

## Regional Government's Innovation in Sustainable Development-Based Garbage Management in Badung Regency

I Kadek Alit Manuarta<sup>1\*</sup>, Abdullah Said<sup>2</sup>, Wike<sup>3</sup>

<sup>1</sup> Master's Program of Public Administration Science, Faculty of Administrative Science, Brawijaya University

<sup>2</sup> Study Program of Public Administration Science, Faculty of Administrative Science, Brawijaya University

<sup>3</sup> Study Program of Public Administration Science, Faculty of Administrative Science, Brawijaya University

### Abstract

Innovation in garbage management becomes one of the adaptation strategies which is responsive to the environmental pollution impact. Regional government's innovation in garbage management is a city development concept which puts forward sustainable aspects. Sustainable development is a basic principle of garbage management concept, then it demands the presence of society's participation and the other stakeholders. The research aims to describe and analyze the regional government's innovation in sustainable development-based garbage management in Badung Regency. The research used descriptive research method with qualitative approach and qualitative data analysis of interactive model. The research results showed that the regional government in garbage management could be formed because the presence of motivation, skill, knowledge and conducive environment. The regional government's innovation in garbage management was on generating possibilities. On the other hand, the facilities and infrastructure which were not optimal yet became the inhibiting factor of innovation.

**Keywords:** Innovation, Garbage Management, Sustainable Development

### INTRODUCTION

Generally, the regional government often faces an obstacle concerning development in region, that is, the regional government wants to develop the available local resources but it does not run effectively; that problem, therefore, needs innovation. According [1], Innovation is an instrument to develop new ways in using resources and fulfils needs more effectively. The effort of public sector innovation in regional development continues to be done. This thing is related to Article 386 Section 1 of Law No. 23/2014 on Regional Government which states that in the framework of performance improvement of regional government implementation, the regional government can make innovation. Innovation alone has been a national agenda stipulated on Law No. 18/2002 on National Research, Development and Application of Science and Technology System.

The government who is in charge of the development has an important role in garbage management effort in regional areas. However, as we can see about this garbage management, almost in every regional government, the service in terms of garbage management is still seen not optimally to be done. It is seen to be ignored instead. This thing is related to environmental problems, especially in big cities in Indonesia. The

garbage which is not transported from the Temporary Storage (TPS) to the Final Storage (TPA) can cause environmental pollution.

According to Law No. 18/2008 on Garbage Management, garbage is the remnant of human's daily activities and natural process which is in the solid form. In Indonesia, the amount of solid garbage produced nationally reaches 151.921 ton/day. It indicates that every citizen discards solid garbage as much as 0.85 kg every day on an average. The data of the World Bank also mentions that of the total number of the garbage produced nationally, only 80% which is managed to be collected and the rest is discarded and pollutes the environment. The garbage volume in Indonesia is around 1 million meter cubic every day; however, only 42% is transported and processed well. Thus, the garbage which is not picked up every day is approximately 348.000 meter cubic or approximately 300.000 ton.

Garbage management as one of development aspects has an important function in order to support society's prosperity level, because it is related to health, lifestyle, settlement's environment condition and pleasure in daily life. Garbage management is frequently considered a matter to be taken care of "later", and then it is often marginalized from the other problems. However, along with the demand of society's life quality standard which increases, and the higher the environmental pollution level and the limitedness of environmental supporting power

---

Correspondence address:

I Kadek Alit Manuarta

Email : manuarthaalit@gmail.com

Address : affiliation address include post code

alone causes the garbage management to be one of development aspects which has to get a considerable attention.

Old paradigm of garbage management which has support by end of pipe approach is only limit of collecting, picking up, and discarding which ends at the Dumping Ground (TPA) with open dumping management or the garbage is left to be spread out to become a pile of garbage. This way is mostly chosen by big cities concerning garbage management because this method does not spend much cost and have an easy operation. That management method has a lot of risks called water, air and soil pollution, the emergence of bad smell and has an impact on society's health.

The poor garbage management certainly needs a better handling effort than ever. The regional government, therefore, is necessary to compose a strategy which urges the presence of good and sustainable garbage management method. As included in Article 3 of Law No. 32/2009 on Environmental Protection and Management (PPLH) that one of the purposes of environmental management is to realize sustainable development. The time has come that the garbage management with final disposal approach is abandoned and replaced with new paradigm of integrated garbage management. Besides, garbage management should have support by Law No. 18/2008 on Garbage Management which has 3R concept (Reduce, Reuse, and Recycle). Thus, garbage will be able to be reused and has value.

Not different from the other regencies/cities in Indonesia, in terms of garbage management context, Badung Regency also undergoes the same problem. Badung Regency is a dense region because of the tourism development which leads to a rapid population growth level in that region. According [2] The population number of Badung Regency in 2015 was as many as 616,4 thousand people which consisted of 314,3 thousand male inhabitants and 302,1 thousand female inhabitants. Therefore, the population density was quite high which reached 1.473 people/km<sup>2</sup>. That matter has an impact on volume amount of garbage disposal which results from society's activities in Badung Regency which reaches 208 ton/day.

From law and regulation aspect, the regional government of Badung Regency has issued Regional Regulation (Perda) of Badung Regency No. 7/2013 on Garbage Management as a legal standing of garbage management in Badung

Regency. The Regional Regulation stipulates that the Regional Government is responsible as the implementer of garbage management in order to change to a paradigm which utilizes garbage as included in Law No. 18/2008 on garbage management and Government regulation No. 81/2012 on household garbage and one kind of household garbage management.

The regional government's role is very important for the realization of innovation in the region. The implementation of regional autonomy in Indonesia becomes a gate for the regional government to build and develop its region so that the region has freedom to improve services according to challenges and opportunities faced. Thus, service development to the society can run effectively and efficiently. The regional government has a vital role on garbage management in its region. The government's participation in garbage handling according to Law No. 18/2008 Article 20 Section 2 on Garbage Reduction is that the government must carry out activities as meant in section (1) as follows: a) Determine garbage reduction target in stages within certain time span; b) Facilitate eco-friendly technology application; c) Facilitate eco-friendly product label application; d) Facilitate reusing and recycling activities; and e) Facilitate recycled products marketing.

Environmental and Sanitary Agency (DLHK) which was formerly known as Sanitary and Gardening Agency (DKP) is an agency of Badung regency government which gives services to society concerning region's sanitary and beauty field covering garbage management. Badung regency government's commitment regarding the subject is included in Regional Long Term Development Plan (RPJPD) of Badung Regency for the year of 2005-2025 which says "Regional Development which is Sustainable and Environmentally Sound". The garbage handling and control at tourism destinations in Bali Island especially in Badung Regency becomes vital considering that region has become a dense and urban region. As a result, innovation in garbage management must be carried out in order to be able to keep garbage disposal volume down in that region which is more and more piled up.

Further, this research aims to describe and analyze regional government's innovation in sustainable development-based garbage management in Badung Regency.

#### **RESEARCH METHOD**

This research used descriptive research method with qualitative approach. Through

descriptive research type, any information concerning the research was obtained as it was. On the other hand, qualitative approach was used to obtain descriptive data in the form of written words of people and behavior observed which was related to the research. The data collection method was through interview, observation and documentation. According [3] Data analysis method used was qualitative data analysis of interactive model from Miles, Huberman and Saldana.

#### **Data Collection Method**

Data collection method was done through: (1) Interview with the stakeholders of Badung Regency Environmental and Sanitary Agency and Badung Regency society; (2) Observation through direct observation in the field; (3) Documentation through primary and secondary data collection.

### **RESULTS AND DISCUSSION**

#### **Regional Innovation in Garbage Management in Badung Regency**

Badung Regency regional government's innovation in garbage management for reduction of garbage bulge had three stages as public sector innovation according [4], The first stage was generally idea generalization in which innovation idea was obtained through the research institution of regional government. It was stated that the amount of garbage bulge in Badung Regency was very high; the handling effort, however, was less effective. The second stage was the arrangement of innovation implementation. It was done through the regional government that was, Badung Regency Environmental and Sanitary Agency, the targets of whom were social group, schools, and business entity in Badung Regency with various programs in accordance with those targets. Assistance and tool aid to manage household garbage were given to the social group, education on garbage bank was for schools to give education to students regarding garbage management with 3R method (reduce, reuse, recycle), eco-friendly plastic program was for the business entity to reduce the amount of plastic use in running the business. The third stage was diffusion or spread by the Environmental and Sanitary Agency in the form of appeal and socialization regarding garbage management.

According [5] regional government's innovation to urge acceleration of regional government was described as follows: the position of garbage management in that innovation was still in generating possibilities

process. Generally, the possibility of innovation had been formed based on kinds of garbage which could be processed in the region to be recycled. Empirical fact showed that society did not want and was not willing yet to sort and process the garbage. Furthermore, all this time the development done by the society had not given added value optimally. Thus, incubating and prototyping process did not appear yet in innovation of garbage management. This second process was to prepare detailed plan and procedure of garbage management which would be done to reduce garbage and its pollution impact. There was potential garbage management empirically, but there was not any foundation for the innovation implementation. This matter caused replicating and scaling up ran as it was. The development of garbage management which came from the agency had not been combined yet with the preparation locally by seeing social capital in society. The social capital became the capital of group formation for further development of garbage management by facilitating the processing. Replicating and scaling up were parts of detailed preparation of development implementation to be applied in the field. The development activity of garbage management was implemented by directing the social group to make a location for the garbage management or garbage bank and giving the processing tools. Innovation was called as the successful innovation if the innovation designed could be applied. The application had to get through analyzing and learning process in order that innovation which had been applied could give positive impact to the development in the region.

The concept of innovation success of the research was factors which affected innovation success by Geoff Mulgan and David Albury covering: Motivation, Skills and Knowledge, and Environment which was conducive. The research result on regional government's innovation in sustainable development-based garbage management in Badung Regency would be explained as follows: a. Shared Motivation between Badung Regency Environmental and Sanitary Agency (DLHK) and society in innovation of garbage management was a dynamic component of innovation which consisted of trust development aspect and commitment toward the process of every stakeholder involved. The trust development built in innovation of garbage management that was, firstly DLHK made every garbage bank group put

high trust that garbage bank community could be a platform and a facilitator which were able to coordinate and accommodate any interest and need of every society. Moreover, along with the time and through activities done together between community groups, then trust between one another could be built. The further component in innovation motivation was commitment to the process. Every organization or institute involved in the innovation process should have high commitment toward the process course of innovation. This high commitment showed the presence of responsibility aspect in innovation process. In innovation of garbage management carried out by Badung Regency DLHK required every organization to do commitment to continue to implement innovation, because garbage management could not only be solved by the government, but also it was necessary to involve the society; b. Skill and Knowledge. In society context, in the beginning of innovation, the society certainly had minimum knowledge about appropriate garbage management, especially 3R method (Reduce, Reuse and Recycle) and knowledge concerning administration of garbage bank. The dominant group members were housewives who were only interested to be a member to pass their leisure and were interested in something to tantalize that garbage bank could increase their income through saving garbage activity. At first, the garbage bank member did not realize that the activity they did was a care effort about the garbage problem in Badung Regency. In other words, the society's participation in garbage bank group still tended to interest dimension and personal profit. However, along with the time, there was a mindset change of the society through garbage bank that the participation they did was a concrete effort in contributing to garbage management in Badung Regency. The activity done directly was an activity facilitated by Badung Regency DLHK through training activities of garbage management and becoming an initiator such as the training to the Dumping Ground (TPA) employee and garbage recycling activity done together with garbage bank group member. Those activities could improve the society's ability and knowledge about garbage management because the garbage management, especially in recycling context, really needed skill ability and special knowledge; c. Environment which was conducive. A good garbage management certainly needed sufficient facilities

and infrastructure, because either facilities or infrastructure could be tools or facilities to support the garbage management in Badung Regency. On the whole, Badung Regency alone in innovation of garbage management still had shortcoming in terms of the availability of Integrated Garbage Management Site (TPST) in every Village/District in which there were only 3 Integrated Garbage Management Sites located in Seminyak District, Kapal District, and Kuta District. Besides, the capacity of Suwung Dumping Ground (TPA) was already too full of garbage and lack of dump truck. On the other hand, facilities and infrastructure aspect which specially could support the society's participation in Garbage Bank Community in innovation of garbage management in Badung Regency was stated to have minimum facilities or infrastructure. The Garbage Bank Community only had 1 recycling machine of plastic garbage which usually could be used for recycling process of plastic garbage to become handicraft or decoration. Furthermore, part of Garbage Bank Community did not have a decomposer machine or garbage decomposer.

#### **Garbage Management Policy**

All this time, garbage management policy in Badung Regency was done with several innovative programs such as Garbage Bank and Integrated Garbage Management Site (TPST) as well as 3R method (Reduce, Reuse and Recycle) located at strategic site that was, a site which could be seen easily by the society with the hope that the other societies could develop it. Next, there was plastic garbage motorcycle driver program (GOTIK), education on garbage bank (BADU) and also eco-friendly plastic garbage program (PROLING). The grouping of one kind of garbage could be done sectorally which meant that the certain kind of garbage was put on separate land to be managed. According [6] This approach was called as sectoral approach.

Garbage field in planning region was a separate sector divided on garbage subsector. If sanitation sector had garbage subsector, waste management subsector and so on, then garbage field sector was divided again to be subsector in accordance with the kind of garbage such as household garbage, one kind of household garbage, specific garbage and many more. The division of garbage sector was a consequence of garbage variety, and then garbage subsector was distinguished again to be organic and inorganic garbage. The problem in region, however, was garbage management policy which was Top

Down by nature. As a result, on the whole it had an impact on the innovation limitedness of garbage management in the region and became less optimal because the society's participation was ignored. It happened due to the fact that priority and budget had been determined by the central government.

#### **Actor Involved in Garbage Management**

The actor involved on garbage management in Badung Regency was regional government that was Badung Regency Environmental and Sanitary Agency (DLHK). In fact, the task and function of Regional Agency as the implementer element of regional autonomy was to implement regional autonomy affairs either it was obligatory or it was optional. This regional government institution was related each other because the data of garbage and garbage management sector equipped each other. The agency had a task to regulate both coordination and management.

Further, the actors involved in management of garbage sector in Badung Regency were business entity such as modern market, traditional market, hotel and restaurant. The business entity's participation in garbage management in Badung Regency had a big role to reduce the amount of plastic garbage in society. It was because industry group or business entity took a part to the increase in conventional plastic garbage circulation which led to the increase in plastic garbage disposal volume in Badung Regency considering that Badung Regency was a tourist destination region. Consequently, synergy was needed in order to be able to keep the plastic garbage use down through cooperation between government, business entity and society.

Then, the stakeholder which had an important role in garbage management in Badung Regency was the society itself. It was because the society was as a source of garbage in which the household garbage was garbage which had the biggest amount of disposal. Therefore, the society had a duty to sort and to process the garbage before heading to TPA. The cooperation pattern done by the regional government through Regency Environmental and Sanitary Agency had a purpose that was, in order that the society understood well concerning household garbage management in Badung Regency. To tell the truth, in this point, the society's role could come in to reduce the amount of garbage transported to TPA. When the society's role became bigger and the garbage reduction became significant, then the environmental

conservation could be maintained. The option owned by the government was not only that, but the government could also manage on its own by modernizing the garbage management through innovation which was developed. This matter, however, had an obstacle because as we had known that the government's ability in terms of budgeting, institutional, and human resources was still limited. Another option was by doing privatization on garbage management in which all available garbage was managed by the private sector by applying the rule of garbage management modernization. This matter, rationally, fulfilled many aspects of environmental conservation and the private sector earned benefit economically. However, it should be noted that the society's prosperity should get a considerable attention as well.

#### **Garbage Management Innovation Impact**

Garbage management impact in Badung Regency which was less optimal not only institutionally underwent decline but also gave more serious impact that was, the lack of productive age people's interest who worked on garbage management sector on the whole because the income earned was low and it did not earn money fast.

Actually there was an increase in the processing result. Despite in a little amount, if it was done diligently, it would make a promising profit. The diligent characteristic of rural people became important to be noted because the garbage management was not modern yet. Then to urge an optimal result, the processing industry reinforcing was needed. Based on the previous discussion, the garbage management impact in Badung Regency could be seen from: a. Supplying of facilities and tools. The facilities and tools of garbage management had been provided through processing tool aid from the Province. However, the tools given had not been utilized by the society because the associate had not given the directive of product processing result; b. Handicraft processing result. The added value position of garbage management was on result processing. The result processing of recycled garbage in Badung Regency was not able yet to give maximal result because the processing was still simple and common. If the result processing was optimally managed, then it would increase the selling power of the recycling result itself. The added value which was higher and higher also could increase the commodity competitive ability in global market because the higher quality fitted the consumer's taste; c. Marketing.

The less promising impact of garbage management in Badung Regency was a difficult market. Each of development village had difficulty marketing management product. The selling price became very low when product was sold. The marketing was more and more difficult because local industry needed good quality of raw material; d. Coaching. The garbage management to earn a lucrative added value was not apart from sustainable coaching. The people of development village complained about the unavailability of coordination with the associate after the processing tools were given. This coaching was as a consequence of society empowerment to empower itself with the facility coaching from the regional government in order that the garbage management became a product which was more varied; e. Institutional regional government. The garbage management which did not quite develop was caused by the lack of clarity about management handling between central priority and regional priority. In this case, the garbage management in Badung Regency was still stumbled on the management authority of Badung Regency Environmental and Sanitary Agency (DLHK). It should be clear between central management by nature and regional management by nature as well as the organization clarity of regional officials who took care of the increase in result to give the product added value in groups.

#### **Garbage Management Innovation Application in Badung Regency to Meet Sustainable Development Aspect**

##### **Economic Aspect**

Economic impact had an effect in environmental development and construction. With the condition in which the amount of garbage soared, then garbage was not considered mere material disposal because garbage could be turned into economic development alternative. It could be done if garbage could be reused through 3R method (reduce, reuse, recycle) through garbage bank program which had been done by Badung Regency regional government through Environmental and Sanitary Agency (DLHK) which was in charge of management of garbage sector.

Innovation of garbage management in Badung Regency had an alternative impact of the amount reduction of household garbage disposal in society. Through the coaching in garbage management done also had an impact on the formation of business group run by the social

group with the various handicrafts resulted from the recycled garbage processing. Economic potential from the garbage which was interesting had been seen by the society, and then it could be a reference for the government as a benchmark that garbage was no longer a problem, but it became facilities of society empowerment. The role of regional government in garbage management who invited the society could be facilities to seek profit, because it was feared that the garbage would be commercialized and monopolized. Besides, the environmental value and society empowerment could not be ignored in garbage management. The support needed by the society from the government was by facilitating the innovation and the activator's idea should be organized well in order that the idea could be implemented to reduce and solve the garbage problem in Badung Regency.

##### **Social Aspect**

Looking into the social dimension of sustainable development in garbage management referred to the purpose of human development that was, the behavioral change to cope with the garbage problem. The low knowledge and competitive ability of human resources (SDM) in Badung Regency were necessary to be anticipated in order to realize the sustainable development in garbage management field. That matter was triggered by the quantity of society behavior that discarded garbage anywhere and lack of effectiveness on garbage management system which was available all this time.

In this case, the regional government took a stand by doing cooperation with all stakeholders in the management of garbage sector in order that good governance in social scope and sustainable development could be realized. According [7] Social sustainability could be achieved when the society's participation was high enough and run systematically.

Badung Regency regional government through Environmental and Sanitary Agency (DLHK) did cooperation by involving actors in garbage management in Badung Regency such as regional government, rural society group, school, and business entity which were available in Badung Regency.

##### **Environmental Aspect (Ecology)**

As a consequence, the status of Badung Regency as an urban region in Bali Province, the environmental problem resulted from either

garbage or garbage management system which was not optimal was almost the same as the other big cities in Indonesia. One of the issues faced by Badung Regency was the piling up of garbage. This was a logic thing that along with the increase in population growth intensity, then the amount of garbage disposal would also increase.

According [8] stated that garbage management was arrangement related to bulge control, storage, collection, transfer, transport, processing, and garbage disposal. Next, in its management had to refer to the best principles regarding society's health, economy, technique, conservation, aesthetic, and the other environmental considerations as well as response to mass behavior.

Innovation in garbage management in Badung Regency had a purpose as an alternative of amount reduction of society's household garbage disposal so that it could reduce a poor impact of environmental pollution resulted from the piling up of garbage anywhere and conserve the environment which was in accordance with the message of Badung Regency's development mission that was, improve protection and management of natural resources, environment, and disaster mitigation with facilities in the form of the improvement of waste and garbage management program through 3R effort (Reduce, Reuse and Recycle). Therefore, the government made an effort to develop the garbage management policy in order that it did not cause worse environmental destruction and pollution. One of the efforts of regional government was organizing regulation of plastic bag utilization in society through GOTIK program (Plastic Garbage Motorcycle Driver) which involved the stakeholders in Badung Regency. This matter was related to plastic garbage which could not be decomposed in soil in short period of time and take a long time to be decomposed in nature. This matter caused the environmental destruction if it was not wisely solved.

Besides, socialization related to maintaining environmental hygiene by not discarding garbage anywhere and also giving sanction for the offender had to be done by Badung Regency Environmental and Sanitary Agency (DLHK).

## **CONCLUSION**

This research concluded that to tell the truth, innovation in garbage management in Badung Regency not only became the government's responsibility and through Badung Regency

DLHK, but also needed to involve the society's participation, especially through indigenous village which was also supported by the other agencies of Badung Regency. Therefore, the garbage management in Badung Regency was done through a cooperation model between government and society in garbage management in Badung Regency which was done to support innovation of garbage management. Several innovation activities gave collaboration result of sustainable development which covered results in economic, social and environmental aspects.

The novelty and strengths of the research were the research showed the importance of the regional government's innovation in garbage management and the society's participation to make the effort for the realization of sustainable development. The suggestion for the next research was that it was hoped that the next research could investigate the regional government's innovation in sustainable development-based garbage management more deeply.

## **REFERENCES**

- [1]. Muluk, M Khairul. 2008. Knowledge Management: Kunci Sukses Inovasi Pemerintah Daerah. Jatim: Bayumedia Publishing.
- [2]. BPS Kabupaten Badung, 2016
- [3]. Miles, Matthew B. & A. Michael Huberman. 2014. Analisis Data Kualitatif. Jakarta: UI Press.
- [4]. Lekhi R (2007): "Public Service innovation", A research report to the Work Foundation's Knowledge Economy Programme, London UK.
- [5]. Mulgan, G. and Albury, D., 2003, Innovation in the Public Sector. Strategy Unit, Cabinet Office, UK.
- [6]. Tarigan, Robinson. 2012. Perencanaan Pembangunan Wilayah. Jakarta: Bumi Aksara.
- [7]. Asdak, Chay. 2012. Kajian Lingkungan Hidup Strategis: Jalan Menuju Pembangunan Berkelanjutan. Yogyakarta: Gadjah Mada University Press.
- [8]. Yones, Indra. 2007. Kajian Pengelolaan Sampah di Kota Ranai Ibukota Kabupaten Natuna Provinsi Kepulauan Riau. Tesis Magister Ilmu Lingkungan, Program Pascasarjana Univeritas Diponegoro, Semarang.

- [9]. Undang-Undang No 23 Tahun 2014 tentang Pemerintahan Daerah.
- [10]. Undang-Undang Nomor 18 Tahun 2002 tentang Sistem Nasional Penelitian, Pengembangan dan Penerapan Ilmu Pengetahuan dan Teknologi.
- [11]. Undang-Undang No. 18 Tahun 2008 tentang Pengelolaan Sampah.
- [12]. Undang-Undang No. 32 Tahun 2009 tentang Perlindungan dan Pengelolaan Lingkungan Hidup.
- [13]. Peraturan Pemerintah Nomor 81 Tahun 2012 tentang pengelolaan sampah rumah tangga dan sampah sejenis rumah tangga.
- [14]. Taufik, Tatang A. 2005. *Pengembangan Sistem Inovasi Daerah: Perspektif Kebijakan*. Jakarta: P2KT PUD-PKM dan Deputi IV Menristek-Bidang Pengembangan SIPTEKNAS