



Tabanan Regency Waste Masterplan

2024

Integrated Sustainable Waste Management (ISWM)





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FOREWORD

We express our gratitude to Allah SWT for His blessings and grace, enabling the preparation of this Waste Masterplan document for Tabanan Regency successfully.

Waste management is one of the strategic issues that must receive attention to achieve sustainable development goals. Tabanan Regency, as one of the regions in Indonesia, also faces challenges in waste management that need to be addressed seriously and systematically.

This Waste Masterplan document is prepared as a guide and direction for policymaking and the implementation of effective and efficient waste management in Tabanan Regency. The preparation of this document

involved the collaboration and participation of various relevant parties, and it is hoped to serve as a foundation for decision-making and concrete steps in waste management in Tabanan Regency.

We extend our gratitude to all parties who have provided support and contributions in preparing this document. May this document serve as a guideline for implementing sustainable waste management in Tabanan Regency.

Jakarta, November 2024

Sincerely,

Waste Masterplan Team



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BACKGROUND

Waste is unwanted or discarded material because it no longer has value to first users.



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The amount of waste generated and the complexity of its management tends to increase from year to year, directly proportional to the increase in population and consumption patterns of the community and other activities.

In 2022, Tabanan Regency produced 442 tons per day of waste, with 48% of that waste leaking into the environment. So only around 52% has been successfully managed. From the

amount of managed, around 25% waste enter to the Final Disposal Site (TPA) managed by the Environment Agency (DLH), 3% of waste is processed at 3R Waste Management (TPS3R) and waste bank, and 24% of waste enter to informal recycling sector.

The large amount of unmanaged waste is certainly not in line with the vision of waste management in Tabanan Regency, that is:

Kabupaten Tabanan bebas sampah menuju **SURGA BALI**.



<https://pngtree.com>

SURGA: Sampah **UR**usan war**GA**

BALI: Bersih, Aman, **L**estari, **I**ndah

Or in English, **Tabanan is becoming waste-free region for Clean, Safe, Sustainable, and Beautiful Bali.**



If not anticipated from now, this problem will become more complex in 2045 because the total waste generation is projected to be 515 tons/day. Therefore, to realize this vision, a Waste

Masterplan (PTMP) document for Tabanan Regency is required as a reference for realizing the waste management goals of Tabanan Regency, that is:

- Develop an integrated and sustainable Waste Management System.
- Reduce waste leakage to the environment to 0% in 2045.
- Increase processed and recycled waste to 36% in 2045.

To Realize and integrated and sustainable the Waste Management System, this Waste Masterplan (PTMP) document is prepared using Integrated Sustainable Waste Management (ISWM) concept with participatory planning process, the ISWM concept is a Waste Management System development concept that

emphasizes the balance of physical systems with governance systems (regulations, institutions, finances and stakeholder involvement/Inclusivity) which is in accordance with local character to achieve system sustainability and commitment from all parties. The innovations developed in this Waste Masterplan (PTMP) include:

- Using five aspects of waste management (regulations, institutions, finances, socio-culture and technology) as the philosophical basis for integrated and sustainable waste management.
- Using primary data on waste generation and composition all over Tabanan Regency with the Waste Wise City Tools (WaCT) – UN Habitat.



The waste management target for Tabanan Regency can be seen in **Table 1** below.

Table 1. Waste management targets of Tabanan Regency

Description	Unit	2025	2030	2035	2040	2045
Waste Generation	Ton/hari	435,6	454,1	473,5	493,7	514,9
Collection Service	%	49%	68%	80%	90%	100%
	Ton/day	213,6	307,5	378,4	444,3	514,9
Waste Reduction	%	25%	32%	35%	36%	36%
	Ton/day	107,0	145,3	166,7	180,0	185,4
TPS3R in Village	Ton/day	3,47	33	49,5	57,55	57,55
Waste Bank	Ton/day	0	4,44	4,82	5,23	5,68
Informal Sector	Ton/day	103,5	107,9	112,4	117,2	122,2
Waste Handling	%	24%	36%	45%	54%	64%
	Ton/day	106,6	162,1	211,6	264,3	329,4
Composting Site	Ton/day	0	41,9	47,13	47,13	47,13
Recycling Center	Ton/day	0	13,67	15,21	15,62	16,07
Transportation to Final Disposal Site	Ton/day	106,6	106,6	0	0	0
Transportation to Regional Integrated Waste Processing Site (TPST)	Ton/day	0	0	106,6	139,5	184,7
Residue to Final Disposal Site	Ton/day	0	0	42,67	62,11	81,55
Not Managed	Ton/day	221,9	146,6	95,10	49,38	0,00
	%	51%	32%	20%	10%	0%



The development scenario for the physical waste management system that was done can be seen in **Figure 1** below.

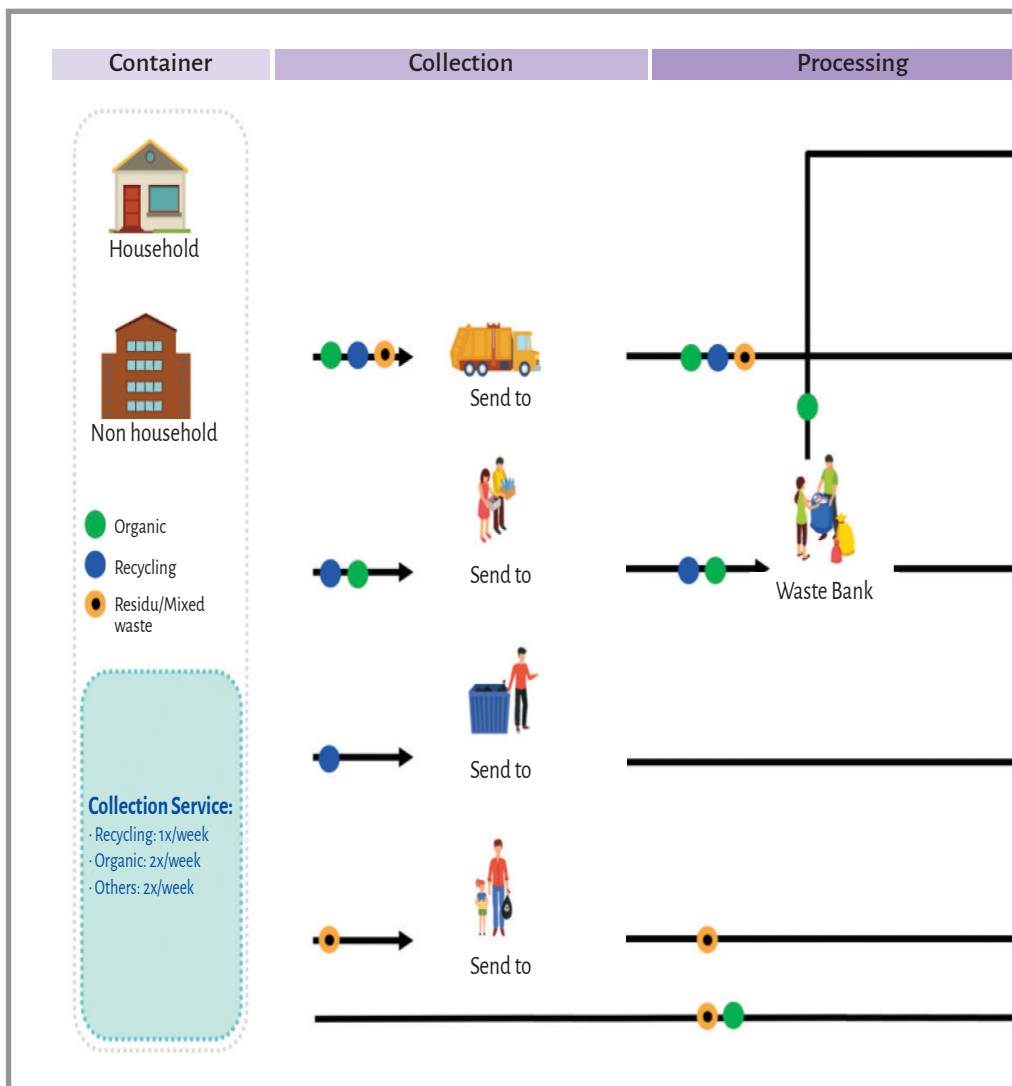
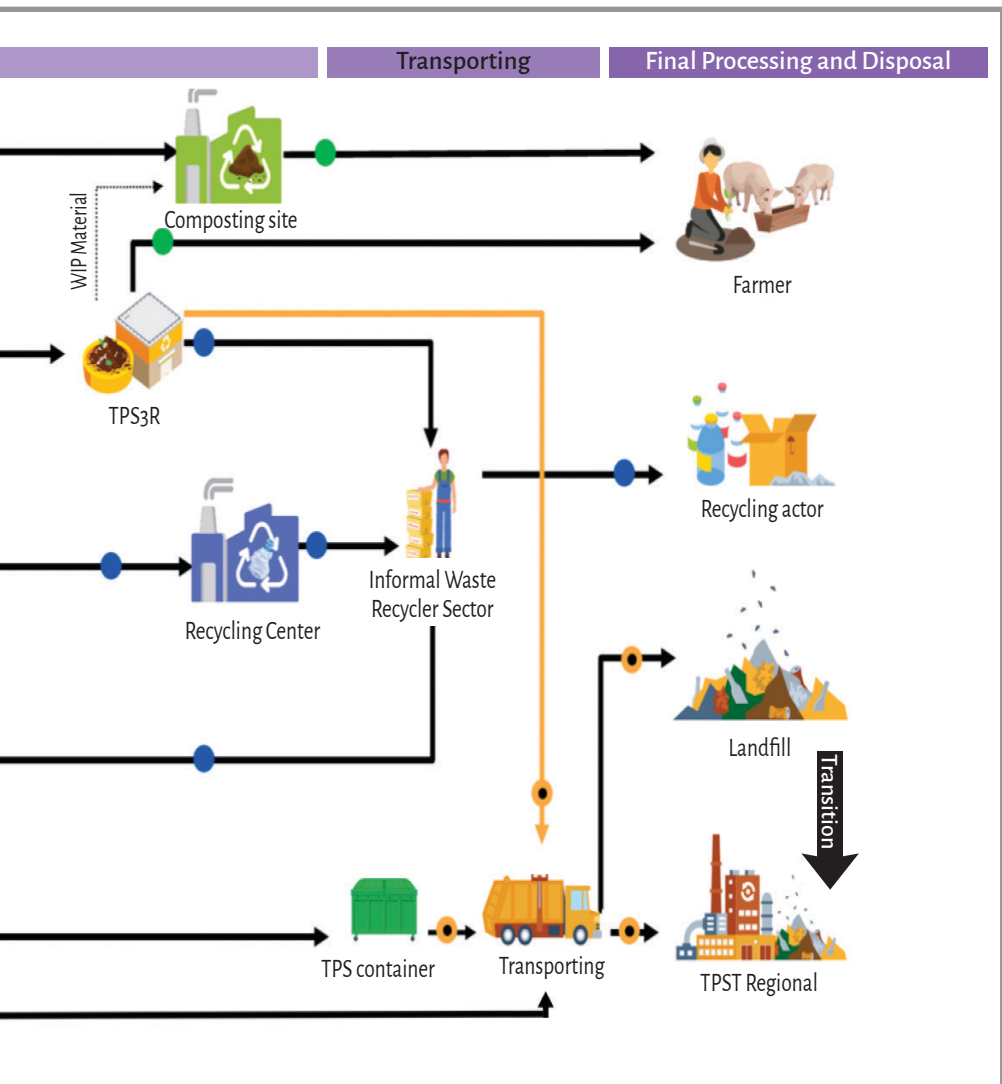


Figure 1. Physical aspect scenario for waste management in Tabanan Regency.







1. What is the Basic Premise for Developing Waste Management Strategy Framework for Tabanan Regency?

1. **Mandung Final Disposal Site (TPA)**, can be saved by only accepting the residue from processing site (by optimizing TPS3R, involving the informal sector, processing waste at the source and optimizing waste banks) optimizing business as usual and not adding new service areas.

2. Acceleration of the development of **the Sarbagita Regional Integrated Waste Processing Site (TPST) in Tabanan/Regency**, so that Tabanan receives compensation from the Integrated Waste Processing Site (TPST) operation. And the Funds will be used to improve Tabanan Waste Management System services.

3. The Tabanan Waste Management System will be driven by the involvement of non-local government operators to reduce the need for funding and institutional capacity for Waste Management System Development.





2. This is Waste Management Planning Strategy for Tabanan Regency

A. Waste Container and Collection



<https://www.vecteezy.com>

1. Reduce waste leakage into the environment, by increasing access to waste collection for the entire community (100% waste collection service) and separate waste by containing practices at the correct one.
2. Build a separate waste management system that can be accessed throughout the region and enjoyed by the entire Tabanan community.
3. Change the static collection system to mobile for controlling the free rider system.

B. Processing and Recycling



<https://www.alamy.com>

1. Increase waste recycling and utilization of processed waste products by potential *offtaker* from other sectors (agriculture, fishery, farms, tourism and industry).
2. Optimization of 3R Waste Management Site (TPS3R) for processing organic waste into standardized compost.
3. Optimization of waste banks as collectors of recycle materials and sorted organic



materials at the village level.

4. Produce standardized compost through the Compost-

ing Site and increase the selling value of recycle materials through the PDU (Recycling Center).

C. Final Processing



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1. Transportation and final processing of residue from all regencies is the responsibility of the local government and the Final Disposal Site (TPA) is operated as sanitary landfill.
2. Gradual transition from Final Disposal Site (TPA) to

Sarbagita Regional Integrated Waste Processing Site (TPST Sarbagita) by maximizing Tabanan strengths as part of the Sarbagita National Strategic Area, which still has land.

D. Waste Management Regulation



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1. Legal certainty is created through a clear and complete Policy Package with gradual and collaborative implementation.
2. Towards social order from all stakeholders through strengthening legal awareness of the implementation of incentives to encourage changes in understanding



Waste Management Forum as a communication forum

7. Strengthening coordination in Tabanan as part of the

Sarbagita National strategic area.

8. Increasing Human Resource capacity according to system development needs.

F. Funding and Financing for Waste Management



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1. Budgeting commitment to finance the waste management system through a waste system financing planning package.
2. Encourage sustainable funding and financing through service improvements according to minimum service standards with professional operators and a contribution collection system.
3. Creation of a business climate, ease of doing business

and involvement of regional banking system to create a pattern of cooperation with the informal sector.

4. Professional assistance in the financial sector and managerial for the creation of operational systems and professional management in village/local government waste management facilities



Based on projected waste generation and infrastructure and facilities for handling waste in strategic direction for developing a physical Tabanan Regency are as follows waste management system. So the required

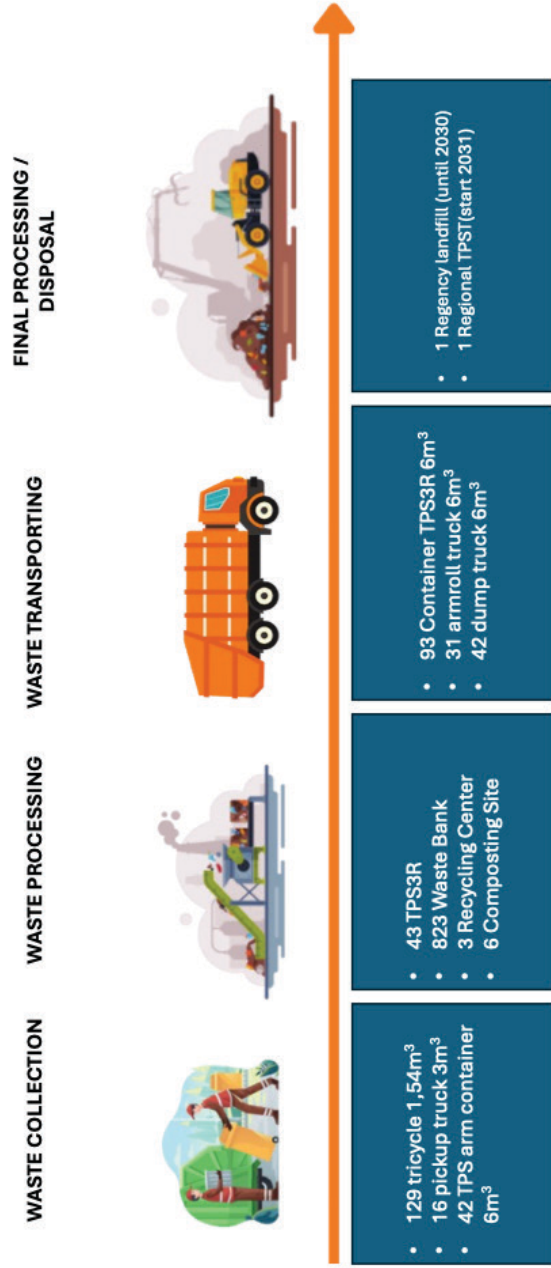


Figure 2. Physical system infrastructure facilities needs.





3. This is Stages of Development of Waste Management Service Areas

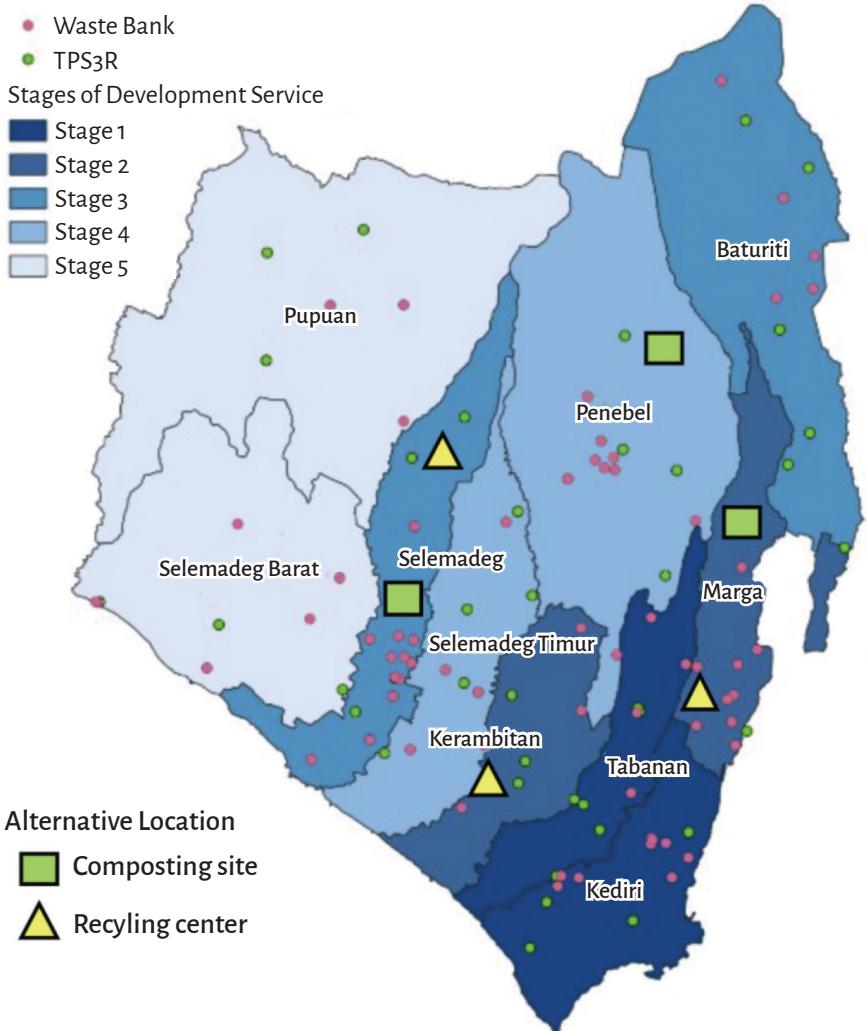


Figure 3. Development of waste management service area.



COMMUNITY AND STAKEHOLDER PARTICIPATION

Modernization of the Waste Management System often requires changes to the governance system first, because if this is not done, then nothing responsible for introducing and operating Waste Management System as

planned. This Waste Masterplan (PTMP) will be effective in making systematic changes to waste management practices when the planning process listens to the aspirations of users and Waste Management System service providers.

When user express their aspirations for what Waste Management System they want, **the commitment to use it, obey the rules and pay the Waste Management System** services developed will be high. Meanwhile, providers need to be involved in developing new Waste Management System so they can improve what is not working in Waste Management System, maintain what is working well and add what is not there.



The Waste Masterplan (PTMP) also provides a roadmap for transitioning to a new physical and governance system, with clear instructions, space for feedback and sufficient time

to change waste management practices and grow into the new physical and governance system.



The following is a plan for developing community and stakeholder participation.



1. Participation of users of waste management system services

The regency Government will ensure that the involvement of service users with representation from individuals, cultural communities/institutions, environmental activist communities and women groups. The role of service users begins at the initial stage of waste management planning and

is developed through outreach, supervision, monitoring and evaluation of services. Regency and Village Governments are gradually providing services and facilities evenly, strengthening regulations, opening access to capacity building, and incentive and disincentive schemes for service users.

2. The Role of Waste Management System Service Providers



The government is developing the role of providers by building an open waste man-

agement system and all types of legal entities/individuals, businesses sizes and domiciles to in-



involved professionally and receive benefits. This is realized by formulating legal certainly through regulations, license, regional and concession scheme, cooperation policies, and financing standards that ensure business sustainability. The Regency Government also ensures that the development of this service does not threaten the existing business model service

providers by opening up space for representatives of existing service providers to share information and development options that accommodate all parties. Besides that, the Regency Government provides guidelines/service standards which serve as a reference for monitoring and evaluating performance.



3. Involvement of Informal Sector and Recycling Chain

The informal sector is a significant stakeholder in Tabanan waste management system because it (1) contributes to the percentage of waste collection (2) contributes to saving the Regency Government's

resources and budget in terms of waste collection, transportation and disposal (3) contributes to increase recycling which encourages reduced extraction of natural resources.

This following are the Regency Government's steps to encourage the involvement and representation of informal sector.



- a. Data collection of workers and institutions from the informal sector
- b. Integrated of workers and informal sector institutions into one system service in accordance with the readiness of informal sector. The existing informal sector is given first access and oppor-

tunity when they want to become a service provider or user of processed waste products (offtaker) from the processing facilities in Tabanan Regency.



INSTITUTIONAL

Tabanan Regency Government continues to strive for effective waste management and ensures a clean environment and improves public

health. These efforts are realized by strengthening institutions systematically and continuously through the following steps.

1. **Balancing the roles, tasks and functions of Tabanan Regency Officer for waste management**



The Tabanan Regency government divides the roles, tasks, and functions of waste management to several government agencies proportionally to create a balance

between the workload and the institutional body that oversees it. The balancing of the government agency roles is carried out as follows:

a. Adjustment of Environment Agency (DLH) and Public Work Agency (DPUPRP-KP) Task Nomenclature in Regent Regulation Number 68/2021. Adjustment of the

nomenclature of waste management in Environment Agency and Public Work Agency was carried out to map the division of 10 waste management functions more



clearly and so that these tasks and functions are more in line with the provisions of Law Number 23/2014 concerning Regional Government. Legal

efforts were made by amending Regent Regulation Number 68/2021 to adjust the nomenclature below.

Table 2. Adjustment of government agency authority

Government Agency	Nomenclature Adjustment	Consideration
<p>Environment Agency</p> <p>Regent Regulation No. 68/2021 and its Amendments Regent Regulation 104/2022 concerning organizational structure and work procedures</p>	<p>Transfer of Tasks to coordinate and implement the construction of TPA/TPS/TPST to Public Works</p>	<ul style="list-style-type: none"> • In line with the provisions of Law No. 23/2014 • In line with Ministry Home Affair Regulation No. 90/2019 and No. 50/2021
	<p>Detailing tasks for:</p> <p>(1) providing facilities and infrastructure for waste management at TPA/TPS/TPS₃R/TPST/TPA;</p> <p>(2) facilitating cooperation in waste management, hazardous waste, and capacity building</p>	<p>In line with MoEF Regulation 74/2016</p>



Government Agency	Nomenclature Adjustment	Consideration
	<p>Adding Tasks to (1) facilitate the collection of processed waste products utilization (2) collection of levies; (3) implementing efforts to prevent and handle waste in ocean; (4) coordinating the involvement of cultural village</p>	<p>Increasing the effectiveness of preventing waste leakage into the ocean and increasing the participation of communities and cultural villages</p>
<p>Public Work Agency Regent Regulation 68/2021 and its Amendments Regent Regulation 104/2022 concerning organizational structure and work procedures</p>	<p>Detailing of tasks to coordinate and implement the construction of TPA/TPS/TPS3R/TPST in public works department</p>	<ul style="list-style-type: none"> • In line with the provisions of Law No. 23/2014 • In line with Ministry of Home Affair Regulation No. 90/2019 and No. 50/202



Government Agency	Nomenclature Adjustment	Consideration
	Additional tasks for the water resources department which include: (1) cleaning up waste in water bodies (rivers); (2) preventing waste leaks into water bodies (rivers) in areas around rivers and ocean.	<ul style="list-style-type: none"> · In line with Ministry of Home Affairs Regulation No. 90/2019 and No. 50/202 · Increase the effectiveness of preventing waste leakage into rivers and ocean

b. Clarify the focus role for related government agency in the implementation of waste management, there is potential for government

agency involvement which can provide support functions according to their main tasks and functions.

Table 3. Government Agency support related to waste management

Government Agency	Department	Support
Education Agency	Department of human resources; elementary school development; junior high school development	Socialization, education and empowerment of staff and students as well as educational facilities



Government Agency	Department	Support
Culture Agency	Cultural Department; Subakan Department	Socialization, education and empowerment of cultural activities and cultural stakeholders
Agriculture Agency	Food crops and horticulture; plantation; livestock and animal health department	Mobilization of waste processed products utilization and regulation for the standardization utilizing organic waste processed product
Fishery Agency	Capture fisheries; aquaculture department	Mobilization of waste processed products utilization and regulation for the standardization utilizing organic waste processed product
Trade and Industrial Agency	Industrial and trade department (waste reduction)	
	Mobilization of processed waste products utilization, regulation and standardization of waste reduction and non-organic processed products for industry.	Utilization of processed organic waste products in tourist areas/facilities as well as socialization, education and empowerment of tourist area managers, product and service businesses in tourism areas and the tourists.



Government Agency	Department	Support
Tourism Agency	Destination and tourism industry department	Utilization of processed organic waste products in tourist areas/facilities as well as socialization, education and empowerment of tourist area managers, product and service businesses in tourism areas and the tourists.
Communication Agency	Information management and public communication channels department	Socialization, education and empowerment community
Sub-district	Public order and security, village community empowerment department,	Supervision and law enforcement; monitoring and evaluation; socialization of education and empowerment;
Cooperation and Small Medium Enterprise Agency	Institutional, supervision, empowerment and development of cooperatives; empowerment of Small and Medium Enterprises (SMEs) and village credit institutions	Socialization of education and empowerment especially related to the informal sector and small-scale private operators



Government Agency	Department	Support
Regional Secretary	Legal, organizational, governance, goods and services procurement department	Regulation and standardization; governance planning and programming
Social, women's empowerment and child protection Agency	Women's empowerment and social sector	Socialization of education and empowerment for women's groups and marginalized groups



2. Improving the Performance of Regency Level Waste Management Services

To improve the performance of waste management services at regency level, the direction for

institutional development is as follows:

- a. Implementation of Regional Public Service Agency (BLUD) at the Technical Implementation Unit (UPT) for Waste and Fecal Sludge Processing to expand th service functions at the TPST Regency, Compost- ing site, and Recycling Center as well as landfill
- b. Addition of 1 Technical Implementation Unit (UPT) for Waste Transportation to optimize transportation activities.



3. Improving the Performance of Village Level Waste Management Services



In ensuring that waste management at the village and community level can be

integrated and sustainable, the Regency Government is making the following arrangements:

1. Waste management in village will be directed become responsibility of the Desa Dinas (Administrative Village) and in collaboration with the Desa Adat (cultural village)
2. Waste management in urban villages will continue to be managed by the Regency Government
3. Desa Dinas (Administrative Village) establishes a Waste Bank at the banjar level to collect organic and non-organic waste
4. The Desa Dinas (Administrative Village) and Desa Adat (Cultural village) form independent operators or join the Regency Government services, other desa dinas / desa adat services, or private services.

Special assistance related to cooperation between cultural villages and administrative villages is carried out by the Regency Government because the existence of Administrative and Cultural Villages in Tabanan Regency is a strength so that their

respective roles complement and support each other according to the authority they handle. The following is the division of roles between administrative villages and cultural villages based on applicable regulations:



Table 4. The role of administrative villages and cultural villages in improving village waste services

	Administrative Village	Cultural Village
Legal basis	<ol style="list-style-type: none"> 1. Tabanan Regency Regulation No. 6/2013 and its Amendments concerning Waste Management 2. Tabanan Regency Regulation No. 22/2021 concerning the List of Authorities of Origin and Local Authorities on a Village Scale 	<ol style="list-style-type: none"> 1. Bali Provincial Regulation No. 4/2019 concerning Cultural Villages in Bali 2. Bali Provincial Regulation No. 47/2019 concerning Source-based Waste Management 3. Tabanan Regency Regulation No. 6/2013 and its Amendments concerning Waste Management
Role in waste management	<ol style="list-style-type: none"> 1. Preparation of policies/regulations, strengthening monitoring and evaluation of village waste management 2. Collaborate with Cultural Villages to: <ol style="list-style-type: none"> (1) Formulation of village waste management planning (2) Preparation of cooperation policies draft 	<ol style="list-style-type: none"> 1. Prepare and implement provisions Awig-awig/ Perarem from cultural village (Desa Adat) 2. Collaborate with Village Government to: <ol style="list-style-type: none"> (1) Formulation of village waste management planning



	Administrative Village	Cultural Village
	(3) Implementation of village waste management operations (4) Collection of village waste contributions/levies 3. Establishment of Banjar-level Waste Bank 4. Implementation of village waste management operations (collection, processing, and management of TPS3R). 5. Handling cleanliness in the village	(2) Preparation of cooperation policies draft (3) Implementation of village waste management operations (4) Collection of village waste contributions/levies 3. Implement customary sanctions for violations of waste management provisions 4. Carrying out coaching and empowerment for the community in increasing responsibility for waste management.



4. Improving Human Resource Capacity of all Stakeholders

To ensure the implementation of waste management functions can be carried out more effectively,

The targets and objectives of capacity development for all stakeholders are as follows.





Figure 4. Targets and objectives for stakeholder capacity development.



5. Developing Stakeholder Coordination in Waste Management



The Regency Government encourages more active stakeholder involvement in the entire waste management system. All stakeholders are given space to be in-

involved through a formalized coordination forum. The coordination is carried out with:

a. Internal coordination of waste management by the Tabanan Regency Government

Waste management is a multi-aspect matter and needs to be handled by multiple government agencies and efforts to strengthen internal coordination of government agencies need to be accommodated in the Waste

Management Working Group which can be formed or included in existing Working Groups such as the Housing and Residential Areas Working Group and the Drinking Water and Environmental Sanitation Working Group.

b. Coordination of stakeholders in waste management in Tabanan Regency

Tabanan Regency Government build an inclusive and collaborative waste management model, where the community and all stakeholders can and must be involved, and are

jointly responsible for waste management efforts. The description of the collaborative waste management model is as follows:



Press
 Play a role in strengthening the function of increasing awareness, education, helping to supervise waste management violations and strengthening public control to improve the performance of waste management services.

Elements of Higher Education, Academics and Experts

Plays a role primarily, but not limited to, strengthening the assessment and development of waste management service innovations, preventing waste leakage, and improving the quality of waste management in accordance with environmental quality standards.



Government (Regency Government Agencies, Sub-district Apparatus, Administrative Village and Cultural Village)

Responsible for organizing, supervising, fostering the implementation of waste management, providing waste processing facilities, organizing, fostering, supervising, controlling, implementing waste management operations at TPS/TPS3R/TPST/TPA

Community (Individuals, Households, Commercial Area, Traditional Institutions) and Producers (Business Sectors that Produce Waste)

Community: Responsible for reducing waste, recycling and sorting waste, organizing waste transportation from the source to TPS/TPS3R/TPST, paying waste management service fees/levies, participating in socialization, supervision and complying with the provisions of responsible and sustainable waste management. **Producers:** responsible for waste reduction

Business Sector that Provide Waste Management Service

Formal or informal business units (including informal waste picker and its associations) can be involved in organizing waste management services, both in terms of reducing, collecting, transporting, processing waste and processing residues at the final disposal site (TPA) as long as they are competent and comply with the provisions of cooperation with the Regency Government.

Figure 5. Collaborative waste management model.



REGULATION

In implementing Tabanan waste management strategic plan until 2045, the Regency Government will ensure that all regulations are available,

understood and implemented by all stakeholders in waste management in Tabanan. The following steps are:

1. Completing Tabanan Waste Management Regulations



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In the period 2024-2045, the regency government will complete the required regulatory instruments as explained below.

- a. Evaluation and Amendment of Regional Regulation No.6/2013 concerning Management of Household Waste and Similar Household Waste, and its Amendment to Regional Regulation No.5/2021.
- b. A package of regent regulations and guidelines to clarify the technical implementation of regional regulations on waste management, which accommodates (a) waste processing at the source; (2) waste management at the village and residential area levels; (3) waste management standards for operators; (4) waste reduction through restrictions on single-use and reusable products and packaging.
- c. Regulations related to waste management planning,



- namely Waste Management Technical Planning and Regency Waste Management Policies and Strategies.
- d. Regulations on waste management cooperation, in order to prepare a mutually beneficial waste management cooperation ecosystem in Tabanan Regency.
 - e. Regulations regarding adjustments to the amount of waste retribution fees and procedures for collection.
 - f. Regulations regarding incentives and disincentives for waste management.
 - g. Regulations on the procedures for imposing administrative sanctions in Waste Management.
 - h. Guidelines for waste management at village, cultural village and community levels.



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2. Organizing Socialization and Internalization of Waste Management Regulations

In this socialization and internalization effort, the regency government will focus on communicating 7 (seven) key messages to all stakeholders, namely:

- a. Community rights,
- b. Division of roles between government, community and private sector,
- c. Obligations of community and private sector, business entities (producers), residential area for waste reduction and management,
- d. Retributions waste fee and levies,
- e. Provisions for cooperation and licensing,



- f. Prohibitions and sanctions, both customary, administrative and criminal,
- g. Reporting channels, complaints and supervision from the community,
- h. Supervision from the community.

3. Law Enforcement of Waste Management



Nusabali.com

The Regency Government carries out law enforcement in stages through (1) strengthening the law enforcement support system and (2) consistent implementation of law enforcement. Strengthening the capacity of the law enforcement support system includes:

- a. Utilizing and expanding the scope of information channels and public reporting on waste management services,
- b. Public socialization on how to provide input, complaints, and reporting violations (supervision),
- c. Conducting training for environment agency, sub-district, administrative village and cultural village related to standard operational guidelines to provide responses to input and reporting received,
- d. Conducting capacity building for Environmental Supervisory Officers (PPLH), Civil Servant Investigators (PPNS), and Police on operational provisions for waste man-



agement, permits for private waste service managers, prohibitions, sanctions, and procedures for taking action on waste management.

In terms of implementing waste management law enforcement, the Regency Government will implement it in stages starting from the enforcement of social norms which will be pushed in stages 2 (2025-2030) and 3 (2030-2035) as part of soft law enforcement. Then continued with the enforcement of administra-

tive and criminal norms in stage 4 (starting in 2035).

As part of law enforcement efforts, the regency government will intensively carry out orderly waste management justice operations, as well as apply appropriate sanctions for minor or serious violations as stated in the waste management regulations. In addition, each of these legal actions will also be accompanied by socialization efforts.

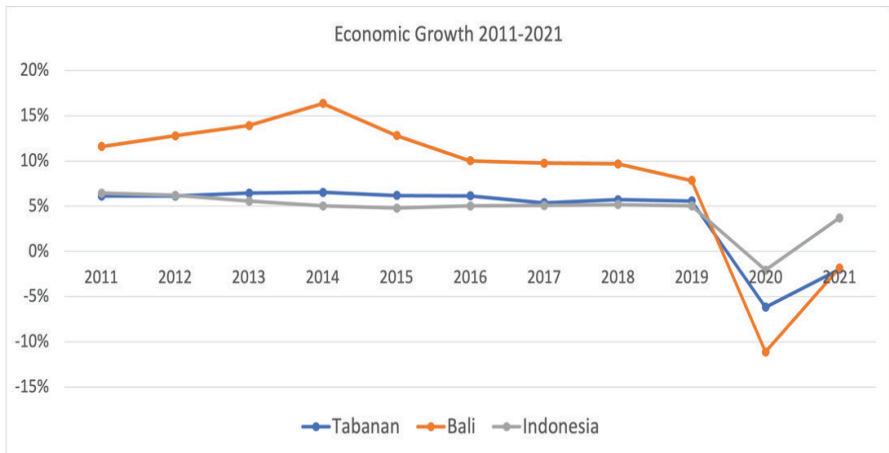


FUNDING AND FINANCING

1. Economic Profile of Tabanan Regency

The strong economic fundamentals of a region can be an indicator of the region's ability to finance basic services in the region with the aim of public welfare. One of the fundamental indica-

tors of a region's economy is economic growth. The following is data on the economic growth rate of Tabanan Regency, Bali Province and Indonesia.



Source : Statistics bureau, data after processing

Figure 6. Economic growth rate of Indonesia, Bali Province and Tabanan Regency.

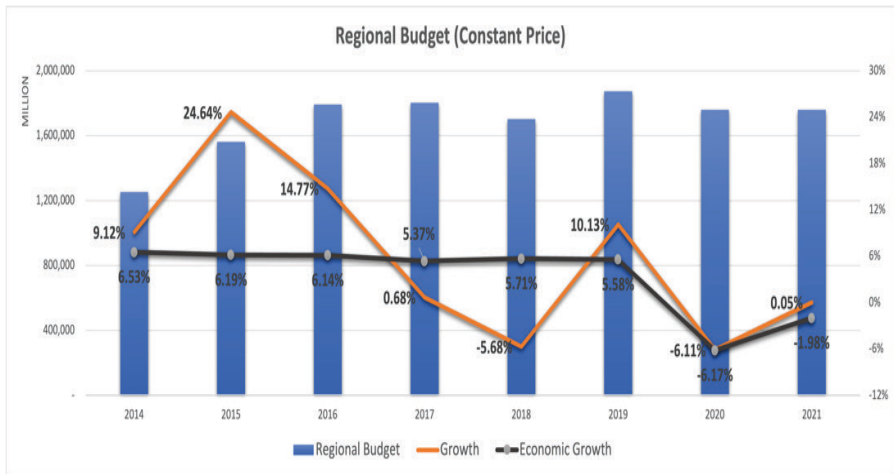
The economic growth rate of Tabanan Regency tends to have constant trend following the average regional growth rate in Indonesia. This provides an initial

picture that in general economy of Tabanan Regency is still based on relatively the same sector, not daring to move particular economic growth — which is



expected to be the locomotive of regional economic growth. The scarcity of new breakthroughs has implications for dependence on transfer funds from the national government, rather than creating income opportunities that come from local innovation itself.

The dependency of national fund, the increasing diversity of development sectors that must be financed by the national, it will make the opportunity for Tabanan Regency to become the national attention also decreases.



Source: DJPK Ministry of Finance, data after processing

Figure 7. Regional Revenue and Expenditure Budget (APBD) Profile on Economic Growth.

The figure above illustrates the structure of revenue and expenditure of Tabanan Regency from 2014 to 2021 which is also compared with the economic growth figures in the same period. The movement of the APBD figures above which tend to

be constant shows a conservative APBD scenario where there are other funding sources that have not been optimized by the Tabanan Regency Government.

Regarding the portion of the waste budget to the APBD, since 2017 - 2020 the waste budget



in Tabanan Regency has been around 0.58% of the APBD. This figure is better when compared to the average of other regencies/cities in Indonesia which is at 0.5% (Bappenas Data). Even

better in 2021, the waste budget increased to 1.77% of the APBD due to the existence of special allocation funds (DAK) for the physical construction of TPS3R.

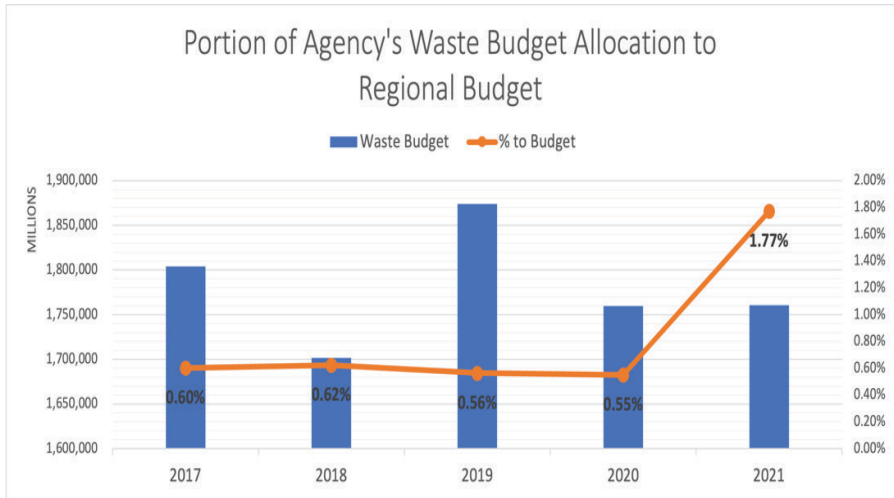


Figure 8. Waste budget pattern on APBD.

Likewise with the growth of the village waste management budget in Tabanan Regency. The village government allocates a waste budget above the average portion at the Regency level. Better news is seen in 2021 to

2022 where the portion of the waste budget is above 2.5% of the total Village Budget.

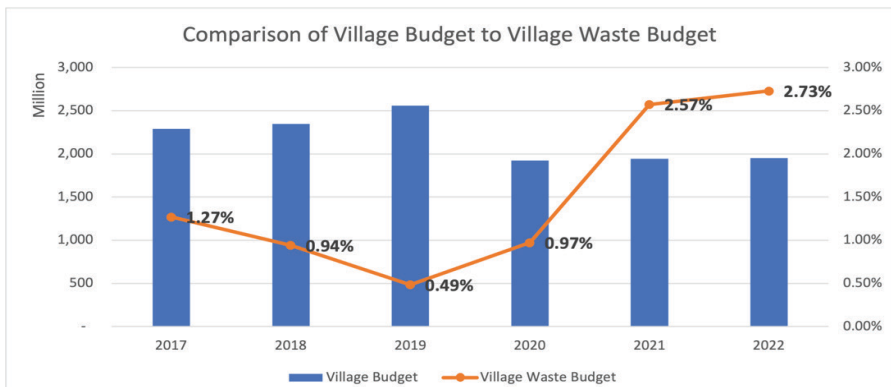


Figure 9. Allocation of village waste budget.

2. Direction of Financing and Funding Policies and Strategies

To realize an effective waste management system, create a clean environment and improve public health, it requires good funding-financing governance updates in accordance with the conditions of Tabanan Regency. The updates include:

1. Efficient and accountable service improvement and in accordance with agreed targets.
2. Guaranteed availability of funding and reducing funding gaps with capital re-

structuring (cooperation scheme).

3. Availability of adequate facilities and infrastructure for service improvement with inclusive community/UMKM/informal sector involvement.

Developing a waste management system for 20 years according to the PTMP target and preparing waste management facilities and infrastructure as explained in the technical aspect chapter with the division that can be seen in Figure 2 requires a total

financing of 792 billion Rupiah required by the Tabanan Regency Government, of which 113 billion is for investment costs and 679

billion for operations with details that can be seen in Figure 10 below.

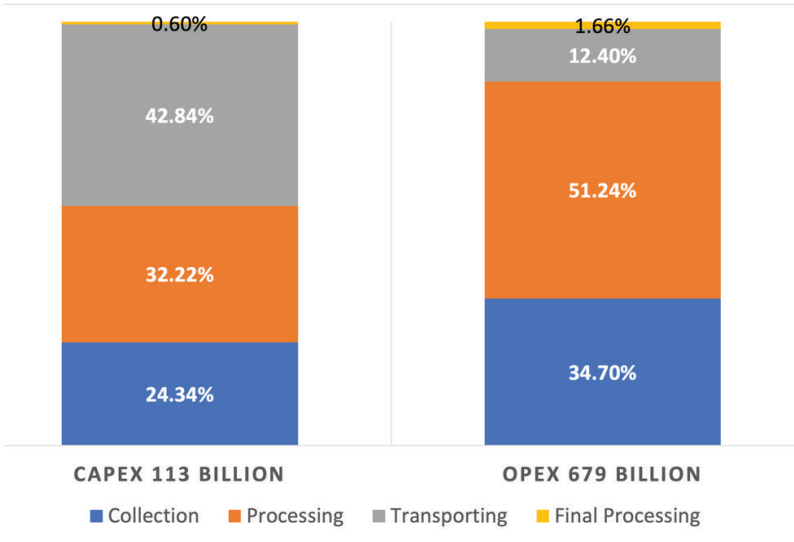


Figure 10. Funding needs for the Tabanan Regency waste management system.

The calculation above does not include the estimated operational and investment costs for the regional TPST of 3 trillion, where 1 trillion is for investment costs, which can come from National Budget (APBN) funding and 2 trillion for operational costs that can come from the provincial Bduegt (APBD Provinsi)

because this regional TPST will serve the regencies / cities around Tabanan, namely Denpasar and Badung. Based on the analysis of the economic profile of Tabanan Regency, the following are sources of funding that can be used to implement the Tabanan Regency waste management system.

Table 5. Waste management system funding needs and distribution

	CAPEX		OPEX	
	APBN	APBD	APBD PROV	APBD
Collection	-	Rp 27.5 M	-	Rp 233,4 M
Processing	Rp 36.4 M	-*	-	Rp 344,7 M
Transporting	-	Rp 48.4 M	-	Rp 83.4 M
Final Processing	Rp 1.015,7 M	Rp 0.7 M	Rp 2.198,5 M	Rp 11.2 M
Total	Rp 1.052,1 M	Rp 76,6 M	Rp 2.198,5 M	Rp 672,7 M

Notes:

- APBN : National Budget
- APBD Prov : Provincial Budget
- APBD : Local Government Budget

In addition to funding sources from the central, provincial, and Tabanan district governments, the community as service users can also contribute to the recovery of waste service costs. With the services provided, the community can pay contributions and levies. The amount of contributions and levies that are estimated to be imposed on the community is:

- Waste fee on TPS3R start from Rp 24.000 /household/ month.
- Non-Household Retribution Fee is IDR 102,000/m³.
- Regional TPST levy is IDR 611,000/ 6m³ truck.



PRIORITY PROGRAM

Waste management is a continuous system, therefore Tabanan waste masterplan is also carried out by continuously over the next 20 (twenty) years. In the initial planning period, Tabanan Regency Government will build system foundation and strengthen existing services. In the next period, the expansion of waste management implementation was carried

out gradually in accordance with the increase in the capacity of Tabanan Regency resources until the established vision and mission of waste management were achieved. Efforts to achieve the vision and mission of Tabanan Regency Waste Management 2024-2045 will be implemented systematically through the implementation of program indications with the following stages.



1. Stage of Strengthening the Coordination

This stage will be implemented in 2024-2025, with a service target of 49% where the waste reduction rate is 25% and waste handling is 24%. This stage is held for the first 2 (two) years with the main focus directed at aligning every action and step of all



stakeholders and creating an effective and efficient working relationship network. At this stage, Regency Government is preparing for the implementation of Local Community Service Agency (BLUD) in the Technical Implementation Unit (UPT) for Waste and Fecal Sludge (lumpur tinja) Processing, the establishment of formal coordination forum for all stakeholders, and updating the tasks and functions of related Government Agencies, data collection of partners and assets, and planning of village and regency waste management work programs in accordance with the strategy and development direction of this Waste Masterplan (PTMP).



2. Stages of Base Arrangement Phase I

This stage will be implemented in 2025-2030 with a service target of 68% where the waste reduction rate is 32% and waste handling is 36%. This stage is the initial arrangement stage with the main focus directed towards the initial arrangement of the foundation of waste management system. At this stage, Regency Government prepares basic resources in the form of regulatory packages, increasing the capacity of Regency institutions and funds, and initiating cooperation packages. At the same time,



Regency Government is strengthening the capacity of regency-level infrastructure, which is the Tabanan landfill, with the addition of Integrated Waste Processing Site (TPST) Regency, Composting Site and Recycling Center as well as decentralized infrastructure capacity by strengthening TPS3R operation and waste management service in village level.



3. Stages of Base Arrangement Phase II

This stage will be implemented in 2030-2035 with a service target of 80%, where the waste reduction rate is 35% and waste handling is 45%. This stage is an effort to strengthen the foundation that has been built previously through service strengthening and modelling efforts. The main focus is directed at trial the formation of new service areas, strengthening education and social responsibility at the community level, and enforcing cultural and social sanctions. At this stage, villages that does not have waste management system are encourage to learn to the villages that have good waste management performance. Increasing the capacity regency institutions and the availability of funds is also carried out through the development of Local Community Service Agency (BLUD) operations, and trials of operation schemes with third parties at both Regency and Village levels.





4. Stage of Expansion

This stage will be implemented in 2035-2040, with a service target of 90%, where the waste reduction rate is 36% and waste handling is 54%. This stage is an expansion of Tabanan waste management services. The main focus is directed at improving operations by establishing regional waste management cooperation Sarbagita in Tabanan, launching waste management by Independent Areas and Villages, and enforcing administrative law at the village and regency levels. Offtaker mobilization and expansion of cooperation schemes are also held to support the funding and financing ecosystem of Tabanan Regency.



5. Stage of Performance Enhancement

This stage will be implemented in 2040-2045, with a service target of 100%, where the level of waste reduction is 36% and waste handling is 64%. This stage is the consolidation of the waste management system with more prepared and complete governance tools. The main focus is improving quality and coverage of services, expanding the law enforcement system, village mentoring, and



expanding cooperation. The regency government has also started preparing for waste reduction not only recycling but also limiting the waste generation and encouraging for reusing materials.



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