

The 7-strategy method to initiate the formation of community networks for sustainable plastic marine pollution management in remote islands; case study of Baolang Village, Alor Regency – Indonesia

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Abstract

Plastic marine pollution has become a global concern. It brings negative impacts not only on coastal areas but also on remote islands where the production of plastic waste is measly, including in Baolang Village located in Pantar Island, East Nusa Tenggara Province, Indonesia. An essential effort to address the problem is initiating the formation of community networks for sustainable plastic marine pollution management in remote islands. In the case of Baolang Village, the community networks were initiated by implementing the 7-strategy method, developed by the research team. The study aimed to determine the effectiveness of the 7-strategy method to initiate the establishment of community networks for sustainable plastic marine pollution management in Baolang Village. The 7-strategy method had been exercised against 8 effectiveness parameters. All parameters have reached the expected targets; even some parameters have exceeded the targets. In conclusion, the 7-strategy method can effectively initiate the establishment of community networks for sustainable marine plastic pollution management in the case of Baolang Village. Moreover, an additional essential benefit of the 7-strategy method is that it can strengthen cooperation among various stakeholders in terms of sustainable marine pollution management.

Keywords: Marine pollution; Plastic waste; 7-strategy method; Community networks; Remote Islands

1. Introduction

Plastic marine pollution has become a global problem. It burdens not only coastal areas which usually become the site of plastic pollution but also remote islands where the production of plastic waste is measly. The plastic waste is carried by the current that passes through the remote islands, and as a result, pollutes the remote islands. Eventually, remote islands are prone to be the victims of plastic marine pollution.

One of the remote islands in Indonesia affected by marine plastic pollution is Pantar Island in East Nusa Tenggara Province (NTT). Baolang Village as one of the villages on the island of Pantar receives the impact of this pollution even though the community produces plastic waste in the least amount. Therefore, it is necessary to make efforts to tackle

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marine plastic pollution in the village. One of which is establishing community networks for sustainable plastic marine pollution management in the village.

Several studies have shown the role of the community as a form of social participation in the sustainable management of pollution [1, 2, 3]. Currently, social participation is nothing but the role of digital citizen participation in advancing social sustainability. Communities as digital citizens have the ability to mobilize themselves to become a part of a community that can drive changes quickly. The individual power of digital citizens has the potential to immediately initiate a community related to the issue of plastic marine pollution. Hence, developing a method that can immediately initiate this community becomes an urgent need.

The research team has developed a method called the 7-strategy to initiate sustainable marine plastic pollution management in remote islands through the establishment of community networks. The purpose of this study was to determine the effectiveness of the 7-strategy method in initiating the formation of community networks for sustainable plastic marine pollution management in Remote Island through the establishment of a community network in Baolang Village.

2. Material and methods

The research was conducted in Kupang and Baolang Village, Alor Regency for 3 months, September to November 2019. The method applied in this research was an independent method developed by the research team, namely the 7-strategy to initiate sustainable plastic marine pollution management in remote islands. The method is a series of systematic steps consisting of 7 steps:

2.1. Step 1 - Proposal preparation

This provided an overview of the general plan of community initiation efforts as a guide used to communicate and advocate for both individuals, village government, village communities and experts involved.

2.2. Step 2 - Digital information media selection

The digital information media chosen was social media using the platform as WhatsApp and blog. A WhatsApp group was created to facilitate communication among volunteers and a blog was created for communication and promotion purposes. Both were managed by volunteers.

2.3. Step 3 - Volunteer recruitment

Volunteers involved in community network initiation came from various backgrounds. Volunteers in the Blog Making Training consisted of university students, representatives of Baolang villagers and IT experts. Meanwhile, volunteer experts for the village regulation drafting were university lecturers, IT experts, and officials from Law Bureau, planning agency, environment and forestry agency, transportation agency, and energy agency.

2.4. Step 4 - Advocacy to the village officials by expert volunteers

This was carried out through discussion by phones or online media.

2.5. Step 5 - Marine Waste digital media making training

In the framework of this research, the training provided was Marine Waste Blog Making training. Implementation of Marine Waste Blog Making training was a one-day training conducted at BioScience Lab, Nusa Cendana University. The training was conducted using a combination of training methods, namely: instructor-led classroom training, hands-on training, video training, and discussion.

2.6. Step 6 - Drafting a village regulation on Waste Management

This was carried out through expert discussions, literature review on waste-related policies, and analysis of SDGs content in the draft.

2.7. Step 7 - Evaluation

The parameters used for this evaluation include: the availability of proposals, the number of online information media used for formatting community initiation, the number of volunteers, the number of discussion activities among village officials and expert volunteers during advocacy, implementation of Marine Waste Blog Making training, a draft of village

regulation on waste management, the number of articles regulating plastic waste on the draft of village regulation on waste management, the number of visitor of the blog created.

3. Results and discussion

The result of exercising the 7-strategy method against the parameters can be seen on the following table. Based on the results described in the table, it can be seen that the initiation to form community networks for sustainable plastic marine pollution management using the 7-strategy method can be performed effectively and successfully in the case of Baolang Village.

Table 1 A comparison of target and realization of the 7-strategy method against the parameters

No.	Parameter	Target	Realized
1	The availability of proposals	Available	Available
2	The number of online information media	2 media (blog and WhatsApp group)	2 media (blog and WhatsApp group)
3	The number of volunteers	17 people	35 people
	Villager	2 people	4 people
	Student	10 people	23 people
	Public	2 people	2people
	Expert volunteers involved in advocacy	3 people	6people
4	The number of discussions during advocacy	6 times	6 times
5	Implementation of Marine Waste Blog Making Training	Done	Done
6	A draft of village regulation on waste management	1 document	1 document
7	The number of articles regulating plastic waste	5 articles	8 articles
8	The number of visitors to the blog created	30 visitors	90 visitors

All parameters have reached the expected targets even some parameters have exceeded the targets.

3.1. Proposal availability

A proposal plays an important role in the accomplishment of this research. It serves as guidance to initiate the community networks formation that will be formed. Moreover, the proposal guides everyone involved in the activities in carrying out their respective roles.

3.2. The number of online information media

In this research, 2 online media platforms were successfully created as a means for the establishment of the community networks initiation on sustainable marine waste management. The selection of these two media is based on the capacity of information technology knowledge possessed by all personnel involved in the activity.

3.3. The number of volunteers

The number of volunteers who were successfully recruited exceeded the expected target. Volunteers involved in this activity consist of villagers, students, public, and expert volunteers from various types of background.

As a matter of fact, the existence of volunteers is relevant to all areas of life and brings positive impacts on many aspects. Volunteers play important roles in community, economic, cultural and environmental development. For example, volunteers who involve actively in waste collection and subsequent recycling activities provide positive contribution to the environment and economy. In addition, they are usually proud of their volunteering activities and thus often encourage others to engage in similar activities. These are the strength and potential roles of volunteers which will accelerate the establishment of networks community for sustainable plastic marine pollution management [4, 5, 6].

3.4. The numbers of discussion during advocacy

The number of discussions that occurred during the process to produce a draft regulation of plastic waste management was in line with the target. It means that the discussions took place effectively. An interesting part was the fact that the discussions explored the reasons why drafting the regulation had come about. This encouraged local government staffs to understand the goals to be achieved by the regulation.

3.5. Implementation of Marine Waste Blog Making Training

Training is an important tool in the process of facilitating changes. Elements of the training support the trainees in identifying driving forces and hindrance factors to achieve the changes. The Marine Waste Blog Making Training has been carried out according to the target of training material coverage and training time. Conducting such training effectively has positive implications as it can shorten training time, reduce training costs and enable trainers to be more effective in delivering training material [7]. Thus, the effective training, which had been conducted, could strengthen the competence of volunteers involved in the community networks initiation for sustainable plastic marine pollution management in Baolang Village.

3.6. A draft of village regulation on waste management

The success of compiling this draft is an indication that the community networks on sustainable plastic marine pollution management is not only formed as a volunteer group but has become a part of the stakeholders who actively assist the local government in carrying out its obligations towards the implementation of the environmental law. This indicates that the initiation of the community networks has encouraged the acceleration of cooperation among various sectors in dealing with real actions to overcome the problem of plastic marine pollution.

3.7. The number of articles regulating plastic waste

Of the 28 articles contained in the draft of village regulation on waste management, 8 articles regulate plastic waste. This exceeded the target. It means that the advocacy that has been carried out has driven initiatives from various parties to look at the problem of plastic waste management more in-depth.

Regulating waste management, particularly plastic waste, is a real government measure to tackle plastic marine pollution. In fact, governments in many developed countries have implemented various policies to reduce plastic waste. Currently, more stringent and detailed regulations on marine plastic waste are needed to provide a stronger legal basis to minimize damage to the marine environment due to plastic waste pollution [8, 9]. The existence of this draft was an initiative that appears as a real contribution from the community networks that had initiated the sustainable management of marine plastic pollution in Baolang Village. It demonstrates that the initiation to create the community networks has accelerated cooperation among various sectors in facing concrete actions to address the problem of marine pollution caused by plastic waste. This is the real answer to the formal legal need.

3.8. The number of visitors to the blog created

Using a weblog, or blog, as a medium for conveying knowledge has gained fast recognition. In collaborative work, blogs carry significant benefits and are very useful for promoting knowledge in a cross-cultural environment [10]. The number of visitors to the blog shows that the process of initiating the formation of the community networks has been running in an effective digital communication. This is a positive implication for the sustainability of the community networks initiation on sustainable plastic marine pollution management in Baolang Village. Moreover, the number of visitors was related to the number of communication between volunteers and the others as digital citizens in the community which is starting to take shape. The adequate number of visits is an indication that the process of initiating this community-building has been successful.

4. Conclusion

Plastic marine pollution has become a global concern. It brings negative impacts not only on plastic waste producing areas but also on remote islands where in-home plastic waste production is naught, including in Baolang Village located

in Pantar Island, Alor Regency Indonesia. An essential effort to address the problem is initiating community networks establishment for sustainable plastic marine pollution management. In the case of Baolang Village, the formation of community networks was initiated by implementing the 7-strategy method. The method has been exercised against 8 effectiveness parameters. As a result, the 7-strategy method could effectively initiate the formation of community networks for sustainable marine plastic pollution management in Baolang Village. Moreover, an additional essential benefit of the 7-strategy method is that it can strengthen cooperation among various stakeholders in terms of sustainable marine pollution management.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors whose names are listed on this paper declare that we have no conflict of interest.

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