

Analysis of Alternative Strategies for Domestic Wastewater Systems Management and Development in Regency/City Governments (Case Study: South Tangerang City, Banten Province)

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Abstract

The impact of high urban population growth and increased development activities in various sectors has caused various problems in urban areas, one of which is waste water pollution. Through the “Wastewater System Management and Development Program”, the planning activity program must be able to improve the management and development of the domestic wastewater system. In addition, the implementation of the planning activity program must be in accordance with the conditions, especially in South Tangerang City, including the Planning for the Development of Domestic Wastewater (Grey Water) & Stool (Black Water) Management, Sludge Treatment Plant (IPLT), Scheduled Sludge Service Management (LLTT), and Preparation of Regional Regulations on Domestic Wastewater Management and Service Charges. The stages of this research include data collection, analysis of instrument validity and reliability, IFAS and EFAS analysis, SWOT and QSPM analysis. Some of the main planning activity programs, based on literature studies and interviews with city government stakeholders in improving the management and development of domestic wastewater systems in South Tangerang City include Planning for the Development of Domestic Wastewater & Stool Management Systems, Planning for Development of Sludge Treatment Plants owned by the South Tangerang City Government.

Keywords

alternative strategies; domestic wastewater; system management



I. Introduction

Multi-dimensional national development in its management involves all government officials, both at the central and regional levels, even at the lowest regional level, namely the kelurahan. The components or apparatus in question should have optimal capabilities in carrying out their duties (Sumiarsih, Ni Made, Djoko Legono, and Robert J. Kodoatie, 2018). The achievement targets have been stated in several programs including Sustainable Development Goals (SDGs) on the availability of sanitation access, especially domestic wastewater treatment (Chaerunnissa, Chika 2014). In the city development program, the stages of work starting from the planning, development to management stages with quality standards of access services are not only feasible but safe and sustainable, especially in accordance with the national 100-0-100 program, namely achieving 100 percent of drinking water services, achieving the percentage urban slum settlements to 0 percent and increasing

population access to proper sanitation (domestic wastewater, garbage and environmental drainage) to 100 percent at the level of basic needs, have also been prepared to help achieve the said RPJMN targets. These programs include programs that have been prepared for development to the regions through district and city governments (Putra, Rizki Rokhmat 2016). In addition, the regulation of the Minister of Public Works and Public Housing of the Republic of Indonesia number 29 of 2018 concerning PUPR SPM, one of which is related to Minimum Service Standards for Domestic Wastewater Sub Affairs, implemented by the Regional Government to ensure the availability of access to domestic wastewater treatment for the community according to the administrative area. The Government of the Republic of Indonesia was formed to protect the whole of the Indonesian people (Angelia, 2020).

So that with this research it can be seen that the effective solution for urban planning activity programs to deal with these problems is in accordance with the regulation of the Minister of Public Works and Public Housing of the Republic of Indonesia number 04 of 2017 concerning the Implementation of a Domestic Wastewater Management System, which is supported by pouring the planning activity program plan into a document. regional planning, especially in the Regional Medium-Term Development Plan (RPJMD) and the Master Plan for Domestic Wastewater Management System (RI-SPALD).

In addition, by identifying internal factors, namely the welfare and quality of human resources, facilities and infrastructure supporting program activities, availability of costs/capital/investment and service cash flows, legal policies and regulations, orientation and organizational structure, cooperation programs, while identification of external factors namely behavioral attitudes, encouragement of participation, knowledge and awareness of respondents, environmental impacts and conditions, as well as the potential for implementation and sustainability of the program, where these factors can affect the development of activity programs so that appropriate and effective policy decisions and strategies are obtained in the Tangerang City area. South, based on the level of community participation and stakeholder.

II. Research Method

The stages of this research include data collection, analysis of instrument validity and reliability, IFAS and EFAS analysis, SWOT and QSPM analysis.

1. Data Collection Data

Collection for questionnaires from informants and the community, the size of the respondents uses the Slovin, with a margin of error of 10%, so that the number of respondents taken in the study is 100 respondents for elements of society with the number of proportions according to the amount of The sub-district family heads and 10 respondents from local government elements are directly related to the duties and functions of their positions in providing direction and policies for urban domestic wastewater planning activities.

While the respondent selection technique uses quota sampling and the assessment of the questionnaire variables uses a Likert Scale to calculate the score of each question factor both internal and external elements, and uses the Paired Comparison for alternative scores of answers aimed at internal elements as sources in providing an assessment of the

ranking of each factor in influencing program planning activities and also to provide an assessment score for alternative policies and strategies that will be planned later.

2. Before the questionnaire is distributed to elements of the community and resource persons, the questionnaire must be tested first in order to know the trust and reliability in each planning activity program and the question factor, namely the Validation test using the Pearson Bivariate and the Reliability test using the Cronbach's Alpha, in this study using a tool application of Statistical Product and Service Solution (SPSS) version 25.
3. IFAS and EFAS analysis

From the questionnaire data from the sources and the community, it is obtained the weight value for each internal and external factor, which is generated from the calculation of the total score compared to the number of respondents which is then multiplied by the amount of the score ranking for each factor variable, where this ranking score is obtained from data collection by questionnaires using the Paired Comparison that has been described previously.

The results of the identification analysis will be poured into the Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) matrices, which then obtain alternative strategies scientifically by mapping the analysis results into the Internal External Matrix (IE) in order to obtain the Strategic Business Unit (SBU) position/institutions/organizations and also mapping the results of the analysis into the position of the SWOT Quadrant.

4. SWOT analysis (Strength, Weakness, Opportunities, Threats) can help identify factors within the company/institution/organization (S and W) and external factors (O and T). Where the total score of $S - W \rightarrow$ is used as the coordinates of point X and the total score of $O - T \rightarrow$ is used as the coordinates of point Y.
5. QSPM (Quantitative Strategic Planning Matrix) analysis is a technique that can objectively determine prioritized alternative strategies. As a technique, QSPM requires good intuitive judgment.

IV. Discussion

3.1 Analysis of the Aspects of the South Tangerang City Planning Activity Program

Development respondent data for each aspect according to the program of activities and dividing it into external and internal indicators, then the researcher conducts an analysis to get a commensurate comparison where the results of internal respondent data are 1 and external is 10 so that the initial comparison is 1:10, then calculations are carried out so that internal and external data are comparable, the researcher makes comparisons between the two factors, by multiplying the number of respondents from internal factors by 10 (1 x 10) and multiplying the number of respondents from external factors by 1 (1 x 100), and finally the researchers analyze the final weight for the percentage of respondent data for each aspect according to the program of activities and internal and external indicators. So based on the results of the analysis of these calculations, the following results were obtained:

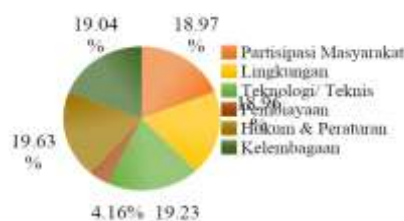


Figure 1. Comparison of Aspects of Implementation of the SPALD Management & Development Planning Activity Program



Figure 2. Comparison of Implementation Indicators of SPALD Management & Development Planning Activities

3.2 IFE Matrix and EFE Matrix

Analysis of the IFE matrix obtained from questionnaires filled out by respondents from the city government, who have the capacity and thorough knowledge of the activity program, the respondents consist of 10 (ten) people as the resource person element, besides that, data collection related to the ranking score for the resource person element is also carried out.

Meanwhile, the EFE matrix analysis was obtained from a questionnaire filled out by respondents from urban communities, who live/domiciled in the study area, which indirectly became the goal of implementing the activity program, the respondents consisted of 100 (one hundred) people.

Table 1. IFE Matrix Identification Analysis

No.	Description	of Internal Key Factors	Weight	Rating	Weight X
Strengths Rating Development					
1.	Planning for Domestic Wastewater Management System (<i>Grey Water</i>) & Stool (<i>Black Water</i>) South Tangerang City	a. Availability of Cost / Capital / Investment	0.066	4	0.264
		b. Related policies have been set in an urban planning document	0.067	5	0.335
2.	Development Planning for Sludge Treatment Plant (IPLT) owned by the South Tangerang City Government	c. Organizational Orientation	0.064	3	0.192
		d. Facilities and Infrastructure for Sludge Treatment Plant (IPLT)	0.066	4	0.264
3.	Scheduled Sludge Service Management Planning (LLTT) by the Tangsel City Government	e. Organizational Structure	0.066	4	0.264
		f. Supporting facilities and infrastructure for program activities	0.057	5	0.285
4.	Planning for Drafting Regional Regulations on Domestic Wastewater Management and Service Charges by the South Tangerang City Government	g. Legal policies and regulations are intended for all types of buildings, both baru and existing	0.057	5	0.285 Relevant
		h. legal regulations have been stipulated in a city planning document	0.06	3	0.180
Total			0.50		.07
Weaknesses/Development					
Grey	Planning for Domestic Wastewater Management (<i>Water</i>) & Sludge (<i>BlackWater</i>) South Tangerang City	a. Human Resources	0.058	4	0.232
		b. Facilities and infrastructure supporting program activities	0.063	2	0.126

No.	Description	of Internal Key Factors	Weight	Rating	Weight X
2.	Development Planning for Sludge Treatment Plant (IPLT) owned by the South Tangerang City Government	c. Availability of Cost/Capital/ Investment	0.064	1	0.064
		d. Related policies have been set in an urban planning document	0.063	2	0.126
3.	Scheduled Sludge Service Management Planning (LLT) by the South Tangerang City Government	e. Cooperation program with parties outside South Tangerang City	0.063	3	0.189
		f. Related policies have been stipulated in a city planning document	0.063	2	0.126
4.	Development Planning Regional Regulation on Domestic Wastewater Management and Retribusi Services by South Tangerang City Government	g. Employee Welfare	0.061	2	0.122
		h. Service cash flow	0.060	1	0.060
Total			0.50		1.04
TOTAL			1		3.11
SWOT Quadrant: Axis (X) S – W = 1.02					

Table 2. Identification Analysis EFE Matrix

No.	Description	of External Key Factors	Weight	Rating	Weight X
OpportunitiesRankDevelopment					
1.	Planning for Domestic Wastewater Management (<i>Grey Water</i>) & Stool (<i>Black Water</i>) South Tangerang City	a. Respondents Behavioral Attitudes	0.034	5	0.17
		b. Encouragement of Respondents Participation	0.032	3	0.096
		c. Knowledge of Respondents	0.034	5	0.17
		d. Potential Implementation of Programs	0.032	3	0.096
2.	Planning for Development of a Sludge Treatment Plant (IPLT) owned by the South Tangerang City Government	e. Attitudes and Behaviors of Respondents	0.032	3	0.096
		f. Respondents Awareness	0.033	4	0.132
		g. Potential Implementation of Programs	0.032	3	0.096
		h. Environmental Impact	0.033	4	0.132
3.	Planning for the Management of Scheduled Sludge Services (LLTT) by the South Tangerang City Government.	i. Program Sustainability	0.031	3	0.093
		j. Respondents Awareness	0.030	3	0.090
		k. Environmental Conditions	0.030	3	0.090
		l. Respondents Behavioral Attitudes	0.028	5	0.140
4.	Planning for Drafting Regional	m. Program Sustainability	0.031	4	0.124

No.	Description	of External Key Factors	Weight	Rating	Weight X
	Regulations on Domestic Wastewater Management and Service Charges by Pem Government of South Tangerang City	n. Respondent Awareness	0.032	3	0.096
		o. Environmental Impact	0.031	5	0.155
		p. Environmental Conditions	0.029	4	0.116
Total			0.50		1.89
Threats Management 1.					
Grey	Planning for Development of Domestic Wastewater (<i>Water</i>) & MudStool (<i>Black Water</i>) South Tangerang City	a. Respondent Awareness	0.031	2	0.062
		b. Environmental Impact	0.031	2	0.062
		c. Environmental Condition	0.031	2	0.062
		d. Program Sustainability	0.031	2	0.062
2.	Planning for Development of Sludge Treatment Plant (IPLT) owned by South Tangerang City Government	e. Encouragement of Respondent Participation	0.032	1	0.032
		f. Respondents Knowledge	0.032	1	0.032
		g. Program Sustainability	0.032	1	0.032
		h. Environmental Conditions	0.031	2	0.062
Threats LTT)					
3.	by the South Tangerang Ci Government	i. Potential Program Implementation	0.031	2	0.062
		j. Respondent Knowledge	0.031	2	0.062
		k. Environmental Impact	0.031	2	0.062
		l. Encouragement of Respondents' Participation	0.031	2	0.062
4	Planning for Drafting Regional Regulations on Domestic Wastewater Management and Service Charges by the South Tangerang City Government	m. Potential Implementation of Programs	0.031	2	0.062
		n. Respondent Knowledge	0.031	2	0.062
		o. Respondents Participation Encouragement	0.031	2	0.062
		p. Respondents Behavioral Attitudes	0.031	2	0.062
Total			0.50		0,90
Total			1		2.79
Quadrant SWOT: Axis (Y) O – T = 0.99					

3.3 Formulation of Strategic Alternatives Based on the SWOT Quadrant

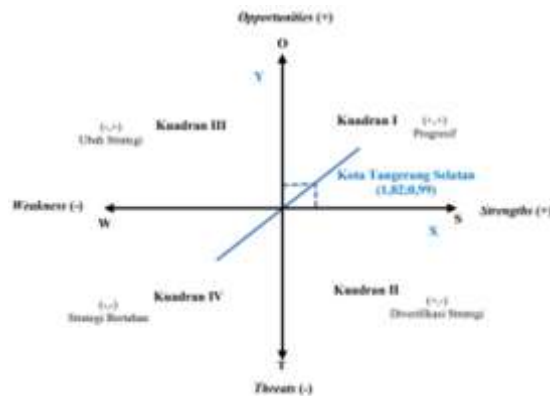


Figure 3. SWOT Quadrant

The results of the analysis based on IFE and EFE made a SWOT quadrant which is the main strategy can be seen in the picture above. The position of the model application is in quadrant I (Aggressive Supporting Strategy), the application of the participation model is in prime and steady condition. Conditions that are very likely to continue to expand, enlarge growth and achieve maximum progress.

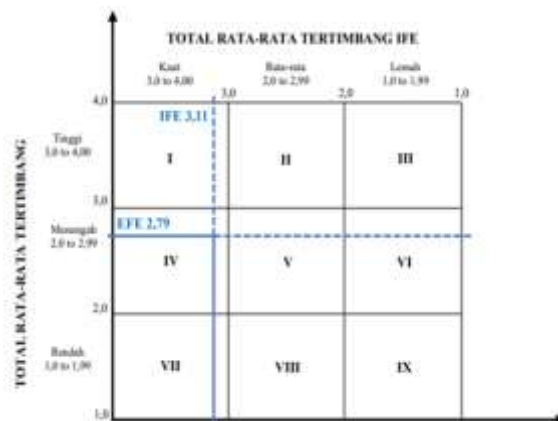


Figure 4. Total IFE Weighted Average

Table 3. SWOT Matrix Program Activities Planning for Domestic Wastewater Management System (Grey Water) & Sludge (Black Water) South Tangerang City

	Strength/ Strength (S) 1. Availability of costs / capital / investment 2. Related policies have been defined in a city planning document	Weaknesses / Weakness (W) 1. Human resources 2. Facilities and infrastructure to support activity programs
(Opportunities O) 1. Attitudes of respondents' attitudes 2. Encourage participation of respondents 3. Knowledge of respondents	SO, Strategy programs: 1. Availability of costs / capital / investment in activities will continue to increase in line with the support of attitudes behavior, encouragement of participation, knowledge of respondents and potential implementation of the	WO Strategy: 1. HR in the company / institution / organization in charge must be improved in order to be able to maintain and utilize the attitude of behavior, encouragement of participation, knowledge of respondents and potential implementation of the program in the community. (W1, O1, O2, O3, O4).

	<p>Strength/ Strength (S)</p> <ol style="list-style-type: none"> 1. Availability of costs / capital / investment 2. Related policies have been defined in a city planning document 	<p>Weaknesses / Weakness (W)</p> <ol style="list-style-type: none"> 1. Human resources 2. Facilities and infrastructure to support activity programs
4. Potential for implementing	<p>program in the community. (S1, O1, O2, O3, O4).</p> <ol style="list-style-type: none"> 2. The related policies that have been set in a city planning document are expected to be able to improve attitudes, encourage participation, knowledge of respondents and the potential for implementing the program in the community. (S2, O1, O2, O3, O4). 	<ol style="list-style-type: none"> 2. Infrastructure supporting the activity program must be provided so as to be able to maintain high support from behavioral attitudes, encouragement of participation, knowledge of respondents and potential implementation of the program in the community. (W2, O1, O2, O3, O4).
<p>Threats Respondent (T)</p> <ol style="list-style-type: none"> 1. Awareness 2. Environmental impact 3. Environmental Conditions 4. Program sustainability 	<p>ST Strategy:</p> <ol style="list-style-type: none"> 1. Seeing the availability of costs/capital/investment in activities is expected to increase respondents' awareness, environmental conditions and program sustainability and reduce the environmental impact of pollution in the community. (S1, T1, T2, T3, T4). 2. Related policies that have been set in a city planning document are expected to be able to increase respondents' awareness, environmental conditions and program sustainability and reduce the environmental impact of pollution in the community. (S2, T1, T2, T3, T4). 	<p>WT Strategy:</p> <ol style="list-style-type: none"> 1. Improving the human resources of companies/institutions/organizations in charge so that they are able to maintain and increase respondents' awareness, environmental impacts, environmental conditions and program sustainability in the community. (W1, T1, T2, T3, T4). 2. It is hoped that the infrastructure for supporting the program of activities that will be provided will improve the level of awareness of respondents, reduce the environmental impact of pollution, environmental conditions and the sustainability of the program in the community. (W1, T1, T2, T3, T4).

Table 4. Matrix Program Activities for Sludge Treatment Plant (IPLT) owned by South Tangerang City Government

	<p>Strengths <i>SWOT</i> (S)</p> <ol style="list-style-type: none"> Organizational orientation (IPLT) 	<p>Weaknesses <i>Plant</i> (W)</p> <ol style="list-style-type: none"> Availability of costs/capital/investment Policyrelated issues have been determined in a city planning document
<p>(. <i>Opportunities</i> O)</p> <ol style="list-style-type: none"> Attitudes of respondents' behavior Awareness of respondents Potential for implementing programs Environmental impacts 	<p>SO Strategy:</p> <ol style="list-style-type: none"> The orientation of the municipal government's organization related to program activities will continue to increase in line with the support of the attitudes of behavior and awareness of respondents, thereby reducing environmental impacts due to pollution and the potential for the implementation of the program will run optimally in the community. (S1, O1, O2, O3, O4). The facilities and infrastructure of the municipal Sludge Treatment Plant (IPLT) that will be built are expected to improve attitudes, respondents' awareness, potential for program implementation and reduce environmental impacts due to pollution and the potential for program implementation will run optimally in the community. (S2, O1, O2, O3, O4). 	<p>WO Strategy:</p> <ol style="list-style-type: none"> Availability of costs/capital/investment must be developed by utilizing the attitudes of behavior, awareness of respondents, potential for implementing programs and reducing the environmental impact of pollution in the community. (W1, O1, O2, O3, O4). Related policies must be supported in a city planning document so that they will be able to maintain attitudes, respondents' awareness, potential for program implementation and protect the environment from the negative impacts of pollution. (W2, O1, O2, O3, O4).
<p>Threats (T)</p> <ol style="list-style-type: none"> Encouragement of respondent's participation Respondent knowledge Program sustainability Environmental conditions 	<p>ST Strategy:</p> <ol style="list-style-type: none"> Seeing the orientation of the company/institution/organization in charge will be able to increase the encouragement of participation, respondent knowledge, program sustainability and environmental conditions. (S1, T1, T2, T3, T4). Facilities and infrastructure of the Sludge Treatment Plant (IPLT) 	<p>WT Strategy:</p> <ol style="list-style-type: none"> Increasing the availability of costs/capital/investment is expected to be able to maintain and increase the encouragement of participation, respondent knowledge, program sustainability and environmental conditions. (W1, T1, T2, T3, T4).

	Strengths SWOT (S) 1. Organizational orientation 2. (IPLT)	Weaknesses Plant (W) 1. Availability of costs/capital/investment 2. Policyrelated issues have been determined in a city planning document
	are expected to be able to increase the encouragement of participation, knowledge of respondents, program sustainability and environmental conditions. (S2, T1, T2, T3, T4).	2. It is hoped that the related policies have been set in a city planning document so that they can better change the level of encouragement of participation, respondent knowledge, program sustainability and environmental conditions (W1, T1, T2, T3, T4).

Table 5. SWOT Matrix of Scheduled Sludge Service Management Planning Activities (LLTT) by the South Tangerang City Government

	W SWOT Matrix of Scheduled Sludge Service Management Planning Activities (LLTT) by South Tangerang City Government Strengths) 1. Cooperation 2. programs	with (S) Organizational structure Facilities and infrastructure supporting activity programs Weaknesses parties 1. outside South Tangerang City 2. Policiesrelated issues have been determined in a city planning document
(. Opportunities O) 1. Sustainability of the program 2. Respondents Awareness 3. Environmental conditions 4. behavioral attitudes	SO Strategy: 1. The city government's organizational structure related to program activities will continue to develop in line with the sustainability of the program, as well as increasing awareness and attitudes of respondents' behavior, to improve environmental conditions in society. (S1, O1, O2, O3, O4). 2. It is hoped that the facilities and infrastructure to support the program of activities will be built soon in order to increase the awareness and attitude of the respondent's behavior, to maintain	WO Strategy: 1. Cooperation programs with parties outside the City of South Tangerang must be developed by utilizing the awareness and behavior of respondents, to maintain environmental conditions and the sustainability of the program in the community. (W1, O1, O2, O3, O4). 2. Related policies must be supported in a city

	<p>W SWOT Matrix of Scheduled Sludge Service Management Planning Activities (LLTT) by South Tangerang City Government Strengths)</p> <ol style="list-style-type: none"> 1. Cooperation 2. programs 	<p>with (S) Organizational structure Facilities and infrastructure supporting activity programs Weaknesses parties</p> <ol style="list-style-type: none"> 1. outside South Tangerang City 2. Policiesrelated issues have been determined in a city planning document
	<p>environmental conditions and the sustainability of the program in the community. (S2, O1, O2, O3, O4).</p>	<p>planning document so that they will be able to maintain awareness and attitudes of respondents to maintain environmental conditions and program sustainability in the community. (W2, O1, O2, O3, O4).</p>
<p>Threats (T)</p> <ol style="list-style-type: none"> 1. Potential implementation of the program 2. Respondent knowledge 3. Environmental impact 4. Encouragement of respondent participation 	<p>Strategy ST:</p> <ol style="list-style-type: none"> 1. Looking at the structure of the company/institution/organization in charge will be able to increase the potential for program implementation, knowledge and encouragement of respondent participation Encourage participation, respondent knowledge, in order to guard against environmental impact of pollution. (S1, T1, T2, T3, T4). 2. Facilities and infrastructure supporting the program activities are expected to be able to increase the potential for program implementation, knowledge and encouragement of respondents' participation, encouragement of participation, knowledge of respondents, in order to guard against environmental impacts from pollution. (S2, T1, T2, T3, T4). 	<p>WT Strategy:</p> <ol style="list-style-type: none"> 1. Cooperation programs with parties outside the City of South Tangerang are expected to be able to implement the potential of the program, knowledge and encourage participation of respondents encourage participation knowledge of respondents, in order to protect from environmental impacts from pollution. (W1, T1, T2, T3, T4). 2. It is hoped that the related policies have been set in a city planning document so that they can better change the level of potential program implementation, knowledge and encouragement of respondents' participation, encouragement of

	<p>W SWOT Matrix of Scheduled Sludge Service Management Planning Activities (LLTT) by South Tangerang City Government Strengths)</p> <ol style="list-style-type: none"> 1. Cooperation 2. programs 	<p>with (S) Organizational structure Facilities and infrastructure supporting activity programs Weaknesses parties</p> <ol style="list-style-type: none"> 1. outside South Tangerang City 2. Policiesrelated issues have been determined in a city planning document
		<p>participation, knowledge of respondents, in order to protect from environmental impacts from pollution. (W1, T1 T2, T3, T4).</p>

Table 6. SWOT Matrix Program Activities Regional Regulations on Domestic Wastewater Management and Service Charges by the South Tangerang City Government

	Strength Legal (S)	Weaknesses Employee (W)
	<ol style="list-style-type: none"> 1. are for all types of buildings, both new and existing 2. regulationsurban planning 	<ol style="list-style-type: none"> 1. welfare 2. Cash flow for services
<p>(Opportunities O)</p> <ol style="list-style-type: none"> 1. Sustainability of the program 2. Respondents awareness 3. Environmental impact 4. Environmental conditions 	<p>SO Strategy:</p> <ol style="list-style-type: none"> 1. Policies and legal regulations for all types of buildings, both new and existing, must be implemented in order to increase respondents' awareness, so as to be able to maintain the sustainability of the program, the impact and environmental conditions of pollution in the community. (S1, O1, O2, O3, O4). 2. Relevant legal regulations have been stipulated in a city planning document that will be implemented. It is hoped that it will increase respondents' awareness, so that they are able to maintain the sustainability of the program, its impacts and environmental conditions from pollution in the community. (S2, O1, O2, O3, O4). 	<p>WO Strategy:</p> <ol style="list-style-type: none"> 1. Employee welfare must be considered because it plays a very important role in maintaining the sustainability of the program and to ensure increased awareness of respondents, so that they are able to maintain the sustainability of the program the impact and environmental conditions of pollution in the community (W1, O1, O2, O3, O4). 2. The quality of cash flow for city services needs to be maintained so as to maintain the sustainability of the program and to ensure increased awareness of respondents, so as to be able to maintain the sustainability of the program, its impact and environmental conditions from pollution in

		the community. (W2, O1, O2, O3, O4).
Threats Behavioral (T) 1. Potential application of the program 2. Respondent knowledge 3. Encourage participation of respondents 4. attitudes of respondents	ST Strategy: 1. Policies and legal regulations for all types of buildings, both new and existing, must be applied by increasing knowledge, encouragement of participation and attitudes of respondents' behavior so that sustainability is maintained potential implementation of the program in the community. (S1, T1, T2, T3, T4). 2. Relevant legal regulations that have been stipulated in a city planning document are expected to be able to increase the knowledge, encouragement of participation and attitudes of respondents so that the sustainability of the potential implementation of the program in the community is maintained. (S2, T1, T2, T3, T4).	WT Strategy: 1. Improving employee welfare is expected to be able to maintain and increase knowledge, encourage participation and attitudes of respondents' behavior, so that it will maintain the sustainability of the potential implementation of the program in the community (W1, T1, T2, T3, T4). 2. The quality of cash flow for city services needs to be maintained so as to maintain sustainability of the potential implementation of the program and to ensure increased awareness of respondents, so as to be able to maintain the sustainability of the program, knowledge encouragement of participation and attitudes of respondents in the community. (W1, T1, T2, T3, T4).

3.4 Formulation of Strategic Alternatives Based on the IE Matrix

Matrix The IE matrix is used to determine the parameters used include the parameters of the company's/institution's/organization's internal strength and the external influence of the community elements faced. From the picture above, it can be seen that the position of the main Planning Activity Program for South Tangerang City is in quadrant IV in the IE matrix. Based on the IE matrix theory which states that the right strategy for quadrant positions I, II, and IV is the *grow and build*. In the conditions mentioned above, the incentive strategy that can be implemented is a strategy (*Integrative Program*) to integrate both elements of the government to elements of society (backward integration, forward *integration and horizontal integration*), market penetration strategies (*market penetration*), and market and product development strategies. (*Market and product development*) are two strategies that are mostly used in this cell type (Nazwirman and Erna Wulandari, 2016).

Table 6. Alternative Strategy

NO.	ALTERNATIVE	STRATEGIES
1.	<i>Integrative Program</i>	Performing good integration with elements of the government to elements of society (backward integration, forward integration and <i>horizontal</i>), in carrying out the entire series of planning

NO.	ALTERNATIVE	STRATEGIES
		activity programs listed in the city planning document.
2.	<i>Market Penetration Market</i>	penetration by expanding or expanding the range of service program activities that have been planned and contained in the city planning document.
3.	<i>Product Development</i>	Development of activity programs that have been listed in the city planning document by improving the quality, quantity and continuity of technological, regulatory, institutional and financial aspects.

3.5 Decision Making Stage Based on QSPM Matrix

Table 7. Quantitative Strategic Planning Matrix (QSPM)

No.	Activity Program	Key Factors	Weights	1		Alternative 2		Alternative 3		
				AS	TAS	AS	TAS	AS	TAS	
1	Planning for Development of Domestic Wastewater Management System (Gray Water) & Sludge (Black Water) South Tangerang City	Strengths (Strengths)								
		a. Availability of Cost/ Capital/ Investment	0.066	4	0.277	4	0.251	4	0.271 Relevant	
		b. policies have been established in an urban planning document	0.067	4	0.295	4	0.261	4	0.255	
		Weaknesses (Weaknesses)								
		a. Human Resources	0.058	3	0.186	Facilities	and	4	0.2154	0.209
		b. infrastructure supporting program activities	0.063	4	0.208	3	0.221	4	0.227	
		Opportunities Attitudes and								
		a. Behavior of Respondents	0.034	4	0.126	4	0.126	4	0.122	
		b. Encouragement of Respondents Participation	0.032	3	0.109	4	0.112	4	0.115	
		c. Respondent Knowledge	0.034	3	0.116	3	0.112	3	0.116	
		d. Programs	0.032	4	0.118	4	0.118	3	0.109	
		Threats 0.031 Respondents								
		a. Awareness of		4	0.115	4	0.112	4	0.109	
		b. Environmental Impact	0.031	3	0.102	3	0.105	4	0.121	
c. Environmental Conditions	0.031	3	0.105	4	0.109	4	0.115			

No.	Activity Program	Key Factors	Weights	1		Alternative 2		Alternative 3	
				AS	TAS	AS	TAS	AS	TAS
		d. Sustainable Sungung Program	0.031	4	0.118	4	0.109	4	0.118
Total					1.89		1.84		1.88
2	Development Planning for Sludge Treatment Plant (IPLT) owned by the South Tangerang City Governme nt	Strengths (Strengths)							
		a. Organizational Orientation	0.064	4	0.275	4	0.224	4	0.243
		b. Facilities and Facilities for Sludge Treatment Plant (IPLT)	0.066	4	0.271	3	0.224	3	0.224
		Weaknesses (Weaknesses)							
		a. Availability of Cost/Capital/Inve stment	0.064	4	0.230	4	0.230	4	0.230
		b. The related policies have been defined in a city planning document	0.063	4	0.239	4	0.246	4	0.239
		Opportunities (Opportunities)							
		a. Attitudes and Behavior of Respondents	4	0.115	3	0.099	3	0.099	Respondents
		b. 0.033	4	0.116	3	0.102	3	0.102	Potential
		c. Implementati on of Programs	0.032	4	0.122	3	0.109	3	0.106
		d. Environmenta l	0.033	4	0.116	3	0.106	3	0.109
		Threats 0.0320.032							
		a. Awareness	0.096	3	Impac ts	3	0.102	3	0.106
		b. Respondent Knowledge	0.032	3	0.099	3	0.106	3	0.099
		c. Program Sustainability	0.032	3	0.109	3	0.106	3	0.102
d. Environmenta l Conditions	0.031	3	0.099	3	0.105	3	0.105		
Total					1.89		1.76		1.77
3	Scheduled Sludge Service Managem ent Planning	Strengths (Strengths)							
		a. Organizational Structure	0.066	4	0.257	4	0.231	4	0.244
		b. Facilities and infrastructure supporting	0.057	3	0.194	4	0.205	4	0.205

No.	Activity Program	Key Factors	Weights	1		Alternative 2		Alternative 3		
				AS	TAS	AS	TAS	AS	TAS	
	(LLTT) by the South Tangerang City Government	program activities								
		Weaknesses (Weaknesses)								
		a. Cooperation programs with parties outside South Tangerang City	0.063	4	0.265	4	0.239	4	0.227	
		b. Related policies have been set in a city planning document	0.063	4	0.246	4	0.239	4	0.233	
		Opportunities (Opportunities)								
		a. for Program Sustainability	0.031	4	0.118	4	0.109	4	0.121	
		b. Respondents Awareness	0.030	3	0.102	4	0.105	3	0.096	
		c. Environmental Conditions	0.030	4	0.114	4	0.114	4	0.105	
		d. Respondents Behavioral Attitudes	0.028	3	0.095	4	0.101	4	0.098	
		Threats (Threats)								
		a. Potential Program Implementation	0.031	4	0.124	4	0.121	4	0.115	
		b. Respondent Knowledge	0.031	3	0.105	4	0.112	4	0.109	
		c. Environmental Impact	0.031	4	0.115	4	0.118	4	0.115	
		d. Encouragement of Respondent Participation	0.031	3	0.105	4	0.112	3	0.102	
		Total					1.84		1.81	
4	Pere Plans for Preparation of Regional Regulations on Domestic Wastewater Management and Service Charges by the	Strengths/Legalare								
		a. intended for all types of buildings, both new and existing	0.057	4	0.200	4	0.205	4	0.217	
		b. relevant legal regulations have been stipulated in a document urban planning	0.060	4	0.216	3	0.192	4	0.222	
		Weaknesses (Weaknesses)								
		a. Employee Welfare	0.061	4	0.238	4	0.214	4	0.226	
		b. Service cash flow	0.060	4	0.258	4	0.228	4	0.246	
Opportunities (Opportunities)										

No.	Activity Program	Key Factors	Weights	1		Alternative 2		Alternative 3		
				AS	TAS	AS	TAS	AS	TAS	
	South Tangerang City Government	a. Program Sustainability	0.031	4	0.109	3	0.105	4	0.109	
		b. Respondent Awareness	0.032	3	0.106	3	0.106	3	0.106	
		c. Environmental Impact	0.031	4	0.112	4	0.115	4	0.115	
		d. Environmental Conditions	0.029	3	0.096	3	0.096	4	0.104	
		Threats (Threats)								
		a. Potential Program Implementation	0.031	4	0.118	4	0.112	4	0.115	
		b. Respondent Knowledge	0.031	3	0.090	3	0.102	3	0.099	
		c. Encouragement of Respondent Participation	0.031	3	0.099	3	0.105	4	0.109	
		d. Respondent Behavioral Attitudes	0.031	3	0.105	3	0.099	3	0.102	
		Amount					1.75		1.68	
Total					7.36		7.08		7.19	

Information:

AS = *Alternative Score*

TAS = *Total Alternative Score*

IV. Conclusion

Some of the main planning activity programs, based on literature studies and interviews with city government stakeholders in improving the management and development of domestic wastewater systems in South Tangerang City include Planning for the Development of Domestic Wastewater & Stool Management Systems, Planning for Development of Sludge Treatment Plants owned by the South Tangerang City Government. Planning for the Management of Scheduled Sludge Services by the South Tangerang City Government and Planning for the Preparation of Regional Regulations on Domestic Wastewater Management and Service Charges by the South Tangerang City Government. The evaluation of the respondents also stated that the highest level of participation/participation was in the internal indicators of 52.45%, while the external indicators were 47.55%.

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