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## Preface

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## Preface

Excellences, Distinguished Participants, Ladies, and Gentlemen,

I am honored and delighted to welcome you to the 1st International and National Symposium on Aquatic Environment and Fisheries (INSAEF) 2020 of Syiah Kuala University on behalf of the conference committee. I wish to take this opportunity to welcome all the participants, the keynotes, and our invited speakers for coming to our campus virtually.

This year is a different year. The pandemic has shifted our workspaces to home. However, we believe that communication amongst the scientist should remain connected and updated. The INSAEF allows the researchers, scientists, and students of the aquatic environment and fisheries to share their work, thoughts, ideas, learn from and lean on each other in this challenging time. The International and National Symposium on Aquatic Environment and Fisheries (INSAEF) is held virtually. This is due to the pandemic states of COVID-19 in Indonesia and the increase of cases number in Aceh especially. Therefore, the Rector of Syiah Kuala University has released a protocol that all academic activities should arrange virtually or by an online platform. The policy of 14-days quarantine also urges this symposium conducted virtually.

The safety during the pandemic of COVID-19 states is still unpredictable while the work of scientists is needed to be published and updated soon. Besides, the communication amongst the scientist and sharing information into the community should remain connected and updated. The effortless online conference platform (Zoom Conference Meeting) supports this symposium conducted without postponed.

This symposium consisted of three sessions: plenary, parallel session, and fast presentation. The plenary session has two keynote speakers that will deliver their talk in 45 minutes for each. The parallel sessions will be divided into five parallel sessions and every session will have 1 invited speaker that will deliver their talk in 20 minutes for each and approximately 15 oral presenters that will deliver their talk in 10 minutes. Finally, fast presentation session will have ten presenters who will talk for 5 minutes in each class. Each keynote speaker will talk in 45 minutes in a plenary session, 10 minutes in a parallel session, and 5 minutes in a fast presentation session included the Q&A session. Each session will have a moderator who will manage the whole session included Q&A session.

The participants are from Indonesia (Aceh, Bogor, Bali, Padang, Kepulauan Riau etc), Malaysia, Germany, The United Kingdom, USA representing the students, lecturers, and researchers. The targeted number of all participants is 430 participants divided into 130 presenters (80 oral presenters and 30 fast presenters) and 300 non- presenters. After running a strong review, the committee received 115 articles to be published in IOP Conference Series:



Earth and Environmental Science.

Our technical program is rich and varied, with two keynote speeches, five invited talks, and seven parallel sessions. On this occasion, I also wish to thank our keynote speaker Prof. Dr. Agung Dhamar Syakti, S.Pi, DEA (Rector of Universitas Maritim Raja Ali Haji), Prof. Dr. Muchlisin, ZA., M.Sc (Dean of Faculty of Marine and Fisheries, Syiah Kuala University) and our invited speakers Prof Dr. Siti Azizah Mohd Noor (Universiti Malaysia Terengganu), Associate Prof. Dr. Hawis H. Maduppa (IPB University), Dr. Sebastian Ferse (ZMT, Bremen), Dr. Sally Keith (Lancaster University) and Achmad Adhitya, Ph.D. (co-founder Jaringan Alumni Luar Negeri).

Finally, as the chairman of INSAEF 2020, I know that the conference's success depends ultimately on the many people who have worked with us to plan and organize both the technical program and supporting arrangements. I thank the Organizing Committee members who have all worked extremely hard to detail essential aspects of the conference programs, including the Rector of Syiah Kuala University Prof. Dr. Samsul Rizal, M. Eng. and the Dean of Faculty of Marine and Fisheries Prof. Dr. Muchlisin, ZA., M.Sc.

Sincerely yours,

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# Campaign "BOTAK" (bogor without plastic bags) as an environmental communication model for reducing plastic waste in marine environment

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**Abstract.** Plastic waste is one of the environmental problems facing Indonesia, which is called a plastic waste emergency country. Plastic waste has the potential to damage the ecosystem of living creatures in the sea and has a major impact on human life. Thus, special efforts are needed to reduce the dangers of plastic waste, including by switching to environmentally friendly shopping bags is one form of environmental innovation (eco-innovation) which aims to save the environment from plastic waste. This study aims to determine strategies to reduce the use of plastic bags carried out by the Bogor city government. This research is qualitative using the case study method. Data were collected through interviews, document analysis, literature study, and observation. The results show that the campaign carried out by the government needs to be supported by a more comprehensive approach by raising public awareness of the dangers of plastic waste from upstream to downstream so that a plastic bag dumped in a river in Bogor might end up killing whales at sea.

## 1. Introduction

Plastic bags are plastic wrapping bags, widely used to carry groceries. Based on the existing phenomena and various problems caused by plastic waste, it is important for the government to instill public awareness about the dangers of plastic waste, as already mentioned. regulated in Law No. 32 of 2009 [1] concerning Protection and Management of the Living Environment that "The living environment is a spatial unit with all objects, forces and conditions, and living things, including humans and their behavior, which affect nature itself, the continuity of life, and welfare of humans and other living creatures".

The city of Bogor, one of the cities in West Java, Indonesia, implements a policy of reducing the use of plastic bags as stated in the Mayor's Regulation Number 61 of 2018 [2]. Starting December 1, 2018, the Bogor city government has banned the use of plastic bags, as well as proclaimed Botak Day (Bogor without Plastic Bags). The implementation of this regulation began in modern retail companies and shopping centres that can produce 1.7 tons of plastic bags every day, considering that they are considered more ready than traditional markets. The total waste production per day in the city of Bogor is 650 tons and 5% of it is plastic waste. Based on data from the Bogor City Environmental Service, there are 23 outlets with transactions per day on average requiring 3 pieces of plastic bags, each transaction can produce 1.8 tons of plastic bags. The total amount of plastic bag waste per outlet per year is 10.95 million pieces.

The policy of reducing the use of plastic bags to switch to using environmentally friendly shopping bags is one form of environmental innovation (eco innovation) that aims to save the environment from



plastic waste. Innovation can be defined as an idea, method or object that is considered something new by certain individuals or social groups. The dissemination of innovation (diffusion) to members of the social system can be carried out in various ways, through interpersonal communication and media communication. One of the strategies carried out by the Bogor city government in this case is the "Botak" social campaign. This persuasion effort is carried out so that people begin to get used to reducing the use of plastic, especially single-use plastic bags when shopping, switch to using environmentally friendly bags. Therefore, we would like to know about implementation Botak's campaign policy and its evaluation at this time (in 2020) as an eco-innovation. We hope can develop the Botak's campaign strategy be formed as a model for environmental communication for reducing plastic bag waste in marine environment.

## 2. The Concepts

### 2.1. Campaign

Social campaigns are mostly carried out by government and non-government agencies with different objectives, from introducing programs to inviting them to take action. Research on campaigns and public awareness of the dangers of waste has been carried out by previous researchers using different methods and concepts. In this previous research study, researchers succeeded in tracing several previous studies including which evaluated the effectiveness of the public information campaign in Syros to reduce plastic waste, especially plastic bags in the local coastal / marine environment which resulted in the findings that there was no significant difference in their commitment to change the behaviour of using plastic bags [3]. Furthermore, it revealed that the campaign results turned out to significantly reduce waste in the environment compared to the implementation of policies [4]. Also that individual behaviour patterns that lead to waste reduction are rarely socially oriented or due to peer pressure (extrinsic motivation), but rely more on pure "altruistic" attitudes (intrinsic motivation) [5].

### 2.2. Diffusion of (Eco) Innovation

Diffusion is defined as: "The process by which an innovation is communicated through certain channels overtime among the members of the social system. It is a special type of communication, in that the message are concerned with new ideas" [6] "This shows that in the diffusion process there are communication activities where messages about new ideas are disseminated to the public. It is called a special form of communication because the messages contain new ideas. Here there is an element of newness which has special characteristics related to uncertainty. This level of uncertainty can be reduced through the availability of information.

The essence of the diffusion process is the exchange of information where an individual conveys new ideas to a person or a number of people. One of the communication channels considered important in the diffusion of innovation is the mass media. The mass media are more effective in creating and disseminating knowledge for innovation [6]. Meanwhile, interpersonal communication is more effective in shaping attitudes and changing behaviour related to these innovations. New ideas that are disseminated to the social system are known as innovation, defines "An innovation is an idea, practice, or object that is perceived as new by individual or other units of adoption" [6].

The problem that often occurs is that many environmental innovations do not meet clear relative benefit criteria, namely innovations that do not fit a preferred lifestyle, or cannot be observed, are not integrated with existing norms [7]. This makes many environmental innovations more difficult to propagate than technological innovations. In addition, environmental innovations are preventive in nature, where the benefit lies in preventing negative consequences which occur in the uncertain future.

### 2.3. Environmental Communication

Environmental communication is a process by which meaning about the environment and environmental problems is exchanged between individuals through a system of common symbols, signs, and behaviour. It includes verbal and non-verbal communication activities" [6]. Meanwhile, environmental

communication is a means for change, raising awareness, collaborating to overcome environmental problems, changing behaviour, and producing political, economic and environmental policies [8]

Environmental communication to increase awareness and credibility so that it covers seven areas in the communication process, namely (1) environmental rhetoric and discourse. (2) media and environmental journalism, (3) community participation in environmental decision making. (4) social campaigns and advocacy, (5) environmental collaboration and conflict resolution, (6) risk communication, (7) representation of nature in popular culture and green marketing [9]. Furthermore, there are at least 4 main principles in environmental communication, including: (1) the environment is not only material, there are social and symbolic processes; (2) the symbolic representation of the environment embodies the orientation of objects; (3) social, economic and ideological contexts can activate and inhibit the production of representations from the environment; and (4) the dominant system of environmental representation, including signs of environmental damage, ecological systems, health, climate change, or other signs in human life [9].

### 3. The Methodology

This research is a subjective research with a constructivist paradigm. The subjective approach assumes that knowledge does not have objective and fixed characteristics, but a subjective approach views social reality as a fluid and volatile condition through human interaction in everyday life [9]. The constructivist subjective approach builds the reality that the perpetrators are aware of. This approach views scientific research methods as insufficient to explain the mysteries of human experience, so it seeks to create meaning to understand individual subjective responses. The subjective view emphasizes the creation of meaning [10].

This research uses the case study method, because the authors see social campaign activities "bald" associated with the wider community which aims to change people's behaviour. Case study research is research that examines various characteristics of a few cases. These cases can be individuals, groups, organizations, movements or geographic units. Case study research intensively investigates one or a small set of cases, focusing on various details in each case and context. Case studies allow a researcher to link the micro level, or actions taken by individuals, to the macro level, or large-scale structures and processes [11].

Data were collected by means of document and reference studies, observation, and interviews. Literature study was carried out on the results of scientific research regarding related campaigns and policy documents issued by the Bogor City Government, observations were made between August-September 2020 in several modern market locations in Bogor City, interviews were conducted with the community, academics, environmental activists, and elements of government. However, researchers have not succeeded in reaching key sources, the Mayor of Bogor and the government and legislative apparatus who produced and implemented this campaign program.

## 4. Results and Discussion

### 4.1. Implementation of the Botak Campaign Strategy

From August 2018 to December 2018 the Bogor City Government has carried out socialization about 150 times within 3 months which was also assisted by environmental communities and several NGOs. The initial target was only to target retail stores, then on August 17, 2019, the policy was applied to the modern market. Meanwhile, traditional markets are still given relief because the use of plastic bags is still very much needed to store foodstuffs, with the condition that in 2020 traditional markets must also be ready to follow this policy in order to achieve the target of Bogor City of zero plastic bags by 2025. The effectiveness of the Botak Campaign turned out to have a big influence on environmental awareness. Bogor program's effectiveness campaign without plastic bags significantly affected public awareness of the environment [12]. A research on consumers who shop at malls in the North Bogor area, there are still purchases of raw materials using residual plastic bags, which have accumulated 1.7 million tons per day or 5 percent of the total 650 tons of waste from modern shopping centres [13]

A campaign is an action that aims to achieve support, campaign efforts can be carried out by individuals or a group of people who are organized to achieve a decision-making process within a group, using various communication media to get public support. In order to gain public support, a person or group tries to convey messages that have been planned in such a way through various ways either directly or using the media. In this Botak Campaign, the mayor of Bogor has a total role as a focal actor. In the Diffusion of Innovation Theory, he is one of the innovators who also directly disseminate the innovative products he releases. He is also a brand ambassador. In fact, he changed his appearance to be Botak ('botak' in English means bald; shaved off his hair) and campaigned massively on his social media channels. In addition, Bima Arya's Botak campaign activities have been previously described, sourced from media coverage archives.

According to our observations, modern retailers also provide shopping bags that can be purchased by consumers who do not carry shopping bags. Or, they offer used cardboard. The knowledge of the Botak Campaign seems to be past its time. However, the stage that is now being reached by consumers of the Bogor retail stores is behavior. Our source, a communication expert, said that policy actually this is also an advantage for the shop. He sells shopping bags. He wrote the name and logo of the shop. The shopping bag is bought by consumers. He makes money from selling pouches and also makes money from brand activation. Hitching a free ad. (Dr. PMA, Jakarta, 3 September 2020)

However, the Environmental Engineering lecturer who is a marine expert gave statement that the problem of the Botak campaign is connected to protecting the waters, the correlation is quite far, but it can indeed be an effort to protect the waters from plastic waste. This campaign is too small to be a role model but at least it's done. It needs coordination and cooperation that is broader and more evenly distributed, for example, along the area that is traversed by Ciliwung (Dr. AA, marine scientist, Jakarta, September 2, 2020). Likewise, Dr. EB, our resource person, an environmental communications expert, stated that in terms of environmental communication, yes, a model can be formed. However, it should also be considered how the implementation in the practical because it requires efforts of a very more larger than a role model of this campaign (Dr EB, Bogor 10 September 2020)

#### *4.2. Botak Campaign and Eco-Innovation Implementation*

Eco innovation is an implementation of the Diffusion of Innovation theory. Eco innovation will be successful if it involves strong actors [14] and is accepted by the market [15]. This can be seen from the changes to #BogorTanpaKantongPlastik on Instagram. In popular uploads, it still displays photos and documentation of campaign activities. However, in the latest uploads, the images are dominated by sales of stylish and fashionable shopping bags. Scholars suggest that strong relationships with strategic suppliers will lead to the development of additional environmental innovations while weak relationships with multiple suppliers and with suppliers that bridge structural holes will tend to lead to radical environmental innovations [16]. Furthermore, they suggest that once environmental innovation is developed, environmental innovation should be incorporated into other suppliers' operational processes to improve the sustainability performance of the focused company.

Eco innovation is aimed at technological transitions that occur through a process of eco-innovation transformation, which has complex political, institutional and cultural dimensions, in addition to technological and economic dimensions. The policies need to become much more stringent if eco-innovation is to drive technology transitions far enough away to solve pressing environmental challenges. Crucial in the political economy of this change is that eco-industry, supported by public opinion, is able to resist resistance from established industries that are about to lose from the transition, in a reformed global context where international agreements and cooperation prevent the relocation of environmentally damaging industries and drive their transformation [17]. The public accepts the paid plastic bag policy [18]

The Botak campaign is an eco-innovation diffusion. However, regarding this, Dr. EB (environmental communication expert) argued that the diffusion of innovation must also cover the whole concept as a whole, including opinion leaders, communication networks, and also the concept of adopter. It must be measured to what extent this eco-innovation can be accepted. If it is used as a campaign idea, it must

also be measured the adoption of eco-innovation that is owned by the message producer so that it can be ascertained that the message is not mistaken. So, this Botak Campaign is an implementation of the concept of eco-innovation in the form of policies. The innovation itself is the use of shopping bags not made of plastic so that it can play a role in reducing plastic waste pollution, especially in waters. The concept of diffusion of innovation implemented in this study is the figure of Bima Arya as a drafter and also, almost as a symbol of this campaign itself. The Mayor of Bogor used his entire figure, his personal branding, for this campaign, including by shaving his hair to identify himself with the term Botak (bald) as his campaign jargon, on his personal account.



**Figure 1.** The 'Bald' Mayor of Bogor supporting Botak Campaign (Source: Facebook)

The two-year run of the Botak Campaign, based on observations and interviews, has made mothers feel "just plain" carrying their own shopping bags. Slowly getting used to and no longer bothered by the necessity. However, these housewives have not yet done bringing their own shopping bags to stalls or traditional markets. According to my observation, many of traditional stall also enforces plastic diet policies. They also provide shopping bags and boxes for packing groceries.

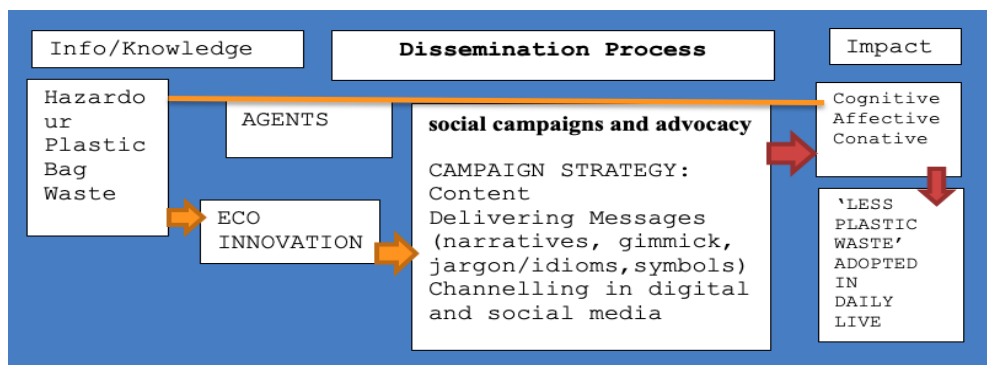


**Figure 2.** 'No Plastic Bag' Packing in Traditional Stall (personal documentation)

#### 4.3 Environmental Communication Model

The plastic bag ban is considered to have ignored its economic potential. The policy of reducing the use of single-use plastic bags has, among others, been challenged by the Indonesian Association of Micro, Small and Medium Enterprises (Akumindo) and Indonesian Plastic Industry Association (Inaplas). Cited in a news of *tirto.id* (2 July 2020) that they objected to Governor Anies Baswedan's policies regarding limiting the use of plastic bags because they were considered not crucial during this pandemic and would also aggravate small businesses. In addition, the provincial government does not provide cheap and easy alternatives to packaging liquid or liquid products. It is claimed that the ban will hit the industry and potentially make up to 5,000 people out of work [19].

This Botak Campaign strategy can be formed as a model for environmental communication. This can be seen in a research regarding the effect of exposure to news of marine animals dying from plastic waste and the zero-waste campaign on the behaviour of reducing the use of plastic bags [19]. Furthermore, the hypothesis test results of the effect of zero waste campaign exposure on the behaviour of reducing the use of plastic bags show that there is a significant effect with a positive regression coefficient, which means that the higher the exposure to the zero-waste campaign, the higher the behaviour of reducing the use of plastic bags. We suggested design model for environmental communication.



**Figure 3. Diagram 1** Environmental Communication Model from Botak Campaign Pattern

The model suggested from one of environmental communication form namely social campaign and advocacy. Hazardous plastic bag waste is an information or knowledge intended to be aware by people, and encourage public action and participation. The Agents (in this term, means decision maker in government) have to deliver the new concept or idea as an eco-innovation. The agent has to be dealt with special strategy in campaigning those eco innovation in order to get special impact.

The environmental communication model using a campaign to reduce the use of used plastic bags can be part of an effort to save the aquatic environment: 'without access to biodegradable, environmentally friendly products, and a circular plastic system, coastal communities and surrounding marine ecosystems will continue to be inundated in plastic waste'. [21] This can refer to a river that will then carry the trash into the sea. In this case, the Java Sea gets garbage from the Bogor people through Ciliwung river.

## 5. Conclusion

The Botak Campaign is a small step on the way to achieving the goal of the Plastic Bag Diet, especially in the effort to preserve the aquatic environment. However, the explanation regarding the implementation of the Botak Campaign and the achievements that have been obtained during the two years since it was implemented can illustrate that these small efforts must somehow be made for a very large, even though local, interest: to prevent plastic waste from upstream in Bogor from polluting the Java Sea waters, for example. Furthermore, much greater efforts are needed, including revamping the upstream sector and improving recycling mechanisms to solve the problem of plastic waste.

In terms of campaign strategy, Botak Campaign strategy is interesting because the dissemination of ideas (in the form of eco-innovation) is carried out actively and attractively by maximizing the figure of the Mayor as a gimmick so as to encourage public action and participation. Also, by maximizing citizen communication channels, such as on Facebook and Instagram. So, if marine experts are interested in running a campaign too, they can adopt such techniques.

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