masyarakat terkait dengan sosialisasi dan penyebaran informasi mengenai pengelolaan sampah.

   Sampah yang tidak ditangani dengan baik tidak hanya akan menimbulkan permasalahan lingkungan, namun juga dapat menimbulkan permasalahan Kesehatan, ekonomi dan sosial. Banyaknya aspek yang berkaitan dengan permasalahan sampah menunjukkan bahwa terdapat banyak peran yang harus dijalankan, mulai dari pemerintah hingga masyarakat, dunia usaha dan industri sehingga diperlukan persepsi yang sama tentang penanganan sampah untuk berbagai pihak yang berperan tersebut. Penyamaan persepsi salah satunya dapat dilakukan dengan dilakukannya edukasi dalam bentuk berupa informasi mengenai isu-isu terbaru tentang sampah dan upaya apa saja yang dapat dilakukan untuk mengatasi permasalahan sampah tersebut[18]. Oleh karena itu, untuk mengatasi permasalahan sampah hingga ke akar-akarnya yaitu sumber penghasil sampah, perlu adanya sosialisasi kepada masyarakat agar masyarakat paham bahwa pengelolaan sampah harus dilakukan oleh setiap individu. Selain itu, peran pemerintah/tokoh masyarakat juga berkaitan dalam pengawasan upaya pengelolaan sampah di tingkat rumah tangga.

   Pada mekanisme ini juga tidak terjadi di Kota Sukabumi sehingga pembuangan sampah secara sembaranagan dan tumpukan sampah yang semakin lama semakin banyak tidak dapat teratasi dengan maksimal.

6. Sarana dan prasarana dalam pengelolaan sampah berkaitan dengan fasilitas yang ada yang berguna untuk membantu proses pengelolaan sampah.

   Sarana dan prasarana tersebut merupakan sumber daya yang dapat memberikan dampak positif dan bermanfaat bagi keberhasilan pelaksana kebijakan dan rencana. Sumber daya yang memadai tentunya sangat membantu untuk mengimplementasikan strategi dapat dijalankan dengan baik, optimal, efektif dan efesien[19]. Contohnya termasuk tempat sampah untuk memisahkan

[18] Mulyati, Budi, Yusina Fadla Ilmi, and Alamsyah Basri. 2023. "Sosialisasi Pengelolaan Sampah Sebagai Upaya Peningkatan Peran Masyarakat Dalam Mengelola Sampah Di Kota Serang." *Bantenese: Jurnal Pengabdian Masyarakat* 5 (1): 26–34. https://doi.org/10.30656/ps2pm.v5i1.6285

[19] Abdussamad, Juriko, Fenti Prihatini Tui, Fatmawati Mohamad, and Swastiani Dunggio. 2022. "Implementasi Kebijakan Pengelolaan Sampah Melalui Program Bank Sampah Di Dinas Lingkungan Hidup Kabupaten Bone Bolango." *Publik: Jurnal Manajemen Sumber Daya Manusia, Administrasi Dan Pelayanan Publik* 9 (4): 850–68. https://doi.org/10.37606/publik.v9i4.504

sampah organik dan sampah anorganik, dan fasilitas pengangkutan sampah rutin yang dimiliki oleh pihak berwenang. Kurangnya sarana dan prasarana pengelolaan sampah menjadi salah satu faktor penyebab rendahnya partisipasi masyarakat.

Pada mekanisme ini menekankan pada penyediaan yang harus diberikan oleh pemerintah sehingga masyarakat lebih peduli dalam menjaga kebersihan lingkungan.

Sistem pengelolaan sampah harus dilaksanakan dengan baik dan sistematis, terutama untuk daerah perkotaan. Kegiatan pengelolaan sampah meliputi penggunaan dan pemanfaatan berbagai prasarana dan sarana sampah seperti pewadahan, pengumpulan, pemindahan, pengangkutan, pengolahan maupun pembuangan akhir. Permasalahan sampah erat kaitannya dengan dengan gaya hidup dan budaya masyarakat setempat itu sendiri. Oleh karena itu, penanggulangan sampah bukan hanya menjadi urusan pemerintah akan tetapi penanganannya memerlukan partisipasi masyarakat luas[20].

Fenomena banyaknya sampah yang terjadi di Kota Sukabumi dijawab melalui peraturan daerah Nomor 2 Tahun 2021 perubahan atas Peraturan Daerah Nomor 17 Tahun 2011 tentang Pengelolaan Sampah. Secara jelas regulasi ini menjadi payung hukum dalam mengatasi persoalan sampah. Pada Pasal 10 termuat bunyi regulasi sebagai berikut:

(1) Setiap orang atau Badan Usaha yang beraktivitas di Daerah diwajibkan untuk melaksanakan Pengelolaan Sampah baik Sampah Rumah Tangga, Sampah Sejenis Sampah Rumah Tangga dan Sampah Spesifik dengan cara yang berwawasan lingkungan.

(2) Dalam hal pelaksanaan kewajiban sebagaimana dimaksud pada ayat (1) memenuhi ketentuan sebagai berikut:
   a. Setiap orang atau Badan Usaha wajib memilah Sampah yang dimulai dari skala rumah tangga
   b. Setiap Pelaku Usaha dan/atau kegiatan dalam wilayah Daerah wajib menyediakan tempat Sampah yang terpilah
   c. Setiap orang atau Badan Usaha melalui rukun tetangga maupun rukun warga diwajibkan memiliki peta pola pengangkutan Sampah yang dilaporan kepada lurah, camat, dan Dinas
   d. Setiap orang atau Badan Usaha yang beraktivitas di Kota Sukabumi untuk dapat membuang Sampah pada waktu dan tempat yang telah ditentukan.

Berdasarkan regulasi yang telah dikemukakan diatas dapat disimpulkan bahwa adanya kewajiban dalam pengelolaan sampah dimana hal tersebut berlaku baik sampah rumah rangga, sampah sejenis sampah rumah tangga dan sampah spesifik dengan cara yang berwawasan lingkungan. Namun pada kenyataanya regulasi ini tidak berjalan optimal dimana hal tersebut dapat dilihat banyaknya lingkungan yang kotor terdapat sampah yang berserakan dan masyarakat dalam melakukan pengelolaan sampah tidak

[20] Prissando, Fendy Artha, and Tri Ambulanto. 2021. "Partisipasi Masyarakat Dalam Pengelolaan Sampah Di Kota Kediri Sesuai Dengan Peraturan Daerah Nomor 3 Tahun 2015." *Jurnal Mediasosian : Jurnal Ilmu Sosial Dan Administrasi Negara* 5 (1): 101–14. https://doi.org/10.30737/mediasosian.v5i1.1696

baik dan benar sehingga tumpukan sampah semakin banyak dan sulit untuk diatasi.

Tidak berjalanya regulasi yang termuat dalam pasal 10 disebabkan karena tidak berjalanya aturan-aturan yang termuat pada Pasal 7 sebagai berikut:

(1) Dalam menyelenggarakan Pengelolaan Sampah Pemerintah Daerah mempunyai kewenangan:
   a. menetapkan kebijakan dan strategi Pengelolaan Sampah berdasarkan kebijakan nasional dan provinsi
   b. menyelenggarakan Pengelolaan Sampah skala Daerah sesuai dengan norma, standar, prosedur, dan kriteria yang ditetapkan oleh pemerintah pusat
   c. melakukan pembinaan dan pengawasan kinerja Pengelolaan Sampah yang dilaksanakan oleh pihak lain
   d. menetapkan lokasi TPS, TPST, TPS3R, SPA, dan/atau TPA
   e. melakukan pemantauan dan evaluasi secara berkala setiap 6 (enam) bulan selama 20 (dua puluh) tahun terhadap Tempat Pemrosesan Akhir Sampah dengan sistem pembuangan terbuka yang telah ditutup
   f. menyusun dan menyelenggarakan Sistem Tanggap Darurat Pengelolaan Sampah sesuai dengan kewenangannya
   g. melaksanakan pengelolaan pendapatan dan perizinan Pengelolaan Sampah
   h. menetapkan keorganisasian Bank Sampah, dan
   i. melakukan inovasi dalam Pengelolaan Sampah.

(2) Penetapan lokasi TPS, TPST, TPS3R, SPA, dan/atau TPA sebagaimana ayat (1) huruf d merupakan bagian dari rencana tata ruang wilayah Daerah.

(3) Ketentuan lebih lanjut mengenai pedoman penyusunan Sistem Tanggap Darurat sebagaimana dimaksud pada ayat (1) huruf f, diatur dengan peraturan Wali Kota.

Berdasarkan regulasi yang telah dikemukakan diatas dapat dikatakan bahwa pemerintah daerah memiliki andil penuh dalam penyediaan sarana dan prasarana serta sosialiasasi pendidikan atau wawasan terkait pengelolaan sampah. Namun, pada kenyataanya mekanisme ini tidak dapat terlaksana sehingga Kota Sukabumi masih belum mampu menyelesaikan permasalahan sampah yang ada. Regulasi yang telah dibuat menunjukkan tidak adanya pelaksanaan yang maksimal dimana hal ini jika ditinjau dari penegakan hukumnya tidak berjalan secara efektif. Berbagai faktor yang menyebabkan ketidak efektifan adalah:

Pertama, hukum yang telah dibuat memiliki fungsi untuk mendukung peran berjalannya Undang-Undang tersebut terhadap masyarakat, seperti penerbitan peraturan, menyelesaikan konflik dan sebagainya, seiring dengan perkembangan masyarakat[21]. Pada mekanisme ini regulasi yang telah diterapkan tidak dapat terlaksana dengan baik dimana dapat dikatakan bahwa bagi masyarakat di Kota Sukabumi Regulasi terkait sampah tidak memberikan dampak signifikan sehingga regulasi tersebut tidak dapat menjalankan

[21] Dirdjosisworo, Soedjono. 2008. *Pengantar Ilmu Hukum*. 12th ed. Jakarta: Rajagrafindo Persada

fungsi hukum dengan baik.

Kedua, penegakan hukum bersumber dari masyarakat dan bertujuan untuk mewujudkan perdamaian dalam masyarakat[22]. Oleh karena itu, dipandang dari sudut tertentu maka masyarakat dapat mempengaruhi kepatuhan hukumnya. Masyarakat Indonesia khususnya mempunyai pandangan tertentu terhadap hukum. Sebagai warga negara, masyarakat harus memiliki kesadaran dan kepatuhan terhadap hukum dan perundang-undangan. Undang-Undang yang baik sekalipun tidak menjamin berlakunya penegakan hukum jika kesadaran dan kepatuhan hukum masyarakat tidak mendukung pelaksanaan Undang-undang tersebut[23]. Pada mekanisme ini masyarakat sangat sulit dalam menjalankan regulasi yang ada dimana SDM yang rendah menjadikan diri mereka tidak memiliki keinginan untuk memberikan tindakan menjaga lingkungan dalam pengelolaan sampah.

Ketiga, kebudayaan mempunyai fungsi yang sangat besar bagi masyarakat dan manusia. Masyarakat mempunyai kebutuhan dalam bidang spiritual dan material. Untuk memenuhi kebutuhannya, sebagian besar dari mereka mengandalkan budaya yang berasal dari masyarakat itu sendiri[24]. Namun, karena kemampuan manusia sangat terbatas, maka demikian kemampuan kebudayaan hasil ciptaannya juga terbatas dalam memenuhi segala kebutuhan. Pada mekanisme ini kebudayaan yang telah melekat pada masyarakat Kota Sukabumi menjadi salah satu bentuk faktor yang dapat mempengaruhi penegakan hukum dimana membuang sampah yang telah menjadi kebudayaan menjadi salah satu bentuk bahwa masyarakat sangat sulit dalam menerapkan budaya membuang sampah pada tempat yang benar.

Keempat, sarana dan fasilitas. Tanpa adanya sarana dan fasilitas tertentu, maka tidak mungkin penegakan hukum akan berjalan dengan lancar. Sarana atau fasilitas tersebut mencakup tenaga manusia yang berpendidikan dan terampil, organisasi yang baik, peralatan yang memadai, keuangan yang cukup dan seterusnya[25]. Jika hal-hal ini tidak tepenuhi, maka mustahil penegakan hukum dapat mencapai tujuannya. Pada mekanisme ini dapat dilihat dari sarana dan fasilitas yang menjadikan regulasi ini tidak berjalan secara efektif karena penyediaan TPS yang tidak dapat menampung sampah masyarakat serta bank sampah yang minim tidak dapat memberdayakan sampah agar berdaya guna.

Kelima, penegak hukum di Indonesia memiliki beberapa jabatan untuk membantu dan mengurus faktor-faktor penegakan hukum untuk memastikan bahwa tujuan hukum dapat dilaksanakan dengan lancar dan adil. Pada mekanisme ini, penegak hukum menjadi salah satu alasan regulasi tidak berjalan dengan maksimal mengingat mereka tidak menjalankan sesuai dengan regulasi sehingga penindakan terhadap permasalahan sampah tidak dapat terealisasi dengan baik.

Kendala yang dihadapi oleh Dinas terkait dalam penegakan hukum Peraturan Daerah

[22] Ningrum, Putu Ary Prasetya. 2020. "Penegakan Hukum Terhadap Pelaku Tindak Pidana Pengancaman Yang Ditujukkan Dengan Ucapan Dan Hinaan." *Jurnal Hukum Agama Hindu* 4 (1): 39–45
[23] Hutabarat, Ramly. 1985. *Persamaan Di Hadapan Hukum Di Indonesia*. Jakarta: Ghalia Indonesia
[24] Rosana, Ellya. 2017. "Dinamisasi Kebudayaan Dalam Realitas Sosial." *Al-Adyan* 12 (1): 16–30
[25] Mufid, Firda Laily, and Tioma Roniuli Hariandja. 2019. "Efektivitas Pasal 28 Ayat (1) UU ITE Tentang Penyebaran Berita Bohong (Hoax)." *Jurnal Rechtens* 8 (2): 179–98. https://doi.org/10.36835/rechtens.v8i2.533

Kota Sukabumi Nomor 2 tahun 2021 perubahan atas Peraturan Daerah Nomor 17 Tahun 2011 tentang Pengelolaan Sampah juga menjadi pemicu ketidak maksimalan penegakan hukum dimana dari pihak dinas tidak mampu menjalankan perannya dengan maksimal sehingga SDM yang rendah tidak mampu memberikan kesadaran bagi mereka dalam melakukan pengelolaan sampah. Penerapan tata kelola yang baik memerlukan infastruktur dan suspastruktur yang mencerminkan terhadap nilai-nilai tata kelola yang baik. Strategi pengembangan SDM merupakan infastruktur terpenting yang dapat mendukung kepemerintahan yang good governance. Sedangkan struktur organisasi merupakan perangkat keras utama bagi pengembangan kepemerintahan yang good governance. Baik strategi struktur maupun strategi pengembangan SDM maka perlu di perbaiki[26].

Kesadaran hukum, kepatuhan hukum dan perilaku warga masyarakat adalah hal yang penting. Sekalipun ketika lima faktor di atas kondisinya sudah baik, namun tidak diimbangi dengan kesadaran hukum, kepatuhan hukum dan perilaku masyarakat. Penegakan hukum bisa berjalan dengan baik apabila permasalahan ini bisa diselesaikan.

Permasalahan yang terjadi sehingga berdampak pada penegakan hukum yang tidak berjalan pada permasalahan pengelolaan sampah disebabkan karena banyak masyarakat yang tidak paham atas mekanisme sanksi yang dapat diterapkan oleh masyarakat yang melanggar. Hal tersebut disebabkan karena penegak hukum tidak memberikan kepastian hukum atas sanksi yang dijalankan.

Menurul Lon Fuller ada beberapa asas yang harus di penuhi oleh hukum, sehingga apabila tidak terpenuhi, maka dalam hukum akan gagal untuk disebut sebagai hukum, atau dengan kata lain bahwa harus terdapat kepastian hukum dalam hukum itu sendiri. Adapun kedelapan asas yang dimaksud adalah sebagai berikut:

1. harus ada peraturannya terlebih dahulu
2. peraturan itu harus diumumkan
3. peraturan itu tidak boleh berlaku surut
4. perumusan peraturan harus dapat dimengerti oleh rakyat
5. hukum tidak boleh meminta dijalankannya hal-hal yang tidak mungkin
6. diantara sesama peraturan tidak boleh terdapat pertentangan satu sama lain
7. peraturan harus tetap dan tidak boleh sering diubah-ubah
8. harus terdapat keseuaian antara tindakan para pejabat hukum dengan peraturan yang telah dibuat[27].

Pada asas pertama peraturan tidak memiliki kepastian hukum yang jelas pada implementasinya sehingga masyarakat meremehkan bahkan tidak tahu menahu dalam persoalan sampah, pada asas kedua regulasi tidak dapat disosialisasikan secara maksimal sehingga masyarakat tidak memahami mekansime regulasi yang harusnya dijalankan, pada asas ketujuh perubahan yang dilakukan oleh pemerintah daerah dengan

[26] Sulistiyani, Ambar Teguh. 2011. *Memahami Good Governance: Dalam Perspektif Sumber Daya Manusia*. 1st ed. Yogyakarta: Gava Media

[27] Jatmika, Bayu Jati. 2020. "Asas Hukum Sebagai Pengobat Hukum: Implikasi Penerapan Omnibus Law." *JAAKFE UNTAN (Jurnal Audit Dan Akuntansi Fakultas Ekonomi Universitas Tanjungpura)* 9 (1): 71–83. https://doi.org/10.26418/jaakfe.v9i1.41145

pertimbangan hukum yang lama tidak dalam menjawab permasalahan sehingga diperlukan regulasi baru. Namun, perubahan ini tidak diimbangi dengan tindakan yang menjadikan masyarakat memahami atas eksistensi hukum yang dijalankan, dan pada asas ke delapan tidak dapat dijalankan dalam kehidupan sehari-hari sehingga hukum tidak dapat berlaku secara optimal karena tidak ada pembiasaan atas regulasi yang telah menjadi suatu ketetapan.

Dari kedelapan asas tersebut yang dikemukakan oleh Lon Fuller, dapat disimpulkan bahwa harus ada kepastian di antara peraturan serta pelaksanaan hukum tersebut, dengan begitu aturan hukum dapat dijalankan apabila telah memasuki ke ranah perilaku atau etika, serta faktor yang dapat memengaruhi bagaimana hukum itu berjalan.

4. Kesimpulan

Berdasarkan hasil penelitian dan pembahasan yang telah diuraikan di atas maka dapat ditarik kesimpulan bahwa penegakan hukum terhadap peraturan daerah Kota Sukabumi nomor 2 tahun 2021 perubahan atas peraturan daerah nomor 17 tahun 2011 tentang pengelolaan sampah ini tidak dilaksanakan oleh penyidik pegawai negeri sipil (PPNS) di satuan polisi pamong praja yang berwenang untuk menegakan hukum peraturan daerah. Peneliti melakukan wawancara terkait kenapa tidak dilaksanakan peraturan daerah tersebut minimnya penyidik pegawai negeri sipil di satuan polisi pamong praja hanya ada 3 penyidik, karena hal ini dapat dilihat dengan masih banyaknya masyarakat Kota Sukabumi yang membuang sampah tidak pada tempatnya atau sembarangan. Akan tetapi satuan polisi pamong praja melaksanakan regulasi dalam penanganan pengelolaan sampah di Kota Sukabumi yaitu Peraturan Daerah Nomor 4 Tahun 2002 Tentang Ketertiban Umum, namun dalam pelaksanaan penegakan hukum tersebut belum dilakukan secara maksimal. Terkait penanganan masalah pengelolaan sampah pemerintah dinilai masih kurang dalam mensosialisasikan peraturan tersebut, terbukti Peraturan Daerah Kota Sukabumi Nomor 2 Tahun 2021 Perubahan Atas Peraturan Daerah Nomor 17 Tahun 2011 tentang Pengelolaan Sampah ini sudah ada selama 13 tahun dan akibat tidak pernah di sosialisasikan masyarakat banyak yang tidak mengetahui peraturan daerah tersebut. Kemudian pemerintah Kota Sukabumi masih harus meningkatkan kelengkapan penyediaan sarana dan fasilitas dalam penanganan sampah mengingat selama ini sarana dan fasilitas yang tersedia masih dalam kategori minim sehingga menyulitkan pemerintah dalam mengatasi permasalahan sampah yang berserakan di Kota Sukabumi dan sisi lain juga menyulitkan bagi masyarakat untuk mengikuti aturan-aturan yang terdapat dalam peraturan daerah.

Faktor-faktor yang mempengaruhi dalam penegakan hukum terhadap pelaku atau oknum yang membuang sampah sembarangan di Kota Sukabumi yaitu berasal dari faktor hukumnya itu sendiri, faktor penegak hukum, terbatasnya jumlah PPNS Satpol PP sehingga dalam menerapkan peraturan daerah tersebut menjadi terkendala, faktor sarana dan fasilitas, kurangnya sarana dan fasilitas yang memadai dan juga menghambat dalam pelaksanaan peraturannya. Faktor masyarakat dimana masyarakat yang belum memahami pentingnya menjaga lingkungan yang bersih dan sehat, dan faktor budaya tentang

kepatuhan dan kesadaran masyarakat terhadap hukum masih rendah.

Konflik kepentingan

Penulis menyatakan bahwa tidak ada benturan kepentingan antar penulis dalam penelitian ini.

Kontribusi penulis

Penulis menyatakan bahwa penulis memberikan kontribusi besar terhadap konsepsi dan desain penelitian. Penulis mengambil tanggung jawab untuk analisis data, interpretasi dan diskusi hasil. Para penulis membaca dan menyetujui naskah akhir.

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Punishment for Cybercrime: A Major Challenge in Modern Legal Systems

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ABSTRACT

Cybercrime represents a major challenge to modern legal systems due to its transnational nature and its continual evolution alongside digital technological advancements. The increasing intensity and complexity of cybercrime drives the need for an adaptive legal system that is able to provide effective legal protection. This study aims to analyze the application of penalties for cybercrime in Indonesia, assess its effectiveness, and compare it with legal practices at the international level. The approach used is normative juridical with qualitative analysis techniques on primary and secondary legal materials, including case studies of cybercrime in Indonesia, Singapore, and Estonia. The results of the study show that although Indonesia has a legal basis in the form of Law Number 11 of 2008 concerning Information and Electronic Transactions (ITE) and the Criminal Code, its implementation has not been optimal due to the weak technical capacity of the apparatus, minimal coordination across institutions, and the absence of a strong international cooperation mechanism. Comparative studies indicate that countries such as Singapore and Estonia have built a more proactive legal framework through a multi-level and integrative approach. The conclusion of this study emphasizes the importance of regulatory revision, increasing digital forensic capacity, and ongoing international cooperation. Practical implications of this study include the need to strengthen the law enforcement system, develop a national digital literacy policy, and greater involvement of the private sector in combating cybercrime.

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1. Introduction

The development of information and communication technology has brought about major changes in various aspects of life, including the way humans interact, work, and

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conduct transactions.[2] However, this progress has also created a new gap for the development of cybercrime[3], which is now a global legal issue.[4] Cybercrime includes various criminal acts such as theft of personal data, online fraud, digital identity forgery, to attacks on critical systems such as banking infrastructure and national security[5]. This phenomenon shows that the characteristics of cybercrime are very different from conventional crimes, both in terms of modus operandi[6], perpetrators, and areas of operation that cross jurisdictional boundaries.[7]

The International Telecommunication Union (ITU), in its Global Cybersecurity Index 2020, reported a more than 200% increase in cybercrime over the past decade, correlating with growing connectivity and reliance on digital systems.[8] Research by Wall emphasizes that the complexity of cybercrime requires the legal system to respond with a more adaptive and transnational approach.[9] This is important considering that cybercriminals can come from different jurisdictions than the victims, thus creating challenges in terms of evidence, extradition, and cross-border law enforcement.

At the international level, cases such as the "WannaCry" ransomware attack that paralyzed the UK's healthcare system in 2017 are clear evidence that cyber attacks can have a broad and cross-country impact.[10] Meanwhile, in Indonesia, the attack on the National Data Center (PDN) server in 2023 showed that vulnerability to cybercrime not only affects individuals or the private sector, but also threatens strategic public institutions. Research conducted by Anwary noted that the unpreparedness of legal instruments and weak enforcement are the two main causes of the high level of cybercrime in developing countries, including Indonesia.[11]

Several previous studies have examined the technical and social aspects of cybercrime[12], but there are still few legal studies that specifically discuss the effectiveness of the application of punishment to cybercrime perpetrators in Indonesia,[13] especially

[2] Fatima Dakalbab et al., "Artificial Intelligence & Crime Prediction: A Systematic Literature Review," *Social Sciences and Humanities Open* 6, no. 1 (2022): 100342, https://doi.org/10.1016/j.ssaho.2022.100342.
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[10] NAO, *Investigation: WannaCry Cyber Attack and the NHS* (London, England: National Audit Office, 2017).
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[13] Anwary, "Evaluating Legal Frameworks for Cybercrime in Indonesian Public Administration: An Interdisciplinary Approach."

with a normative legal approach and comparative analysis with other countries. In fact, the effectiveness of the legal system is very important in forming a sustainable protection and prevention system. Thus, this study aims to fill this gap by analyzing the legal basis, form of punishment, and the effectiveness of its application to cybercrime in Indonesia. This study also compares the policies and regulations implemented by Indonesia with the best practices of other countries such as Singapore and Estonia, which are known to have more advanced cyber law systems.[14]

2. Method and Legal Materials

This study uses a normative legal approach, which focuses on the analysis of applicable laws and regulations and relevant legal literature[15]. This approach was chosen to explore in depth the legal basis for the application of penalties for cybercrime, both nationally and internationally. In addition, this approach also allows the author to conduct a critical assessment of the effectiveness of the implementation of criminal sanctions in practice. This research method is descriptive-analytical, which aims to provide a comprehensive picture of the forms, types, and patterns of the application of penalties for cybercrime in Indonesia, and to compare them with the legal systems of several countries that are considered successful in dealing with cybercrime such as Estonia, Singapore, and the United States. The type of data used is secondary data, consisting of: Primary legal materials, in the form of:

- Law Number 11 of 2008 concerning Electronic Information and Transactions (ITE) as amended by Law Number 19 of 2016.
- Criminal Code (KUHP).
- International legal instruments such as the Convention on Cybercrime (Budapest Convention).
- Relevant laws and regulations in comparative countries (Singapore: Cybersecurity Act 2018; Estonia: Cybersecurity Strategy 2019).

Then, secondary legal materials, in the form of:

- Scopus-indexed scientific journals that discuss cybercrime and criminal law.
- Criminal law and cybersecurity textbooks.
- Court decisions related to cybercrime cases in Indonesia and abroad.
- Official reports from related institutions such as BSSN (National Cyber and Crypto Agency), Interpol, and Europol

In addition, tertiary legal materials, such as legal dictionaries and legal encyclopedias, are also used to clarify the definitions and important concepts used in this study. The data collection technique is carried out through library research, with an in-depth review of legal documents, scientific articles, and relevant case studies. The data that has been collected is then analyzed qualitatively using legal interpretation techniques and a comparative approach to the legal systems of other countries. The analysis is carried out by examining the extent to which national regulations provide legal protection and

[14] UNODC, *Cybercrime: A Global Perspective. United Nations Office on Drugs and Crime*, 2021.
[15] Peter Mahmud Marzuki, *Penelitian Hukum*, Cet. XIV (Jakarta: Prenada Media Group, 2019).

impose sanctions on cybercriminals, as well as assessing the effectiveness and implementation of these regulations. The comparative approach is used to identify the weaknesses and strengths of the Indonesian legal system in dealing with cybercrime compared to countries that already have an established cyber law enforcement system.

3. Results and Discussion

3.1 The legal basis, form of punishment, and the effectiveness of its application to cybercrime in Indonesia

This section systematically describes the findings of normative and comparative legal analysis of the application of punishment for cybercrime in Indonesia and comparative countries. The discussion is divided into several main focuses to examine the effectiveness of regulations, implementation of punishment, and lessons learned from international practice.

1. Effectiveness of Criminal Regulation in Combating Cybercrime in Indonesia

Indonesia has a primary legal umbrella in the form of Law No. 11 of 2008 concerning Electronic Information and Transactions (ITE) which was amended by Law No. 19 of 2016. In practice, this regulation has been used to prosecute perpetrators of various cybercrimes, such as theft of personal data, spreading hoaxes, and online defamation. However, law enforcement against cybercrime in Indonesia still faces various obstacles, ranging from limited resources of law enforcement officers to the multiple interpretations of articles in the ITE Law. As expressed by Suseno[16], the unclear subjective elements in several articles cause disparities in decisions and difficulties in providing evidence. Many cases of cybercrime such as hacking of public agency systems, misuse of personal data, and cyberbullying are difficult to solve due to the lack of digital forensic expertise among law enforcement and minimal coordination across agencies[17].

2. Case Study: Cyber Violations and the Implementation of Penalties in Indonesia

One prominent case is the Bjorka case, which claims to have hacked into various government systems and leaked the personal data of state officials. Although it caused a public uproar, law enforcement did not reach the main perpetrator who was suspected of being outside Indonesia's jurisdiction. In other cases, such as the spread of personal information (doxxing) and the spread of hoax content on social media, the perpetrator can be charged with Article 27 paragraph (3) of the ITE Law. However, the effectiveness of legal prosecution depends on how quickly digital evidence can be collected and how strong the evidence is in the eyes of the law. As discussed by Syahranuddin and

[16] Sigid Suseno et al., "Cybercrime in the New Criminal Code in Indonesia," *Cogent Social Sciences* 11, no. 1 (2025), https://doi.org/10.1080/23311886.2024.2439543.
[17] Yee Ching Tok and Sudipta Chattopadhyay, "Identifying Threats, Cybercrime and Digital Forensic Opportunities in Smart City Infrastructure via Threat Modeling," *Forensic Science International: Digital Investigation* 45 (2023): 301540, https://doi.org/10.1016/j.fsidi.2023.301540.

Ramadani[18], the lack of standardization in digital evidence is a major obstacle in the cybercrime justice process in Indonesia.

3. Comparison with Legal Systems of Other Countries

In comparison, Estonia is known as a country with the most advanced cybersecurity system and cyber law in the world. They have implemented a national Cybersecurity Strategy since the early 2000s and have close cooperation with NATO and the European Union. Its criminal law provides strict restrictions on online crime and fast and accurate enforcement procedures. In Singapore, the Cybersecurity Act 2018 not only regulates the protection of critical infrastructure, but also requires reporting of cyber incidents and gives the Cyber Security Agency (CSA) extensive powers to conduct investigations[19]. The justice system in Singapore provides strict penalties and serves as a strong warning to perpetrators. The results of a study by Khan[20] shows that Singapore's proactive approach to preventing cybercrime is more effective in reducing the frequency of attacks than the reactive approach in Indonesia.

4. Weaknesses and Challenges in Implementing Cyber Law Enforcement in Indonesia

Despite having a legal basis, Indonesia still faces a number of structural challenges, such as limited capacity of human resources of law enforcement officers in digital forensics, weak coordination between institutions such as the Ministry of Communication and Information, the Police, and BSSN. Then, the absence of a protection mechanism for victims of cybercrime, especially those of a psychological and social nature. According to Ariyaningsih et al., cyber law enforcement in Indonesia tends to be reactive and is not yet based on a comprehensive digital risk management system[21]. As a result, perpetrators are often faster than law enforcement, both in terms of technology and tactics

4. Conclusion

This study shows that the implementation of punishment for cybercrime in Indonesia has a sufficient legal basis through the ITE Law and the Criminal Code, but in practice it still experiences various obstacles, both normative, technical, and institutional. The results of the study show that although there have been a number of cases that have been successfully processed, such as the spread of hoaxes and defamation on social media, law enforcement against more complex forms of cybercrime such as hacking, data theft, and transnational crimes has not been fully effective. Comparison with the legal systems of other countries, such as Estonia and Singapore, shows that a more comprehensive,

[18] S Syahranuddin and Suci Ramadani, "Criminal Law Policies in Overcoming Cyber Crime in Indonesia," *Proceedings of The International Conference on Multi-Disciplines Approaches for The Sustainable Development*, 2023, 738–42.
[19] Iqbal Ramadhan, "ASEAN Consensus and Forming Cybersecurity Regulation in Southeast Asia," 2022, https://doi.org/10.4108/eai.31-3-2022.2320684.
[20] Azfer A. Khan, "Reconceptualizing Policing for Cybercrime: Perspectives from Singapore," *Laws* 13, no. 4 (2024): 1–19, https://doi.org/10.3390/laws13040044.
[21] Sindy Ariyaningsih et al., "Korelasi Kejahatan Siber Dengan Percepatan Digitalisasi Di Indonesia," *Justisia: Jurnal Ilmu Hukum* 1, no. 1 (2023): 1–11, https://doi.org/10.56457/jjih.v1i1.38.

integrative, and prevention-based approach and strengthening of technical institutions can provide more effective results in dealing with cyber threats. Singapore, with its Cybersecurity Act 2018, has been able to create a legal framework that not only punishes but also encourages strengthening national preparedness against cyber attacks[22]. Meanwhile, Estonia has integrated its security system comprehensively through regional and international cooperation.

This study provides several important implications, namely 1) The need for revision and harmonization of cyber regulations in Indonesia. In this case, it is necessary to update the ITE Law, including clarification of criminal elements, increased protection for victims, and stricter regulations on transnational crimes and the responsibilities of digital platform providers; 2) Strengthening the Capacity of Law Enforcement Officers and Digital Forensic Infrastructure. The state must allocate sufficient resources to increase the capacity of human resources in the field of digital forensics and information technology in law enforcement agencies, such as the police and prosecutors; 3) International Cooperation to Combat Global Cybercrime Given the cross-jurisdictional nature of cybercrime, Indonesia needs to strengthen international legal cooperation, such as through Interpol, ASEAN, and UNODC, to track perpetrators and enforce cross-country laws; 4) Encourage Private Sector and Community Participation Combating cybercrime is not enough just through a repressive approach, but also requires active participation from digital service providers, educational institutions, and the wider community in the form of digital literacy and incident reporting.

Conflict of Interest Statement

There is no conflict of interest in the creation of this article.

Author's contribution Statement

The author made a major contribution to the conception and design of the research. The author takes responsibility for data analysis, interpretation and discussion of results with the assistance of ChatGPT, OpenAI. The author reads and approves this final text.

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The Legal Basis for Intellectual Property Protection: A Focus on Trademarks

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ABSTRACT

Legal protection of intellectual property, especially brands, is very important in today's era of globalization and digital economy. A brand is not only a trade identity but also a part of an intangible asset that has high strategic value. This study aims to analyze the legal basis of intellectual property protection, especially trademarks, from a normative juridical perspective, as well as assess the effectiveness of legal implementation through case studies of trademark infringement in Indonesia. This research uses a normative juridical approach method by examining national and international laws and regulations, as well as literature studies from Scopus-indexed legal journals. The secondary data used were analyzed descriptive-qualitatively to find gaps and implementable constraints in brand protection. The results of the study show that Indonesia already has a sufficiently adequate legal apparatus, namely Law Number 20 of 2016 concerning Trademarks and Geographical Indications which is in line with international provisions such as the TRIPS Agreement and the Paris Convention. However, the effectiveness of the implementation of this regulation is still constrained by weak law enforcement, lack of public understanding, and challenges from digital-based brand infringement. The implications of this research lead to the need to strengthen legal institutions, public education, and technology-based policy innovations for more effective brand protection. Therefore, a more proactive and collaborative regulatory approach between governments, business actors, and the public is needed to realize a resilient and globally competitive brand protection system.

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1. Introduction

Protection of intellectual property (IP) is becoming increasingly important in the era of globalization and economic digitalization.[2] In the midst of increasing business competition and the growth of the creative industry, the legal aspects of ownership and protection of intellectual property rights, especially brands, have received wide attention from the legal community and business practitioners[3]. Brands not only serve as product or service identities, but also as economic assets that can increase competitiveness and consumer loyalty[4]. According to Teece (2018), intellectual property protection plays an important role in driving innovation and sustainable economic growth in developing countries[5].

In the Indonesian context, the legal system governing trademark protection has undergone several important developments[6]. The revision of the Trademark Law, namely Law Number 20 of 2016 concerning Trademarks and Geographical Indications[7], is a step forward in strengthening the trademark protection system nationally while aligning it with international provisions such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). However, there are still serious problems related to law enforcement against trademark infringement, both administratively and civilly and criminally. Cases of trademark counterfeiting in the digital market show a significant increase and indicate weak regulatory mechanisms and sanctions.

A study by Hidayah[8]underscores that the implementation of intellectual property law in developing countries such as Indonesia still faces structural challenges, including limited human resources, policy inconsistencies, and lack of coordination between institutions. This has direct implications for the effectiveness of legal protection for legitimate brand owners, especially micro, small, and medium enterprises (MSMEs) who are often victims of violations without having adequate legal access[9].

Furthermore, the development of digital technology has given rise to new and complex forms of trademark infringement, such as the unauthorized use of trademarks on social media, digital advertising, and cross-border e-commerce platforms[10]. This phenomenon raises fundamental questions related to the effectiveness of Indonesia's

[2] Hady M Khawand et al., "Intellectual Property and Exit Strategies among SMEs: A Scoping Review and Framework," *World Patent Information* 79 (2024): 102318, https://doi.org/10.1016/j.wpi.2024.102318.

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[4] B Budiman and Roberth Kurniawan Ruslak Hammar, "Legal Protection of Intellectual Property Rights in Global Business," *Eduvest: Ournal of Universal Studies* 4, no. 1 (2024): 284–91.

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[6] Baskoro Suryo Banindro, *Implementasi Hak Kekayaan Intelektual (Hak Cipta, Merek, Paten, Desain Industri) Seni Rupa, Kriya Dan Desain* (Yogyakarta: BP ISI, 2015).

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positive law in answering the dynamics of contemporary IP law. Therefore, a study of the legal basis for trademark protection needs to be carried out to assess the extent to which existing regulations are able to ensure legal certainty, justice, and protection of trademark rights as a whole.

This study aims to analyze the legal basis of intellectual property protection, especially trademarks, from a normative juridical perspective and assess the effectiveness of the implementation of applicable laws through case studies of trademark infringement in Indonesia[11]. Thus, this research is expected to provide practical recommendations for improving trademark protection legal policies and supporting the development of a national intellectual property system that is more responsive to the challenges of the times.

2. Method and Legal Materials

This research uses a normative juridical approach[12], which is an approach that relies on the study of applicable laws and regulations and legal doctrines relevant to the protection of intellectual property, especially in the aspect of trademarks. This approach is used to systematically examine the positive legal norms that govern trademark rights and their implementation in the context of legal protection.

This method was chosen because the main focus of the research is to examine and analyze legal principles sourced from laws and regulations, jurisprudence, and legal literature as the basis for trademark protection in Indonesia. This study also includes the study of the development of legal doctrine related to trademark protection in a global context, including the influence of international legal instruments such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) and the Paris Convention for the Protection of Industrial Property.

The legal materials used consist of 1) Primary Legal Materials, namely national laws and regulations such as Law Number 20 of 2016 concerning Trademarks and Geographical Indications, Law Number 28 of 2014 concerning Copyright (as a comparative context), Law Number 11 of 2008 concerning Information and Electronic Transactions and its amendments, Government regulations related to the implementation of IP protection, and Supreme Court Jurisprudence in trademark dispute cases. Then, 2) secondary Legal Materials, including literature or legal doctrine from intellectual property experts and scientific journal articles. In addition, tertiary legal materials, such as legal dictionaries, legal encyclopedias, and government policy documents related to the implementation of IP protection in the MSME sector and digital industry.

The data analysis technique used is descriptive-analytical, by interpreting the content of applicable legal norms and analyzing their application in concrete cases of trademark infringement in Indonesia. The study also compared the effectiveness of trademark legal protection in Indonesia with international legal practice to discover the strengths and

[11] Zufikri and Zulkarnaini, "Legal Protection of Intellectual Property Rights: What Is Urgency for the Business World?"
[12] Soerjono Soekanto and Sri Mamuji, *Penelitian Hukum Normatif: Suatu Tinjauan Singkat* (Jakarta: Raja Grafindo Persada, 2013).

weaknesses of the national legal system. Through this method, the research is expected to be able to reveal the extent of the effectiveness of the legal basis in providing protection for brands and provide recommendations for regulatory updates to overcome contemporary challenges, especially in the era of digital transformation.

3. Results and Discussions

Trademark protection is an important aspect of the intellectual property legal system because a trademark serves as a product or service identity that distinguishes it from other products or services in the market. This study found two main results: first, identification and analysis of the basis of trademark protection law in Indonesia based on a normative juridical approach; Second, an assessment of the effectiveness of the application of the law through a case study of trademark infringement.

3.1 Legal Basis of Trademark Protection in a Normative Juridical Perspective

Based on a normative juridical approach, the legal basis for trademark protection in Indonesia is currently based on Law Number 20 of 2016 concerning Trademarks and Geographical Indications, which is a refinement of the previous law. This law includes the definition of a trademark, the registration process, legal protection, as well as administrative and criminal sanctions for infringement of trademark rights[13].

The provisions of the 2016 Trademark Law are in line with the international standards set out in the TRIPS Agreement, in particular in terms of the protection and enforcement of intellectual property rights (Articles 15–21 of the TRIPS). In addition, Indonesia is also a member of the Paris Convention for the Protection of Industrial Property, which also influences the harmonization of the trademark protection system at the national level.

Law No. 20 of 2016 emphasizes the principle of first to file as the basis for granting trademark rights, which means that the right to a trademark is given to the party who first registers the trademark with the Directorate General of Intellectual Property. This is important to provide legal certainty and protection to business actors, especially in the MSME sector that is vulnerable to piracy or brand plagiarism[14]. However, the main obstacle found in the implementation of this regulation is the low understanding of the public, especially small business actors, regarding the importance of trademark registration. A study by Ding and Yang (2025) [15] shows that lack of awareness and education is a major obstacle to IP protection in developing countries, including Indonesia.

[13] Emmi Rahmiwita Nasution and Loso Judijanto, "Legal Strategies for Protecting Intellectual Property Rights in Business A Case Study Creative Industry in Indonesia," *The Easta Journal Law and Human Rights* 2, no. 02 (2024): 80–88, https://doi.org/10.58812/eslhr.v2i02.209.

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3.2 Effectiveness of Legal Implementation through Case Studies of Trademark Infringement

To assess the effectiveness of the implementation of trademark protection laws, this study examined several cases of trademark infringement that occurred in Indonesia. One of the prominent case studies is the dispute between PT. Holi Pharma with PT. Kalbe Farma related to the use of the trademarks *"Holisticare Ester C"* and *"Holisticare Ester-C Plus"*. This dispute shows that even if a trademark has been registered, the potential for infringement remains high, especially if the oversight and enforcement process is not strictly carried out[16].

Supreme Court Decision No. 1086 K/Pdt.Sus-HKI/2017 states that brands that have similarities in substance or as a whole can cause confusion in the community. In this case, the Court ruled that the defendant violated the exclusive rights of the registered trademark owner. However, the resolution of these cases takes a long time and requires complex proof, pointing to weaknesses in our law enforcement system[17].

Furthermore, the results of research conducted by Samaranayake (2022) stated that one of the biggest challenges in trademark protection in Southeast Asia is the weak coordination between law enforcement agencies and the slow litigation process.[18] In Indonesia, the Directorate General of Intellectual Property has made various efforts to educate and digitize the registration system, but in practice there are still frequent leaks in reporting and monitoring violations[19].

In addition, there are still many trademark infringements that are not touched by legal proceedings due to limited law enforcement resources, such as the number of investigators and prosecutors who understand intellectual property cases. The DJKI's annual report (2023) states that of the 3,207 reports of alleged trademark infringement, only 18% were forwarded to the judicial process.[20] This indicates that there is still a weak overall law enforcement effort.

3.3 International Comparison and Regulatory Update Recommendations

In comparison to other countries, such as Singapore and Japan, the trademark protection system is more efficient due to the presence of a special intellectual property court that handles infringement cases with a relatively short time and transparent litigation costs. Indonesia needs to emulate this step to increase the effectiveness of its legal protection system.

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[16] Bernard Nainggolan, "Enforcement of Intellectual Property Law in Indonesia," *IJLR: International Journal of Law Recontruction* 6, no. 2 (2022): 317–30, https://doi.org/10.26532/ijlr.v6i2.35991.

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[20] DKJI, *Laporan Tahunan 2023* (Jakarta: Direktorat Jenderal Kekayaan Intelektual (DJKI), 2023).

In addition, the main recommendation of the results of this study is the need to:

- Strengthening intellectual property law enforcement agencies;
- Increasing legal literacy among MSME actors;
- Review of intellectual property dispute resolution procedures to be more adaptive to the development of the digital economy;
- Optimizing the role of the Directorate General of Intellectual Property in post-registration supervision

4 Conclusion

The protection of intellectual property, especially trademarks, is of paramount importance in the context of modern business and commercial law[21]. Based on the normative juridical analysis conducted in this study, it can be concluded that Indonesia already has a fairly comprehensive legal framework in providing protection for trademarks, which is reflected in Law Number 20 of 2016 concerning Trademarks and Geographical Indications. This law is in line with international provisions such as the TRIPS Agreement and the Paris Convention, and has provided legal certainty regarding the exclusive rights to legally registered trademarks.

However, the effectiveness of the implementation of the regulation still faces various obstacles, including low public awareness of the importance of trademark registration, weak monitoring system for violations, and limited law enforcement resources. A case study of trademark infringement in Indonesia shows that despite the availability of legal protection, a lengthy and complicated litigation process is still a major obstacle in the enforcement of trademark rights.

These findings confirm that the protection of brands requires not only good regulation, but also consistent implementation. This reinforces the theory that the law will not be effective if it is not supported by strong legal institutions and culture. Therefore, strategic steps are needed to strengthen the trademark protection system in Indonesia, including by increasing education and socialization of the importance of trademark registration to business actors, especially MSMEs, encouraging the establishment of a special intellectual property court to make the dispute resolution process more efficient, developing a digital-based monitoring and enforcement system to monitor trademark infringement in real-time.

The government needs to revise policies by adjusting to the development of digital technology and economic globalization, especially related to brand counterfeiting and online brand infringement. Strengthening coordination between law enforcement agencies and the use of technology in the supervision process is needed to increase the effectiveness of brand protection. By strengthening legal and institutional foundations, as well as raising public awareness, brand protection in Indonesia can be significantly improved to support sustainable and competitive economic growth.

[21] Christoph Antons, "The Recognition and Protection of Well-Known Trade Marks in Indonesia," *Journal of Intellectual Property Law & Practice* 3, no. 3 (March 1, 2008): 185–93, https://doi.org/10.1093/jiplp/jpm252.

Conflict of interest

The author declares that there is no conflict of interest in making this article.

Authors' contribution

The author state that author made substantial contributions to the conception and design of the study. The author took responsibility for data analysis, interpretation and discussion of results with the assistance of ChatGPT, OpenAI. The author reads and approved the final manuscript.

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Understanding the Regulation of the Use of Artificial Intelligence Under International Law

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ABSTRACT

The development of artificial intelligence (AI) has revolutionized various aspects of human life, from the economic sector to the government system. While it brings significant benefits, AI also poses legal and ethical risks that have not been fully addressed in the current international legal framework. This research aims to analyze the regulation of the use of AI from the perspective of international law and identify challenges and opportunities in shaping a global legal framework that is responsive to the development of AI. This study uses a normative juridical method with a conceptual approach and legal comparison. The legal materials used include international legal instruments such as the Universal Declaration of Human Rights (UDHR), the International Covenant on Civil and Political Rights (ICCPR), soft law documents such as the UNESCO Recommendation on the Ethics of Artificial Intelligence, and regional regulations such as the EU Artificial Intelligence Act. The results show that there is no specific binding international agreement related to AI, so there is a legal vacuum in the regulation. This disintegration of international legal norms has implications for weak human rights protection mechanisms, unclear legal responsibility for the impact of AI, and weak governance of technology across countries. In addition, regulations that are unilateral or regional, such as those carried out by the European Union, have the potential to create a regulatory gap between developed and developing countries. This study concludes that it is necessary to establish a binding, inclusive, and ethical international legal framework for regulating the use of AI.

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1. Introduction

The development of artificial intelligence (AI) technology globally has had a transformative impact on various sectors of life, ranging from health services, education, industry, defense, to the legal system[2]. However, these advances also pose serious challenges related to ethics, legal responsibility, security, and human rights protection in their use[3]. Legal uncertainty regarding the regulation of the use of AI has prompted the international community to formulate legal standards that can effectively and fairly regulate AI, in line with applicable international legal principles[4].

Although some countries and regional organizations such as the European Union have begun to develop policies and legal frameworks governing the use of AI[5], there is not yet a strong global consensus on the basic principles of AI regulation. This raises concerns about regulatory fragmentation and potential violations of universal principles such as non-discrimination, accountability, and fairness[6]. One example is AI in surveillance and law enforcement systems that can impact individual civil liberties and privacy[7].

Within the framework of international law, AI meets various legal regimes such as human rights law, international humanitarian law, cyber law, and even international trade law. This complexity shows that AI regulation requires a multidisciplinary and cross-sectoral approach that combines technological, legal, and ethical perspectives. In addition, a participatory and collaborative approach between countries is important in ensuring that AI regulation not only protects the interests of developed countries, but also provides a fair space for developing countries to use this technology responsibly[8].

Several international legal instruments have attempted to address this challenge, such as UNESCO's Recommendation on the Ethics of Artificial Intelligence (2021)[9], as well as various discussions within the UN framework on the development of international norms for AI. However, the implementation of these recommendations still faces political, economic, and technical obstacles. Countries have diverse interpretations of how AI should be regulated, and many prioritize a pragmatic approach that prioritizes economic innovation over the principle of prudence[10].

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[2] Rowena Rodrigues, "Legal and Human Rights Issues of AI: Gaps, Challenges and Vulnerabilities," *Journal of Responsible Technology* 4, no. August (2020): 100005, https://doi.org/10.1016/j.jrt.2020.100005.
[3] Emmanouil Papagiannidis, Patrick Mikalef, and Kieran Conboy, "Responsible Artificial Intelligence Governance: A Review and Research Framework," *The Journal of Strategic Information Systems* 34, no. 2 (2025): 101885, https://doi.org/https://doi.org/10.1016/j.jsis.2024.101885.
[4] UNESCO, "Recommendation on the Ethics of Artificial Intelligence," *Unesco*, no. November (2021): 1–21, https://unesdoc.unesco.org/ark:/48223/pf0000380455.
[5] European Union, "EU AI Act: First Regulation on Artificial Intelligence," European Parliament, 2023.
[6] Bryan H. Druzin, Anatole Boute, and Michael Ramsden, "Confronting Catastrophic Risk: The International Obligation to Regulate Artificial Intelligence," *Michigan Journal of International Law* 46, no. April (2025): 1–47.
[7] Anne Dulka, "The Use of Artificial Intelligence in International Human Rights Law," *Stanford Technology Law Review* 26, no. 2 (2023): 316–66, https://perma.cc/5D6X-HG3F.
[8] José Miguel Bello y Villarino, "Global Standard-Setting for Artificial Intelligence: Para-Regulating International Law for AI?," *Australian Year Book of International Law* 41, no. 1 (2023): 157–81, https://doi.org/10.1163/26660229-04101018.
[9] UNESCO, "Recommendation on the Ethics of Artificial Intelligence."
[10] Qiang REN and Jing DU, "Harmonizing Innovation and Regulation: The EU Artificial Intelligence Act in the International Trade Context," *Computer Law & Security Review* 54 (2024): 106028, https://doi.org/https://doi.org/10.1016/j.clsr.2024.106028.

Based on this background, this study aims to analyze how international law responds to regulatory needs for the use of artificial intelligence. This research also seeks to identify the principles of international law that can be used as a basis for building an inclusive, equitable, and sustainable global normative framework for AI technology.

2. Legal Methods and Materials

This research uses a normative juridical approach with a focus on the analysis of international law that regulates the use of artificial intelligence (AI)[11]. This approach was chosen because it allows researchers to examine legal norms sourced from international instruments, both in the form of conventions, declarations, and relevant recommendations. Normative juridical research relies on literature studies and analysis of primary and secondary legal materials to assess the suitability of international legal norms for the phenomenon of AI technology development.

1) Types of Research
   The type of research used is doctrinal or normative, which examines law as a norm or rule that lives in the international community. The focus is on the systematization, interpretation, and evaluation of various international legal instruments and state practices in regulating AI. This research also identifies a legal gap in the regulation of AI at the global level.
2) Research Approach. There are three approaches used in this study:
   - The statute approach is based on documents such as UNESCO's Recommendation on the Ethics of Artificial Intelligence (2021), the OECD AI Principles (2019), and the Council of Europe's Draft Convention on Artificial Intelligence.
   - The conceptual approach is by examining key concepts such as state responsibility, precautionary principle, human rights, and good governance in the context of AI technology.
   - Comparative approach, by comparing AI regulations in several international jurisdictions (European Union, United States, and China) to identify differences and similarities in legal frameworks that can be used as a global reference.
3) Legal Materials. This research uses three types of legal materials:
   a. Primary legal materials, namely international legal instruments such as:
      - Universal Declaration of Human Rights (1948),
      - International Covenant on Civil and Political Rights (1966),
      - UNESCO Recommendation on the Ethics of Artificial Intelligence (2021),
      - OECD Principles on Artificial Intelligence (2019),
      - European Commission's Proposal for AI Regulation (Artificial Intelligence Act, 2021).

[11] Mohamed Hadi et al., "Implications of Artificial Intelligence Technology on International Law" 10 (2025).

b. Tertiary legal materials, such as international law dictionaries, legal encyclopedias, and digital legal databases to support term searches and strengthen terminological analysis.

4) Analytical Techniques

The analysis is carried out using a descriptive-analytical method, namely by explaining the content and meaning of applicable legal norms, then comparing them with current international legal practice.[12] Furthermore, normative gaps were identified and consistency tests were carried out between the principles of international law and national policies related to AI. Emphasis is placed on issues of legal responsibility, human rights protection, and global governance of AI. With this method, the research is expected to contribute to the development of an international legal framework that is more inclusive and responsive to the dynamics of artificial intelligence technology.

3. Results and Discussion

3.1 Principles of international law that can be used as a basis for building an inclusive, equitable, and sustainable global normative framework for AI technology

The development of artificial intelligence (AI) has entered various sectors of life and given birth to a paradigm shift in the way humans work, interact, and make decisions.[13] Although it has great potential to support global development, AI also poses complex risks, including human rights violations, data security, algorithmic discrimination, and threats to state sovereignty.[14] In the context of international law, a major challenge arises from the absence of a single universally binding legal framework to govern the use of AI.[15] Therefore, this section discusses six key issues that reflect the status and challenges of AI regulation in international law, as well as analyzes how current legal principles and instruments seek to address these issues.

1. Absence of Specific Binding International Legal Instruments on AI

   Although AI has become an integral part of global technological development, there is no single specific and binding international legal instrument governing its use. Existing efforts are still at the level of soft law, such as the OECD principles (2019) and the UNESCO Recommendation on the Ethics of Artificial Intelligence (2021), which are only normative and do not have legal force.

   The absence of this binding legal framework creates a gray area in the application and oversight of AI. According to Yara (2021), the proliferation of soft norms on AI highlights a consensus on ethical goals, but the lack of binding

[12] Amiruddin and H. Zainal Asikin, *Pengantar Metode Penelitian Hukum* (Jakarta: PT. RajaGrafindo Persada, 2012).
[13] Mattias Holzhausen, "Legal Accountability and Ethical Considerations for Outcomes Driven by Artificial Intelligence in Business Operations," *Udayana Journal of Law and Culture* 8, no. 1 (2024): 1–23, https://doi.org/10.24843/UJLC.2024.v08.i01.p01.
[14] Jialing Liu, "Artificial Intelligence and International Law: The Impact of Emerging Technologies on the Global Legal System," *Economics, Law and Policy* 7, no. 2 (2024): p73, https://doi.org/10.22158/elp.v7n2p73.
[15] Naek Siregar et al., "The Use of Artificial Intelligence in Armed Conflict under International Law," *Hasanuddin Law Review* 10, no. 2 (2024): 189–205, https://doi.org/10.20956/halrev.v10i2.5267.

regulation results in fragmented legal regimes and regulatory arbitrage.[16] This means that a country or entity can choose which norm is favorable without regard to global harmonization.

In addition, the lack of international legal standards magnifies the risk of regulatory inequities between developed and developing countries, which can lead to technological inequality and cross-border data exploitation.

2. AI and Human Rights in International Law Perspective

AI has the potential to violate the fundamental rights of individuals if it is not designed and supervised with the principles of fairness and accountability. In the international legal system, the rights to fair treatment, non-discrimination, and privacy have been guaranteed by various instruments such as the Universal Declaration of Human Rights (UDHR) and the International Covenant on Civil and Political Rights (ICCPR)[17]. However, many AI systems today do not fully comply with these principles.

Agus (2023) highlighted the inaccuracies of facial recognition systems for minority groups.[18] "Commercial facial analysis systems demonstrated substantial disparities in accuracy based on gender and skin tone, which may institutionalize existing biases when deployed in real-world scenarios." This kind of violation is clearly contrary to Articles 7 and 26 of the ICCPR which guarantee equal treatment. This condition shows that the protection of human rights must be a key principle in the development and application of AI. Therefore, there is a need to integrate human rights principles into global technology design standards required by international law.

3. Responsibilities of States and Non-State Actors in the Use of AI

Liability for losses caused by AI systems is a crucial issue in international law. When AI is used for military, financial, or legal decision-making operations, who is responsible if AI causes harm? In classical international law, state responsibility is the main principle, as set out in the Draft Articles on State Responsibility by the International Law Commission (ILC). However, in the context of AI, the main actors come precisely from the private sector: multinational technology companies that are not always subject to a specific jurisdiction.

Bhushan (2023) stated that we must move beyond state-centric liability models to hybrid frameworks that recognize the shared nature of technological harms involving private and public actors.[19] In other words, the concept of shared

[16] Olena Yara et al., "Legal Regulation of the Use of Artificial Intelligence: Problems and Development Prospects," *European Journal of Sustainable Development* 10, no. 1 (2021): 281–89, https://doi.org/10.14207/ejsd.2021.v10n1p281.
[17] United Nations, *International Covenant on Civil and Political Rights (ICCPR)*, 1966.
[18] A Agus et al., "The Use of Artificial Intelligence in Dispute Resolution through Arbitration: The Potential and Challenges," *Sasi* 29, no. 3 (2023): 570–78, https://doi.org/10.47268/sasi.v29i3.1393.
[19] Tripti Bhushan, "Artificial Intelligence, Cyberspace and International Law," *Indonesian Journal of International Law* 21, no. 2 (2023): 59–92, https://doi.org/10.17304/ijil.vol21.2.3.

responsibility needs to be considered to answer the complexity of AI technology that does not only involve the state.

4. Regional Regulation: A Case Study of the European Union and a Proactive Approach to AI

   The European Union has been a pioneer in developing a comprehensive AI legal framework. The proposed Artificial Intelligence Act (2021) divides AI systems into risk categories and regulates legal treatment based on their level of risk.[20] Systems that include "high-risk AI" such as automated hiring systems or mandatory credit evaluation systems through compliance and accountability assessments. The EU's risk-based approach reflects not only legal prudence but also a deep commitment to human dignity, transparency, and public trust in AI.[21] This approach is exemplary as a comprehensive and human rights-based normative framework. The EU also emphasizes on clarity on the roles and responsibilities of actors, as well as sanctions and oversight mechanisms by an independent body called the European Artificial Intelligence Board (EAIB).

5. UNESCO and Global Normative Efforts

   UNESCO's (2021) recommendations regarding AI ethics are one of the important efforts in building global norms. While not binding, this document contains universal principles such as accountability, non-discrimination, social justice, and environmental sustainability. Cabrera et al. (2025)[22] argue that, "Soft-law instruments such as the UNESCO recommendations can contribute to customary international law when widely accepted and implemented by states." Thus, this normative instrument has the potential to be the basis for the formation of customary international law.

6. Global Challenges in the Establishment of International Law on AI

   The biggest obstacle in the formation of international law on AI is the difference in geopolitical interests. Countries like the U.S. and China display opposing approaches—the U.S. tends to prioritize market freedom, while China emphasizes state control. [23]states that "A minimum viable treaty could help mitigate fragmentation and serve as a first step toward a global AI governance framework." This compromise approach is important to build trust and collaboration between countries. However, international agreements will require a lengthy process, involving the establishment of common norms, harmonization

[20] András Hárs, "AI and International Law-Legal Personality and Avenues for Regulation," *Hungarian Journal of Legal Studies* 62, no. 4 (2021): 320–44, https://doi.org/10.1556/2052.2022.00352.
[21] European Union, "Regulation 2024/1689," *Official Journal of the European Union* 1689, no. 3 (2024): 1–144.
[22] Sandeep Reddy, "Global Harmonization of Artificial Intelligence-Enabled Software as a Medical Device Regulation: Addressing Challenges and Unifying Standards," *Mayo Clinic Proceedings: Digital Health* 3, no. 1 (2025): 100191, https://doi.org/https://doi.org/10.1016/j.mcpdig.2024.100191.
[23] Mateus De Oliveira Fornasier, "The Regulation of the Use of Artificial Intelligence (AI) in Warfare: Between International Humanitarian Law (IHL) and Meaningful Human Control," *Revista Jurídica Da Presidência* 23, no. 129 (2021): 67–93, https://doi.org/10.20499/2236-3645.rjp2021v23e129-2229.

of national interests[24], and strengthening the capacity of global institutions such as the ITU and UNDP.

4. Conclusion

The rapid development of artificial intelligence (AI) technology has created complex legal challenges in the international arena.[25] Through a juridical analysis of various international legal instruments and global practices, this study concludes several important points. First, there is not a single international legal instrument that is specifically binding on the use of AI. The existing legal framework is still at the soft law level and has not been able to regulate the use of AI comprehensively and evenly between countries. This creates a legal vacuum and regulatory fragmentation globally. Second, AI has great potential to violate human rights, such as algorithmic discrimination, privacy violations, and unaccountable automated decision-making. Although these rights have been guaranteed in instruments such as the ICCPR and the UDHR, there is not yet an adequate international legal mechanism to ensure the compliance of AI technologies with these principles. Third, liability for losses caused by AI is still a serious issue. The accountability framework in international law is currently still state-centric, while in practice, the main actors of AI are non-state entities such as multinational corporations. Therefore, the concept of shared responsibility between the state and the private sector needs to be formulated further. Fourth, regional efforts such as the EU AI Act and global recommendations such as the UNESCO Recommendation on the Ethics of AI demonstrate the potential for the formation of inclusive and value-based legal norms. However, differences in geopolitical approaches between countries remain a major obstacle in the establishment of universally binding international agreements.

The results of this study have important implications both academically and practically. Academically, this research opens up space for more specific international legal studies of new technologies such as AI, emphasizing the importance of a multidisciplinary approach between law, ethics, and technology. In practical terms, this research encourages countries to play an active role in forming an international legal regime that can respond to AI developments in a fair and sustainable manner. AI regulation should not only be reactive, but proactive and oriented towards human rights protection, legal responsibility, and fair global governance. Governments, international institutions, and the private sector must collaborate in formulating basic principles that can be the basis for the establishment of a binding international treaty on AI. In addition, increasing the capacity of developing countries in understanding and formulating AI policies needs to be part of a global strategy so that there is no regulatory gap between developed and developing countries.

[24] Asiva Noor Rachmayani, "Artificial Intelligence Regulation on Labour Market: Comparative Perspectives on the European Union Artificial Intelligence Act in the Indonesian Context," *Lex Scientia Law Review* 8, no. 1 (2024): 299–320, https://doi.org/10.15294/lslr.v8i1.3465.
[25] Luis A Garcia-Segura, "The Role of Artificial Intelligence in Preventing Corporate Crime," *Journal of Economic Criminology* 5 (2024): 100091, https://doi.org/https://doi.org/10.1016/j.jeconc.2024.100091.

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The author made a major contribution to the conception and design of the research. The author takes responsibility for data analysis, interpretation and discussion of results with the help of AI (ChatGPT). The author reads and approves this final text.

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Law for Ensuring Data Security in the Digital Age: Challenges for Government and Warnings for Us

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ABSTRACT

The rapid development of information technology in the digital era poses serious challenges to personal data protection. Data leakage, misuse of information, and unauthorized surveillance are real threats that require a comprehensive legal response. This study aims to analyze the extent of the role of law in ensuring data security in Indonesia, as well as evaluate the effectiveness of Law Number 27 of 2022 concerning Personal Data Protection. This study uses a normative juridical approach with a literature study method and comparative analysis of the General Data Protection Regulation (GDPR) as a reference for international standards. The results of the study show that even though Indonesia already has a formal legal basis through the PDP Law, the implementation of data protection still faces various obstacles. Among them are the lack of independent, authoritative institutions, the lack of public literacy related to digital privacy, and weak law enforcement against data breaches. A comparative study with GDPR confirms that Indonesia's legal framework is not yet equal in terms of transparency, accountability, and oversight of data controllers. The conclusion of this study shows that structural and substantial efforts are needed to strengthen the data protection legal system, including the drafting of technical regulations, institutional strengthening, and increasing the capacity of law enforcement human resources. The implications of this study emphasize the importance of regulatory reform and a multidisciplinary approach between law and technology to create an effective and equitable data protection system.

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1. Introduction

The development of information and communication technology has created a huge leap in digital transformation in almost all aspects of life.[2] In this context, data becomes

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[2] Jinguang Guo and Hanqi Zhang, "Digital Age: The Path Choice of Government-Citizen Value Co-Creation," *Heliyon* 10, no. 15 (2024): e35482, https://doi.org/10.1016/j.heliyon.2024.e35482.

a very vital asset, not only for individuals but also for public and private institutions.[3] In today's digital age, personal data can be collected, stored, and processed on a large scale quickly and cheaply through technologies such as cloud computing, big data, and artificial intelligence.[4] However, these advances also bring new threats to data privacy and security. When personal data falls into the wrong hands, this can cause enormous legal and economic losses for data owners.[5]

Data security in the legal context has become a major concern in recent years, especially with the rise of data leaks, cyber hacks, and misuse of personal information. Personal data is no longer static, but can be analyzed to create individual profiles, influence political decisions, and shape people's consumptive behavior. As stated by Küzecİ (2022), the absence of strong legal oversight of data processing leads to the emergence of practices that are detrimental and degrade to human dignity.[6]

Countries around the world are responding to this challenge by establishing various regulations to ensure data security and confidentiality. The European Union through the General Data Protection Regulation (GDPR)[7] has become a global reference in personal data protection regulations. These regulations provide strong rights for data subjects, including the right to be forgotten and the right to data portability. Countries such as Brazil, Japan, and even Indonesia have begun to adapt their regulations to the GDPR standard in an effort to strengthen the legal position of data subjects.[8]

However, law enforcement in the context of data protection is not always effective. One of the main challenges is the unpreparedness of law enforcement institutions in responding to the complexity of digital technology. In Indonesia, for example, even though Law Number 27 of 2022 concerning Personal Data Protection (PDP Law)[9] has been passed, various cases of data leaks such as BPJS Kesehatan, MyIndiHome, and eHAC data leak incidents show weak implementation and enforcement of these regulations.[10]

In addition to institutional issues, there are also juridical challenges in the form of inconsistencies between national regulations and international norms. This causes legal disharmony that has the potential to create legal uncertainty in resolving cross-border data disputes.[11] In the context of globalization and cross-border data movements, legal

[3] Vera Zinovieva, Mikhail Shchelokov, and Evgeny Litvinovsky, "Legal Issues of Protection of Personal Data: Cases of Transport Data Leaks," *Transportation Research Procedia* 68 (2023): 461–67, https://doi.org/10.1016/j.trpro.2023.02.062.
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[5] Mattias Holzhausen, "Legal Accountability and Ethical Considerations for Outcomes Driven by Artificial Intelligence in Business Operations," *Udayana Journal of Law and Culture* 8, no. 1 (2024): 1–23, https://doi.org/10.24843/UJLC.2024.v08.i01.p01.
[6] Elif Küzecİ, "Personal Data Protection Law," *Introduction to Turkish Business Law*, no. 016999 (2022): 457–83.
[7] EU, *General Data Protection Regulation, Official Journal of the European Union*, 2016.
[8] Erna Priliasari, "Perlindungan Data Pribadi Konsumen Dalam Transaksi E-Commerce Menurut Peraturan Perundang-Undangan Di Indonesia," *Jurnal Rechts Vinding: Media Pembinaan Hukum Nasional* 12, no. 2 (2023): 261–79.
[9] Indonesian's Law, "Law Number 27 of 2022 Concerning Personal Data Protection in Indonesia" (2022).
[10] Naylawati Bahtiar, "Darurat Kebocoran Data: Kebutuhan Regulasi Pemerintah," *Development Policy and Management Review (DPMR)* 2, no. 1 (2022): 85–100.
[11] Aris Sarjito, "Data Security and Privacy in the Digital Era: Challenges for Modern Government," *JIAN (Jurnal Ilmiah Administrasi Negara)* 8, no. 3 (2024): 1–13, https://doi.org/10.56071/jian.v8i3.933.

integration between jurisdictions is indispensable to create comprehensive and universal data protection.[12]

This research departs from the urgency of the need to strengthen the role of law in ensuring data security in the midst of the onslaught of digitalization. The purpose of this study is to analyze the extent to which existing legal instruments are able to answer data security challenges in the digital era and provide relevant legal reform directions. This study also examines the effectiveness of normative juridical approaches in examining data protection, especially with a focus on the substance of regulations and their law enforcement systems. Thus, it is hoped that the results of this research can contribute to the formulation of policies that favor people's digital rights.

2. Legal Methods and Materials

This research uses the normative juridical method, which is an approach that relies on the analysis of positive legal norms, both written in laws and regulations and those contained in general law principles[13]. This approach is used to understand how national and international legal systems respond to personal data security issues in the context of the digital age. This approach is relevant because the issue of data protection is a normative issue that is closely related to the principles of legality, human rights, and the rule of law.

In order to obtain a comprehensive overview of the role of law in ensuring data security, the legal materials used in this study are divided into two types: (1) primary legal material, namely laws and regulations directly related to the protection and security of personal data. These materials include:

- Law Number 27 of 2022 concerning Personal Data Protection (PDP Law);
- Law Number 11 of 2008 concerning Information and Electronic Transactions and its amendments (ITE Law);
- Government Regulations, Ministerial Regulations, and Regulations of relevant Authorities (e.g. Kominfo, BSSN);
- General Data Protection Regulation (GDPR) from the European Union as a global data protection standard;
- Brazil's LGPD and Japan's APPI regulations as legal comparisons.

Then, (2) secondary legal materials, namely scientific literature such as books, legal journals, results of scientific seminars, and research reports that discuss legal aspects of personal data protections.

The analysis technique used is qualitative analysis, by interpreting the applicable legal norms and comparing them with factual practices or implementations in the field, including cases of data leaks that have occurred in Indonesia. This analysis is then combined with a comparative law approach to data protection systems from other more

[12] Daniel J Solove, *The New Vulnerability: Data Security and Personal Information*, ed. Radin and Chander (Stanford: Stanford University Press, 2008).
[13] Peter Mahmud Marzuki, *Penelitian Hukum*, Cet. XIV (Jakarta: Prenada Media Group, 2019).

advanced countries, such as the European Union and Japan, to assess the strengths and weaknesses of Indonesia's legal system.

3. Results and Discussion

The digital age has brought about a major transformation in people's lives, including in the way personal data is collected, stored, and used. In the midst of the surge in the use of information technology, concerns have arisen about data security and privacy, especially with the rampant cases of data leaks in Indonesia.[14] Therefore, data protection regulations are an important instrument that not only guarantees citizens' right to privacy, but also becomes the foundation for building public trust in the implementation of digital systems. The following discussion will outline the main findings of this study based on a normative juridical approach that examines the positive legal framework, enforcement effectiveness, and its comparison with international practice.

1. Ineffective Regulation and Weak Implementation of the PDP Law in Indonesia

Law Number 27 of 2022 concerning Personal Data Protection (PDP Law) is an initial milestone for Indonesia in providing a legal framework to ensure the security of personal data. However, until now, the implementation of the law is still far from optimal. One of the main obstacles lies in the slow establishment of independent supervisory bodies that are supposed to function as data protection authorities. Without this institution, the PDP Law tends to be symbolic and does not have adequate enforcement power.[15] In addition, in practice, the mechanism for complaints, investigations, and sanctions against data breaches is still unstructured. This has caused many cases of data leaks such as BPJS Kesehatan, eHAC, and MyIndiHome not to receive adequate legal handling. The unclear role of technical institutions such as the Ministry of Communication and Information and BSSN in the context of supervision makes the PDP Law ineffective in providing real protection for individuals.

Another weakness lies in the lack of technical understanding of law enforcement officials on the substance of the PDP Law. Many investigators have not received special training on digital forensics and data management systems, making the evidentiary process in data breach cases difficult. This situation creates a legal gray space that can actually be exploited by data breach perpetrators.[16]

In fact, in a data protection system, effectiveness is not only determined by normative substance, but also by legal infrastructure and supporting technology. Without the readiness of human resources and information technology support, regulations will remain a weak normative statement in their implementation.

[14] Budi Prasetyo, I Gusti Ayu Ketut Rachmi Handayani, and Adi Sulistiyono, "Data Protection Laws in Indonesia: Navigating Privacy in the Digital Age," *SIDE: Scientifict Development Journal* 2, no. 1 (2025): 9–16.
[15] Indonesian's Law, Law Number 27 of 2022 concerning Personal Data Protection in Indonesia.
[16] Rudi Natamiharja and Ikhsan Setiawan, "Guarding Privacy in the Digital Age: A Comparative Analysis of Data Protection Strategies in Indonesia and France," *Jambe Law Journal* 7, no. 1 (2024): 233–51, https://doi.org/10.22437/home.v7i1.349.

2. Comparison with International Regulations: The Dominance of GDPR as a Global Standard

The European Union's General Data Protection Regulation (GDPR) has become a global standard in personal data protection. The GDPR offers a legal framework that is not only comprehensive but also responsive to technological developments. One of the advantages is the regulation of basic principles such as lawful basis, data minimization, and data subject rights that are clearly and operationally described. According to Pazhohan (2022), GDPR effectively forces multinational companies to conduct audits of their data systems to align with data protection principles.[17] Companies that fail to comply can be fined up to 4% of total global annual revenue, a sanction mechanism that Indonesia's PDP Law does not yet have.

Apart from the legal substance, GDPR is also supported by enforcement agencies such as the Data Protection Authority (DPA) in each member country that has clear authority. This is inversely proportional to the situation in Indonesia, where data supervisory institutions have not been formed functionally so that public complaints often do not receive a systematic response. International regulations such as GDPR not only provide legal protection for individuals, but also enhance a country's digital competitiveness. GDPR-compliant countries gain international trust in digital trade and cross-border data flows.[18]

3. Law Enforcement Challenges: Absence of Effective Criminal Sanctions

The law enforcement aspect is a crucial challenge in ensuring data security.[19] Although the PDP Law contains criminal provisions, its implementation in the field is very limited. This is due to the unpreparedness of the law enforcement and the lack of technical guidelines in the implementation of sanction articles. The effectiveness of law enforcement depends on legal certainty and consistency of implementation.[20] In Indonesia, weak coordination between technical institutions such as BSSN, the Ministry of Communication and Information, and the police hinders the investigation process of data leak cases. Without clear SOPs, law enforcement is unable to process data breaches professionally and fairly.

On the other hand, there is no strong jurisprudence in data breach cases[21], so judges and prosecutors are still hesitant to apply sanctions based on the PDP Law.

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[17] Helia Pazhohan, "Global Data Protection Standards: A Comparative Analysis of GDPR and Other International Privacy Laws," *Legal Studies in Digital Age* 2, no. 3 (2023): 1–12.

[18] Syed Khurrum Hussain Naqvi and Komal Batool, "A Comparative Analysis between General Data Protection Regulations and California Consumer Privacy Act," *Journal of Computer Science, Information Technology and Telecommunication Engineering* 4, no. 1 (2023): 326–32, https://doi.org/10.30596/jcositte.v4i1.13330.

[19] Sekaring Ayumeida Kusnadi, "Perlindungan Hukum Data Pribadi Sebagai Hak Privasi," *AL WASATH Jurnal Ilmu Hukum* 2, no. 1 (2021): 9–16, https://doi.org/10.47776/alwasath.v2i1.127.

[20] Li Adik Aleksandrovich, "Cyber Law: Addressing Legal Challenges in the Digital Age," *Uzbek Journal of Law and Digital Policy* 1, no. 3 (2023): 1–11, https://doi.org/10.59022/ujldp.92.

[21] Spencer Wheatley, Thomas Maillart, and Didier Sornette, "The Extreme Risk of Personal Data Breaches and the Erosion of Privacy," *The European Physical Journal B* 89, no. 1 (2016): 7, https://doi.org/10.1140/epjb/e2015-60754-4.

This indicates an urgent need for digital legal training for law enforcement and the integration of electronic systems that facilitate digital forensic reporting and proof.[22] Not optimal law enforcement also sends a negative message to the public and business actors that violations of personal data are not serious violations. In fact, losses due to data breaches can include identity misuse, digital fraud, and even economic exploitation.

4. Inequality of Legal Literacy and Data Protection Awareness

Data security problems do not only come from regulatory aspects, but also from low legal literacy and public awareness about their rights to personal data. Many individuals are unaware that their data is collected, processed, and even sold by digital service providers without explicit consent. Digital privacy literacy is a key element in strengthening the implementation of data protection regulations.[23] Without adequate public understanding, the rights guaranteed by the law cannot be enforced because the public does not know how to protect or demand those rights.

Public campaigns by the government and civil society organizations are still minimal. Digital education programs still focus on the use of technology, not on the ethical and legal aspects of data use.[24] As a result, society becomes passive and permissive towards privacy violations. This situation is exacerbated by the lack of transparency from digital business actors in explaining privacy policies. Many users do not read or understand the terms and conditions of use of data, which are often technical and complex. This requires regulations that require platform providers to convey privacy information in a simple and easy-to-understand manner.

5. The Need for Regulatory Harmonization and Institutional Capacity Building

To realize a comprehensive data protection system, it is necessary to harmonize the PDP Law with other sector regulations such as the ITE Law, financial regulations, and BSSN regulations. In addition, strengthening institutional capacity through training and certification of digital legal employees is urgently needed. The importance of aligning public policies between state institutions to prevent regulatory overlap and create legal certainty for business actors and the public.[25]

4. Conclusion

This research shows that the role of law in ensuring data security in the digital era has not been running optimally, especially in the Indonesian context. Law Number 27 of 2022 concerning Personal Data Protection (PDP Law) has become an important milestone

[22] Lena Klasén, Niclas Fock, and Robert Forchheimer, "The Invisible Evidence: Digital Forensics as Key to Solving Crimes in the Digital Age," *Forensic Science International* 362 (2024): 112133, https://doi.org/10.1016/j.forsciint.2024.112133.
[23] Muhammad Fadly Nasution, "The Role of Civil Law in the Protection of Privacy and Personal Data," *Innovative: Journal Of Social Science Research* 3, no. 2 (2023): 3669–79.
[24] Nasution.
[25] Joshua Filani, "Data Privacy in the Digital Age: Analyzing the Impact of Technology of U.S Privacy Regulations," *SSRN Electronic Journal* 1, no. 217 (2024): 1–19, https://doi.org/10.2139/ssrn.4762809.

in forming a legal framework that regulates personal data protection. However, the effectiveness of its implementation is still constrained by weak supervision institutions, limited law enforcement resources, and the lack of derivative regulations that comprehensively regulate technical procedures for data protection.

A comparison with GDPR as an international data protection standard shows that Indonesia's legal system still has many weaknesses, especially in terms of sanctions enforcement, protection of data subject rights, and the capacity of supervisory institutions. In addition, other challenges include low public literacy related to digital privacy and lack of public participation in overseeing data protection policies. The implications of these findings include several aspects. First, relatively, it is necessary to accelerate the establishment of an independent data protection authority institution with clear authority to carry out the mandate of the PDP Law. Second, there is a need for harmonization of technical regulations that can describe the principles of data protection practically, especially in the public service and digital business sectors. Third, the government needs to initiate a massive legal and digital literacy program so that people are able to understand their rights and play an active role in maintaining data privacy. Fourth, training law enforcement officials and establishing standard operating procedures for handling data breaches are urgent needs to ensure legal certainty and justice.

Conflict of interest

The author declares that there is no conflict of interest in making this article.

Authors' contribution

The author state that author made substantial contributions to the conception and design of the study. The author took responsibility for data analysis, interpretation and discussion of results with the assistance of OpenAI. The author reads and approved the final manuscript.

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