Communicating Climate Risk in Tourism Destinations: The Case of Siruma, Camarines Sur (A Monograph)

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ABSTRACT

Climate risk communication serves as a vital early warning tool that enables communities to prepare for and respond to impending disasters. It empowers locals to make informed decisions that protect lives and property. This study explored how climate risks are communicated in Siruma, Camarines Sur, and identified the challenges faced by local stakeholders in delivering effective risk messages. Using a qualitative research design, data were collected through Focus Group Discussions and Key Informant Interviews involving 17 participants. Respondents shared insights on climate risk information, communication strategies, and barriers encountered. Findings reveal that the primary sources of risk messages are the Local Disaster Risk Reduction and Management (DRRM) Officer, Barangay Officials, and the Philippine National Police—primarily through house-to-house visits and two-way radio communication. Despite the availability of risk information, some residents resist preventive evacuation due to low risk perception, often influenced by unconvincing messages and perceived lack of credibility. The study underscores the need for focused, empathetic, and persuasive communication strategies to enhance public responsiveness and promote proactive disaster preparedness.

Keywords: Risk Communication, Challenges in Risk Communication, Risk Perception and Behavioral Change

INTRODUCTION

Tourism offers economic opportunities and cultural exchange, but it also brings unique challenges—especially in regions vulnerable to natural hazards. Tourists often prioritize safety when choosing destinations, yet the unpredictability of climate-related disasters such as typhoons, storm surges, and flooding can put both visitors and local communities at risk. In these moments, timely and effective risk communication becomes not just important, but life-saving.

Risk communication refers to the purposeful exchange of information about potential dangers between stakeholders. In disaster contexts, it involves delivering clear, credible, and actionable messages before and during emergencies. The Centers for Disease Control and Prevention (2014) emphasize six principles for effective crisis communication: be first, be right, be credible, express empathy, promote action, and show respect. These principles underscore the urgency and sensitivity required when informing the public during crises.

However, successful risk communication depends not only on the message but also on how it is perceived. Studies show that individuals' experiences and perceptions significantly influence their understanding and response to climate risks (Whitmarsh 2008; Poortinga et al. 2011; Ngo 2021). Without this insight, even well-intentioned warnings may fail to prompt protective action.

Siruma, a 4th class municipality in Camarines Sur, is a rising tourist destination known for its stunning beaches and scenic landscapes. Yet its coastal location also exposes it to frequent climate hazards. With a poverty incidence of 59.18% (2015), the community faces additional challenges in preparing for and responding to disasters.

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This monograph investigates how climate risks are communicated in Siruma and explores the barriers that locals encounter in delivering effective risk messages—particularly to tourists. By understanding these dynamics, the study aims to contribute to more responsive and inclusive disaster communication strategies.

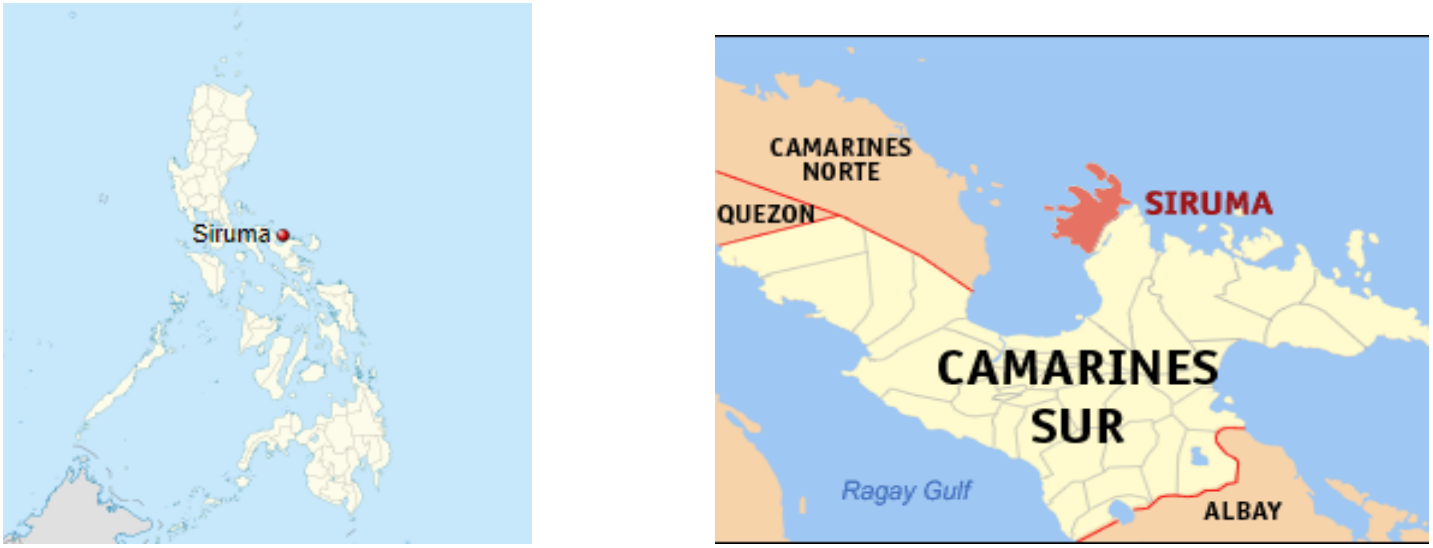


Figure 1. Location map of Siruma in the Philippines.

Research Objective

The primary objective of this monograph is to examine how climate-related risks are communicated to the public in Siruma, Camarines Sur, and to identify the challenges faced by local communities in effectively conveying these risks—particularly to tourists and other vulnerable groups.

Review of Related Literature

This section provides the related literature and studies that help in developing a deeper understanding and appreciation of the current study. Most studies found were on risk and safety communication on health issues particularly on covid-19 and other deadly pandemic and some on climate risk. But the concept of risk communication, perceived risk, and behavioral change are similar.

Risk Communication

Climate risk communication depends heavily on the source and the manner of communicating the message if we want the people to feel the projected risk and follow orders like preventive evacuation. The study of Wardekker (2004) stressed the importance of a credible and trusted source for risk communication. In his study, the citizen seem to trust the scientists including the internet, TV networks and newspapers. Similar to the idea of Bertram, K, (n.d.) in cases like emergencies due to pandemics, **“** people need timely, accurate, up-to-date health information they can trust. Reaching them can be a challenge and it is compounded by fears of the unknown, unfounded rumors and misinformation and requests to behave in new ways.” This is supported by FAO and WHO (1998) that stated that one of the principles of risk communication is to involve scientific experts. As experts, they can explain the concepts and processes of risk assessment and the scientific data, assumptions and subjective judgements upon which it is based. In effect, the risk managers clearly understand the risk and how the risk management decisions are made. Another principle is for sources of information to be credible. If credible, he is more likely to influence the public perception of a risk. People will understand the nature of the hazard, culture, social and economic status, and other factors. It is said that when same and consistent messages are received from different sources then the credibility of the message is reinforced. Some factors that determine credibility include recognized competence or expertise, trustworthiness, fairness, and lack of bias. These two literatures can be summed up in the principles of effective crisis and risk

communication described by the Centers for Disease Control and Prevention (2014). The six principles are : 1.) be first, 2.) be right, and 3.) be credible, 4) express empathy, 5) promote action, and 6) show respect

The United Nations Institute for Training and Research (UNITAR) in 2009 conducted the ACCA project and two of the objectives was to develop appropriate risk communication strategies that can support multi-sectoral, and multistakeholder decision-making for adaptation and to develop, test and disseminate risk communication materials designed to assist decision-making about adaptation. Findings shows, however, that most climate change information are not readily usable by policy makers, vulnerable groups, and other stakeholders. The climate information are not answering the need to make decisions and are only presented on spatial and temporal scales.

The study of Ngo (2021) mentioned that the efforts to communicate flood and climate change risks without understanding risk perception are ineffective, because direct experiences influenced individuals' knowledge, attitudes, risk perception and behavioural responses to climate change (Whitmarsh 2008; Poortinga et al. 2011; Ockwell, Whitmarsh, and O'Neill 2009; Ngo, Poortvliet, and Feindt 2020). This study in Vietnam confirmed that perceptions of risk and efficacy among the younger people positively influence the predictors of behavioural change in climate change mitigation. The study further confirms that framing messages must be congruent in terms of content to consistently change the attitudes of adolescents.

Risk Perception and Behavioral Change

Many studies show that risk communication impacts risk perception and behavioral change. The study of Heydari et al. determined how risk communication (RC) and risk perception (RP) affect protective and preventive behaviors (PB) during the COVID-19 outbreak among Iranian adults. It found out that risk communication has direct and indirect positive effects on preventive behaviors. The result further indicated that there is a two-way relationship between them which can define the risk communication strategies to be adopted during the pandemic.

Ngo, 2021, citing Whitmarsh 2008; Poortinga et al. 2011; Ockwell, Whitmarsh, and O'Neill 2009; Ngo, Poortvliet, and Feindt 2020) stated that efforts to communicate flood and climate change risks without understanding risk perception are ineffective, because direct experiences influenced individuals' knowledge, attitudes, risk perception and behavioural responses to climate change. The research confirms that perceptions of risk and efficacy among the younger people positively influence the predictors of behavioural change in climate change mitigation. Most importantly, the research results confirm that congruency in message framing plays an important role in manipulation effects: only when the messages are congruent in content do the manipulations more consistently change adolescents' attitudes.

The study of Poortvliet et al. (2020) investigated the effectiveness of climate change risk communication in terms of its potential to stimulate recipients' awareness and behavioral change. Using a content analysis on the Intergovernmental Panel on Climate Change(IPCC) report and the extended parallel process model and construal level theory as the theoretical base, they found out that threat information was prominently present, but efficacy information was less often observed. Interesting implications for climate change risk communication are the following: First, the overall goal of climate change communication should first be determined. This would require suitable and varied communication messages. Second, greater efforts towards measuring the efficacy of climate change risk communication could be used to determine the effect of various communication strategies quantitatively. Such efforts could be evaluated for their effectiveness and potentially adjusted based on continued research in this field.

CONCEPTUAL FRAMEWORK

The study considers categorical variables such as problems in risk communication, interventions and desired behavioral change in the study of climate risk communication in Siruma, Camarines Sur. For climate risk communication to be effective, it must result in the desired change. This is why the problems in how they

perceive climate risks is doubly significant to be addressed to provide appropriate interventions to come up with the desired behavioral change.

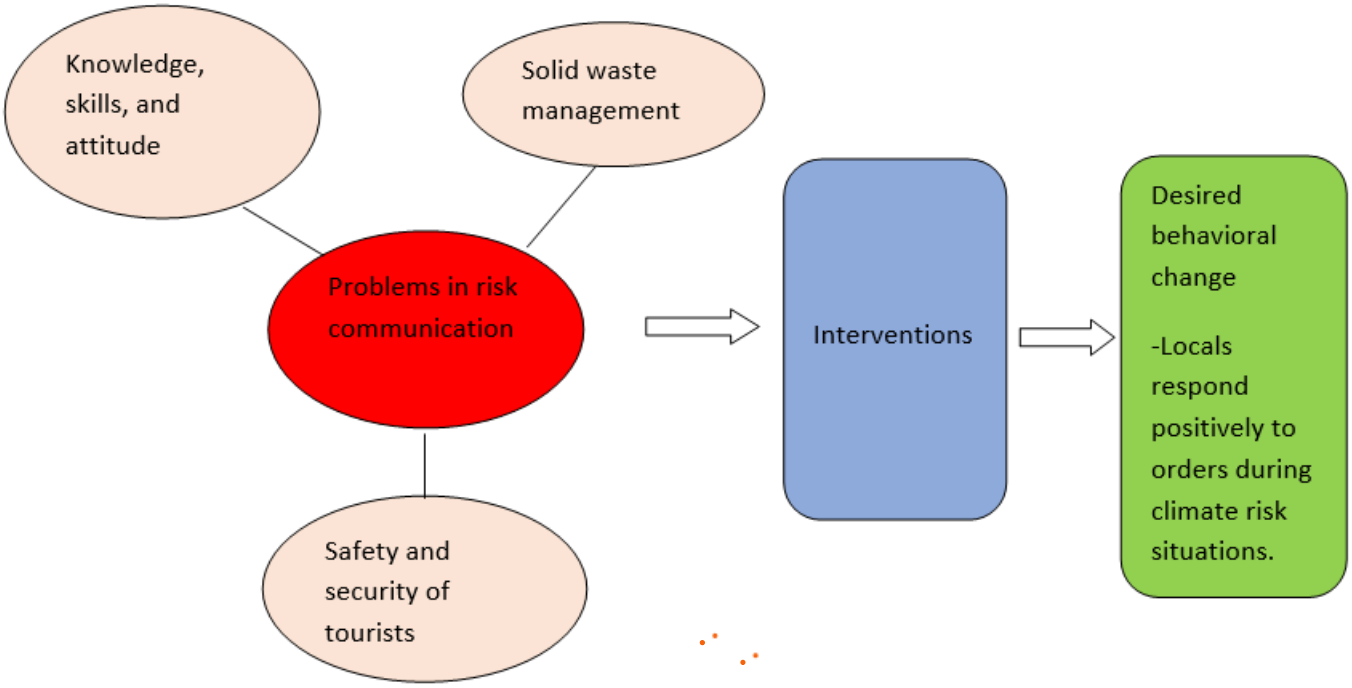


Figure 2. Conceptual Framework of the Study

Research Methods

The study was conducted in selected tourism sites in Siruma, Camarines Sur. It used a descriptive research design and it employed data collection tools such as Key Informant Interview (KII), Focus Group Discussion (FGD), and participant observation. The participants of the study were chosen based on the following criteria: 1.) with extensive experience in the tourism industry in the locality for the last 3 years, 2.) represents a group of stakeholders, 3.) credibility to share reliable information and 4.) willingness to participate in the study. These criteria were reviewed by the Local DRRM Officer and the Municipal Tourism Officer who jointly identified suitable participants. The participants included the resort owners, tour guides, boatmen, accommodation providers, food servers, transportation providers, souvenir makers, peace and security, and selected local residents. In addition, the local officials of Siruma were invited such as the Local DRRM Officer, Tourism Officer, Municipal Planning Officer, and the Municipal Agricultural Officer (MAO).

Both primary and secondary data were utilized in the study where primary data were used as the basis for analysis. These were those that had been generated from the Key Informant Interview (KII). Their exemplars were further validated through the two FGDs conducted with participants not involved in the KII. Secondary data were drawn from references and some internet sources relevant to the study. No secondary data from LGU Siruma such as the Municipal Tourism Development Plan (MTDP) other tourism related documents were used as a secondary data. Instead, a master's thesis on storm surge from one of the staff was available as supplementary source.

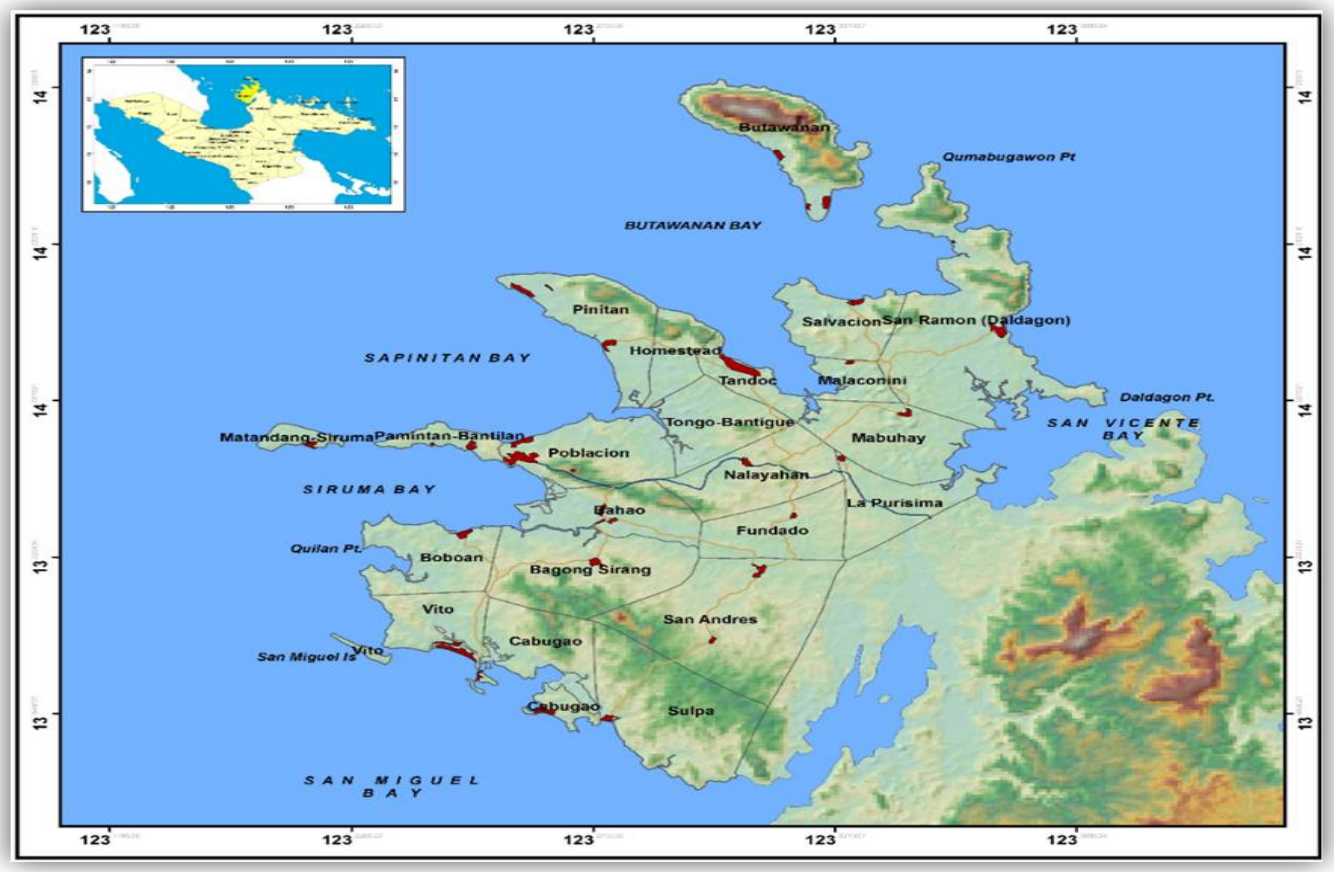
Specifically, the Key Informant Interview (KII) and Focus Group Discussion (FGD) in LGU Siruma were the data gathering procedure. Participant observation was likewise used to triangulate the findings in FGD and KII. Seventeen (17) key informants attended the two FGD sessions. Focus questions were prepared by the researcher. Informal interview was done with three tourism stakeholders in the community and LGU Siruma. Qualitative data were analyzed using coding technique and thematic analysis. Coding labelled and systematically organized the data and identified the relationships among responses. Thematic analysis found

themes in text by analyzing the meaning of words and sentence structure to uncover recurring themes and patterns. Broad themes were categorized as follows:

Number	Theme
Theme 1	How risks are communicated (who disseminates and mode of dissemination)
Theme 2	The barriers that locals encounter in delivering effective risk messages
Theme 3	Problems encountered in risk communication

RESULTS

The study described how the climate risks are communicated in Siruma, Camarines Sur being one of the emerging tourism destinations in the Bicol Region."



Source : LGU Siruma

Figure 3. Map of Siruma, Camarines Sur.

Siruma is often visited by typhoons. Its coast is vulnerable to storm surges during typhoons. When it happens, it can affect the 12 coastal barangays namely: Butawanan, Salvacion, Tandoc, Homestead, Penitan, Poblacion, Matandang Siruma, Boboan, Pamintan Bantilan, Sulpa, Cabugao, and Vito. For the past 5 years, the FGD participants remembered one storm surge that happened where the peak water level reached to as high as 8 meters. This resulted to extensive flooding and damage to properties.

Incidentally, while the FGD participants fear storm surge, they can be guided by PAGASA. PAGASA mentions some technical factors when predicting negative impacts of storm surge in prone communities. These are: 1.) strength of the tropical cyclone; 2.) height of the surge; and the 3.) communities located in low-lying areas. With this information, the locals can avoid negative impacts on their lives and properties. Specifically,

checking weather updates from whom they consider "reliable" would be very helpful. They can also prepare important things they need and prepare to evacuate to a non prone area with a higher elevation.

Who are at risk

FGD results show that when climate risks happen, the groups that are at risk are the people, facilities, and the last are the lifelines. The people at risks are the guests/tourists/visitors, resort owners and other businessmen, and the locals living in the area. Facilities that are at risk are the infrastructures such as roads going to Siruma, potable water source, and cottages in the resorts. The lifelines affected are the health workers, PNP, those bringing in food supply to evacuees and the suppliers in various businesses. The lifelines claimed however that the risks are only during the disaster. After that, they are fully aware of how to reach Siruma safer.

How these risks are communicated in the locality

Risk communication

How climate risks are communicated and who communicates them in the most pressing and crucial situation are important part of this study. The source and the medium used for dissemination has an effect on risk perception and in accepting the climate risk. Similar to the idea of Bertram, K, (n.d.) in cases like emergencies due to pandemics, **"** people need timely, accurate, up-to-date health information they can trust. Reaching them can be a challenge and it's compounded by fears of the unknown, unfounded rumors and misinformation and requests to behave in new ways."

The Focus Group Discussion was a way to get qualitative information and understand the source, medium, and some issues related to risk communication. The participants affirmed that in Siruma, whenever a climate risk is about to happen, the locals are informed. Specifically, FGD results show that whenever a typhoon is coming, the risks are communicated by the Local DRRM Officer in coordination with Barangay Officials. They are the primary source of messages. The LDRRM Officer and the officials use house to house visit to inform them of the typhoon and possible storm surge. They persuade every household to transfer to the designated evacuation area. The Philippine National Police (PNP) supports the LGU by helping in the dissemination of information. They use the two-way-radio in communicating with the locals which is a very helpful gadget during disasters.

FGD participants claimed that second source of climate risk messages is the National DRRM Office through social media like FB postings, messenger, and text messages. These are the fastest sources of messages..

The third source of climate risk messages is Mr. Mike Padua. Mr. Padua is the so-called Mr. Typhoon in Naga City. The FGD participants know that he is not a resident meteorologist of PAGASA yet the locals believe him more than PAGASA. Mr. Padua took up BS Geography instead of BS Meteorology which is not available in schools in Naga City. He continued developing his skills by attending conferences both here and abroad, scanning the latest research and models, and using the most advanced technologies. He does plenty of research. For Mr. Padua, "Education is not a four-year course. It is a continuing study on the new knowledge that you get". Studying should be continued in order to be able to attain new knowledge, and ultimately, save lives.

Despite the little trust of the locals to PAGASA. It is still recognized as the fourth source of climate risk messages. However, over the years, they found it to be not so accurate and reliable. The respondents verbally expressed their mistrust and this was observed in their expressions shaped by their past experiences on typhoon advisory. They doubt every typhoon advisory issued by PAGASA instead they believe more the advisory of Mike Padua.

This relates to the principles of effective crisis and risk communication described by the Centers for Disease Control and Prevention (2014). To have an effective risk communication, the six principles to be observed are : 1.) be first, 2.) be right, and 3.) be credible, 4) express empathy, 5) promote action, and 6) show respect. PAGASA has to be on top of it all because its primary mandate is to "Provide adequate, up-to-date data, and timely information on atmospheric, astronomical and other weather-related phenomena using the advances

achieved in the realm of science to help government and the people prepare for calamities caused by typhoons, floods, landslides, storm surges, extreme climatic events, and climate change, among others, to afford greater protection to the people."

Interestingly the fifth source are the locals themselves. Once they are certain of the risk, they use the "bandilyo", an early form of disseminating messages to all locals. Bandilyo uses a big gong and the group of informants go around the barangays in a loud voice announcing the upcoming typhoon. This indigenous form of communication is still practiced in Siruma.

At rank 6 is the neighbors. The women tend to gather together on the sari-sari store or on the street, and through word of mouth, they gather and spread information about the climate risk. Gathering risk information from this source heightens their fear of the upcoming climate risk.

The seventh source are the mainstream media, particularly the radio and TV. This is used however while there is an electricity. The news coverage are not depended upon because they get off the air once the electricity is cut off.

Lastly, the participants stated that most of the time, a combination of the above makes them aware of the upcoming risks. This findings affirms the study of Ngo in 2021, citing Whitmarsh 2008; Poortinga et al. 2011; Ockwell, Whitmarsh, and O'Neill 2009; Ngo, Poortvliet, and Feindt 2020). It is really important that locals understand the impending risks brought about by flood and climate change risks. Effective communication of these risks positively influence behavioural change in climate change mitigation.

Table 1. Manner of disseminating climate risk messages in Siruma, Camarines Sur.

Who disseminates climate risk	Mode of dissemination	Rank
Local DRRM Officer in coordination with Bgy Officials Philippine National Police (PNP)	House to house visit Two-way radio	1
Social media (like FB and messenger) National DRRM Officer	Posts and text messages	2
Mr. Mike Padua	Radio	3
PAGASA	Radio and TV	4
Locals	Bandilyo	5
Neighbors	Word of mouth	6
Mainstream media	Radio, TV	7
Combination of 1 or 2	Any of these modes	8

Wardekker (2004) stressed the importance of a credible and trusted source for risk communication. In his study, the citizen seem to trust the scientists including the internet sources, TV networks and newspapers. Similarly, in this present study, the locals find the text messages from NDRRMO, use of internet, and social media as very reliable and dependable. Radio and TV cannot be relied upon especially when the power is out. This is supported by FAO and WHO (1998) that stated that one of the principles of risk communication is to involve scientific experts. As experts, they can explain the concepts and processes of risk assessment and the scientific data, assumptions and subjective judgements upon which it is based. In effect, the risk managers clearly understand the risk and how the risk management decisions are made. This is true in Siruma where they trust more Mr. Mike Padua than PAGASA. The principle of credibility influences the public perception of a risk. People will understand the nature of the hazard, culture, social and economic status, and other factors. It is said that when same and consistent messages are received from different sources then the credibility of the message is reinforced. Some factors that determine credibility include recognized competence or expertise, trustworthiness, fairness, and lack of bias.

A compelling view on risk communication is to think of it as an invaluable tool for fostering trust, and helping the locals make informed decisions. Bertram (n. d.) stated that Risk Communication and Community Engagement focus on informing and engaging the public on how to reduce their risk and better protect themselves. Although the study was on health risk, the same can be said in climate risk. The concerned LGU officials must remember to use strategic behavior change approaches to motivate action. With this LGU Siruma can prepare plans to control climate risks in their locality.

The study of the United Nations Institute for Training and Research (UNITAR) in 2009, however, shows that most climate change information are not readily usable by policy makers, vulnerable groups, and other stakeholders. The climate information are not answering the need to make decisions and are only presented on spatial and temporal scales. Certainly, these information cannot be understood by the locals. Consequently, framing and developing understandable messages in climate risk communication is very important. The patterns and trends from the technical data must be popularized and must use graphics to make them usable according to purpose.

In this present study, the FGD participants disclosed that they need a sound and effective risk communication to help them make wise decisions. These decisions include if they will leave their house, where to seek shelter for their family's safety, where they will get food supply, and who will give them medicines in case any of the family member gets sick or gets hurt. There is, however, one good practice that is already established and which the locals appreciate. Once a typhoon is announced, immediately the barangay officials conduct house-to-house visit and encourage everyone to evacuate. Those who evacuate bring their basic needs and their own food. They also force those who do not want to leave their houses. The FGD participants disclosed that there are few who rather stay at home because of their previous experiences of being safe and unharmed despite just staying in their homes during typhoons.

Problems encountered in risk communication

Understanding the problems in communicating climate risks and how to overcome them is a significant area of study. The identified problems were clustered in three themes; 1. Knowledge, skills, and attitude, 2. Safety and security, and 3. Solid waste management.

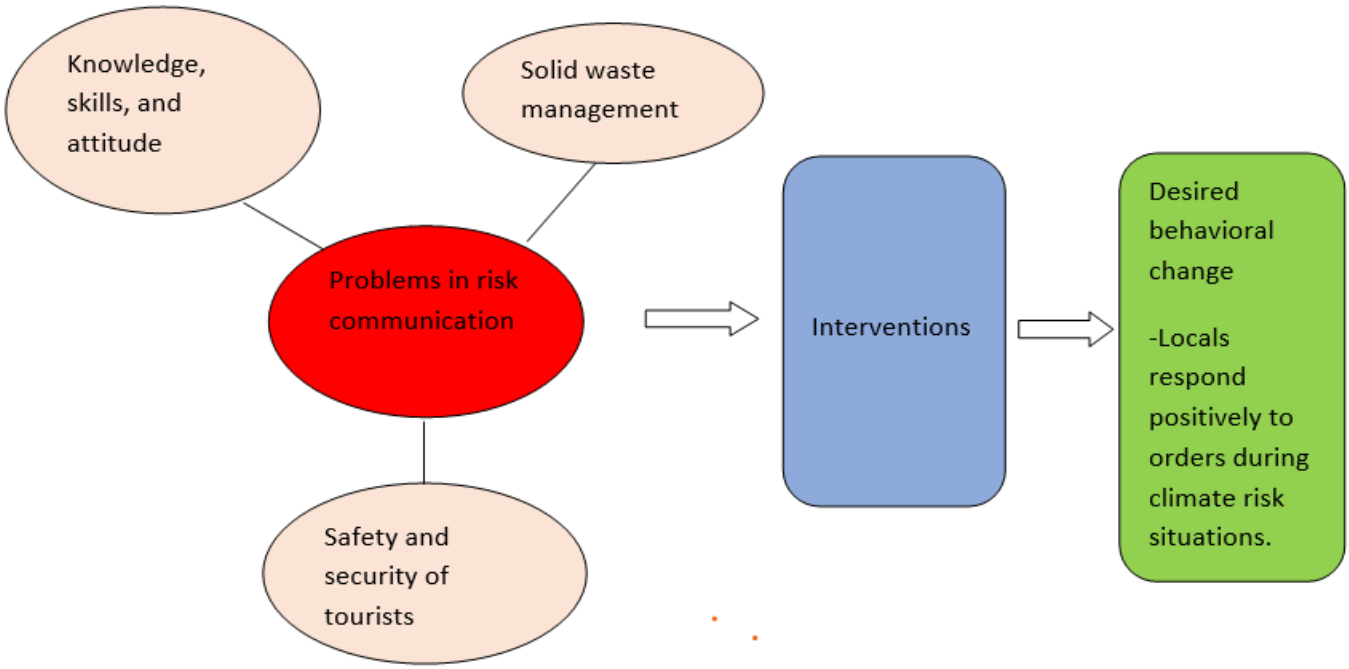


Figure 4. Problems Encountered by Locals on Risk Communication.

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As the climate risk communication is practiced, the participants observe some blatant problems that need to be addressed to achieve an effective risk communication. The primary problem they encountered is on the knowledge, skills, and attitude. FGD result shows that the concerned officials lack knowledge on the basics of communicating the 5Ws and 1H of the upcoming risk. Some vital information are not disclosed accordingly. These results in misinformation or inadequate information for them to prepare. Another is the lack of training of concerned officials on how to communicate the climate risk effectively to the locals. Specifically, they cannot identify clearly what message is best for what medium. Another problem in this cluster is the attitude of the locals. Some are stubborn and they follow superstitious beliefs to interpret signs from nature. That is why some do not like to leave their houses during disasters because they have a way to interpret these risks from nature. Attached to these knowledge, skills, and attitude is the problem on lack of funding to address these problems and pursue plans and programs on tourism. And a handful of barangay officials do not function during disasters. They do not conduct house-to-house visits to tell locals to evacuate. They simply attend to the safety of their own family.

The second problem cluster is on the safety and security of tourists and locals. They all agree that travel destinations must be safe during and even after the risk occurred. As of today, there are only two that act as tourist police. They need training in disseminating risk messages. In terms of physical safety when travelling to and from Siruma, they feel the need to add checkpoints although according to the interviewee who is a representative of Siruma MPS, Police Non-Commission Officer (PNCO) Lazarvin Olaez,"as of today, the checkpoint is at the boundary situated in barangay La Purisima, Siruma which is about 7 km to Siruma proper and 47 km to Tinambac proper. Siruma and Tinambac PNP have synchronized, coordinated, and joint activities for apprehension."

He also added further that,

"Siruma used to be not safe years back. But 5 years ago when the road was concretized, there was no more holdup cases since the victims can easily ask for help and flee from the critical sites."

But participants in the FGD still believe that there are isolated extortion cases. One participant shared his recent extortion experience in broad daylight when their car was stopped by armed men asking for money. And in his fright, he gave all for fear that his family and house in the población might be bombed if he refused. This shows that any time of the day, the locals, guests and tourists are at risk.

The third problem cluster is on managing the solid wastes generated in the resorts. Solid Waste Management is not so defined. Signages are usually small and oftentimes ignored by the tourists. FGD participants expressed that they want to maintain the environmental dignity of the beaches in Siruma. With this, they feel that there is a need to form the values or re-educate the tourists and locals specially on environment protection to avoid future disasters in their locality.

CONCLUSION

From the findings generated in the FGD sessions, it is concluded that in Siruma, Camarines Sur, the primary source of the climate risks messages are the Local DRRM Officer in coordination with Barangay Officials and the Philippine National Police. Messages are communicated through interpersonal communication such as house-to-house visits, and chat with neighbors, and through the indigenous medium "bandilyo". The gadgets used in receiving messages are cellphones and two-way radio. Yet despite the abundance of risk information, some locals refuse orders for preventive evacuation mainly because they do not perceive the risk due to some not credible sources and unpersuasive messages. Focused, directed and accurate risk communication messages can help them perceive upcoming risk to behave positively. Moreover, to utilize the findings of this study, a Policy on the Formulation of a Detailed Risk Communication Plan in Siruma, Camarines Sur to be embedded in the SOP Early Warning System in 2023, may be in place.

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