

The Strategy of Integrated Garbage Management Tajun Village, Kubutambahan District, Buleleng Regency

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Abstract: *Problems is one of the serious problems in living environment in all over the world and it's closed related with the living of human beings every day. Cannot be separated with garbage problem. One of the big problem experience in Buleleng regency, especially the villages in Kubutambahan district is garbage. Tajun village, Kubutambahan district, Buleleng regency that consists of six hamlets has been doing the integrated garbage management and until now is not optimal yet. To get succeed of the effort, the manager need to do strategy, to determine and develop that strategy, it's needs SWOT analysis. The issues that been raised in this investigation is how the strategy of integrated garbage management. This investigation aims to know what kind of strategy will be done to increase developing integrated garbage management effort. This kind investigation is investigation that use the descriptive method with qualitative data analysis. Data collecting technic is done by: collecting data with instrument such as interview, questionnaire, observation, and documentation study. Data analysis technic use IFAS matrix and EFAS, combined matrix of IFAS and EFAS, SWOT guardant and SWOT matrix. The results of this study indicate that the SWOT analysis has been able to be used effectively by the Tajun Village Integrated Waste Management as a tool of business development.*

Keyword: SWOT analysis, Internal Factory Analysis Summary, Eksternal Factory Analysis Summary and SWOT guardant.

1. Introduction

To achieve the condition of people who live healthy and prosperous in the future, it will be necessary to have a healthy environment. From the aspect of garbage, the word healthy will mean as a condition that will be achieved if the garbage can be well managed so that it is clean from the settlement environment where human activity in it (PU Regulation number 21 / PRT / M / 2006). Year 2008 on Waste Management and Government Regulation No. 81 of 2012 mandates the need for a fundamental paradigm shift in waste management from the collecting-hauling paradigm, to processing that relies on waste reduction and waste management. The waste management paradigm that is based on the final approach is time to be abandoned and replaced by a new paradigm.

The paradigm that considers waste as a resource that has economic value and can be utilized, for example, for energy, compost, fertilizer, and industrial raw materials. Waste management can be done with a comprehensive approach. Starting from upstream, ie since a product that has the potential to become garbage has not been produced. Continued downstream, ie in the product phase is already in use, so it becomes waste, which is then returned to the environmentally safe media. Tajun Village is one of 13 villages in Kubutambahan sub-district, Buleleng regency, Bali province, has an area of 1,694 Ha, with northern boundary of Tunjung Village, Kubutambahan Subdistrict, Southside of Satra Village, Kintamani Sub district, Bangli Regency, East of Desa Sembiran, Tejakula District and Westside Mengening Village, Sawan Sub-district.

Tajun village is one of 13 villages in Kubutambahan sub-district with a total population of 6815 people (1901 families) with men number 3414 people, number of women

3401 people and population density 402.30 per km. The livelihood of most of the population is 2067 People with the number of families who own the farm land 1.129 families have 1 Unit of Village Market, 1 unit of Village BUM as well as the infrastructure of worship 43 temple with the majority of the population are Hindu (Profile Desa Tajun Year 2016). Tajun village already has a village BUM that has existed since 2010 with Perdes No.4 of 2010. The name of BUM Desa is Mandala Giri Amertha with four operational units, namely Clean Water Facility Management Unit, Integrated Waste Management Unit, Savings and Loan Unit Market Management Unit.

Integrated Waste Management Tajun Village has implemented organic and inorganic waste separation with Human Resources (HR) which has anorganic garbage in the form of plastic bags sold to the Environment Office (DLH) Buleleng District and organic waste is processed into a compost fertilizer with a garbage transport fleet already owned and composting equipment. Integrated waste management in Tajun Village is still running but not yet optimal

From the description above can be formulated some problems related to Integrated Waste Management Strategy in Tajun Village, Kubutambahan Sub district, Buleleng Regency are: (1) How managerial on integrated waste management of Tajun village, (2) How is human resources involvement in integrated waste management of Tajun village, (3) How is the availability of facilities and infrastructure in integrated management of Tajun village, (4) What is the strategy to be done on integrated management of Tajun village waste. The objectives are: (1) To know managerial on integrated waste management of Tajun village, (2) To know the involvement of human resources in integrated waste management of Tajun Village, (3) To know

the availability of facilities and infrastructure in integrated waste management of Tajun Village, (4) To know the strategy to be done on integrated waste management in Tajun Village.

2. Literature Review

The definition of waste is something that is not desired anymore by having and is solid. While in the Law No. 18 of 2008 on Waste Management, it is mentioned that waste is the residual activity of human daily or natural process in the form of solid or semi-solid in the form of organic or inorganic substances are biodegradable or cannot decompose which is considered to be useless and discarded environment, (Slamet, 2002). Based on the above definition, it can be understood garbage is as follows: Garbage that can rot (garbage), requires a fast management. Gases generated from waste decay in the form of methane gas and H₂S which is toxic to the body. Waste that cannot rot (refuse), consists of plastic waste, metal, rubber cups and others. Garbage in the form of dust / ash from the burning of fuel or waste. Hazardous waste to health, ie B3 waste is waste due to its nature, quantity, concentration or due to its chemical, physical and microbiological properties can significantly increase mortality and mobility or cause reversible or potentially irreversible or recurrent illness or reversible (reverse) or potentially present or future harm to health or the environment if not processed, stored or disposed of properly.

According to Gilbert et al. (1996), sources of waste generation can come from: garbage from human settlements, garbage from public places and trade, garbage from public service facilities of government, garbage from industrial and agricultural waste.

3. Research Methods

Type of Research

The type of research used in this study is descriptive qualitative, is research that intend to describe the phenomenon in integrated waste management, which occurred in Tajun Village, Kecamatan, Kubutambahan, Buleleng Regency. The use of this qualitative descriptive method has an advantage because the problem studied is not only based on reports on an event or phenomenon but also confirmed with other relevant sources. Based on the purpose of qualitative research, the important sampling procedure is how to find key information. Orientation regarding the respondent is not how many people who made the respondents but whether the data collected is sufficient or not.

Research sites

The location of the research is the place of the research problem. Adapaun which is used as research place is Integrated Waste Management of Tajun Village, Kubutambahan Subdistrict, Buleleng Regency.

Sources of research data

Sources of data in the observation of the observations at the location of research conducted by researchers and observed the phenomenon that occurred in the research location. Data

collection is done through interviews, Questionnaire and Observation. Supporting data sources are in the form of Buleleng District Regional Regulation Document No. 1 of 2013 on Waste Management, DLH Bulk Service Service Data, Bulukeng Village Propil in 2016, Perbukel Tajun Regulation Number 07 Year 2012 on the Establishment of Integrated Waste Processing Site and Workshop Decision of Tajun Number 15 Year 2017 on the Change of Decision Perbukel Number 12 Year 2010 on the Management of BUM Desa which can be a report, records and other written materials that are official documents relevant to the theme of the researcher and can be used as a reference.

Population and Sample

The population size in this research is all Head of Family in Tajun Village as many as 1901 KK. Sample calculation in this calculation technique used is random sampling technique because the respondent is Tajun Village community because they are directly involved in Waste Management. The random samples were conducted by the researchers by mixing the subjects in the population of all subjects considered equal. Thus the researcher gives equal rights to the subjects who get the selected opportunity to be a sample. In this research to get more accurate sample used Slovin formula (Sevilla 1993) that is:

$$n = \frac{N}{1 + Ne^2}$$

Information:

n = Number of Sample (respondent) required
 N = Number of Populations (N = 1901 people)
 e = Sample error (10%)

This study using normal N is 1901 people which is the total number of head of family, value of accuracy 10%, it shows level of researcher trust by 90%. Given the number of residents (Village Profiles Tajun Year 2016) amounted to 1901 families. Then:

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{1.901}{1 + 1.901(10\%)^2}$$

$$n = \frac{1.901}{1 + 19.01}$$

$$n = \frac{1.901}{20.01}$$

n = 95.05, so the sample number is 95 HH.

Data Collection Techniques

Data collection techniques in this study are limited to primary data and secondary data. Primary data is data obtained from the first source, while secondary data is primary data that has been processed further. Another definition of primary data can be summarized as principal data of research, whereas secondary data is additional data used to refine primary data (Sugiarto, et al 2001). Primary and secondary data retrieval techniques are conducted in several ways, namely: interviews, questionnaires, observation and documentation can be explained as: Interview is a technique of data collection conducted by

holding communication to the respondents on the object of research. Questionnaire or questionnaire as a data collection tool, contains a list of questions in writing addressed to the subject / research respondents (Sanapiah, 1995). Observation is the systematic observation and recording of the symptoms experienced. Observation is intended to look directly at the factual phenomenon of the research object. The submitted documentation is to collect data on the basis of existing documents, whether in the form of reports of records, files or other written materials that are relevant documents in this study.

Data Analysis

In this study data analysis includes: SWOT analysis as a tool of strategy formulation and how to make SWOT analysis as follows: SWOT Analysis as a formulation tool Strategy, where SWOT analysis is systematic identification of various factors to formulate company strategy. This analysis is based on logic that maximizes Strengths and Opportunities, but can simultaneously minimize Weaknesses and Threats. The strategy decision-making process is always related to the development of mission, goals, strategies and company policies. Strategic planning should analyze the strategic factors of the firm (Strengths, Weaknesses, Opportunities and Threats) under current conditions. This is called the situation analysis (Rangkuti, 2006) Table.Matriks SWOT analysis

TOWS Analysis	Strengths	Weaknesses
Opportunities	S-O Strategies	W-O Strategies
Threats	S-T Strategies	W-T Strategies

(Source: Fangkangkai F, 2006)

Determination of four kinds of strategies based on internal factors and external factors with the following models:

- 1) S-O strategy, made by utilizing all the power to seize and take advantage of the greatest opportunity.
- 2) S-T Strategy, made using the existing strengths to overcome the existing threats.
- 3) W-O strategy, created by exploiting opportunities and minimizing existing weaknesses.
- 4) W-T strategy, made to minimize weakness and avoid threats (Rangkuti, 2006).

4. Results and Discussion

Integrated Waste Management System implemented in Tajun Village with 3 R system (Reduce, Reuse, Recycle). Impacts resulting from the waste management include: clean and healthy environment, improve the community's economy and reduce the volume of waste disposed to TPA Bengkala Village Kubutambahan District, Buleleng District. Analysis of Internal and External Environment

Table of IFAS Matrix (Internal Factory Analysis Summary)

IFAS (<i>Internal Factory Analysis Summary</i>)				
No	(<i>Strength = S</i>)	Weight	Rating	Weight x Rating
Managerial				
1	Have an organizational structure	0.05	4	0.20
2	Has a Regulation of Rule Numbering Together; 07 Year 2012 on the Making of Integrated Waste Management Site (TPST)	0.10	4	0.40
3	Have financial administration	0.05	3	0.15
4	Payment of labor honors on time	0.05	3	0.15
Human Resources				
5	Public awareness in waste management system 3 R	0.05	4	0.20
6	Timely for household waste collection and market	0.05	4	0.20
7	Recruit local village workforce	0.05	3	0.15
Facilities and infrastructure				
8	Have an adequate garbage fleet	0.05	4	0.20
9	Availability of residue dumps	0.05	3	0.15
10	Availability of equipment for the process of making compost fertilizer	0.05	4	0.20
Total		0.55		2.10
No	(<i>Weakness = W</i>)	Weight	Rating	Weight x Rating
Managerial				
1	Not have Articles of Association and Bylaws (AD / ART).	0.10	1	0.10
2	Not yet have sanctions for the delinquent paying the garbage dues every month	0.10	2	0.20
Human Resources				
3	There is still a workforce dual positions	0.05	3	0.15
4	Lack of human resources in waste management	0.05	4	0.20
Facilities and infrastructure				
5	Facilities and Infrastructure still help DLH	0.05	3	0.15
6	The unavailability of garbage cans in every household.	0.05	3	0.15
7	Lack of trash cans in every alley	0.05	4	0.20
Total		0.45		1.15

In the IFAS Matrix Table data, it is seen that the dominant power in Tajun village integrated waste management is the Regulation of Perbukel Tajun Number; 07/2012 on Integrated Waste Management (TPST) with weight (0.10) rating (4) and total weighting (0.40). The high weighted way because formally the existence of integrated waste management is considered legal in the eyes of the law so that the district government can provide facilities and infrastructure. The weakness that is owned by Integrated Waste Management of Tajun Village is not yet have the Articles of Association and Bylaws (AD / ART). Weight (0.10) rating (1) and total weighting (0.10). The reason for weighting the highest weakness due to integrated waste management has been running and has an organizational structure but still the presence of personnel double position.

From the analysis results on the IFAS matrix, the strength factor has a total value of 2.10 while the weakness factor has a total value of 1.15

EFAS Matrix Table (External Factory Analysis Summary)

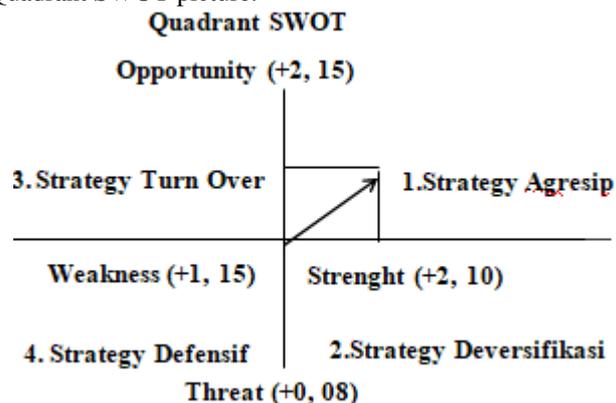
EFAS (Eksternal Factory Analysis Summary)				
No	(Opportunities = O)	Weight	Rating	Weight x Rating
Managerial				
1	Attention of local government in TPST	0.15	4	0.60
2	Awareness of farmers using compost	0.15	3	0.45
Human Resources				
3	Human resources opportunities follow waste management education and training	0.20	4	0.80
Facilities and infrastructure				
4	The ability of the community to pay the dues of household waste and the market so that it can be used to maintain and increase the number of facilities and infrastructure.	0.10	3	0.30
Total		0,60		2,15
No	Ancaman (Threats = T)	Bobot	Rating	Bobot x Rating
Managerial				
1	Compost fertilizer has not been able to meet the demand of farmers	0.10	1	0.10
2	Lack of organic waste for compost fertilizer	0.10	2	0.20
Human Resources				
3	The lack of human resources who have skills on waste management procedures	0.10	3	0.30
Facilities and infrastructure				
4	Insufficient facilities and infrastructure as needed	0.10	3	0.30
Total		0.40		0.80

In the EFAS Matrix Table data shows that the dominant opportunity in Tajun Integrated Waste Management of the Tajun Village is Human Resource Opportunity following education and training of waste management with weight (0.20) rating (4) and total weighting (0.80). The current Integrated Waste Management already has the facilities and infrastructure for the waste management process is very supportive of human resources to innovate to make crafts using materials from waste and marketing with the skills it has. The weakness that is owned by Integrated Waste Management of Tajun Village is that the compost cannot fulfill the farmers demand. Weight (0.10) rating (1) and total weighting (0.10). The reason for weighting the highest weakness due to Integrated Waste Management has been doing activities of making compost but until now has not fulfilled the demand of farmers who are the source of income. From the analysis result on the EFAS matrix, the probability factor has a total value of 2.15 while the threat factor has a total value of 0.80. From the results of IFAS and EFAS merger then the following results are obtained:

Subtotal Strength (S) = 2.10	Subtotal Weakness (W) = 1.15
Subtotal Opportunity (O) = 2.15	Subtotal Threat (T) = 0.80
Subtotal S + O = 4.25	Subtotal W + T = 1.95

It is known that Strength + Opportunity > Weakness + Threat. Then the strategic factors of strength and opportunity to support the achievement of the way out of the existing issues to obtain the expected recommendations. From the

identification of these factors can be seen in picture. Quadrant SWOT picture.



From the SWOT Quadrant Picture above shows the quadrant I that the strategy that needs to be applied to Integrated Waste Management Strategy of Tajun Village is a strategy by utilizing all the power to seize and exploit the greatest opportunity, in this condition is to support the aggressive growth policy.

5. Conclusions and Suggestions

5.1 Conclusions

Based on the discussion of research results from SWOT analysis, it can be drawn some conclusions as follows;

- 1) Integrated Waste Management Managerial System in Tajun Village has Organizational Structure, Regulation of Perbukel Tajun Number 07 Year 2012 About Making of Integrated Waste Processing Place, public awareness in waste management and ability in paying garbage retribution, having financial administration, and payment of labor fee on the time of the month of deficiency, not yet the formation of AD / AR, not yet applied sanctions to the community for the delinquent paying the garbage levy, the production of compost fertilizer has not been able to meet the demand from farmers and income from levy fees levy household waste, sales of organic waste and compost sufficient for operational and labor costs.
- 2) The Integrated Waste Management System in Tajun Village in the transportation of garbage is on time, the recruitment process is socialization and recruiting local manpower, the workforce has skill in waste management and have followed the education and training about the waste with the weaknesses Skills possessed by the workforce the results obtained during training and education on waste management have not yet been implemented by the Tajun village community cadres in terms of craft skills using materials from garbage and marketing, labor has not yet entered the Social Security Administering Agency (BPJS) and the lack of skilled Waste Manager in waste management.
- 3) System of Integrated Waste Management Facilities and Infrastructure Utilization in Tajun Village for garbage transport fleet, peratalan and building where composting process and office still help from Lingkungan Hidup Service. The limited garbage bin is in front of every household alley and there are still broken garbage bins and the absence of garbage cans in every household as a temporary dumping place.

Integrated Waste Management Strategy as follows:

- 1) Optimizing the Rules of Working Tariff Number; 07 Year 2012 on Establishment of Integrated Waste Management Site (TPST) and organizational structure to gain the attention of Local Government related to Integrated Waste Management (Strategy S-O).
- 2) Maintain and improve the timeliness of household and market garbage collection so that the relationship and community awareness to fulfill their obligation to pay the garbage levy that can be used in the maintenance and addition of the number of facilities and infrastructure. (S-O Strategy)
- 3) Establish the Basic and Household Scores (AD / ART) as guidance in the implementation of Integrated Waste Management which impacts the awareness of the local government so that there is closeness to coordinate and to obtain the necessary facilities and infrastructure. (W-O Strategy)
- 4) Increase revenues through increased household waste and compost production volume and optimize the operational expenditures in order to fulfill the payment of labor honor on time and add sarpras which funding is still assisted by BUM Desa. (S-T Strategy).
- 5) Imposing sanctions against the arrears of waste levy with the aim of sufficient facilities and infrastructure as needed (W-T Strategy)
- 6) Optimizing community awareness in waste management of 3R system with human resources who already have skills in waste management procedures obtained from following education and training to make craft using materials from waste and marketing (S-O Strategy).
- 7) Increase the knowledge and skills of human resources in waste management about the process of compost fertilizer and fulfillment solution will need organic garbage from outside the village to be able to production of compost fertilizer according to farmer's request. (W-T Strategy).
- 8) Optimizing existing garbage cans every household alley and adding trash cans to every household for temporary dumping so that public awareness of environmental cleanliness impacts on health (W-O Strategy).
- 9) Optimizing the equipment and place of compost fertilizer owned as well as human resources in increasing the production of compost fertilizer to meet the needs of farmers and avoid the purchase out of the village. (Strategy S-T).

5.2 Suggestion

The suggestions that can be given in this study as follows:

- 1) Implement changes to the organizational structure of Integrated Waste Management to avoid multiple positions and make the Articles of Association and Bylaws as guidelines in the implementation of these activities, Implementing socialization related to changes in increasing household waste levies and apply sanctions and Increase production compost fertilizer so that the demand of the farmers of tajun village by buying organic garbage in the village of Mengga.
- 2) Creating innovations on human resource skills that have resulted from waste management education and training by creating craft models whose materials are from waste and marketing.

- 3) The provision of garbage cans at each front of the household alley needs to be improved both in terms of quantity and maintenance so that in carrying out waste transport can run optimally in accordance with the expectations of managers and the community.
- 4) The Weaknesses and Threats of Integrated Waste Management are anticipated by using existing strengths and opportunities, among others, creating innovative handicrafts using materials from waste, increasing production of compost fertilizer, making AD / ART and maintaining timeliness in daily garbage collection.

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