A Policy Strategy for Strengthening Area-Based Waste Management Institutions to Improve the Effectiveness of Waste Services in Denpasar City

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Abstract Waste management is a pressing issue in urban areas, including Denpasar City, which produces over 1,000 tons of waste daily. Limited infrastructure, low public participation, and weak institutional coordination have created inefficiencies in the current system. This policy paper proposes strategies to strengthen waste management institutions at the sub-district level to improve service effectiveness. Through secondary data analysis, regulatory review, and assessment of policy alternatives, the study finds that the absence of Waste Management Technical Implementation Units (UPTD) in sub-districts significantly hinders service delivery and community involvement. Of four policy options considered, establishing UPTDs simultaneously in all sub-districts is identified as the most effective and sustainable. This approach is expected to improve operational responsiveness, encourage local innovation, and support national waste management goals. Strengthening territorial-level institutions is therefore essential to developing a decentralized and sustainable waste management system in Denpasar City.

Index Terms— **Waste management, Institutional strengthening, decentralization, Policy strategy, circular economy.**

Note: There should no nonstandard abbreviations, acknowledgments of support, references or footnotes in in the abstract.

I. INTRODUCTION

The waste problem is a significant issue, particularly in urban areas. Law No. 18 of 2008 mandates that waste management must be carried out comprehensively from start to finish, with collaborative involvement of various parties as the primary focus. Effective waste management is a major challenge in maintaining environmental sustainability. Waste management involves a series of steps, from collection and transportation to processing and disposal, aimed at minimizing negative impacts on the environment and human health.

With population growth, economic development, and changes in consumption patterns and lifestyles, the volume of waste generated is increasing. This puts increasing pressure on existing waste management systems, which are often inefficient and inadequate, resulting in waste accumulation in inappropriate locations. Further impacts include overcapacity at rapidly filling landfills (TPA), as well as environmental pollution that can damage soil, water, and air. Poorly managed waste also has the potential to cause health problems, such as diseases transmitted through contaminated water or the spread of disease vectors. To address this problem, a waste management approach based on the 3R principle (Reduce, Reuse, Recycle) is crucial. The 3R concept aims to reduce the volume of waste generated by reducing unnecessary consumption (reduce), reusing still-usable items (reuse), and recycling waste into new raw materials (recycle).

Furthermore, a circular economy approach, which prioritizes efficient and sustainable resource use, is also highly relevant to waste management. In this regard, industry plays a crucial role in implementing circular economy principles and taking responsibility for managing the waste generated from their products. However, effective waste management requires the active participation of all parties, including the government, the community, and the

private sector. The government plays a key role in formulating clear policies, providing adequate waste management infrastructure, and overseeing their implementation.

Meanwhile, the public is expected to increase their awareness and participation in waste sorting and participating in recycling programs. Collaboration between stakeholders, including the private sector, which can contribute to the development of environmentally friendly waste management technologies, is also essential to creating a sustainable waste management system. By implementing the 3R concept, developing supporting infrastructure, and increasing public awareness and participation, effective waste management can be achieved. This is expected to reduce the negative impacts of waste on the environment and health, and create a cleaner, healthier, and more sustainable environment. Of course, the challenges faced are not trivial, but with good cooperation between the government, the community, and industry, more efficient and environmentally friendly waste management can be achieved.

Waste management is a strategic national issue that receives serious attention as the volume of waste generated increases due to population growth and consumption patterns. According to data from the National Waste Management Information System (SIPSN) of the Ministry of Environment and Forestry (KLHK), Indonesia produces more than 65 million tons of waste per year. One of the biggest challenges is managing waste sustainably and environmentally friendly from upstream to downstream.

Denpasar City is one of the capital cities in Bali Province with a population of 660,984 people (Denpasar City in figures, 2024). Population growth is in line with increasing consumption patterns, resulting in increasing waste volumes every day. This makes Denpasar City the largest contributor of waste in Bali. This waste comes from households, industry, offices, markets, schools, and other commercial sectors. Waste that is not optimally managed leads to waste accumulation that can have serious negative impacts, such as environmental pollution, clogged waterways that contribute to flooding, and an increased risk of disease due to poor sanitation. Various challenges, such as limited facilities and infrastructure, low community participation in waste sorting, and suboptimal coordination between institutions, further complicate this problem.

With an area of approximately 125.98 square kilometers, Denpasar City holds the distinction of being the smallest region in Bali Province. Comprising four districts, 16 urban villages, and 27 villages, the city asserts itself as a dense and diverse administrative entity. Astronomically, Denpasar City is located between 8°35'31" - 8°44'49" South Latitude and 115°10'23" - 115°16'27" East Longitude. Geographically, its boundaries include Badung Regency to the north, the Badung Strait to the south, and Badung Regency and Gianyar Regency to the west and east, respectively. This combination of elements makes Denpasar City a richly diverse entity that plays a vital role in the dynamics of Bali Province.

The waste problem in Denpasar City is indeed complex and has far-reaching implications. Citing data from the National Waste Management Information System (SIPSN) published by the Ministry of Environment and Forestry, in 2024, Denpasar City generated 1,004.95 tons of waste per day, of which 63.37% was organic waste and the remaining 36.63% was inorganic waste. The composition of the waste included 27.2% food scraps, 41.12% wood and twigs, 11.09% plastic, 8.68% paper and cardboard, 3.16% rubber and leather, 3.16% metal, 2.04% glass, 1.04% fabric, and 1.7% other waste. Of the 1,004.95 tons of waste generated per day, the Denpasar City Government, through the Denpasar City Environment and Sanitation Agency (DLHK), has managed 79.92% of the waste and reduced it by 17.03%. The Denpasar City Government has taken upstream waste reduction actions by strengthening mandatory waste sorting regulations from source, installing hundreds of vertical teba units in Denpasar City, issuing a Circular Letter on Limiting Plastic Use, education and socialization at the community level directly from house to house, socialization through Denpasar City government radio, installing banners/Billboards and Videotrons at several strategic points in Denpasar City and conducting monitoring and evaluation of the HOREKA (Hotel, Restaurant and Cafe) sector to fully support the source-based waste management program. With large waste generation compared to the small area of Denpasar City, it is a challenge for the Denpasar City Government, especially the Environment and Sanitation Agency, in managing waste. With the existence of regulations on separate waste disposal and the obligation of waste producers to manage their waste independently and responsibly, it is hoped that it will be able to reduce the amount of waste transported to the Sarbagita Suwung Regional Landfill. While the central part of waste transportation, which is handled jointly by both the local government and the waste management company, is expected to collaborate well, in some areas the existence of self-management has also backfired on the Denpasar City Government due to the still weak supervision, resulting in most of the sorted and scheduled waste still being transported together (mixed) by the waste management company workers. This is due to savings in operational costs for transportation, which is the excuse of the waste management company workers. Meanwhile, downstream, although the Sarbagita Landfill is located in Denpasar City, the landfill itself is managed by the Bali Provincial Government.

Based on the Strategic Environmental Assessment Document of the Denpasar City Medium-Term Development Plan (KLHS RPJMD) for 2025-2029, it is known that one of the strategic issues and challenges in environmental management faced in Denpasar City is waste. This includes the ineffective implementation of source-based waste management in villages/sub-districts and traditional villages; the lack of productive waste recycling, including the unequal distribution of TPS-3R

facilities; the unequal provision of waste management facilities and infrastructure; while waste generation is increasing; public and industry awareness of waste management is unequal; restrictions on the use of single-use plastic waste are not optimal and widespread; and waste management campaigns are not evenly distributed throughout the community.

Optimizing waste management is one of the Key Performance Indicators (IKU) of the Denpasar City Environment and Sanitation Agency, as stated in the Revised Strategic Plan for 2021-2026. Furthermore, the Indonesian Government affirmed its commitment to resolving the waste problem 100% by 2029, as targeted in the 2025-2029 National Medium-Term Development Plan (RPJMN).

Based on data from the National Waste Management Information System (SIPSN) published by the Ministry of Environment and Forestry, Denpasar City generated 1,004.95 tons of waste per day in 2024, while in 2023 it reached 980.78 tons per day. This represents a 2.5% increase in waste volume in 2024 compared to the previous year. The growing waste problem demands policies that are not only short-term but also provide effective long-term solutions.

This increase in waste volume has not been matched by an increase in the capacity of technical waste management institutions, both in terms of human resources and supporting infrastructure. The Denpasar City Government currently only has one Waste Management Technical Implementation Unit (UPTD), which serves four districts within the city. This has led to suboptimal waste management in each sub-district in Denpasar City, given the high workload of one Waste Management Technical Implementation Unit (UPTD). This has created a gap between management capacity and the volume of waste required, ultimately impacting the effectiveness of waste management efforts. This issue is a serious concern because it directly impacts cleanliness, public health, and environmental quality in Denpasar City.

The technical organizational structure at the sub-district level lacks a dedicated work unit for waste management, resulting in field coordination often being unresponsive to local dynamics and needs. This leads to an imbalance between the volume of waste that must be handled and the operational capabilities available in the field.

The absence of technical institutions close to waste sources results in low daily waste management effectiveness, minimal community development in the region, and limited space for management innovation based on local potential. This situation is exacerbated by the absence of Regional Technical Implementation Units (UPTD) for Waste Management in each sub-district, which should be at the forefront of bringing services closer and strengthening regionally-based waste management. This situation highlights the need for a more adaptive and decentralized policy approach to expedite services and improve the effectiveness and efficiency of waste

management across the city of Denpasar.

Based on the above, the problem statement is the suboptimal waste management in each sub-district due to the lack of a dedicated structure and work unit within the sub-districts to handle waste management and the absence of a Waste Management Technical Implementation Unit (UPTD) in each sub-district, which contributes to the low Waste Management Performance Index score in Denpasar City.

Recognizing the significant challenges in optimizing waste management in Denpasar City, which requires consistent and sustainable implementation, requiring the support of various stakeholders and entities, efforts to improve waste management performance include increasing outreach and education regarding waste management, both in terms of waste reduction and handling at source, in coordination with sub-districts, villages, and urban villages through the Denpasar City Environment and Sanitation Agency.

However, challenges in waste management are not only technical but also encompass institutional, social, and policy aspects. Inadequate institutional structures at the regional level often hinder the delivery of effective and responsive waste management services. Therefore, a policy strategy is needed that emphasizes strengthening regional-based waste management institutions, particularly at the sub-district level, as an effort to bring services closer to the community and improve the effectiveness of waste management as a whole. This policy paper is prepared to formulate policy recommendations for strengthening waste management institutions in Denpasar City, through an institutional decentralization approach and regional governance. With the right policy strategy, it is hoped that a more structured and efficient waste management system will be created, one that is able to respond to local dynamics and needs. Ultimately, this institutional strengthening is expected to contribute to improving the Waste Management Performance Index (IKPS) and support the achievement of sustainable waste management targets in Denpasar City.

II. METHOD

The data collection method in this paper is secondary data, namely the collection of relevant data and reference materials. These reference materials include various laws and regulations, such as Laws (UU), Government Regulations (PP), Regional Regulations (PERDA), Governor's Regulations (Peraturan Gubernur), and Mayor's Regulations. This initial step also includes the formulation of a conceptual framework that will serve as the basis for the analysis. The data processing process begins with tabulating and integrating the collected data, ensuring that it is complete and well-structured according to the analysis's requirements. Next, policy alternatives are formulated using a theoretical approach and evaluated based on criteria. Prioritizing each policy alternative will be done using a 1-5 scoring assessment by key personnel based on the Avoid,

Shift, and Improve approach, considering criteria for effectiveness, efficiency, and long-term impact.

Finally, a logic model approach is used to evaluate the programs and activity targets that support the policies mentioned above, thus assisting in program planning, implementation, and evaluation.

III. DISCUSSION

Denpasar City is the capital city of Bali Province, with a population of 660,984 (Denpasar City in figures, 2024). Population growth, coupled with increasing consumption patterns, has resulted in a daily increase in waste volume. This makes Denpasar City the largest contributor of waste in Bali. This waste originates from households, industries, offices, markets, schools, and other commercial sectors. Poorly managed waste leads to accumulation, which can have serious negative impacts, such as environmental pollution, blocked waterways contributing to flooding, and increased disease risks due to poor sanitation. Various challenges, such as limited facilities and infrastructure, low community participation in waste sorting, and suboptimal coordination between institutions, further complicate this problem.

With an area of approximately 125.98 square kilometers, Denpasar City holds the distinction of being the smallest region in Bali Province. Comprised of four districts, 16 urban villages, and 27 villages, the city asserts itself as a dense and diverse administrative entity. Astronomically, Denpasar City is located between 8°35'31" - 8°44'49" South Latitude and 115°10'23" - 115°16'27" East Longitude. Geographically, its boundaries include Badung Regency to the north, the Badung Strait to the south, and Badung Regency and Gianyar Regency to the west and east, respectively. This combination of elements makes Denpasar City a diverse entity and plays a vital role in the dynamics of Bali Province.

The waste problem in Denpasar City is indeed complex and has far-reaching implications. Citing data from the National Waste Management Information System published by the Ministry of Environment and Forestry, in 2024, Denpasar City generated 1,004.95 tons of waste per day, of which 63.37% was organic waste and the remaining 36.63% was inorganic waste. The composition of the waste included 27.2% food scraps, 41.12% wood and twigs, 11.09% plastic, 8.68% paper and cardboard, 3.16% rubber and leather, 3.16% metal, 2.04% glass, 1.04% fabric, and 1.7% other waste. Of the 1,004.95 tons of waste generated per day, the Denpasar City Government, through the Denpasar City Environment and Sanitation Agency (DLHK), has managed 79.92% of the waste and reduced it by 17.03%. The Denpasar City Government has taken upstream waste reduction measures by strengthening mandatory waste sorting regulations at source, installing hundreds of vertical bins throughout the city, issuing a circular on plastic use restrictions, conducting door-to-door community education and outreach, and conducting outreach through Denpasar City's government radio station.

The government has installed banners/billboards and videotrons at several strategic locations throughout the city, as well as conducting monitoring and management. Of the 1,004.95 tons of waste generated per day, the Denpasar City Government, through the Denpasar City Environment and Sanitation Agency (DLHK), has managed 79.92% of the waste and reduced it by 17.03%. Below, we present data on waste reduction in Denpasar City for 2024 in Table 1 and waste management in Table 2.

The Denpasar City Government has taken upstream waste reduction actions by strengthening mandatory waste sorting regulations from source, installing hundreds of vertical teba units in Denpasar City, issuing a Circular Letter on Limiting Plastic Use, education and socialization at the community level directly from house to house, socialization through Denpasar City government radio, installing banners/Billboards and Videotrons at several strategic points in Denpasar City and conducting monitoring and evaluation of the HOREKA (Hotel, Restaurant and Cafe) sector to fully support the source-based waste management program. With large waste generation compared to the small area of Denpasar City, it is a challenge for the Denpasar City Government, especially the Environment and Sanitation Agency, in managing waste. With the existence of regulations on separate waste disposal and the obligation of waste producers to manage their waste independently and responsibly, it is hoped that it will be able to reduce the amount of waste transported to the Sarbagita Suwung Regional Landfill. In the middle section, waste collection is handled jointly by both the local government and the waste management agency (swakelolah Sampah). However, in some areas, the existence of self-management has backfired on the Denpasar City Government due to weak oversight, resulting in much of the sorted and scheduled waste being transported together (mixed) by the self-management workers. This is due to the workers' excuse for saving on operational costs. Meanwhile, downstream, although the Sarbagita Landfill (TPA) is located in Denpasar City, the landfill itself is managed by the Bali Provincial Government.

The primary target for the 2025-2026 period is to reduce waste generation upstream (at the source) through independent waste sorting and processing. This significant reduction is expected to reduce waste output at the source, thus optimizing waste management in the middle and downstream sections. Optimizing waste management in the middle section is achieved by implementing the 3R principle through Waste Banks, 3R TPSs, PDUs, and other waste processing facilities. Furthermore, the operational acceleration of the waste processing plant (TPST), which is currently undergoing market sounding at two TPSTs to obtain information on appropriate technology for waste management in Denpasar City, is expected to secure a waste processing service provider by 2025, enabling optimal operation by 2026, thereby reducing waste volume sent to the Sarbagita Suwung Regional Landfill (TPA).

The Denpasar City Government, through the

Environment and Sanitation Agency, has implemented various management methods, including transportation to the Final Processing Site (TPA), recycling, composting, and processing through facilities such as the TPS3R (Recycling and Recycling ... e. Processing of biodegradable (organic) waste, such as composting through biopores, vertical layers, eco-enzymes, and BSF.

Waste management in the Central Area consists of several programs, namely: a. Waste management through TPS3R (3R Waste Management Sites). Twenty-four TPS3Rs will be built by 2024, processing 68.49 tons of waste per day; b. Waste management through a Recycling Center (PDU). The Recycling Center is located on Jl. Kebo Iwa, Gang Batu Sunia, Padangsambian Kaja Village, West Denpasar. The Denpasar City PDU will be operational in December 2024, and waste entering the PDU facility is sorted in accordance with Denpasar City Regional Regulation No. 8 of 2023.

Waste management in the Lower Area still utilizes the Sarbagita Suwung Regional Landfill. The Denpasar City Government is currently conducting market research at two landfills (TPST) to obtain information on appropriate technology for waste management in Denpasar City.

Several other waste management programs, such as waste banks and waste sorting at source, are already underway, but remain suboptimal due to a lack of public awareness about waste sorting and the perception that waste management is the government's responsibility. Therefore, an effective strategy is needed to improve the efficiency of waste management at source and reduce dependence on the Sarbagita Suwung Regional Landfill.

Waste management facilities in Denpasar City consist of various types that function to manage and process waste according to its scale and type, including the Unit Waste Bank (BSU), the Main Waste Bank (BSI), the Reduce-Reuse-Recycle Waste Processing Site (TPS3R), and the Recycling Center (PDU). Each of these facilities has a different role in the waste management chain, starting from collection, sorting, and recycling. The Unit Waste Bank (BSU) and the Main Waste Bank (BSI) function as collection and sorting centers for economically valuable waste, allowing the community to exchange inorganic waste such as plastic and paper for certain incentives. Meanwhile, the TPS3R plays a role in supporting the circular economy concept by facilitating waste sorting at the community level and processing organic waste into compost. Meanwhile, the Recycling Center (PDU) operated in December 2024 and to date has been able to process 6.38 tons of waste per day. Although these various facilities have been operational, major challenges remain, especially in terms of processing capacity, which is often not comparable to the amount of waste produced each day. The Final Processing Site (TPA), as the primary facility for storing waste that cannot be recycled or reused, is increasingly burdened by the ever-increasing volume of waste. This is exacerbated by limited landfill space, which has caused the Sarbagita Suwung landfill to become overloaded.

Therefore, measures are needed to reduce dependence on the Sarbagita Suwung landfill.

Resource-Based Management Theory is relevant for optimizing waste management in Denpasar City. This theory emphasizes the importance of strategically utilizing internal resources to achieve efficiency and sustainability. Denpasar City already has various waste management facilities and potential local resources, such as Waste Banks, TPS3R (Recycling Waste Management Sites), and PDUs (Regional Waste Management Units). However, these facilities have not been fully utilized due to limited institutional capacity and weak coordination between management units. Therefore, to support a more integrated and efficient waste management policy, the establishment of Regional Technical Implementation Units (UPTD) for Waste Management is necessary in each sub-district. This requires a legal framework in the form of a mayoral regulation that explicitly regulates the main duties, functions, and institutional structure of these UPTDs. With the establishment of this UPTD, local resource management can be more structured, coordinated, and responsive to waste problems in their respective regions, while strengthening institutional capacity in reducing dependence on the Sarbagita Suwung TPA.

The number of 3R TPS in Denpasar City in 2024 is 24 units divided into several types as shown in the following table:

TABLE I
UNITS FOR MAGNETIC PROPERTIES

NO	NAME OF TPS3R	STATUS	ADDRES	AREA	Rubbish Divided (Ton/hari)
1	TPS 3R UMA ASRI	ACTIVE	Jl. Cargo Kenanga I , Desa Ubung Kaja	DENPASAR UTARA	2,16
2	TPS 3R SARI SEDANA BUNGTOMO	ACTIVE	Jl. Bung Tomo IV No.1, Desa Pemecutan Kaja	DENPASAR BARAT	5,29
3	TPS 3R PERTIWI KERTHI	ACTIVE	Jl. Gatot Subroto VI J, Dauh Puri Kaja, Kota Denpasar	DENPASAR UTARA	2,90
4	TPS 3R MONANG MANING	ACTIVE	Jl. Merpati, Desa Tegal Kerta	DENPASAR BARAT	1,40
5	TPS 3R SEKAR TANJUNG	ACTIVE	Jl. Danau Tempe Gang I Desa Sanur Kauh	DENPASAR SELATAN	2,57
6	TPS 3R EKA PANCA GUNA BUANA LESTARI	ACTIVE	Jl. Labak Indah , Tegal Harum	DENPASAR BARAT	0,39
7	TPS 3R SADU	ACTIVE	Jl. Pralina, Br. Sima, Desa Sumerta Kaja	DENPASAR TIMUR	1,89
8	TPS 3R CEMARA	ACTIVE	Jl. Tukad Nyali No. 1, Desa Sanur Kaja	DENPASAR SELATAN	0,66
9	TPS 3R SIDAKARYA	ACTIVE	Jl. Mertasari, Sidakarya (Dekat Jembatan), Desa Sidakarya	DENPASAR SELATAN	4,81
10	TPS 3R KUBU LESTARI	ACTIVE	Jl. Taman Pancing Pemogan	DENPASAR SELATAN	5,07
11	TPS 3R PULAU KAWE	ACTIVE	Jl. Pulau Kawe No.14, Desa Dauh Puri Klod	DENPASAR SELATAN	2,99

12	TPS 3R PADANGSA MBIAN	ACTIVE	Jl. Gunung Tangkuban Perahu III, Kel. Padangsambian, Denpasar Barat	DENPASAR BARAT	1,77
13	TPS 3R BAKTI PERTIWI	ACTIVE	Jl. Sedap Malam Gg. Simantri , Kesiman	DENPASAR TIMUR	1,89
14	TPS 3R KARYA ASTI MANUNGG AL PEGOK	ACTIVE	Jl. Gurita, Kelurahan Sesetan	DENPASAR SELATAN	0
15	TPS 3R PAKU SARI PANJER	ACTIVE	Jl. Tukad Citarum No.1, Panjer	DENPASAR SELATAN	8,49
16	TPS 3R TPA SUWUNG	ACTIVE	Jl. TPA Suwung, Kelurahan Sesetan	DENPASAR SELATAN	6,83
17	TPS 3R KESIMAN PETILAN	ACTIVE	Jl. Kembang Kepah, Kesiman Petilan	DENPASAR TIMUR	0,95
18	TPS 3R KESIMAN KERTALAN GU	ACTIVE	Jl. Sekar Sari Gg. Melasti III No.2, Desa Kesiman Ketalangu	DENPASAR TIMUR	10,27
19	TPS 3R PERTIWI ASRI	ACTIVE	Jl. Pulau Misol Gg. XX No.12, Denpasar Barat	DENPASAR BARAT	1,10
20	TPS 3R BALA PURI RESIK	ACTIVE	Gang. Taman Sari Penatih , Denpasar Timur	DENPASAR TIMUR	0,99
21	TPS 3R UBUNG GEMILANG	ACTIVE	Jl. Cargo Indah No. 23	DENPASAR UTARA	1,14
22	TPS 3R KRAKATAU	ACTIVE	Jl. Gunung Krakatau (Paling Ujung), Denpasar Barat	DENPASAR BARAT	1,26
23	TPS3R NIRMALA SABA PENATIH	ACTIVE	Jl. Padma Gg.IX Penatih	DENPASAR UTARA	1,86
24	TPS3R SERANGAN	ACTIVE	Jl. Tukad Punggawa No.230X (Seputaran Pelabuhan Sire Angen)	DENPASAR SELATAN	1,81

In addition to the 3R TPS, there are also Waste Banks, totaling 338 waste banks in Denpasar City in 2024, with the following distribution:

TABLE II
DATA OF RUBBISH ABSORPTION IN RUBBISH BANK

NO	Facility	Total	Rubbish Absorbs
1	Bank Sampah Unit	338 Unit	3,9 Ton/hari
2	Bank Sampah Induk	3 Unit	1,7 Ton/hari

Denpasar City's 338 waste banks and three main waste banks are currently capable of processing 5.67 tons of waste per day. Future plans include increasing this capacity, with the target of increasing the number of waste banks to 350 by 2026 and the number of main waste banks to 5 by 2026.

This data on waste management capacity is a key element in understanding the extent to which existing infrastructure is able to meet regional needs. Furthermore, technological modernization of these facilities is also necessary to increase processing efficiency and reduce the environmental impact of waste management activities, while supporting the digital era.

Therefore, the waste management infrastructure development strategy in Denpasar City will focus on increasing the capacity of waste banks and waste

management facilities (TPS3R) to strengthen source-based waste management and reduce the volume of waste entering the landfill through waste sorting at source. These measures are expected to significantly reduce the amount of waste ending up in the landfill, while simultaneously supporting the achievement of more sustainable waste management targets in Denpasar City. The hotel, restaurant, and cafe (Horeka) sector is a major contributor to organic waste in Denpasar City, primarily from food scraps and discarded raw materials. Given the high volume of organic waste generated, specific strategies are needed to ensure sustainable management. Several Horeka businesses have implemented various waste sorting methods and collaborated with local farmers to reduce food waste. However, many Horeka businesses still lack optimal management systems, requiring regulatory support and partnerships with third parties to improve more environmentally friendly waste management practices in this sector.

TABLE III
LIST OF HOTELS IN DENPASAR CITY

No	Area	Total of Hotels and homestay	Average of rubbish pile (Kg/day/unit)	Pile of rubbihsg (Ton/day)
1	Denpasar Selatan	258	8,43	2,17
2	Denpasar Timur	383		3,23
3	Denpasar Barat	960		8,10
4	Denpasar Utara	78		0,68
	Total	1649	8,43	14,18

Currently, Denpasar City's waste management policy addresses various aspects. Various regulations have been implemented to reduce the environmental impact of waste,

No	Name	Total of Hotels and homestay	Average of rubbish pile (Kg/day/unit)	Pile of rubbihsg (Ton/day)
1	Restaurant / Warung Makan	1447	22,46	32,5
2	Bar/Cafe/Rumah Minum	299		6,7
	Total	1746	22,46	39,2

such as policies limiting single-use plastic/packaging and mandating waste sorting at the household and business levels. Furthermore, technology-based approaches have begun to be implemented in waste management, such as a digital waste monitoring and absorption system from the Waste Bank through the SiDarling (Environmentally Aware and Caring Information System) application.

However, the implementation of this policy still faces various challenges, including uneven community compliance, limited waste management infrastructure capacity, and oversight mechanisms that need to be

improved. Therefore, comprehensive evaluations are necessary periodically to identify existing obstacles and find more effective solutions to improve the success of the waste management program.

To support a sustainable and environmentally sound waste management policy, various regulations have been established as the legal basis for its implementation. This legal basis includes national legislation, government regulations, and various regional and gubernatorial regulations that specifically regulate aspects of waste management in certain areas. The regulations that serve as the legal basis for the waste management policy include the following:

1) Law No. 18 of 2008 concerning Waste Management
2) Government Regulation No. 81 of 2012 concerning the Management of Household Waste and Household-Like Waste.
3) Bali Provincial Regulation No. 5 of 2011 concerning Waste Management.
4) Bali Governor Regulation No. 95 of 2018 concerning Regional Policies and Strategies for the Management of Household Waste and Household-Like Waste.
5) Bali Governor Regulation No. 97 of 2018 concerning the Limitation of Single-Use Waste Generation.
6) Bali Governor Regulation No. 47 of 2019 concerning Source-Based Waste Management.
7) Bali Governor Decree No. 381 of 2021 concerning Source-Based Waste Management in Villages/Sub-Districts and Traditional Villages.
8) Bali Governor's Instruction Number 8324 of 2021 concerning the Implementation of Source-Based Waste Management in Villages/Sub-Districts and Traditional Villages
9) Regional Secretary's Circular Letter Number 2 of 2025 concerning the Implementation of Bali Governor's Regulation Number 97 of 2018 concerning the Limitation of Single-Use Plastic Waste Generation.
10) Regional Secretary's Letter Number B.21.660/5586/PSLB3PPKLH/DKLH concerning the Implementation of Source-Based Waste Management.
11) Circular Letter of the Acting Governor of Bali Number B.24.500.9.14.2/484/PSLB3-PPKLH/DKLH concerning the Limitation of Plastic Use.
12) Decree of the Pasamuhan Agung II MDA Bali of 2021 Number 08/KEP-PSM.II/MDA-BALI/X/2021 concerning Guidelines for Traditional Village-Based Waste Management.
13) Denpasar City Regional Regulation Number 8 of 2023 concerning Waste Management Implementation
14) Denpasar Mayoral Regulation Number 36 of 2018

concerning Reducing Plastic Bag Use in Denpasar City
15) Denpasar Mayoral Regulation Number 50 of 2018 concerning Policies and Strategies for Managing Household Waste and Household-Like Waste
16) Denpasar Mayoral Regulation Number 76 of 2019 concerning Implementation of Self-Managed Waste Management
17) Denpasar Mayoral Regulation Number 45 of 2020 concerning Implementation of Reduce, Reuse, and Recycle Activities through Waste Banks
18) Denpasar Mayoral Regulation Number 15 of 2023 concerning Culture-Based Waste Management
19) Denpasar Mayoral Regulation Number 7 of 2024 concerning the Waste Management Master Plan
20) Denpasar City Regional Secretary Circular Letter Number 600.14.15/272/DLHK concerning Restrictions on Plastic Reduction.
21) Denpasar Mayor's Instruction Number 1 of 2024 concerning Optimization of Source-Based Waste Management.

Policy implementation serves as a crucial foundation for developing new policy strategies for the 2025-2026 period. Several achievements have been achieved, such as the establishment of Recycling Centers (PDUs), waste banks, a reduction in inorganic waste generation, particularly plastic waste, in accordance with the Circular on Restrictions on Plastic Use, and optimization of waste management at source within the Denpasar City government, the private sector, and the community. Furthermore, the government will develop a more extensive education and outreach program at the Hotel, Restaurant, and Cafe (Horeka) level to increase plastic waste reduction and sorting at the source. Compliance-based incentives, such as rewards for Waste Banks incorporated into the SiDarling application, will also be strengthened to increase public participation. It is hoped that waste management policies in Denpasar City will be more effective, reducing the burden and dependence on the Sarbagita Suwung Regional Landfill, and positively impacting the environment and overall community well-being. In an effort to increase the capacity of waste management in Denpasar City, the government has built a PDU (Recycling Center) and the future plan is that waste management in Denpasar City will be optimized with 2 (two) Integrated Waste Processing Sites (TPST) which are currently still in the market sounding process. In addition, the government will also build more Waste Banks at the Banjar / Neighborhood level, the creation of 600 (Six Hundred) Vertical Teba in various regions to encourage source-based waste management, where the community can actively participate in sorting, processing and reducing waste disposed of into the environment.

TABLE IV
PLANNING TO DEVELOP RUBBISH MANAGEMENT FACILITY

The Sarbagita Suwung Regional Final Processing Site

No.	Facility Name	Total	Rubbish under control (Ton/hari)	Target 2025 Unit	Target 2025 Rubbish Under control (ton/hari)	Target 2026 Unit	Target 2026 Rubbish Under control (ton/hari)
1	PDU	1	6,38	1	50	1	60
2	TPST	2	0	0	0	2	500
3	Teba Vertikal	420	0,49	1050	1,23	1650	1,93
4	TPS3R	24	68,49	19	60	19	62
5	Bank Sampah	338	5,67	341	6,5	350	7,5

(TPA), managed by the Bali Provincial Environmental Agency's Waste Management Technical Implementation Unit (UPTD), is experiencing overcapacity due to the ever-increasing volume of waste, coupled with population growth. Denpasar City transports 780 tons of waste daily to the Sarbagita Suwung Regional TPA, and the site is scheduled to close in 2026.

With limited land for waste processing in Denpasar City, more effective and innovative management strategies are needed to reduce the volume of waste burdening the Sarbagita Suwung Regional TPA and mitigate the impact of waste pollution on the environment and public health. In response, the Denpasar City Government has conducted education and outreach programs to reduce waste going to the landfill. These include vertical bins located in residential areas and public facilities, the use of biopore holes for composting, the conversion of organic waste into eco-enzymes, and door-to-door monitoring by officers from the Denpasar City Environmental and Sanitation Agency.

The Hospitality and Recreation sector (hotels, restaurants, and cafes) is one of the contributors of organic and inorganic waste in Denpasar City, amounting to 14.18 tons/day, with a fairly large amount generated every day. The large volume of waste generated from this sector is influenced by the high level of consumption, both in providing food and beverages to customers and in the operational processes of the business itself. The organic waste generated mainly comes from uneaten food scraps, kitchen waste such as vegetable and fruit scraps, and animal bones, which if not managed properly can cause unpleasant odors and accelerate the formation of methane gas which contributes to global warming. Meanwhile, inorganic waste dominated by plastic, paper, and glass packaging from food and beverage products often ends up in the Final Processing Site (TPA) without going through an adequate recycling process. With increasing awareness of the environmental impact of this sector, sustainable strategic steps are needed to reduce the amount of waste generated and manage it in a more responsible manner.

TABLE V
HOTEL WASTE MANAGEMENT

No	Kecamatan	Total of Hotels and homestay	Pile of waste and rubbish (Ton/hari)	Waste management via Teba Vertikal 2025 (Ton/hari)	Waste management via Teba Vertikal 2026 (Ton/hari)
1	Denpasar Selatan	258	2,17	0,60	1,2
2	Denpasar Timur	383	3,23	0,89	1,8
3	Denpasar Barat	960	8,10	2,24	4,5
4	Denpasar Utara	78	0,68	0,18	0,36
	Total	1649	14,18	3,91	7,86

To address this issue, the waste reduction strategy in the Hospitality and Recreation sector will focus on two main aspects: organic waste management and inorganic waste reduction. In organic waste management, the composting method will be applied to convert food waste into fertilizer that can be reused in the agricultural sector or urban greening. According to the results of a workshop conducted by the Denpasar City Environment and Sanitation Agency with the invitation of HOREKA throughout Denpasar City on February 5, 2025, the Denpasar City Government has provided alternative solutions for organic waste management and encouraged business actors, especially in hotels, to create Vertical Teba and Biopore Holes. In addition, several HOREKA have collaborated with local farmers for organic waste and will be used as animal feed. Meanwhile, to address the inorganic waste problem, reduction efforts will focus on limiting the use of single-use packaging, such as plastic and Styrofoam, by replacing them with more environmentally friendly alternatives, such as biodegradable or reusable packaging, in accordance with Bali Governor Regulation No. 97 of 2018 concerning the Limitation of Single-Use Waste Generation and Denpasar Mayor Regulation No. 36 of 2018 concerning the Reduction of Plastic Bag Use in Denpasar City. Furthermore, inorganic waste with economic value will be taken to the nearest Waste Bank in the area. With strict regulations, these steps are expected to significantly reduce the environmental impact of waste from the Hospitality and Recreation sector, create a more sustainable waste management system, and contribute to Denpasar City's efforts to achieve future waste reduction targets.

To increase public awareness and participation in waste management, the communication, information, and education (IEC) strategy will be expanded with a more inclusive, interactive, and technology-based approach. Dissemination of information about the importance of proper waste management will be carried out not only through conventional media but also through digital platforms that are more easily accessible to various groups.

Public campaigns will be intensified through social media and environmental education apps. Furthermore, the government is collaborating with environmental influencers, environmental awareness communities, and community leaders to deliver more persuasive messages and reach a wider audience. Direct community activities will also be increased, such as Focus Group Discussions (FGDs) and Waste Management at Source Workshops, Eco Enzyme production training, and management competitions aimed at providing the community with hands-on experience in applying the principles of reduce, reuse, and recycle (3R).

The main issue being focused on is the sub-optimal waste management at the sub-district level in Denpasar City, resulting from the lack of a technical institution (UPTD) for waste management in each sub-district. Currently, all waste management operations are centrally controlled by a single UPTD under the Denpasar City Environment and Sanitation Agency. This model has led to various obstacles in policy implementation, such as delays in transportation, disparities in service delivery between regions, weak community development, and a lack of locally-based waste management innovation. The absence of technical implementation units at the sub-district level also complicates regional-based planning, budgeting, and evaluation processes, preventing optimal utilization of local potential. Consequently, the waste management system is not adaptive to regional dynamics, resulting in low service effectiveness and low achievement of the Denpasar City Waste Management Performance Index (IKPS). Therefore, this issue urgently needs to be addressed through a more decentralized policy approach based on regional institutions.

To address these issues, policy formulation is needed that prioritizes not only technical and operational aspects but also strengthens the institutional framework at the regional level. Based on the results of the situation analysis, four potential policy alternatives can be formulated by the Denpasar City Government.

The first alternative is to maintain the current system, or the status quo, by continuing a centralized approach through a single Waste Management Technical Implementation Unit (UPTD) under the Denpasar City Environment and Sanitation Agency. This approach does not require changes to the organizational structure or significant additional fiscal burdens. However, the main weaknesses of this alternative are the lack of efforts to address the root causes of disparities in service delivery between regions, slow operational response, and weak supervision and guidance at the sub-district level. Therefore, this alternative does not support the achievement of effective and equitable waste management services and is inconsistent with the direction of strengthening regional-based institutions.

The second alternative is to strengthen the function of regional-based institutions without establishing a new organizational structure such as the UPTD. In this scenario,

the Denpasar City Government could assign functional technical officers or form coordinating teams in each sub-district to handle operational waste management, although structurally, they would remain under one city-level Technical Implementation Unit (UPTD). This approach can be implemented quickly, is budget-friendly, and does not require formal revisions to the organizational structure. However, because the established institutions are non-structural, their sustainability will depend heavily on regulatory support, personnel capacity, and cross-sector commitment. The potential for overlapping authority and weak institutional legitimacy are also risks in this scheme.

A third alternative is to establish Waste Management UPTDs at the sub-district level in stages. This strategy could begin with sub-districts with the highest waste generation rates or areas experiencing the most significant service constraints. This approach allows the Denpasar City Government to manage the risk of change in a measured manner, conduct regular evaluations, and adjust resources more flexibly. While not immediately universalizing services, this phased strategy is considered realistic and implementable given fiscal constraints and organizational readiness.

A fourth alternative is to establish Waste Management UPTDs simultaneously in all sub-districts. This approach offers a comprehensive institutional transformation that can immediately improve service effectiveness, accelerate achievement of the Waste Management Performance Index (IKPS), and ensure the full implementation of the area-based approach. With the presence of a Technical Implementation Unit (UPTD) in each sub-district, services can be implemented more closely, quickly, and adaptively to the needs of local communities. However, this strategy requires a strong commitment in terms of regulations, budgeting, human resource management, and coordination between regional agencies. Therefore, if this alternative is chosen, an implementation roadmap must be developed to ensure a smooth and sustainable transition.

A. Alternative Policy Option

In analyzing the priorities of policy alternatives, a scoring assessment of 1-5 was carried out by key persons within the Denpasar City Environmental and Sanitation Service, namely Echelon II, III, IV and Jafung officials based on the Avoid, Shift, and Improve approach by considering the criteria of effectiveness, efficiency, and long-term impact.

TABLE VI
HOTEL WASTE MANAGEMENT

Alternative policy	Effectivity	Efficiency	Long-Term Impact	Total
Maintaining the current system	4	3	4	11
Strengthening regional-based institutional functions without creating new organizational structures such as	4	4	4	12

the Waste Management Technical Implementation Unit (UPTD).				
Gradually establishing Waste Management Technical Implementation Units (UPTD) at the sub-district level.	4	3	3	10
Simultaneous establishment of Waste Management Technical Implementation Units (UPTD) in all sub-districts.	5	4	5	14

Based on the scoring analysis of the four policy alternatives, the simultaneous establishment of Waste Management Technical Implementation Units (UPTD) in all sub-districts was the alternative with the highest score and most aligned with Denpasar City's strategic needs. This policy not only emphasizes structural institutional aspects but also strengthens adaptive and region-based public service functions. With the presence of UPTDs in each sub-district, waste transportation and management services can be implemented more quickly, more precisely, and integrated with the local potential and characteristics of each region. Furthermore, the establishment of these UPTDs creates space for strengthened coordination between local governments and communities, TPS3R (Recycling Waste Management Facility), and waste business actors at the sub-district level, thereby encouraging synergy in the implementation of the 3R principles and a circular economy. This institutional arrangement is crucial as a foundation for creating a sustainable waste management system, supporting the achievement of the Waste Management Performance Index (IKPS), and aligning with national targets for waste reduction and management. Through strengthening region-based institutions, the Denpasar City Government is expected to be able to address the challenges of waste complexity with a more decentralized, responsive, and participatory approach. The benefits of establishing Waste Management Technical Implementation Units (UPTD) simultaneously in all sub-districts include: increasing the effectiveness and reach of waste management services, strengthening institutional governance at the regional level, and encouraging active community participation in locally-based waste management. This policy supports local government efforts to develop a decentralized, responsive waste management system tailored to the characteristics of each sub-district. Furthermore, with UPTDs at the sub-district level, the government can more effectively educate, supervise, and directly mentor communities and waste management businesses. In the long term, this policy is expected to improve the Waste Management Performance Index (IKPS), reduce the burden on landfills (TPA), and

accelerate the achievement of waste reduction targets as mandated by Presidential Regulation No. 97 of 2017. Furthermore, this institutional strengthening also has the potential to foster local economic initiatives such as waste banks, TPS3R (Recycling Waste Management System), and waste processing MSMEs, thereby contributing to a circular economy and sustainable community empowerment. As a form of support for the national strategic program of 100% waste reduction and management as mandated in Presidential Regulation Number 97 of 2017, and as an effort to accelerate the achievement of the Denpasar City Waste Management Performance Index (IKPS) target, the policy of establishing Waste Management Technical Implementation Units (UPTD) in all sub-districts simultaneously is a step in line with the direction of waste sector development. Strengthening technical institutions at the sub-district level aims to bring services closer, strengthen operational and supervisory functions, and increase the effectiveness of area-based waste management. This policy also supports the implementation of the Denpasar City Waste Management Master Plan which emphasizes the importance of integrating the roles of local government, communities, and the business world in a sustainable waste system. With the existence of UPTDs in each sub-district, waste management will be more coordinated and responsive to local conditions. In addition, this policy opens up space for active community participation and encourages the growth of local initiatives such as waste banks, TPS3R, and community self-help groups, which directly support the achievement of the national targets of 30% waste reduction and 70% waste management. Thus, strengthening regional-based institutions is not only an administrative solution, but also an integral strategy in accelerating the achievement of clean, healthy, and sustainable environmental goals.

To support the policy of establishing Waste Management Technical Implementation Units (UPTD) in all sub-districts in Denpasar City, an analysis was conducted using a logic model approach (Knowlton & Phillips, 2013) to design a systematic cause-and-effect relationship between policies, programs, activities, and expected outcomes. This policy encompasses several important elements, including: regional budget allocation, development and provision of UPTD operational infrastructure, placement and strengthening of human resources in each sub-district, and strengthening cross-sector collaboration with the public, the private sector, and local waste management communities. The initial stage begins with a planning process that serves to identify institutional needs in each region and map field challenges. Subsequently, implementation of activities is carried out in stages and integrated, including strengthening the organizational structure, assigning technical officers, and operationalizing waste transportation and sorting services at the sub-district level. Socialization and training activities for the community are also important in building understanding, participation, and behavioral change towards waste management. Monitoring and evaluation are

carried out periodically to measure the effectiveness of the UPTD in carrying out its functions, assess the achievement of waste management indicators, and serve as a basis for continuous policy improvement. With this approach, the policy of establishing UPTDs is not only a structural solution, but also part of the process of transforming public services into responsive, inclusive, and performance-based ones.

The outputs generated to support the policy of establishing UPTDs for Waste Management simultaneously in all sub-districts include various strategic activities that strengthen institutional governance and waste management operations at a regional level. These activities include the development of the UPTD organizational structure and establishment in each sub-district, community empowerment through training and outreach on 3R-based household waste management, and strengthening local institutions such as waste banks, TPS3R (3R Waste Management Facility), and community self-help groups. Furthermore, operational facilities and infrastructure, such as collection vehicles, sorting equipment, and other supporting facilities, are being procured to ensure the smooth operation of UPTDs. The government also conducts monitoring and supervision of waste management operations, both administratively and technically, to ensure service quality and compliance with environmentally friendly waste management principles.

In the short term, this policy will increase public awareness and participation in responsible waste management, accelerate waste collection services, and strengthen education and oversight functions through the presence of UPTDs in each sub-district. Furthermore, the establishment of a new institution will clarify the division of roles and responsibilities among technical implementers in the field, thereby accelerating the response to daily waste issues. In the medium term, it is expected to improve waste reduction and management performance, increase community and business participation in 3R (Reduce, Reuse, Recycle) activities, and establish an adaptive and professional waste management system at the sub-district level. This will also encourage the growth of a circular economy and strengthen local innovation in economically valuable waste management.

The long-term impact of this policy is the creation of a sustainable, decentralized, and region-based waste management system, a reduced burden on landfills due to improved waste processing at the source level, and an overall improvement in the environmental quality of Denpasar City residents. Furthermore, this institutional strengthening is expected to create a collaborative ecosystem between the government, community, and private sector in efforts to maintain city cleanliness, improve public health, and support the achievement of regional and national environmental development targets. With this approach, the policy of establishing a Waste Management Technical Implementation Unit at the sub-district level plays a strategic role in strengthening public

services, accelerating the transformation of the waste system, and creating a sustainable positive impact on the environment, local economy, and quality of life for the people of Denpasar City.

Within the framework of this policy implementation, the initial phase will focus on planning and institutional structuring. The first year will focus on developing a map of the institutional and operational needs of the Technical Implementation Units (UPTD) in each sub-district, based on existing conditions and projected future waste service loads. Plan development and budget allocation will be conducted through intensive coordination between technical regional agencies, organizational units, and other stakeholders to ensure alignment with regional planning documents. In addition, policy dissemination and extensive public consultations will be conducted to increase understanding, strengthen commitment, and encourage active community participation in supporting the successful establishment and operation of UPTDs in their respective areas.

In years two to four, policy implementation will focus on infrastructure development, institutional strengthening, and operational activities. Activities will include providing supporting facilities and infrastructure for UPTDs, such as waste collection vehicles, sorting facilities, and performance reporting and monitoring systems. Technical training for UPTD officers and outreach to the community and waste management businesses will be conducted to build understanding and shared commitment to supporting the area-based waste management system. In the fifth year, the focus will be on monitoring, evaluation, and policy adjustments. Regular supervision is conducted to ensure that all activities are carried out in accordance with public service standards and the principles of sustainable waste management. Evaluation of the institutional and operational effectiveness of the Technical Implementation Unit (UPTD) is also conducted as a basis for formulating policy adjustments, including gathering feedback from the public and stakeholders.

The monitoring and evaluation mechanism for implementing the policy establishing the UPTD Waste Management includes regular monitoring by the implementation team, tasked with evaluating the progress of policy implementation in each sub-district. Evaluations are conducted annually to assess the effectiveness of institutional operations and their impact on improving the quality of waste management, including reducing waste generation at source, increasing community involvement in the 3R program, and the efficiency of waste transportation and processing services. The evaluation will also review the availability of waste data and information systems, the quality of coordination between stakeholders, and the policy's contribution to improving the Denpasar City Waste Management Performance Index (IKPS) score.

B. *Recommendation Policy option*

Based on the problem analysis, identification of

alternatives, and assessment of the effectiveness of policies in supporting improved waste management in Denpasar City, a policy recommendation is to establish Regional Technical Implementation Units (UPTD) for Waste Management simultaneously in all sub-districts.

This policy recommendation will be outlined in a Denpasar Mayoral Regulation concerning Guidelines for the Establishment and Operation of Sub-district Technical Implementation Units (UPTDs). This regulation aims to regulate the formation, implementation, and oversight of UPTD operations in all sub-districts within Denpasar City. This regulation will cover the UPTD organizational structure, waste management service standards, cross-OPD coordination systems, and performance reporting and evaluation mechanisms. The goal is to ensure that the UPTD establishment is effective, efficient, and in accordance with the principles of sustainable environmental governance. Furthermore, this regulation will serve as a guideline for coordination between Regional Apparatuses within the Denpasar City Government, including sub-districts, urban villages, and community organizations, in supporting the strengthening of the decentralized waste management system. Through clear and structured regulations, it is hoped that strong synergy between stakeholders will be created, allowing the waste management program to run smoothly, encouraging active community participation, and having a tangible impact on improving the Waste Management Performance Index (IKPS) and environmental quality in Denpasar City.

This Mayoral Regulation will then be issued in the form of a Decree from the Head of the Denpasar City Environment and Sanitation Agency concerning the Establishment of an Implementation Team for the Establishment and Operation of Waste Management Technical Implementation Units (UPTDs) in Sub-districts. This Decree aims to comprehensively regulate the implementation of policies to strengthen waste management institutions throughout Denpasar City. This Decree establishes the team structure, duties, and responsibilities of each member in implementing programs and activities supporting the establishment of the UPTD, including coordination, monitoring, and reporting.

This Decree is expected to strengthen synergy and the effectiveness of policy implementation in the field, and ensure that the establishment of the UPTD is not merely administrative but also has a tangible impact on improving the quality of waste management services. With the establishment of UPTDs in each sub-district, waste management is expected to become more decentralized, adaptive to local conditions, and better able to support the achievement of the Waste Management Performance Index (IKPS). This policy is also in line with the Key Performance Indicators (IKU) of the Environment and Sanitation Service, and supports the Denpasar City Government's vision of creating a clean, healthy, and sustainable environment for the entire community.

IV. CONCLUSION

This policy paper demonstrates that strengthening the role of sub-districts in waste management is not merely a technocratic option, but also a relevant and effective policy strategy in addressing the complex challenges of environmental management in urban areas. The simultaneous establishment of Regional Technical Implementation Units (UPTD) for Waste Management in all sub-districts offers a decentralized institutional solution that is responsive to local dynamics and community needs. This approach not only strengthens operational and supervisory functions in the field but also acts as a catalyst for encouraging public participation and expanding collaboration with the private sector and communities.

The success of this policy depends heavily on strong political commitment from local governments, adequate regulatory support, and strengthened institutional and human resource capacity. With planned and data-driven implementation, this policy is expected to accelerate the achievement of the Waste Management Performance Index (IKPS) and support the achievement of national waste reduction and management targets. Furthermore, institutional strengthening at the sub-district level is also in line with the principles of good governance—transparency, participatory, accountability, and adaptability.

With integrated cross-sectoral support and active community involvement, Denpasar City has the potential to become a reference city for area-based waste management and a model of good practices in realizing a clean, healthy, and sustainable city. This policy paper is expected to serve as a basis for strategic and operational policy considerations to strengthen the comprehensive waste management system in Denpasar City.

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