

Communication Campaign for the Conservation of Maragondon-Labac River in Support to DENR's *Manila Bayanihan Para sa Kalinisan*

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ABSTRACT

The researchers conducted this study to design a communication campaign for the conservation of Maragondon–Labac River in support to DENR's *Manila Bayanihan Para sa Kalinisan*. Specifically, it aimed to: determine the existing communication campaigns for these rivers; 2. design communication campaign materials whose message anchors on the said DENR program; 3. determine the information to be included in the communication campaign materials; 4. determine the perception of the selected residents in Brgys. Kayquit I, Kayquit II, and Kayquit III, Indang, Cavite on the designed communication campaign; and 5. identify the participants' most preferred campaign material. The study employed a mixed methods approach, using various methods such as interviews, focus group discussions (FGDs), and surveys. Purposive and quota sampling techniques were used to select the 27 informants for the interview and FGD, and 150 participants for the survey, respectively. The researchers were able to design a poster, a pamphlet, a brochure, and a flyer. Findings revealed that the majority of the survey participants perceived the designed communication campaign as highly effective in promoting the conservation of Maragondon-Labac River. Meanwhile, the poster was found as the most preferred material by the participants while the flyer was their least preferred material.

Keywords: communication campaign, communication campaign materials, river conservation, Maragondon-Labac River, Manila Bay, DENR *Manila*

INTRODUCTION

The environment is not the government's monopoly. Everyone should see himself as part of the solution to environmental problems.

- Ramon Paje, then-DENR Secretary (2014)

The river is one of the most accessible forms of freshwater (Lanting, 2011, as cited in Nebreja, 2012). It is used as a source of food and hydropower to drive machinery, a way of transportation, a defensive measure, a resource in farm irrigation, and a component of eco-tourism, among others.

However, the Department of Environment and Natural Resources (DENR) reported 50 already-destroyed rivers in the Philippines because people are using them to dump their rubbish, leaving these biologically dead (Unday *et al.*, 2010).

Given this, public communication campaigns prove to play an integral role, especially in communicating to the greater community vital messages about protecting the environment.

According to Atkin and Rice (2013), public communication campaigns are time-specific and purposive initiatives that inform and influence the behaviors of a large audience through disseminating clear and consistent messages across many communication channels or activities. Nisbett and Ross (1980, as cited in Crucena & Federico, 2002) state that through newsletter articles, exhibits, and other in-depth presentations of information, it is possible to widen the perspective and involvement of the public in environmentally responsible behaviors. Hansen (2018) likewise adds that much of what people know and learn about the environment—its issues and problems—is brought to their attention through mediated forms of communication.

Manila Bay, for instance, has been noted as a “reeking cesspool of sludge, human sewage, industrial waste, and garbage” (Greenpeace, 2013). The situation then stirred collaborative efforts from many government agencies, thus, the launch of DENR’s *Manila Bayanihan Para sa Kalinisan* program. It is a multi-stakeholder initiative that promotes the Filipino tradition of “*bayanihan*” in working toward simultaneous cleanup and restoration of waterways leading to Manila Bay. Of these waterways draining to the bay include Maragondon–Labac River.

Maragondon and Labac Rivers are two of the six major rivers in the Province of Cavite (The Official Website of the Province of Cavite, General Information, n.d.). Maragondon River, 35.6 kilometers, and Labac River, 30.5 kilometers in length, have tributaries traversing from the municipality of Indang, Cavite to the municipalities of Maragondon and Naic.

Hence, this study entitled, “Communication Campaign for the Conservation of Maragondon–Labac River in Support to DENR’s *Manila Bayanihan Para sa Kalinisan*,” made use of communication campaign materials to promote conservation of the said rivers. Flor (2004) underscores that communication campaigns could be applied even to environmental management and protection. The researchers designed communication campaign materials such as a poster, pamphlet, brochure, and flyer.

In so doing, the municipal government of Indang, Cavite would be encouraged to leverage on communication efforts that intend to prevent harmful human activities which significantly affect the rivers. This is as any efforts to conserve Maragondon–Labac River have to start by accounting for the tributaries in the said municipality. Interestingly, the interview results with the head of Indang–Municipal Environment and Natural Resources Office (MENRO) revealed that there were no communication materials yet developed to promote conservation of the said rivers. Thus, this study would serve as a launching pad toward developing relevant communication campaign materials that promote Maragondon–Labac River conservation. Future

researchers may also engage in designing their own communication programs and partnering with key local government units (LGUs) to promote conservation of other Cavite river systems.

STATEMENT OF THE PROBLEM

Generally, the study aimed to design a communication campaign for the conservation of Maragondon–Labac River in support to DENR’s *Manila Bayanihan Para sa Kalinisan*.

Specifically, the study attempted to answer the following questions:

1. What had been the existing communication campaigns for the conservation of Maragondon-Labac River in Indang, Cavite?
2. What were the materials to be designed and created for the communication campaign whose message anchors on the goal of DENR’s *Manila Bayanihan Para sa Kalinisan*?
3. What were the pieces of information to be included in the communication campaign materials?
4. What was the perception of the selected residents in Brgys. Kayquit I, Kayquit II, and Kayquit III, Indang, Cavite on the designed communication campaign?
5. Which was the residents’ most preferred communication campaign material for the conservation of Maragondon-Labac River?

Theoretical Framework

The study was anchored on Information Integration Theory which was developed and refined by Norman H. Anderson in the late 1950’s. The theory aims to describe and model how a person integrates information from several sources to make an overall judgment. The theory explores how attitudes are formed and changed through the integration of new information into existing cognitions or thoughts. It introduces two

crucial variables – the valence, which is the evaluation of information, and the weight, which is the perceived importance of the information by the receivers (Anderson, 2016).

In this study, the researchers designed the communication campaign materials to provide the residents with information about the ways they can conserve their rivers. This information included essential information about the Maragondon–Labac River, their importance and challenges, and actions that the residents can do to conserve such rivers. These then formed the contents of the campaign materials.

Meanwhile, the perception of the residents of Brgys. Kayquit I, Kayquit II, and Kayquit III on the communication campaign was based on how they perceived the favorability (valence) and importance (weight) of the information presented in the designed campaign materials. On the one hand, the campaign is “highly effective” if the residents perceive the information in the materials as highly favorable (positive valence) and as highly important (high weight). On the other hand, the campaign is “highly ineffective” if the residents perceived the information in the materials as highly unfavorable (negative valence) and as highly unimportant (low weight).

The researchers then focused more on increasing the valence and weight of information to not only achieve high or positive perception on the communication campaign but also to support the desired positive attitude or outcome, that is, the conservation of the rivers.

METHODOLOGY

Research Design

This study employed mixed methods research approach, using sequential exploratory design. The researchers used mixed methods approach as they collected and analyzed both quantitative and qualitative data within the study (Shorten & Smith, 2017). More so, sequential exploratory design was used because the study first involved

qualitative data collection and analysis, followed by quantitative data collection and analysis (Creswell, 2009).

Firstly, the qualitative data were obtained through interviews with MENRO heads of Maragondon, Naic, and Indang, Cavite, as well as focus group discussions (FGD) with the barangay officials of Brgys. Kayquit I, Kayquit II, and Kayquit III. Doing so helped the researchers to better understand the challenges being faced by Maragondon-Labac River. This also allowed them to determine the existing communication campaigns on conservation of these rivers (Objective 1), and to glean suggestions for the communication campaign materials to be designed and their contents (Objectives 2 and 3).

Then, the quantitative data were obtained using survey questionnaires distributed among the selected residents of Brgys. Kayquit I, Kayquit II, and Kayquit III. This allowed the researchers to determine their perception on the designed communication campaign, and to identify their most preferred campaign material (Objectives 4 and 5).

Participants of the Study

The study involved 27 informants for the interview and FGD, and 150 survey participants.

The participants in the interview were the MENRO heads of Maragondon, Naic, and Indang, Cavite. Then the participants in the FGD were the barangay councils of Kayquit I, Kayquit II, and Kayquit III, Indang. They provided the researchers with information on their existing communication campaigns (both in the form of activities and materials), the environmental problems or challenges that their rivers face, and their insights on the design, content, and actual materials created for the campaign. These informants were selected using purposive sampling technique.

Meanwhile, the survey participants were the selected residents of the aforementioned barangays in Indang. The survey questionnaire

aimed to determine their perception on the designed communication campaign and to identify their most preferred campaign material. The survey participants were selected using quota sampling technique.

Research Instruments

To gather the needed qualitative and quantitative data, the researchers developed an interview guide and survey questionnaire, which were both validated by an environmental science professor and two communication professors.

The interview guide addressed the first, second, and third research questions.

Meanwhile, the survey questionnaire dealt with the fourth and fifth research questions. The questionnaire consisted of three parts. The first part aimed to get the profile of the participants, in terms of their name (optional), age, and gender. The second part aimed to determine the perception of the participants on the communication campaign for the conservation of Maragondon–Labac River, using the scale below:

- 4 – Strongly Agree
- 3 – Agree
- 2 – Disagree
- 1 – Strongly Disagree

Lastly, the third part aimed to determine the most preferred material in the communication campaign using a four-point numerical scale - with 4 being the most preferred and 1 being the least preferred.

RESULTS AND DISCUSSION

Existing Communication Campaigns for the Conservation of Maragondon-Labac River in Indang, Cavite

The municipalities of Maragondon, Naic, and Indang, Cavite, prior the conduct of this study, were able to conduct communication activities toward river conservation. These activities

included Earth Day that focused on synchronized coastal and river cleanups; Arbor Day that pushed for tree planting, mangrove rehabilitation, and stream banking; public addresses about waste segregation; and barangay meetings or assemblies that included talks on river conservation.

Meanwhile, the municipalities used communication campaign materials that barely put river conservation as the core of the materials' content or messaging. The existing brochures, pamphlets, and flyers were mostly about proper solid waste management, municipal ordinances concerning solid waste, and mangrove rehabilitation. The municipalities only developed tarpaulins to announce the launch of some communication activities.

The researchers discovered an area-based management plan (ABMP) for the Maragondon-Labac River, which was developed by the focal agencies such as the Provincial Environment and Natural Resources Office (PENRO) and Provincial Government (PG)-ENRO. This plan consisted of river profiling and major interventions that the concerned public and private stakeholders can work out. However, this plan still needed to be cascaded, especially to the concerned cities and municipalities whose areas have rivers.

Design and Creation of Materials for the Communication Campaign whose Message Anchors on the goal of DENR's *Manila Bayanihan Para sa Kalinisan*

In light of the previous findings, the researchers consulted the MENRO heads and barangay councils in Indang, Cavite to determine the materials for the communication campaign to be designed.

According to Zimbabwe National Family Planning Council (1998), it is crucial to know the information needs of the target audience; to develop message concepts such as themes, illustrations, and slogans; to design specific messages in terms of what, why, who, where,

and how; and to use language and terms familiar to people in developing a message for a communication campaign. Crawford and Okigbo (2014) also cited the importance of describing the history of the problem and previous communication efforts that are related to the issue at hand, which can bring about desirable insights.

Atkin and Rice (2013) further added that effective design relies on the background information about the focal segments and interpersonal influences collected in a formative research. More so, the effectiveness of a campaign can be enhanced if its message content, form, style, and channels are tailored-fit to the needs, attributes, and abilities of the target groups.

Hence, the researchers arrived at the suggestion of the interview and FGD informants to utilize a pamphlet, poster, flyer, and brochure for the communication campaign. According to Parker (1997), campaign materials to support campaign goals may include pamphlet, flyer, and brochures. Posters, on the other hand, according to Ladd (2010), can be used to get the attention of the general public.

Filipino was used as the medium in each material. The content discussed the relationship between the Maragondon-Labac River and Manila Bay and the harmful human activities that cause river pollution such as indiscriminate dumping of solid waste, discharge of liquid waste, and deforestation. Some reminders and interventions were also provided in the materials to guide the residents in conserving the rivers.

Furthermore, the materials used photos to provide visuals, and a theme or slogan to get the attention of and the recall among residents. The researchers thought of the theme "**TA.GA.ILOG: TAMang GAMit ng ILOG, panatilihin, siguruhin!**" to communicate the need to take care of and to use the rivers rightfully. The word "**TA.GA.ILOG**" likewise meant to call on the residents and the barangays with rivers in their areas to partake in conservation efforts.

Doing all these was reflective of the insights

taken from the informants and consistent with the goal of DENR's *Manila Bayanihan Para sa Kalinisan*-rehabilitation of the Manila Bay through conservation of its head bodies of water (particularly Maragondon-Labac River).

The Information Included in the Communication Campaign

The content of the brochure and pamphlet consisted of a wide array of topics because of their capacity to hold several pieces of information through words and photos. These topics included DENR's *Manila Bayanihan Para sa Kalinisan* program, river profiling, relationship between the Maragondon-Labac River and Manila Bay, other major rivers in Cavite, and activities geared toward river conservation. The solutions being formulated by the municipality, barangay, and other focal agencies were also cited in the two communication materials.

Lastly, the poster and flyer presented a short, simple message and photos that fit the campaign theme. The photos featured different conservation efforts such as cleanup, *adopt-an-estero*, and reforestation. Then the message of the poster reads as "*Ang tunay na aktibista ay hindi iyong taong nagsasabi lang na ang ilog ay marumi. Ang aktibista ay iyong taong mismong naglilinis ng ilog*" by Ross Perot, which in English translates, "The activist is not the man who says the river is dirty. The activist is the man who cleans up the river."

Below are the designed communication campaign materials.



Figure 1. The layout of the designed poster (Size: 11.693 x 16.535)



Figure 2. The layout of the designed flyer (Size: 5.5 x 11)



Figure 3. The layout of the pamphlet's cover page (Size: 11 x 8.5)

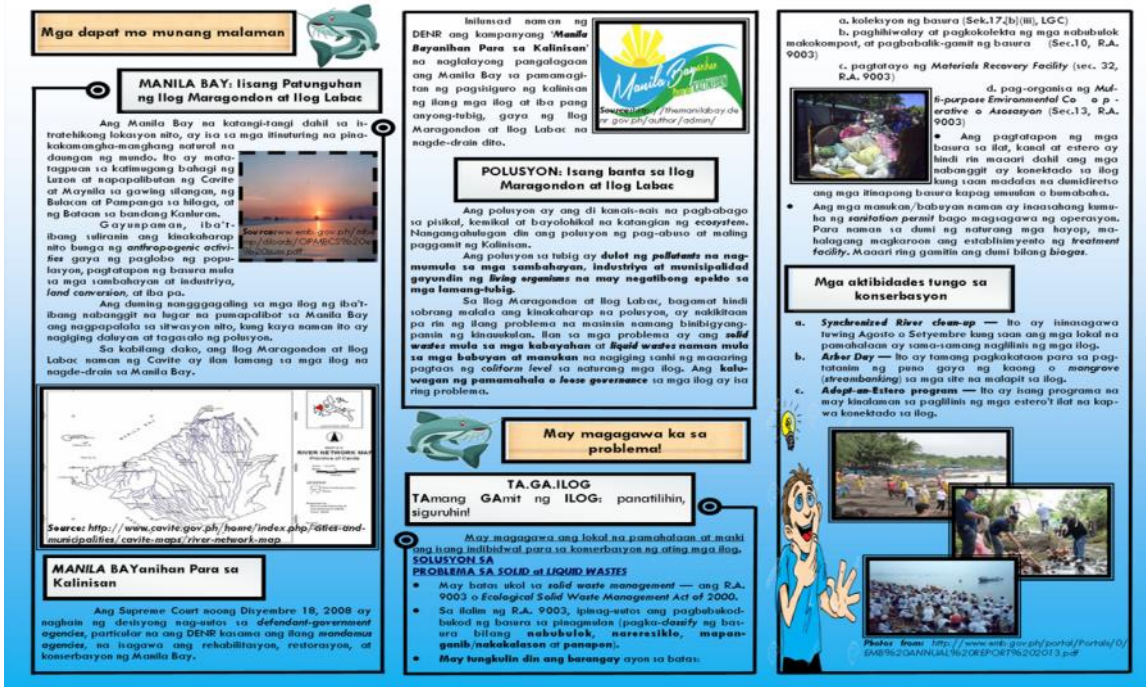


Figure 4. The layout of the pamphlet's inside page



Figure 5. The layout of the brochure's cover page (Size: 10.5 x 7.25)

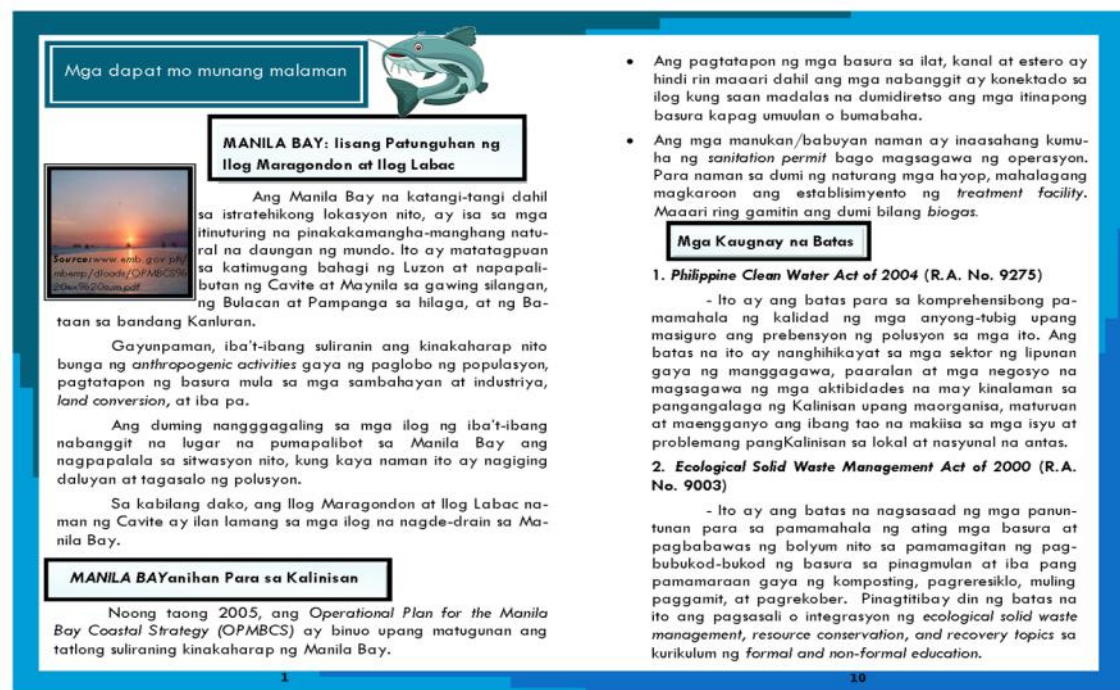


Figure 6. The layout of pages 1 and 10 of the designed brochure

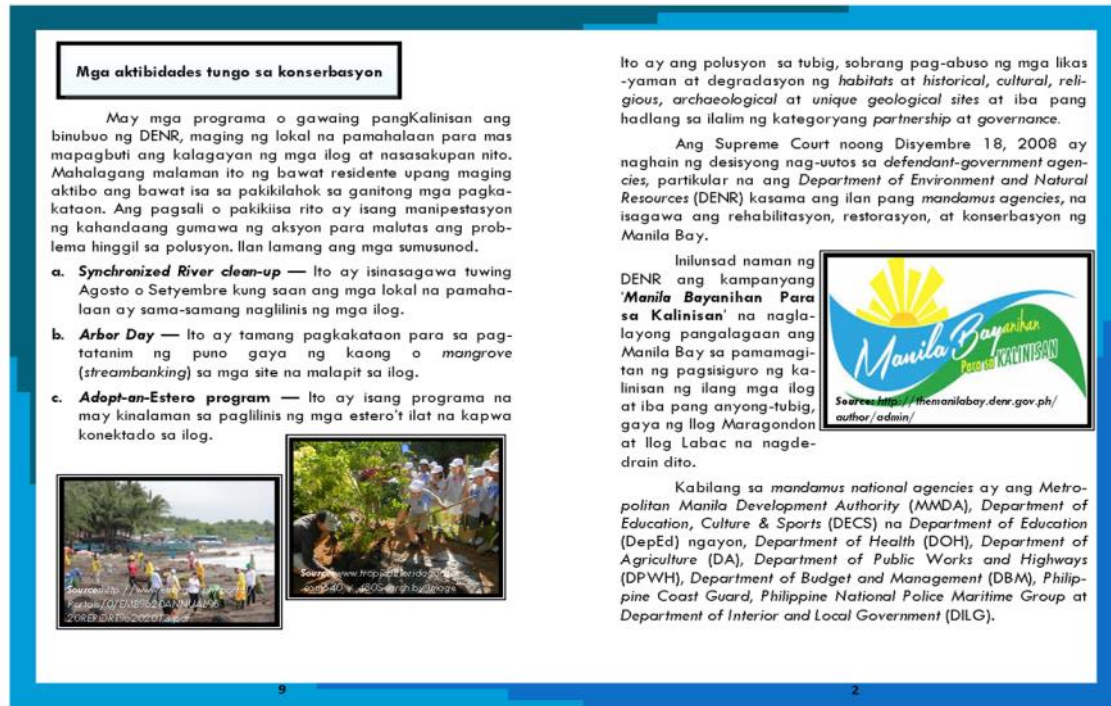


Figure 7. The layout of pages 2 and 9 of the designed brochure

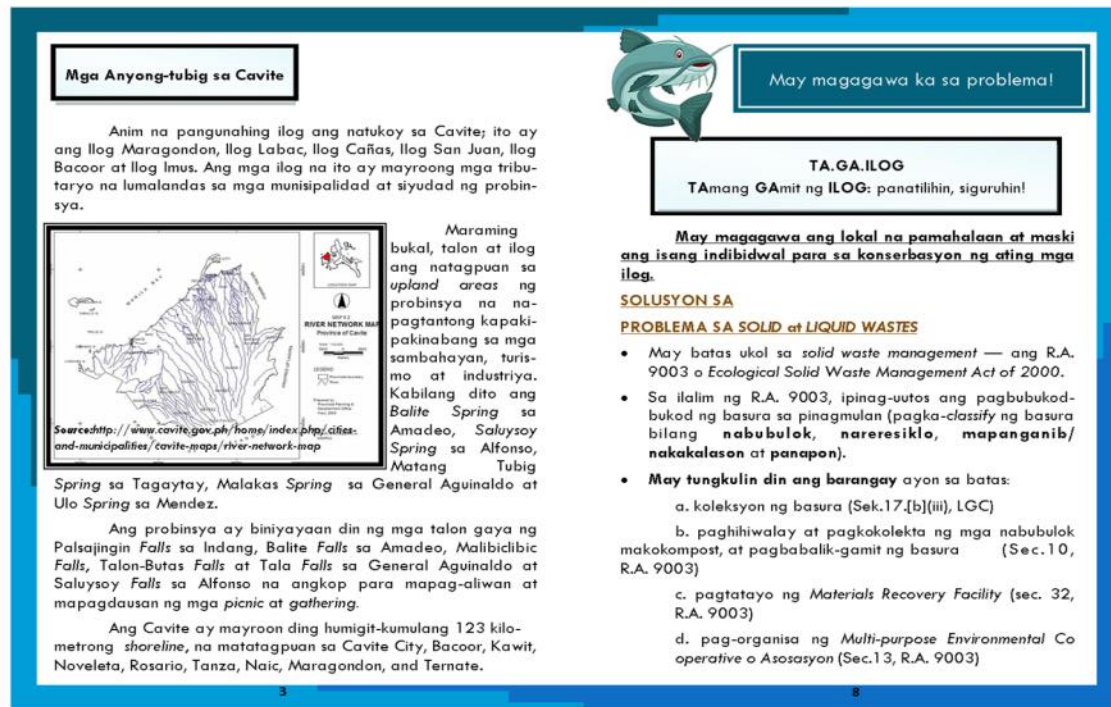



Figure 8. The layout of pages 3 and 8 of the designed brochure

POLUSYON: Isang banta sa Ilog Maragondon at Ilog Labac

Ang polusyon ay ang di kanais-nais na pagbabago sa pisikal, kemikal at bayolohikal na katangian ng ecosystem. Nangangahulugan din ang polusyon ng pag-abuso at maling paggamit ng kalikasan.

Ang polusyon sa tubig ay dulot ng *pollutants* na nagmumula sa mga sambahayan, industriya at munisipalidad gayundin ng *living organisms* na may negatibong epekto sa mga lamang-tubig.

Sa Ilog Maragondon at Ilog Labac, bagamat hindi sobrang malala ang kinakaharap na polusyon, ay nakikitaan pa rin ng ilang problema na masinsin namang binibigyang-pansin ng kinaukulan. Ilan sa mga problema ay ang *solid wastes* mula sa mga kabayahan at *liquid wastes* naman mula sa mga babuyan at manukan na nagiging sanhi ng maaring pagtaas ng *coliform level* sa naturang mga ilog. Ang kaluwagan ng pamamahala o *loose governance* sa mga ilog ay isa ring problema.



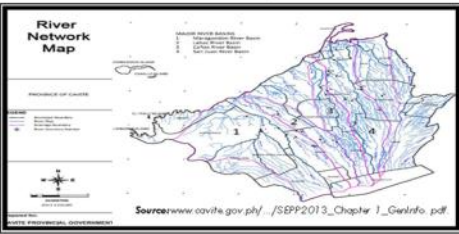
Talataan 1. Mga Ilog sa Cavite

River	Length (km)	Field of Origin	Drainage Location
1. Bonnet River	73.3	Pitang, Calat, Malina, passing Tanang Loma, Salinas and Papatagan	Basin Bay
2. Ilog River	38.4	North of Tagaytay passing Balibisbawidigan, Silang, Palapala, City of Osmunza, Pasang Bayog, San Agustin and connects to Pasang Bayog passing Salinas, Balibis, Anahil & Anahil I going to Tanang Loma, Palina, Ilog River in Salinas and Malina, Bonnet, Ilog River, Tribunales which started from Bonnet going to San Agustin connect Ilog River in Pasang Bayog. Tribunales found in Balibis also drain at Ilog River	Basin Bay
3a. San Juan River	39.0	Malina, Amalala passing Amalala, Laban I, Silang, Daga, San, Bawabawad, Calabun, Pangasinan, Jambura, Buhara, Magallanes, Japan Salina, Rosarosa, Pasang Karonan, Karon, Gen, Trize, Sta. Rosa, Howaleto and Pind, Ilog River connects with San Juan River at Basak, Gen. Ties	Basin Bay Karon
3b. Yang Yang River			
4. Cator River	38.9	From Kaytagay, Tagaytay City passing Loma, Amalala going to Palawan River, San Agustin, Grogan, Osmun, Lumbana, Guro, Isabela, Tawa, Marikina City, Alagana, Gen, Ties passing Labador River, Sanak, Bonak to Salinas, Tawa.	Basin Bay
		Also from Tagaytay City going to Salinas, Amalala, Bawabawad, Malibang, Karon, Lumbana, Alad, Malina and connects to Palawan, Tawa.	
		Other tributaries are found in Basak, Lumbana connecting in Alad.	
5. Labac River	30.5	Ten tributary rivers located in the riparian area. Starting from River Loma, Ilog River, Gen. Ties, Cator River, Catoring River going to Palawan, Ilog to Kay-Alaming River passing San Juan River in Labac River.	Basin Bay
		Passing Malina, Tagaytay City passing Habula River, Bawabawad & B. Malina going to Karon, Malina straight to Bonnet River going to Malina Bay, Tawa.	
6. Maragondon River	23.6	Multi-origin Bonnet River passing Parthena I & B, Tribunales and Habula River passing Bonnet to Bonnet Loma. From Palawan passing Lumbana and Bonnet Loma.	Basin Bay Ternate
		Magay River to Maragondon River. Maraca River passing Tabara to Maragondon River. Maragondon River passing Bonnet to Marac and Malina to Malina.	
		Along there in Magallanes starting from Kaytagay, Ilog River connects with San Juan River. Another river (unnamed) from west of Kaytagay and along there passing Magallanes and joined Tabara to Maragondon River.	

Figure 9. The layout of pages 4 and 7 of the designed brochure

Ilog Maragondon at Ilog Labac

River Network Map



Source: www.cavite.gov.ph / SPPP2013_Chapter 1_GeInfo.pdf

Ang Ilog Maragondon ay may habang 35.6 kilometro at itinuturing na isa nga sa anim na pangunahing ilog sa probinsya ng Cavite.

Ito ay makikita sa kanlurang bahagi ng probinsya at may longhitud na 121° 47' 57.69" at latitud na 14° 11' 8". Ito ay nasa paanan ng bulubunduking pumapag-itan sa Cavite at Batangas; nahahanggahan sa hilaga ng Naic at Indang, sa timog ng Nasugbu, Batangas, sa kanluran ng Ternate at sa silangan ng General Aguinaldo at Alfonso.

Ang Ilog Maragondon ay nagmumula sa mga *upland municipalities* gaya ng General Aguinaldo, Magallanes, Alfonso at Indang patungo sa mga tributaryo nito palabas sa Manila Bay. Samantala, ang Ilog Labac naman ay may habang 30.5 kilometro.

Ito ay nahahati sa dalawang bahagi: ang Western Labac River na nagmumula sa Tagaytay-Mendez, **patungong Indang** at Naic; at ang Eastern Labac River na nagmumula sa Indang patungong Naic.

Ang Barangay Kayquit I, Kayquit II, at Kayquit III ay ilan lamang sa mga lugar sa Indang, Cavite na nasasakop ng dalawang naturang mga ilog. Sa Kayquit I at Kayquit III, matatagpuan ang **Kayquit River** na konektado sa Ilog Labac at nasa Kayquit II naman makikita ang **Ilog River** na tributaryo ng Ilog Maragondon.

Ang Polusyon sa mga Ilog

Ang Pilipinas ay binubuo ng 7,110 na pulo at malawak na ektarya ng mga lupain. Ang mga lupaing ito ay ginagamit sa agrikultura at ang mga ito ay naaangkop ng irigasyon mula sa mga *river system* ng bansa.

Ang Pilipinas ay may 421 na ilog, kabilang ang Ilog Pulangi at Ilog Agusan na nagsusustento ng tubig na nakalaan sa irigasyon at maski sa pangangailangan ng mga sambahayan. Subalit, ang **limampu (50) sa mga ilog na ito ay itinuturing nang biologically dead** katulad ng Pasig River. Ang mga ilog na ito ay naging compartment ng iba't-ibang uri ng basura at halos **50% ng mga basurang ito ay galing sa mga sambahayan o domestic**. Ang mga ilog sa bansa ay nagmistulang tapunan ng maraming industriya gaya ng pagmimina, *alcohol distillery* at iba pa. Ito ay nagdulot ngayon ng kawalang-balanse sa ecosystem at nakaapekto sa mga namumuhay na yaman sa mga ilog, lawa, at maski sa *mangrove communities*.

Mayroong labing-siyam na prayoridad na ilog ang tinukoy ng *Environmental Management Bureau* sa programa nitong **Sagip Ilog**. Sa Cavite, ang binanggit ay ang Imus at Ylang-Ylang River. Pero, hihintayin pa ba nating mapabilang pa ang halos lahat ng mga pangunahing ilog ng Cavite sa listahang ito? Dapat ay hindi lalo na at may magagawa pa naman tayo.

Figure 10. The layout of pages 5 and 6 of the designed brochure

Perception on the Communication Campaign of Selected Residents in Brgys. Kayquit I, Kayquit II, and Kayquit III

The overall goal of the communication campaign was to communicate to the residents the need to conserve Maragondon-Labac River in support to DENR’s *Manila Bayanihan Para sa Kalinisan* program.

UNEP (2005, as cited in Sibley, 2009), states that public communication programs play an

integral role in dispensing vital messages to the greater community; and the success of a campaign can be highly variable depending on some essential factors, including critical objectives, content, messages, media type, and the tone of the delivered message.

This study revealed that the overall perception on the communication campaign of the selected residents in Brgys. Kayquit I, Kayquit II, and Kayquit III was “Highly Effective,” in terms of all indicators such as:

Table 1. Perception of the selected participants on the communication campaign

STATEMENT	MEAN	STANDARD DEVIATION	VERBAL INTERPRETATION
1.The campaign emphasizes the goal of conserving Maragondon-Labac River in support to DENR’s <i>Bayanihan Para sa Kalinisan</i> program.	3.69	0.80	Highly Effective
2.The campaign fosters and reinforces the conservation of Maragondon-Labac River.	3.59	0.58	Highly Effective
3.The campaign's message is comprehensible.	3.57	0.65	Highly Effective
4.The campaign's message is encouraging.	3.43	0.73	Highly Effective
5.The campaign considers the profile of the residents and their attitudes and behaviors.	3.41	0.66	Highly Effective
6.The campaign informs and educates people about the essence of conserving the rivers.	3.63	0.61	Highly Effective
7.The campaign communicates the need for involvement of residents to the conservation of rivers.	3.59	0.66	Highly Effective
8.The campaign employs materials such as flyer, pamphlet, brochure and poster.	3.69	0.64	Highly Effective
9.The materials used readable font style and size.	3.44	0.66	Highly Effective
10.The materials' use of colors attracts the attention of the residents.	3.39	0.74	Highly Effective
11.The materials have pictures that are relevant to the written pieces of information	3.52	0.62	Highly Effective

12. The size of the materials is noticeable.	3.29	0.74	Highly Effective
13. The layout of the materials displays a good, clear vision and interpretation of its concept.	3.44	0.65	Highly Effective
14. The materials utilized in the campaign are cohesive.	3.43	0.70	Highly Effective
15. The materials utilized in the campaign are essential.	3.60	0.64	Highly Effective
TOTAL	3.51	0.67	HIGHLY EFFECTIVE

Scale: 1.00 – 1.74 = Highly Ineffective
1.75 – 2.49 = Ineffective

2.50 – 3.24 = Effective
3.25 – 4.00 = Highly Effective

The perception on the designed communication campaign shows a total mean of 3.51 and a total standard deviation of 0.67, which is considered highly effective. These figures reflect that the communication campaign matched all the stated qualities of an effective campaign in the survey questionnaire.

This also means that the designed communication campaign dubbed "**TA.GA.ILOG: TA** **Amang GA**mit ng **ILOG**, panatilihin, siguruhin!", in the form of materials as flyer, poster, brochure, and pamphlet, is highly effective in communicating to the residents the need to conserve Maragondon-Labac River in support to DENR's *Manila Bayanihan Para sa Kalinisan*.

Most Preferred Material for the Communication Campaign on the Conservation of Maragondon-Labac River

Table 2 presents that the residents preferred the poster most, with a mean of 3.20 and a standard deviation of 1.06. Then, the brochure has a mean of 2.64 and a standard deviation of 1.01, making it the second preferred material. The third preferred material is the pamphlet, with a mean of 2.09 and a standard deviation of 1. The flyer shows a mean of 2.07 and a standard deviation of 1.09, making it the least preferred material.

Ladd (2010) notes that posters are printed sheets meant to be distributed in public places. Posters can be used as a hanging display to reach a broad audience on the move, when one needs long-term advertising, and to get the attention of the general public. Posters also, as noted, have high repeat exposure, low cost, and are flexible (Zimbabwe National Family Planning Council, 1998).

Table 2. Most preferred material for the communication campaign

MATERIAL	MEAN	STANDARD DEVIATION	RANK
Poster	3.20	1.06	1
Brochure	2.64	1.01	2
Pamphlet	2.09	1.00	3
Flyer	2.07	1.09	4

CONCLUSIONS

Below are the conclusions drawn from the results of the study:

1. The existing communication campaigns for the conservation of Maragondon-Labac River consist of communication activities and communication materials. These activities are: Earth Day that focused on synchronized coastal and river cleanups; Arbor Day that pushed for tree planting; public addresses about waste segregation; and barangay general assemblies and meetings. However, the communication materials scarcely put river conservation at the front of their messaging. The usual topics of these materials are mostly about proper solid waste management, municipal ordinances on solid waste, and mangrove rehabilitation. Hence, there is a need for campaign activities or materials that are river-focused or –centric.
2. The designed communication campaign materials are flyer, poster, brochure, and pamphlet. The core message of these materials underscored river conservation, which is in harmony with the goal of DENR's *Manila Bayanihan Para sa Kalinisan* - rehabilitating Manila Bay by ensuring cleanliness of its headwaters (Maragondon-Labac River). These materials are used as several literatures recognize the advantages of using such in a campaign.
3. The content of the materials covers information on the environmental problems that the rivers face, the goal of conservation and DENR's *Manila Bayanihan Para sa Kalinisan* program, the relationship between the Maragondon-Labac River and Manila Bay, the responsibility of the barangays in Indang to the said river system, river profiling, river conservation efforts of the different focal agencies, and guiding laws concerning rivers.
4. The selected residents in Brgys. Kayquit I, Kayquit II, and Kayquit III, Indang, Cavite perceive the designed communication

campaign as highly effective in communicating the need to conserve Maragondon-Labac River in support to DENR's *Manila Bayanihan Para sa Kalinisan*. Hence, the designed campaign may be used as part of the municipalities' and barangay's communication efforts.

5. The poster is the most preferred material for the communication campaign on the conservation of Maragondon-Labac River, while the flyer is the least preferred material. The poster is advantageous because it features clearly the visual elements needed to communicate the campaign message.

RECOMMENDATIONS

Based on the conclusions, the following recommendations are made:

1. The Department of Environment and Natural Resources (DENR) may consistently fund and pilot communication campaigns to conserve the major water forms in the country. Since they are doing area-based management plans (ABMPs) for the major Cavite river systems, the agency may consider presenting the plans to the general public through communication activities such as seminars, fora, fair or exhibits, and through communication materials that can be disseminated to provide the people with a reminder of the goals toward environmental sustainability.
2. The Provincial Environment and Natural Resources Office–Cavite (PENRO-Cavite) may persistently communicate and relay the programs on river conservation to the local government units (LGUs) and other external stakeholders such as commercial establishments. Particularly, there is a need for the PENRO to start an initiative to explain first how a municipality or a city is connected to the major river systems in Cavite. The interviews and FGDs revealed that the residents usually wondered about their roles and responsibilities to the Cavite rivers and Manila Bay.

3. The CAS Research and Extension Services could participate in fora, dialogues, seminars, or workshops to reinforce what they know about Cavite rivers. They could also start up various researches, experiments, and practical applications that may fuel the desired behavior change among the Cavite residents, when it comes to river conservation.
4. Teachers and school administrators may strengthen their students' participation in the conservation of rivers through conducting information drives about river conservation and partnering with key public officials in doing so. This is because the water is a prime commodity for all, while the school or the academe is a conducive place to enhance one's attitude on and practice of environment and natural resources protection.
5. The municipal government of Indang, Cavite may start designing and implementing communication campaigns whose messaging promotes the conservation of the rivers.
6. Journalism students may design or think of other creative communication materials to promote the conservation of not only the Maragondon-Labac River but also the other major rivers in Cavite. They can also try using other innovative strategies on environmental communication, such as the use of social or digital media.
7. The residents of Indang, Cavite and the public, in general, may consider participating in communication campaigns on the conservation of their own rivers. Doing so is for them to understand their crucial responsibility to the environment and for them to take part in arriving with sustainable eco-solutions, as a result gradually.
8. Future researchers may have a broader scope when it comes to their participants. They could also try initiating communication activities like seminar, dialogue, workshop, or forum as substitute for materials, or a combination of both. Then, they may conduct a quantitative analysis on the compliance of the residents after exposing them to the

designed communication campaign. This helps to measure the effectiveness of a communication strategy accurately. Finally, the future researchers may explore more participatory communication campaigns to ensure the involvement and participation of the residents in the process.

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