

World Maritime University

# The Maritime Commons: Digital Repository of the World Maritime University

---

World Maritime University Dissertations

Dissertations

---

10-31-2021

## Optimising risk governance: a case study of the Philippines' change crew hub system

Cynthia E. Esquivias

Follow this and additional works at: [https://commons.wmu.se/all\\_dissertations](https://commons.wmu.se/all_dissertations)



Part of the [Education Commons](#), and the [Environmental Health Commons](#)

---

This Dissertation is brought to you courtesy of Maritime Commons. Open Access items may be downloaded for non-commercial, fair use academic purposes. No items may be hosted on another server or web site without express written permission from the World Maritime University. For more information, please contact [library@wmu.se](mailto:library@wmu.se).

**WORLD MARITIME UNIVERSITY**  
Malmö, Sweden

**OPTIMISING RISK GOVERNANCE: A CASE  
STUDY OF THE PHILIPPINES' CHANGE CREW  
HUB SYSTEM**

By

**CYNTHIA E. ESQUIVIAS**  
**Philippines**

A dissertation submitted to the World Maritime University in partial  
fulfilment of the requirements for the reward of the degree of

**MASTER OF SCIENCE**  
**in**  
**MARITIME AFFAIRS**  
**(MARITIME EDUCATION AND TRAINING)**

2021

## Declaration

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views and are not necessarily endorsed by the University.



(Signature): .....

(Date): ..... 21 September 2021 .....

Supervised by: **Dr. Michael Ekow Manuel**

Supervisor's affiliation: **World Maritime University**

## Acknowledgements

I have not written a single academic article after leaving my alma mater, the University of the Philippines Baguio, twenty-one years ago. After graduation, from the moment I stepped inside the headquarters of the Philippine Coast Guard, my life revolves around writing naval and military correspondence. Hence, writing this dissertation is like travelling to the past and doing one of my favourite but taxing subjects in college: Investigative Journalism. For the past months, this task has given me a roller coaster of emotions. I held on with God's never-ending love and protection and the people who accompanied me in this journey. For that, I would like to convey my gratitude.

Thank you to the Philippine Coast Guard for allowing me to study at the World Maritime University and the ITF Seafarers' Trust for supporting my post-graduate study. I hope I can repay your good deed to others.

My utmost respect to Dr. Michael Ekow Manuel and Ms. Anne Pazaver, my dissertation adviser and co-adviser, for their extra patience, guidance, knowledge shared, and motivation. Your grit inspired me to go beyond my best effort.

To my MET family: DJ, Joe, Moi, Pearl, Ayu, Dana, Jeric, Jackson, Hnin, Peter, and Deron for giving me the most wonderful and memorable moments in Sweden. You will be forever in my heart. Special thanks to Dana, Jeric, and Moi for keeping me sane when I felt down and frustrated. You three are my happy pills.

To the rest of my MET mentors: Dr. Momoko Kitada, Dr. Inga Bartuseviciene, and Dr. Johan Bolmsten, for sharing your knowledge in an optimum effort. Now I know why MET is the best specialisation in WMU.

I will be forever grateful to my supportive respondents who provided valuable data in my research. It warmed my heart every time you ask me if I need more information and materials.

To my Titas and Titos in Malmö: Tita Linda S, Tita Linda C, Tita Glo, Tita Linda, Tito Carding and Tito Nilon thank you so much for being my family in Sweden. Exceptional thanks and respect to our only Mommy in Sweden, Mommy Dolores Quijano, for treating me as one of her own children.

To Mama, Papa, Cecile, Tope, Tintin, Christian, Claire, and Ppau for the unconditional love and care you give to my son. You are the reasons why I am what I am today. Thank you for always allowing me to reach for my dreams.

To my son Ambriel Luis and his fur brothers and sister (Sherlock, Kira, Zak, Haru, and Cocoa) for never failing in making me laugh. You are the reasons why home is my forever happy place.

Finally, to the inspiration of my study: the seafarers who continue to sacrifice their lives and endure the loneliness and uncertainties, especially in the time of the COVID-19 pandemic. This dissertation is a call that your valuable services to the world need to be reciprocated. Heroes and heroines should not be valued only when they pass. You deserve it now and always.

*I will love the light, for it shows me the way, yet I will endure the darkness because it shows me the stars.*

Og Mandino

## Abstract

Title of Dissertation: **Optimising Risk Governance: A Case Study of the Philippines' Change Crew Hub System**

Degree: **Master of Science in Maritime Affairs**

This study explored and analysed the strengths and gaps of inter-agency collaboration, such as the Philippines' change crew hubs in optimising risk governance in its system.

In an interdependent world, risks have evolved into challenging types. However, whatever its characteristic (simple, complex, uncertain, and ambiguous), risk can have positive and negative outcomes. Proactive organisations with resilient mechanisms to mitigate and manage risks can even turn their adverse effects into opportunities. The COVID-19 pandemic brought various challenges to the Philippines, particularly the economy, health, education, safety, and security. However, the crisis opened room for hope and opportunity when the country activated its six change crew hubs to facilitate international seafarers' safe transit and repatriation. The change crew hubs created jobs for the Filipinos, assisted many seafarers, and generated revenues for the country.

Nonetheless, with other countries establishing their change crew hubs, the Philippines must enhance its services to retain the trust of its customers and attract more clients. One aspect that must be improved in the change crew hub is its risk assessment and management strategies. By incorporating and optimising risk governance using the IRGC Risk Governance framework in its system, the Philippines' change crew hub will be sustainable and more resilient from risk disruptions.

**KEYWORDS:** risk, risk governance, inter-agency collaboration, IRGC risk governance framework, change crew hubs, seafarers

## Table of Contents

<b>Declaration</b> .....	<b>i</b>
<b>Acknowledgements</b> .....	<b>ii</b>
<b>Abstract</b> .....	<b>iv</b>
<b>Table of Contents</b> .....	<b>v</b>
<b>List of Tables</b> .....	<b>vii</b>
<b>List of Figures</b> .....	<b>viii</b>
<b>List of Abbreviations</b> .....	<b>x</b>
<b>Chapter 1 Introduction</b> .....	<b>11</b>
<b>1.1 Background of the Study</b> .....	<b>11</b>
<b>1.2 Statement of the Problem</b> .....	<b>13</b>
<b>1.3 Aims and Objectives</b> .....	<b>15</b>
<b>1.4 Research Questions</b> .....	<b>15</b>
<b>1.5 Methodology, Research Design and Methods</b> .....	<b>16</b>
<b>1.6 Ethical Issues and Timelines/Budget</b> .....	<b>16</b>
<b>1.7 Expected Result</b> .....	<b>16</b>
<b>Chapter 2 Literature Review</b> .....	<b>18</b>
<b>2.1 Introduction</b> .....	<b>18</b>
<b>2.2 Risk and Uncertainty Defined</b> .....	<b>18</b>
<b>2.3 Systemic Risks and Inter-agency Collaboration</b> .....	<b>21</b>
<b>2.4 The International Risk Governance Council (IRGC) Risk Governance Framework</b> .....	<b>22</b>
<b>Chapter 3 Methodology and Methods</b> .....	<b>28</b>
<b>3.1 Purpose and Outline</b> .....	<b>28</b>
<b>3.2 Methodological Approach</b> .....	<b>28</b>
<b>3.3 Selection of Participants</b> .....	<b>29</b>
<b>3.4 Instrumentation</b> .....	<b>30</b>
<b>3.5 Data Collection</b> .....	<b>30</b>
3.5.1 Primary Sources of Data.....	31
3.5.2 Secondary Sources of Data.....	31
<b>3.6 Data Analyses</b> .....	<b>32</b>
3.6.1 Quantitative Analyses.....	32
3.6.2 Qualitative Analyses.....	32
<b>3.7 The Bowtie Method</b> .....	<b>32</b>
<b>Chapter 4 Findings and Analysis</b> .....	<b>33</b>
<b>4.1 Introduction</b> .....	<b>33</b>
<b>4.2 Survey Questionnaire: Data Presentation and Analysis</b> .....	<b>33</b>
4.2.1 Demographic Information .....	33
4.2.2 Factors to Consider in Risk Governance .....	37

4.2.3 Perception of Respondents on How to Optimise Risk Governance .....	54
4.2.4 Risks that Disrupt Operation and Perception on the Advantages and Disadvantages of an Inter-agency Organisation.....	75
<b>4.3 Online Interview: Data Presentation and Analysis .....</b>	<b>78</b>
4.3.1 Rules, Regulations, Processes, and Mechanisms in Risk Governance.....	79
4.3.2 Processes in Collecting Risk Information, Risk Analysis, and Communication..	80
4.3.3 Procedures in Decision-making, Risk Management, and Implementation.....	83
4.3.4 Actions to Optimise Risk Governance for a Resilient and Sustainable Change Crew Hub .....	84
<b>4.4 Quantitative and Qualitative Data Analysis: Comparison, Integration, and Interpretation .....</b>	<b>85</b>
4.4.1 Rules, Regulations, Processes, and Mechanisms used in Risk Governance .....	87
4.4.2 Processes in Collecting Risk Information, Risk Analysis, and Communication..	87
4.4.3 Procedures in Decision-making, Risk Management, and Implementation.....	90
<b>Chapter 5 Conclusion and Recommendation.....</b>	<b>97</b>
<b>5.1 Introduction .....</b>	<b>97</b>
<b>5.2 Summary of the Results .....</b>	<b>97</b>
<b>5.3 Recommendations .....</b>	<b>100</b>
<b>5.4 Conclusion .....</b>	<b>104</b>
<b>5.5 Limitations and Future Research.....</b>	<b>104</b>
<b>References.....</b>	<b>106</b>
<b>Appendices.....</b>	<b>110</b>



## List of Tables

Table 1. Scaling Approach.....	54
Table 2. Mean Response if a Clear Organisational Structure is Important .....	55
Table 3. Mean Response to Well-defined and Legally Binding Roles and Responsibilities .....	56
Table 4. Mean Response to Personnel with Knowledge of Risk Governance .....	57
Table 5. Mean Response to the Importance of Good Working Relationships and Collaboration with other Agencies .....	58
Table 6. Mean Response to the Importance of a Sustainable Risk Decision and Flexible Risk Assessment and Management .....	59
Table 7. Mean Response on the Importance of Scientific Tools and Methods in Risk Assessment.....	60
Table 8. Mean Response to the Importance of Criteria in Identifying, Assessing, and Managing Risks .....	61
Table 9. Mean Response to Transparency and Accountability in Risk Evaluation...	62
Table 10. Mean Response to Collaboration with Stakeholders and Providing Adequate Attention to their Concerns .....	63
Table 11. Mean Response to the Internal Communication Process .....	64
Table 12. Mean Response to the Effective External Communication Process.....	65
Table 13. Mean Response to Communication Process Adapted to the Category of Risk .....	66
Table 14. Mean Response to Responsible Information Dissemination .....	67
Table 15. Mean Response to Education and Training on Risk Governance .....	68
Table 16. Mean Response to Effective Customer Feedback Tool.....	69
Table 17. Mean Response to Monitoring Tool in Evaluating Effectiveness .....	70
Table 18. Mean Response to the Appropriate Risk Governance Framework .....	71
Table 19. Mean Response to Reliable Data in Risk Assessment.....	72
Table 20. Mean Response to Timeliness in Decision and Action .....	73
Table 21. Mean Response to Support from Higher Authorities, National Government, and Collaboration with Relevant International Organisations.....	74
Table 22. Advantages and Disadvantages of an Inter-agency Organisation .....	98

## List of Figures

Figure 1. The IRGC Risk Governance Framework in Detailed Version.....	24
Figure 2. Mixed Methods and Triangulation Design.....	29
Figure 3. The Average Age of Respondents.....	34
Figure 4. Gender of Respondents .....	34
Figure 5. Designation of Respondents .....	35
Figure 6. Level of Involvement in the OSS .....	36
Figure 7. Percentage of Respondents per OSS .....	36
Figure 8. Duration of Assignment in the OSS .....	37
Figure 9. Funding and Equipment .....	38
Figure 10. Organisational Structure.....	39
Figure 11. Standard OSS Organisational Structure .....	39
Figure 12. Rules and Regulation of Each Agency.....	40
Figure 13. Standard Rules and Regulations for Inter-agency Collaboration.....	41
Figure 14. Knowledge of Risk.....	42
Figure 15. Perception of Risk .....	43
Figure 16. Factors Affecting the Perception of Risk .....	43
Figure 17. Do Experience, Perception, and Values Influence Decisions in Handling Risk.....	44
Figure 18. Does the Change Crew Hub have Risk Assessment and Risk Management Strategies.....	45
Figure 19. Does the Change Crew Hub Conducts Risk Pre-assessment .....	46
Figure 20. How Risk Pre-assessment is Conducted .....	47
Figure 21. Does the Change Crew Hub have Analytical Tools and Methods in Assessing Risk .....	48
Figure 22. Analytical Tools and Methods Used in Assessing Risk.....	48
Figure 23. Does the Change Crew Hub Have Internal Communication .....	49
Figure 24. Does the Change Crew Hub Have External Communication .....	50
Figure 25. Does the Change Crew Hub have a Facilitator in Charge of the Risk Communication Process .....	51
Figure 26. Does the Change Crew Hub have a Spokesperson.....	51
Figure 27. Are you Involve in the Risk Assessment Process .....	52
Figure 28. Role in the Risk Assessment Process .....	52
Figure 29. Are you Involve in Decision-making and Risk Management .....	53
Figure 30. Role in Decision-making and Risk Management.....	53
Figure 31. Frequency of Perception for a Clear Organisational Structure .....	55
Figure 32. Frequency of Perception for Well-defined and Legally Binding Roles and Responsibilities.....	56

Figure 33. Frequency of Perception on the Importance of Personnel with Knowledge of Risk Governance .....	57
Figure 34. Frequency of Perception on Good Working Relationship and Collaboration with other Agencies .....	58
Figure 35. Frequency of Perception on Sustainable Risk Decision and Flexible Risk Assessment and Management.....	59
Figure 36. Frequency of Perception on Scientific Tools and Methods in Risk Assessment.....	60
Figure 37. Frequency of Perception on Criteria in Identifying, Assessing, and Managing Risks .....	61
Figure 38. Frequency of Perception on Transparency and Accountability in Risk Evaluation .....	62
Figure 39. Frequency of Perception on Collaboration with Stakeholders and Provide Adequate Attention to their Concerns .....	63
Figure 40. Frequency of Perception on the Internal Communication Process .....	64
Figure 41. Frequency of Perception on the Effective External Communication Process .....	65
Figure 42. Frequency of Perception on Communication Process that is Adapted to Risk Category .....	66
Figure 43. Frequency of Perception on Responsible Information Dissemination.....	67
Figure 44. Frequency of Perception on Education and Training on Risk Governance .....	68
Figure 45. Frequency of Perception on Effective Customer Feedback Tool.....	69
Figure 46. Frequency of Perception on Monitoring Tool to Evaluate Effectiveness	70
Figure 47. Frequency of Perception on Appropriate Risk Governance Framework .	71
Figure 48. Frequency of Perception on Reliable Data in Risk Assessment .....	72
Figure 49. Frequency of Perception on Timeliness in Decision and Action .....	73
Figure 50. Frequency of Perception on Support from Higher Authorities, National Government, and Collaboration with Relevant International Organisations.....	74
Figure 51. Risks that Disrupt Change Crew Hub’s Operation .....	75
Figure 52. Advantages of an Inter-agency Organisation .....	76
Figure 53. Distribution of Responses on Advantages of an Inter-agency Organisation .....	76
Figure 54. Disadvantages of an Inter-agency Organisation.....	77
Figure 55. Distribution of Responses on the Disadvantages of an Inter-agency Organisation.....	78
Figure 56. The IRGC Risk Governance Framework .....	86
Figure 57. The IRGC Risk Governance Stakeholder Engagement Escalator.....	92
Figure 58. Bowtie Analysis of the Study .....	96
Figure 59. Proposed Framework for Optimising Risk Governance in the Philippines’ Change Crew Hub System.....	103

## List of Abbreviations

BI	Bureau of Immigration
BOC	Bureau of Customs
BOQ	Bureau of Quarantine
CIQ	Customs, Immigration, and Quarantine
DOH	Department of Health
DOTr	Department of Transportation
ETA	Event Tree Analysis
FTA	Fault Tree Analysis
IATF	Inter-agency Task Force
IMO	International Maritime Organisation
IRGC	International Risk Governance Council
LGU	Local Government Unit
MARINA	Maritime Industry Authority
OECD	Organisation for Economic Co-operation and Development
OSS	One-Stop-Shop
OTS	Office for Transportation Security
OWWA	Overseas Workers Welfare Administration
PCG	Philippine Coast Guard
PNP	Philippine National Police
PPA	Philippine Ports Authority
SMS	Safety Management System
SPAM	Shipboard Pre-arrival Meeting
UNCTAD	United Nations Conference on Trade and Development
WHO	World Health Organisation
WMU	World Maritime University

# Chapter 1 Introduction

## 1.1 Background of the Study

Our daily lives are fraught with risk. Humans have always feared the uncertain consequences of an event or behaviour involving something we value. In the 21<sup>st</sup> century, we are constantly facing challenges either from rapid technology advances, climate change, cybersecurity, or new diseases or outbreaks such as the COVID-19 pandemic, which threatens the vital operation of a system or society. Risks are the possibility of adverse consequences arising from human activity, natural events, or a mix of the two and the severity of these consequences (Renn, 2008). The Organisation for Economic Co-operation and Development (OECD) categorise these risks as systemic risks (OECD, 2003). Kauffman and Scott, 2003 (as cited by Renn et al., 2020) define systemic risk as "the risk or probability of breakdowns in an entire system, as opposed to breakdowns in individual parts or components, and is evidenced by correlation among most or all parts" (p. 2).

Despite the opportunities brought by globalisation, the increasing complexity and interdependence of the world we live in have produced complex risks. Globalisation itself fuels the widespread effects and occasionally longer duration of these new risks as we are now living in a world more interconnected through fast-paced technological development (IRGC, 2021). Simultaneously, previously unseen systemic risks are now increasingly apparent (Nowotny, 2015). These systemic risks with uncertain consequences challenge policymakers in developing resilience-based strategies to mitigate or manage their impact on the economy and society. Frequently, they require action and collaboration of countries, through worldwide collective effort, to be mitigated (IRGC, 2010). Traditional risk assessment and management methods are becoming limited in their ability to assess and manage these new levels of systemic risks, and organisations need new knowledge and approaches to risk governance to

guide them in the complex process of identifying, assessing, communicating, and managing risks.

The OECD, 2003 (as cited by IRGC, 2017) emphasised that risks and systems are profoundly interconnected and further noted that:

risks are becoming more systemic, posing a significant threat to the functioning of essential structures important to the economy and society. Systemic risks are part of a broader picture of social, financial, and economic transformation. Governments, intergovernmental bodies, businesses, academia, and members of civil society must all work together to mitigate such risks, which cannot be handled by a single sector's actions alone. (p. 5)

The international shipping industry is one of society's vital sectors evidencing the fundamental characteristics of a system. This industry can be significantly affected by systemic risks arising from human-made or natural disasters, including global pandemics. This was patently manifested with respect to the COVID-19 pandemic. Among other challenges, the world maritime industry was confronted with difficulties related to the sustainable supply of seafarers who are competent and fit to work onboard ships to relieve those whose contracts had expired and were due for repatriation.

International shipping is responsible for 80% of world trade and is vital to the global supply chain. In addition, it employs the services of approximately 2 million seafarers worldwide (Doumbia-Henry, 2020), on whom the global community relied (and continues to rely) heavily to function and survive the pandemic. However, as stressed by Doumbia-Henry (2020), the COVID-19 pandemic will continue to have a huge impact on the shipping industry and on world trade for the foreseeable future and present serious challenges to the world's seafarers relating to quarantine requirements,

restrictions on border crossings with border closures, repatriation and crew changeovers, abandonment, and others.

## 1.2 Statement of the Problem

In a recent report, the United Nations Conference on Trade and Development (UNCTAD) indicated that many seafarers have had to extend their service onboard ships, being unable to be replaced or repatriated (UNCTAD, 2020). This has been detrimental to seafarers' safety and well-being and to the safe operation of ships. To help address this problem, the Philippines, as one of the biggest suppliers of seafarers globally, activated change crew hubs or One-Stop-Shop (OSS)<sup>1</sup> in Manila, Bataan, Subic, Batangas, Cebu, and Davao. These change crew hubs are under the supervision of the Department of Transportation (DOTr). As mentioned in the DOTr Press Release (2020), the change crew hubs' opening is the Philippines'

action to address the global need for new ships' crew and ensure seafarers' health, safety, welfare, and employment. The change crew hubs will primarily benefit seafarers stranded onboard ships with expired contracts due to imposed travel restrictions brought by the COVID-19 pandemic.

The change crew hubs operate under the DOTr in collaboration with the Philippine Ports Authority (PPA), Philippine Coast Guard (PCG), Office for Transportation Security (OTS), Maritime Industry Authority (MARINA), Bureau of Customs (BOC), Bureau of Quarantine (BOQ), Bureau of Immigration (BI), Overseas Workers Welfare Administration (OWWA), Philippine National Police (PNP), and the Local Government Unit (LGU).

---

<sup>1</sup> One-Stop-Shop or OSS is used interchangeably with change crew hub in the study.

To ensure safe crew change during the pandemic, the International Maritime Organisation (IMO) has released a series of protocols that contain general measures and procedures for shipping companies, governments, maritime administrations, and relevant national authorities to comply with. The relevant authorities include health, customs, immigration, border control, seaport, and civil aviation authorities (Dolumbia-Henry, 2020). The Philippines' change crew hubs or One-Stop-Shop (OSS) were established to facilitate changing crew, including health screening processes. It has sufficient and appropriate quarantine facilities and Customs, Immigration, and Quarantine (CIQ) facilities and established procedures (DOTr Press Release, 2020).

However, despite these efforts, the change crew hubs and their established procedures can themselves be threatened by risks. Therefore, the change crew hubs and their stakeholders need to optimise risk governance to assess and manage risks that may disrupt their operation. This level of risk governance has not been sufficiently addressed. The IRGC (as cited by Renn, 2008) defines risk governance as the

translation of the substance and core principles of governance to the context of risk and risk-related decision-making. It includes the totality of actors, rules, conventions, processes, and mechanisms concerned with how relevant risk information is collected, analysed, and communicated and management decisions are taken. Risk governance is of particular importance when the nature of the risk requires the collaboration of and coordination between a range of different stakeholders. (pp. 36-37)

In response to this problem – lack of structured risk governance framework for the Philippines' change crew hub system - this study will analyse how the stakeholders involved in this system optimise risk governance in identifying risks, assessing risks, managing risks, implementing risk management options, and communicating effectively among themselves and the public.



### 1.3 Aims and Objectives

The research aims to analyse the strengths and gaps of inter-agency collaboration, such as the Philippines' change crew hub, in optimising risk governance in its system.

To achieve this aim, this research intends to address the following objectives:

1. To examine the rules, regulations, processes, and mechanisms being used in risk governance in the Philippines' change crew hub system;
2. To evaluate how risk information is collected, analysed, and communicated in the Philippines' change crew hub system; and
3. To assess the decision-making methods and how risk control measures and risk management are undertaken in the existing Philippines' change crew hub system.

### 1.4 Research Questions

The following research questions will be answered in this study:

1. What rules, regulations, processes, and mechanisms are used in risk governance in the Philippines' change crew hub system?
2. How is risk information collected, analysed, and communicated in the Philippines' change crew hub system?
3. What decision-making methods are being used, and how are risk control measures and risk management undertaken in the existing Philippines' change crew hub system?
4. How is risk governance optimised in decision-making, risk control measures, and risk management in the existing Philippines' change crew hub system?

## 1.5 Methodology, Research Design and Methods

This study collected data for answering the research questions from primary sources and secondary sources. The primary sources were online interviews and surveys to personnel working in the change crew hub in Bataan, Subic, Manila, Batangas, Cebu, and Davao.

Secondary data was gathered from various sources of peer-reviewed journals, books, scholarly studies, and contributions and publications relevant to this study.

A mixed-method approach was used in gaining comprehensive answers, analysis, and conclusion to the research questions or topic. The analysis of this study assisted the researcher in developing a novel structure to optimise risk governance in the Philippines' change crew hubs.

The methodology and methods used are presented in detail in Chapter 3.

## 1.6 Ethical Issues and Timelines/Budget

This study strictly adhered to research ethics principles and with the requirements of the World Maritime University (WMU) Research and Ethics Committee during its course. Misrepresentation of data collected was avoided; a professional approach was applied in acknowledging association. The researcher sought informed consent before the interviews and respected the respondents' confidentiality and right to privacy in the data collection and analysis processes.

## 1.7 Expected Result

The expected results of this study are the following:

- a. It will provide a rationale to develop standard criteria and metrics on risk assessment and management into the Philippines' change crew hub policies.

- b. It will improve the collaboration of all agencies involved in the country's change crew hubs' operation.
- c. It will strengthen the risk governance of the change crew hub system in the Philippines.
- d. It will help the Department of Transportation achieve a resilience-based strategy in risk governance.
- e. It will contribute to future research related to this study.

## Chapter 2 Literature Review

### 2.1 Introduction

Over the years, multiple studies have been conducted on risks and uncertainties for scientists, economists, managers, politicians, and policymakers to understand better how to control, mitigate, and manage these challenges.

This chapter will discuss the concept of optimising risk governance in identifying risks, assessing risks, managing risks, implementing risk management options, and effective communication among the risk analysts, risk managers, stakeholders, and the public. Related literature on the difference and relationship between risk and uncertainty, systemic risks, risk governance, inter-agency collaboration, and the IRGC risk governance framework will be explored to support the significance of this research.

### 2.2 Risk and Uncertainty Defined

Doubt, confusion, danger, and ambiguity are frequently used interchangeably with uncertainty. Clearer definitions are needed to gain a comprehensive understanding of why uncertainty exists and how it can be managed (Cleden, 2012). However, researchers have no agreement about how risk and uncertainty can be described precisely (Cashdan, 2019). There is a crucial distinction to be made between risk and uncertainty. It is easy to make the mistake of believing that managing risk equates to managing uncertainty; the two are not synonymous (Cleden, 2012). To distinguish risk from uncertainty, Cleden (2012) enumerated the attributes of risks:

for a risk to exist, we must be able to conceive of the threat it embodies. A risk can be quantified, usually in terms of the likelihood and severity of its consequences, but sometimes in more tangible ways. Risk describes a vulnerability. By analysing a risk, we better picture where the project is

vulnerable and its implications. If a risk can be identified, so can a mitigation plan. (p. 5)

Uncertainty, on the other hand, is what remains after all the risks have been recognised. Uncertainty is a challenge since we do not know what shape it will take. If we did, the specific issue we are uncertain about would be classified as a risk (Cleden, 2012). O'malley (2012) agrees with Cleden's opinion that uncertainty is not a type of risk. Therefore, if risk and uncertainty are recognised as diverse entities having diverse implications for organisations, strategies for differentiating/analysing one from the other should be developed to help organisations identify and understand such variability.

Risk is often debated to be subjective in the sense of investment management. Subjectivity emerges because of individuals' risk aversion (Rachev et al., 2011). For Luhman, 1995 (as cited by Zinn, 2009) expectations, which can be more or less (un)certain, are a source of risk. Expectations are based on previous awareness and experiences, as well as sociocultural and personal beliefs. In a study regarding microplastics by the science community, experts seemed to have perception bias due to a faulty understanding of risk that caused a disparity between perceived risk and the quality of the study (Thiele & Hudson, 2021). For Nowotny (2015), the link between science and society is defined by dealing with and managing uncertainty. While society and experts can share expertise in making technical decisions, there are still significant differences. The line between experts' prerogative in making technical judgments and non-experts' prerogative in assessing the implications of those judgments is challenging to navigate (Collins, 2014). Ulrich Beck, 1994 (as cited by O'malley, 2012) states that risk distorts the horizon by informing us only of what we cannot do, not of what we can. It anchors us in the past, as its prediction is valid only if the world remains static. Additionally, risk society analysts claim that risk-based predictions produce insecurity instead of security, as science maintains that life is prevalent with risks.

Frank Knight, 1921 (as cited by Cashdan, 2019) defined risk as a known probability distribution over a set of events with numerous uncertain likelihoods. This is supported by Hartford and Baecher (2004), who defined risk as the product of the likelihood of an event occurring and the predicted consequences, i.e., estimating the probability and seriousness of an adverse event. In contrast, Knight, 192 (as cited by Bloom, 2014) defined uncertainty as "people's inability to forecast the likelihood of events happening" (p. 154). This is supported by Cleden (2012) and Cashdan (2019), who suggest that uncertainty is an unquantifiable way of measuring what we do not know or an individual's ignorance about the state of things. However, for Farber (2011), uncertainty is not synonymous with total ignorance.

Though most scholars and researchers state that risk differs from uncertainty, O'malley (2012) suggests that uncertainty plays a critical role as a risk substitute. Under uncertain conditions, we are unable to distribute risk and must rely on uncertain techniques. This is supported by Zinn (2006), who notes that risk and uncertainty should be construed systematically because risk can be managed in various ways other than instrumental rationality. O'malley (2012) supports this view by stating that "uncertainty is the fluid of the possible" (p. 5). It entails adaptability and flexibility techniques and a certain kind of perception that may be considered intuitive but is nevertheless capable of being elaborated in detail using concepts such as anticipatory and foresight-based governance. Also, uncertainty is a powerful motivator in the pursuit of knowledge, including more accurate forecasting methods (Nowotny, 2015).

However, Beck, 1994 (as cited by O'malley, 2012) advised that government analyses should consider that uncertainty is not a form of risk. Instead, they are ways for a particular government to ascertain what is fundamental to govern it. The difference between uncertainty and risk is not merely academic; it is also policy-relevant. A governmental analyst that ignores government-specific categories, such as uncertainty, risks losing touch with its subject.

## 2.3 Systemic Risks and Inter-agency Collaboration

In addition to the perplexity in discerning risk from uncertainty, globalisation and rapid development in technology have contributed to the evolution of risks. In modern society, Ansell et al., 2010 (as cited by Cedergren and Tehler, 2014) said risks are no longer constrained to sectoral, jurisdictional, or national boundaries but are increasingly transnational. Hence, societies today face systemic risks that complicate risk analysis and management. The term “systemic risks” refers to highly complex and interdependent risk phenomena. Such risks arise in systems that are inextricably linked. They exhibit cascading effects, tipping points, and non-linear growth. Additionally, they frequently lack adequate public awareness and policies (Schweizer, 2019). Systemic risks usually cover more than one nation and more than one economic field, at the very least. They are not under the jurisdiction of any single agency, but many stakeholders must discuss their impact simultaneously (IRGC, 2018).

To manage systemic risks, inter-agency collaboration should be geared towards performance for the achievement of common goals. Collaboration in the public service is defined by Himmelman (2001) as a process in which organisations exchange information, alter activities, share resources, and enhance each other’s capacity for mutual benefit and a common purpose by sharing risks, responsibilities, and rewards.

Inter-agency collaboration can thus assist actors and organisations in managing labour and knowledge, communicating, and filling gaps in risk-management efforts. These enhancements can help organisations become more resilient and contribute to societal sustainability by reducing the effect of risks (Ray-Bennet et al., 2020). According to Whitford et al., 2010 (as cited by Whelan, 2017) communication, information sharing, resources, and data are the foundations of effective and efficient collaboration.

However, when many groups pursue their own agendas, maintaining effective communication can be challenging (Ray-Bennett et al., 2020). These different groups

(which may be hierarchical in relation to each other) may have different methods, organisational cultures, attitudes, or expectations and may interpret certain situations from their own perspectives, resulting in conflict and misunderstandings (Sienkiewicz-Malyjurek, 2021).

Furthermore, due to communication breakdowns, collaboration may not always go as planned. To ensure the effectiveness of jointly implemented actions, creating teamwork is not enough. Maintaining and developing solid connections takes a lot of effort. To collaborate, it is necessary to share information, communicate, engage, work toward common goals, and harmonise operations through coordination (Sienkiewicz-Malyjurek, 2021). Therefore, a one-way and top-down approach must be avoided. For good collaboration and improved group achievements, communication must be two-way. Stakeholders must have a balanced discussion with leadership to ensure a two-way flow of information and justified decisions (Ray-Bennett et al., 2020).

#### 2.4 The International Risk Governance Council (IRGC) Risk Governance Framework

As risks become more complex, stakeholders can hold opposing viewpoints (OECD, 2003) in assessing and managing them. Consequently, systemic risks are surpassing traditional risk management, raising different, unresolved risk governance policy challenges. Additionally, these emerging interconnected risk fields necessitate a new approach to risk analysis, one that integrates data from various risk sources "geographically or functionally into a single analytical perspective" (Klinke & Renn, 2006, p. 2).

To address this problem, the International Risk Governance Council (IRGC) introduced a risk governance framework that could guide organisations in assessing, managing, and communicating risks. Risk governance applies governance concepts to the recognition, assessment, management, evaluation, and communication of risks. IRGC refers to governance as "actions, processes, traditions, and institutions by which



authority is exercised, and collective decisions are taken and implemented” (IRGC, 2017, p.5). Risk governance brings together both descriptive (how decisions are made) and normative concepts (how decisions should be made).

In political science, 'governance' refers to the plethora of actors and processes that result in collectively binding decisions. Risk governance refers to applying governance's substance and core principles to risk-related decision-making (Van Asselt & Renn, 2011). In their view, van Asselt and Renn (2011) defined risk governance as the

various ways in which many actors, individuals, and institutions, public and private, deal with risks surrounded by uncertainty, complexity, and/or ambiguity. It is more than a descriptive shorthand for a complex, interacting network in which collective binding decisions are taken around a particular set of societal issues. (p. 431)

This implies that certain risks necessitate mutually binding decisions based on a complex collection of social issues (van Asselt & Renn, 2011). The IRGC Risk Governance framework extends beyond conventional risk analysis to encompass institutional design and role, organisational capacity, stakeholder engagement, collaborative decision-making, and political accountability on the side of public entities, as well as corporate responsibility on the part of the private sector (Renn & Walker, 2008). This is envisaged as benefitting a democratic society, which requires the active participation of interested and affected stakeholders in risk evaluation and management stages and explicit and ongoing attention to their risk perceptions, including concerns, priorities, and needs (Clahsen et al., 2019). Effective stakeholder involvement can make a solid contribution to the success of a comprehensive and responsible risk governance program.

The IRGC Risk Governance framework is composed of four interlinked elements and three cross-cutting aspects (IRGC, 2017):

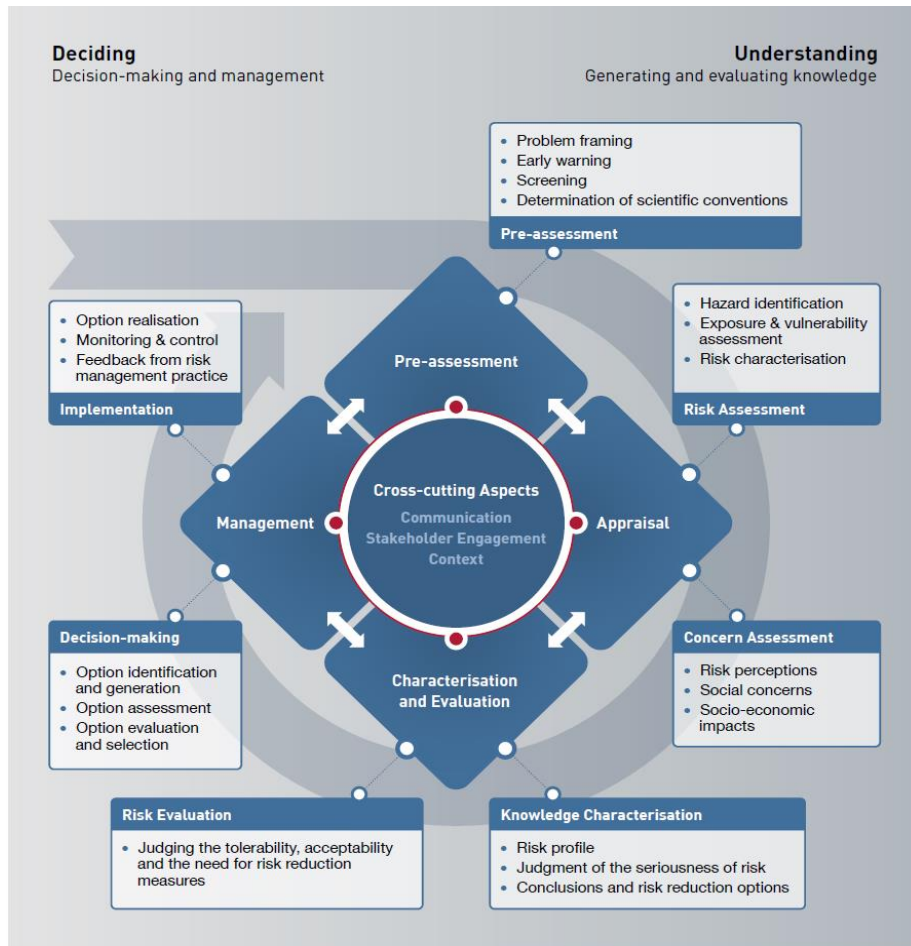


Figure 1. The IRGC Risk Governance Framework in Detailed Version

Source: International Risk Governance Council. (2017). Introduction to the IRGC risk governance framework. [www.irgc.org](http://www.irgc.org).

*Pre-assessment* –identifying the risk or system's limits. This contributes to risk framing, early notice, and planning for dealing with it. Relevant actors and stakeholder groups are involved in capturing multiple viewpoints of the risk, associated opportunities, and possible mitigation strategies (IRGC, 2017). Pre-assessment aims to examine and clarify the various stakeholder perspectives on risk estimation and management. The dimensions and weaknesses of risk are dealt with at this stage (Choi & Choi, 2018).

*Appraisal* – evaluating the risk's technological and perceived causes and consequences. This stage aims to develop and synthesise the knowledge base to decide whether to take and handle risks. It explores options for avoiding, minimising, responding to, or sharing the risk (IRGC, 2017). Risk appraisal is made up of two parts: risk assessment and concern assessment. In risk assessment, scientific sources are factual. Concern assessment complements risk assessment, concerned with stakeholder views and thoughts on risk's socioeconomic impacts and benefits (Choi & Choi, 2018).

*Characterisation and evaluation* – deciding the risk and whether it needs to be managed. This element comprises the process of comparing the results of risk appraisal (risk and concern assessment) with relevant parameters to decide the risk's importance and acceptability and make decisions (IRGC, 2017). The phase focuses on risk assessment and categorises risk into three: appropriate, tolerable, and intolerable. This step focuses on potential risk, its effect on one's life, and the possibility of using options and values to cope with risky situations (Choi & Choi, 2018).

*Management* – deciding on risk control options and putting them into action. The management aspect of risk governance creates and implements the measures and solutions necessary to avoid, minimise (prevent, adjust, mitigate), move, or maintain risks (IRGC, 2017). Management's goal is to carry out actions based on the outcomes of previous phases, such as preventing, reducing, moving, and retaining risk. This step is designed to minimise risk by developing implementation options and strategies (Choi & Choi, 2018).

*Cross-cutting aspects* – communicating, connecting with stakeholders, and considering the context. The importance of including stakeholders in the assessment and management of risks and the need to deal with the risk that ultimately accounts for the societal context of both the risk and the decision that will be made is the focus of this phase (IRGC, 2017). Any other process cannot be completed effectively

without effective communication. Every step of the process involves communication, allowing people to make informed decisions about risk and management (Choi & Choi, 2018).

Communication should not be restricted to information sharing; it should include attempts to develop a shared knowledge of the problems and difficulties and a consensus on the most acceptable risk reduction options (Renn et al., 2018).

Despite its merits at face value, the risk governance framework has been criticised by Boholm et al., 2012 (as cited by Cedergren and Tehler, 2014) for failing to evaluate the micro-level techniques that are used to mitigate risks in practice; hence, the model has been critiqued for being ideological and decontextualising in its approach to risk management. Cedergren and Tehler (2014) note that

in existing risk governance, limited attention has been paid to the link between macro-level process (such as the processes taking place on the level of society, including the vertical as well as the horizontal interplay between different public and non-public actors) and micro-level activities (such as the decisions and actions taken by specific individuals, and the particular documents produced). (p. 90)

Furthermore, according to Charnley, 2000 (as cited by Renn et al., 2018) the “commodification of risk, fragmentation of the risk governance process, costly collective risk decision making, and potential loss of democratic accountability” (p. 435) are disadvantages of the risk governance method. To resolve this, Renn et al. (2018) advised understanding the “dynamics, structures, and functionality of risk governance processes require a general and comprehensive conceptualisation of procedural mechanisms and structural configurations” (p. 435).

Nonetheless, with its perceived limitations, the IRGC Risk Governance framework is deemed the most appropriate in analysing how risk governance may be optimised in

the Philippines' change crew hub system since it is purposely open, interconnected, and iterative. By merging societal principles, interests, and risk expectations, the system, which employs a multi-level governance approach, will increase risk management tactics beyond traditional risk analysis and management. It can aid in the development of more effective risk governance measures by examining the relationships between various affected stakeholders (IRGC, 2017). Finally, this comprehensive framework will assist the researcher in formulating the right questions for the study to examine the strengths and gaps of inter-agency collaboration in optimising risk governance.

## Chapter 3 Methodology and Methods

### 3.1 Purpose and Outline

This chapter's purpose is to discuss how the study was conducted. It describes the methodological approach, explicit methods, and tools used to derive answers to research questions relating to the challenges and potential opportunities for optimising risk governance using the change crew hub system in the Philippines as a case study.

For this study, the researcher aimed to address the following concerns:

- a. Rules, regulations, processes, and mechanisms being used in risk governance by the Philippines' change crew hub system
- b. Processes in collecting risk information, risk analysis, and communication
- c. Procedures in making a collective decision in risk management and implementation

### 3.2 Methodological Approach

For the overall purpose of answering the research questions, the researcher applied a mixed-methods approach to increase the reliability and validity of research findings by minimising potential biases or lack of depth and breadth in a single study approach (Ivankova & Creswell, 2009). Mixed methods research addresses research problems by collecting, analysing, and integrating quantitative and qualitative data in a single study (Cresswel, 2013). Following this paradigm, the researcher incorporated both qualitative and quantitative methods of data collection and analysis of the study. Data collected from both methods were compared and validated through a triangulation design to strengthen the authenticity of the result of the study. The study used internet-based survey questionnaires and in-depth, open-ended interviews with key respondents to develop complementary and reliable findings for the research questions. The approach is illustrated in Figure 2.

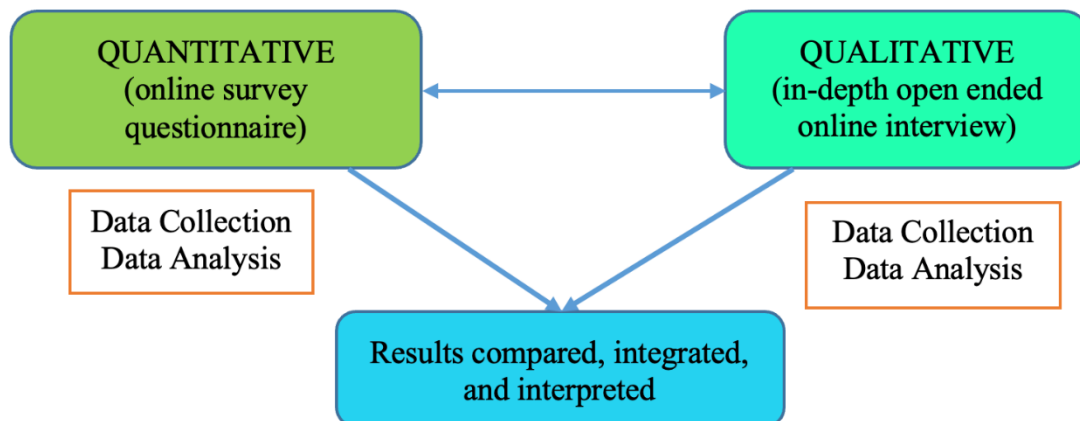


Figure 2. Mixed Methods and Triangulation Design

### 3.3 Selection of Participants

For this research on optimising risk governance using the Philippines' change crew hub system as the model, the researcher interviewed five representatives from the Philippine Coast Guard who are head of the change crew hub (OSS Subic), heads of the Medical Team (OSS Cebu and Batangas), head of the Security Unit (OSS Batangas), and the Deputy Commander of Coast Guard District Batangas. A Senior Shipping Operations Specialist represented MARINA, while the Malayan Towage and Salvage Corporation manager represented the shipping companies involved in the crew change. The seven respondents were selected for their expertise in their respective tasks and their crucial role in managing the change crew hubs. All these change crew hubs are offering one-stop-shop services to international seafarers. By investigating and evaluating how these change crew hubs analyse and manage risks, the researcher verified gaps and opportunities for optimising risk governance. Moreover, an online survey was provided to one hundred personnel involved in the operation and management of the change crew hubs. Through this method, the researcher measured their opinion on the importance of risk governance and its relevance in their daily operations. The survey and the interview results helped

interrogate risk governance's effectiveness and efficiency in the Philippines' change crew hub system.

### 3.4 Instrumentation

The researcher used an online questionnaire based on Google Forms to acquire qualitative and quantitative responses/data. The questions were designed in four sections. The first section dealt with demographic questions where, among other things, respondents could provide their names or choose to remain anonymous. The next part required "yes," "no," or "not sure" answers with the option to provide additional information or clarification. The third section was in a Likert response format where respondents could indicate their agreement with several items. Agreement was denoted using the following categories: strongly agree, agree, undecided, disagree, and strongly disagree. The last section was composed of questions in an open-ended form for the researcher to gather other ideas and knowledge from the respondents. The questions were based on the understanding of the researcher on risk governance, as discussed in Chapter 2.

### 3.5 Data Collection

This study collected data through primary sources and secondary sources. Primary data and secondary data are defined and differentiated by Hox and Boeije (2005):

primary data are collected for the specific research problem at hand, using procedures that best fit the research problem. On the other hand, secondary data are from materials created by other researchers made available for reuse by the general research community. (p.593)

While using secondary data can be highly beneficial to researchers, it must be carefully selected and handled responsibly, as these data are not intended for the study's goal (Martins et al., 2018). Secondary data was helpful to the researcher in providing



additional and supporting information and knowledge for this study. Findings from the primary data augmented any gaps in the data from secondary sources.

### 3.5.1 Primary Sources of Data

Primary data was collected through online interviews with management representatives and an online survey to operations and management personnel of the different agencies involved in the change crew hubs in the Philippines located in Manila, Batangas, Bataan, Subic, Cebu, and Davao. With the restrictions posed by the COVID-19 pandemic during the research time and the flexibility of using online tools, both strategies in collecting primary data were advantageous and convenient for both the researcher and the respondents. Aside from the disruptions brought about by the pandemic, online surveys have several advantages, including lower expenditure and ease of access to a broad audience (Le et al., 2018). Additionally, when respondents are sensitive and do not wish to have their identities revealed, online surveys may yield more flexible and positive findings than face-to-face surveys (Kılınç & Fırat, 2017). Though online data collection may have some limitations, this was a viable approach for this study considering the challenges posed by the geographical location, time, and the pandemic.

### 3.5.2 Secondary Sources of Data

Secondary data was gathered from various sources, including peer-reviewed articles, books, scholarly studies, and contributions and publications relevant to this study using the WMU Library and its online resources.

## 3.6 Data Analyses

### 3.6.1 Quantitative Analyses

The quantitative data gathered from the online survey, specifically from the general and close-ended questions and the Likert scale, were analysed using MS Excel. The results are presented in graphs, pie charts, and tables. In addition, data from the open-ended questions were grouped into themes. Descriptive statistics was applied in analysing the data from the Likert scale.

### 3.6.2 Qualitative Analyses

This study used open coding in analysing qualitative data. The collected data from the interviews and open-ended questions in the online survey were organised into codes and attached to themes. The researcher initially employed NVivo 12 for Mac for coding, assigning themes, and highlighting necessary annotations. However, since the transcripts were already translated from Filipino to English, the statements were concise and straightforward. Hence, the researcher resorted to an MS Excel spreadsheet in tabulating the recurrence of similar or related ideas and grouped them into themes. The themes that were developed from the analysis are based on the research questions. These themes are presented and discussed in Chapters 4 and 5, supported by significant annotations from the interview and survey and interpretation of the researcher.

## 3.7 The Bowtie Method

The researcher used the Bowtie method to develop a comprehensive analysis and evaluation of risks broken down in context to enhance the study. This will be thoroughly discussed in Chapter 4.

## Chapter 4 Findings and Analysis

### 4.1 Introduction

Based on the data gathered from the instruments employed in this study, including the responses from the survey questionnaire and interviews, this chapter presents the statistical data, discussion, and analyses of the research findings.

### 4.2 Survey Questionnaire: Data Presentation and Analysis

One hundred respondents from the six change crew hubs or OSS in the Philippines participated in the survey. The participants were from the management level and operational levels of the hubs. In the following sections, the quantitative and qualitative analyses of the four sections of the questionnaire are provided.

#### 4.2.1 Demographic Information

In the first section of the survey questionnaire, the respondents are asked about their age, gender, designation, level of participation in the OSS, and location. Figure 3 shows the average ages of respondents from the busiest and major ports in the Philippines: 35 for Manila and Cebu, 34 for Batangas, 33 for Davao, and 27 for both Bataan and Subic.

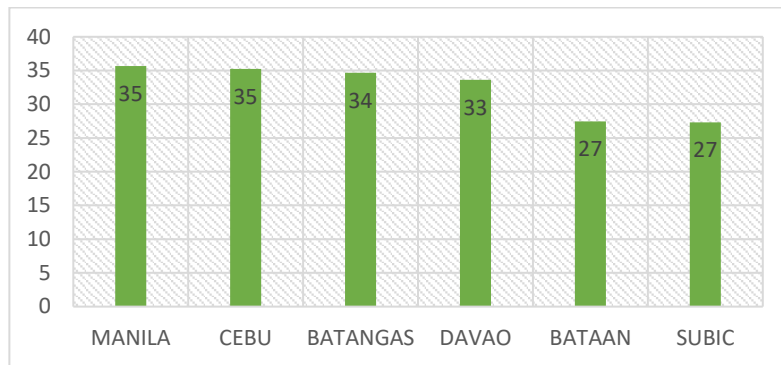


Figure 3. The Average Age of Respondents

Figure 4 shows that all OSS has more male personnel than female personnel. It reflects the general imbalance of male and female gender representation in maritime-related jobs and suggests that the OSS seem to prefer males in their rigorous operation, such as providing safety and security to seafarers, vessels, and quarantine facilities. Most notable is OSS Bataan, which has no female personnel among its 40 respondents.

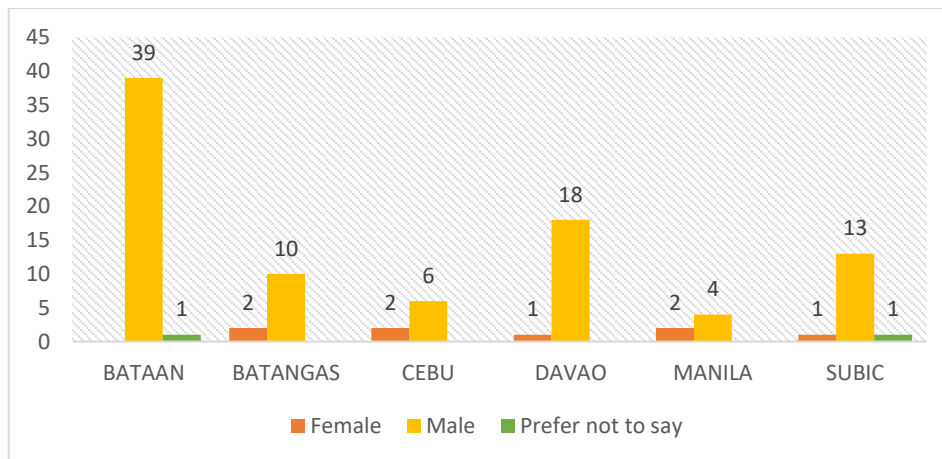


Figure 4. Gender of Respondents

Figure 5 shows that the respondents are designated in one of the following: security, operations, administration, swabber, and logistics. Most of the respondents are security providers and from the operations department. The reason for this is the OSS is responsible for the security of vessels, hotels, and quarantine facilities involved in crew change.

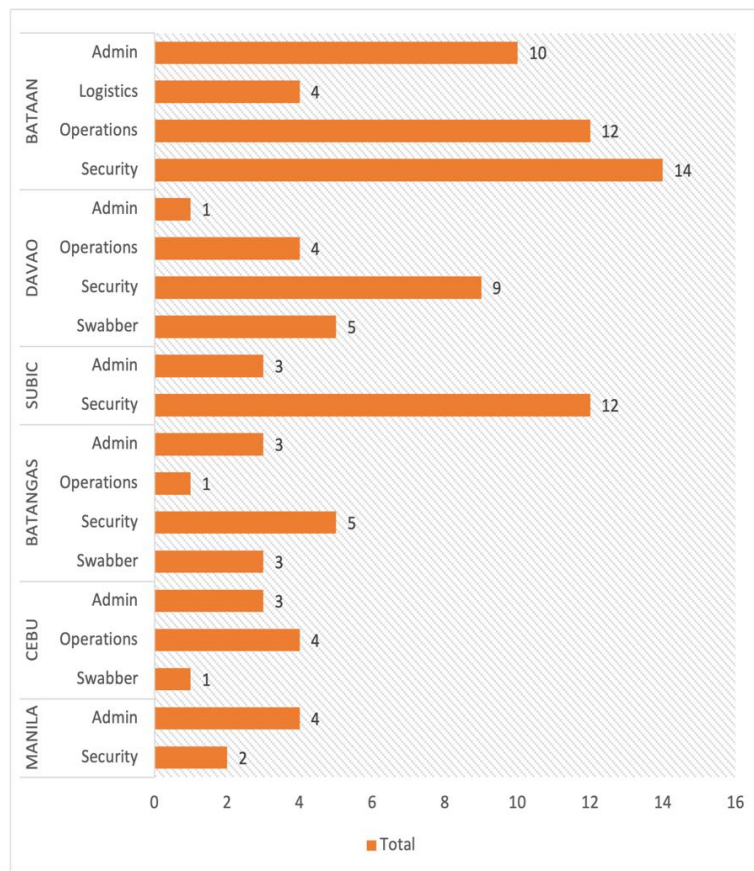


Figure 5. Designation of Respondents

Figure 6 shows all the OSS were represented with respondents from the management level and operational level.

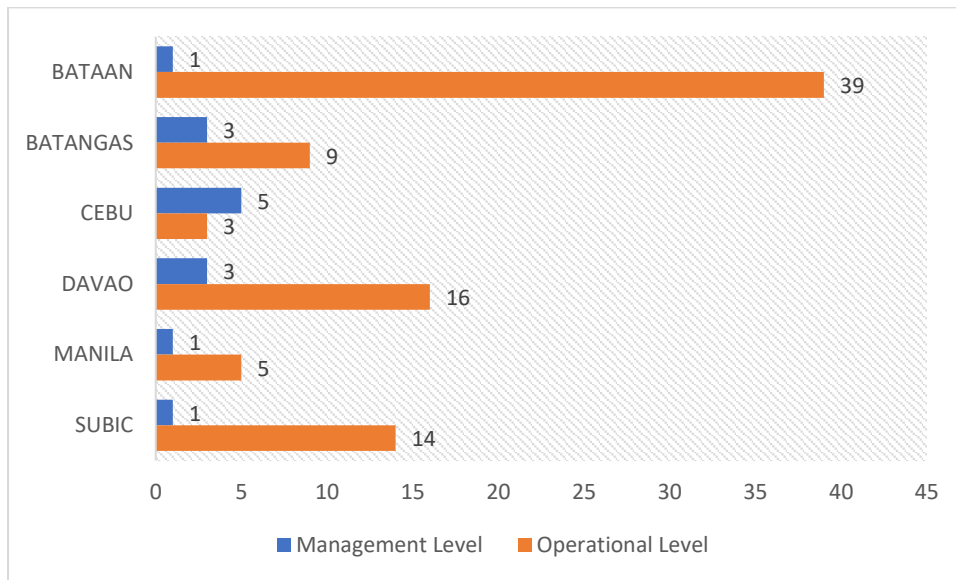


Figure 6. Level of Involvement in the OSS

Figure 7 shows the location of the OSS where the respondents are working. Most of the respondents are from Bataan with 39%, Davao with 21%, Subic with 14%, Batangas with 12%, Cebu with 8%, and Manila with 6%.

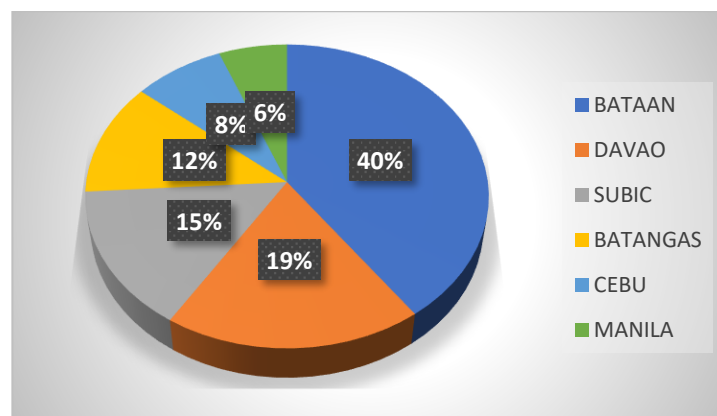


Figure 7. Percentage of Respondents per OSS

#### 4.2.2 Factors to Consider in Risk Governance

Section B of the survey explores risk governance's two areas: the assessment sphere (generation of knowledge) and the management sphere (decision-making and implementation). Factors encompassing said spheres include risk pre-assessment, risk appraisal, tolerability and acceptability judgment, risk management, and communication. This section is composed of open-ended questions and questions that can be answered yes, no, or not sure.

Figure 8 shows the duration the respondents are assigned in the OSS. The change crew hubs are activated under Joint Circular No.1 series of 2020<sup>2</sup>, IATF Resolution No. 53, and NTF Order No. 2020-03 on the following dates: Manila and Bataan on August 19, 2020, Subic on August 22, 2020, Cebu on October 16, 2020, Davao on November 20, 2020, and Batangas on December 16, 2020. Respondents from Cebu, Davao, and Batangas provided erroneous information by answering that they worked in the OSS for 11 to 15 months.

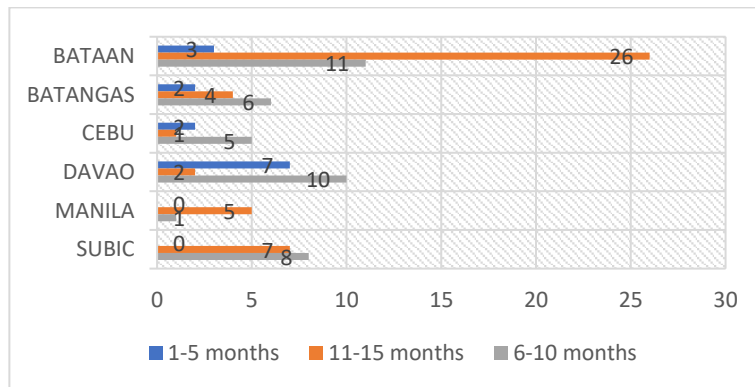


Figure 8. Duration of Assignment in the OSS

<sup>2</sup> The Joint Circular No. 01 Series of 2020 dated 02 July 2020 “Guidelines for the Establishment of the Philippine Green Lane to Facilitate the Speedy and Safe Travel of Seafarers, including their Safe and Swift Disembarkation, and Crew Change During the COVID-19 Pandemic” recognizes seafarers as key workers who should be accorded the right to safe passage and repatriation. The joint circular established the OSS and the protocols to facilitate the safe travel of seafarers, including the safe turnover of ship crew and other ship crew changes, while ensuring that effective measures are implemented to minimize the risks of COVID-19 infection.

Figure 9 shows the respondents' knowledge on whether the OSS is funded and equipped to operate effectively and efficiently. Most of the respondents from all the OSS except Cebu answered in the affirmative.

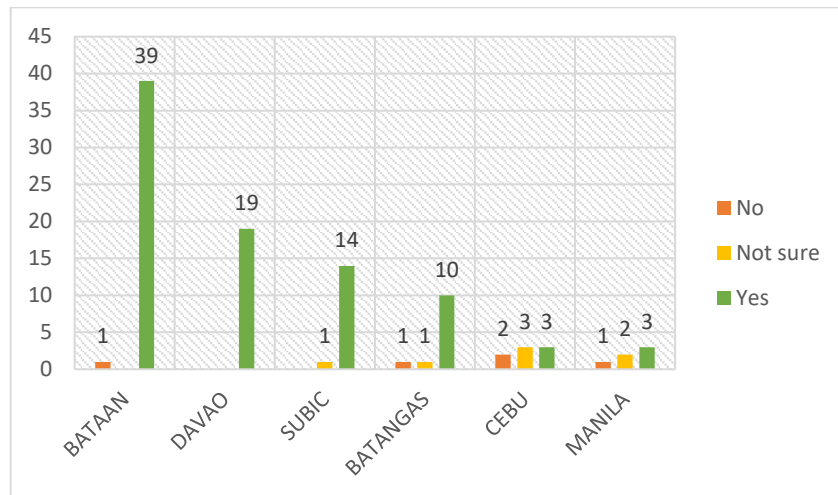


Figure 9. Funding and Equipment



Figure 10 shows that most of the respondents from all the OSS said the change crew hubs have an organisational structure, while six said no or none.

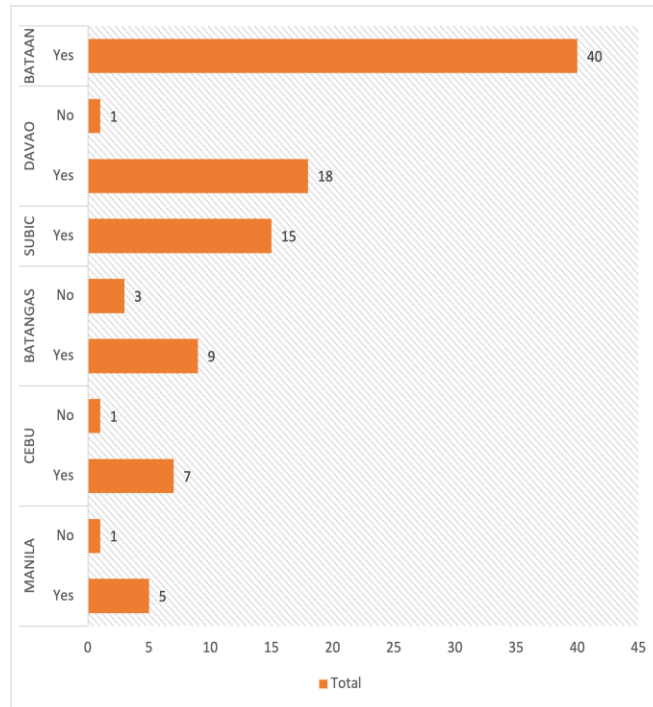


Figure 10. Organisational Structure

It is noteworthy that the DOTr has issued a standard organisational structure which the OSS applied, as shown in Figure 11.

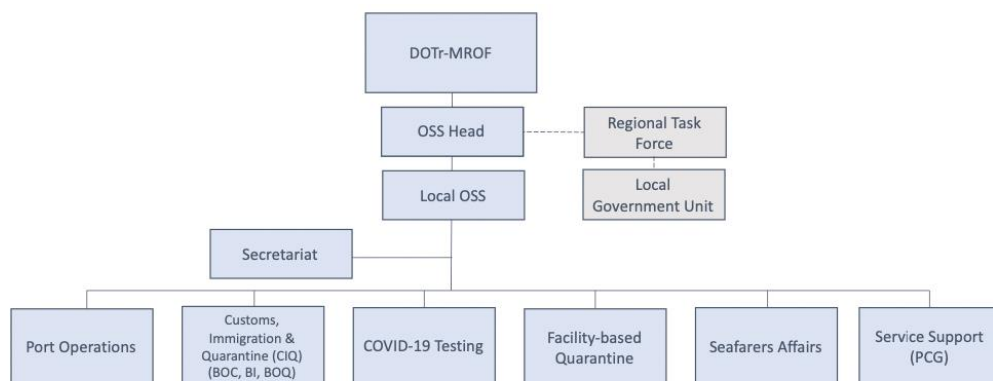


Figure 11. Standard OSS Organizational Structure

Figure 12 shows that most of the respondents from all the OSS are aware that, aside from the guidelines and protocols from the IATF and DOTr, each agency involved in the operation and management of the change crew hubs applies its own rules and regulations.

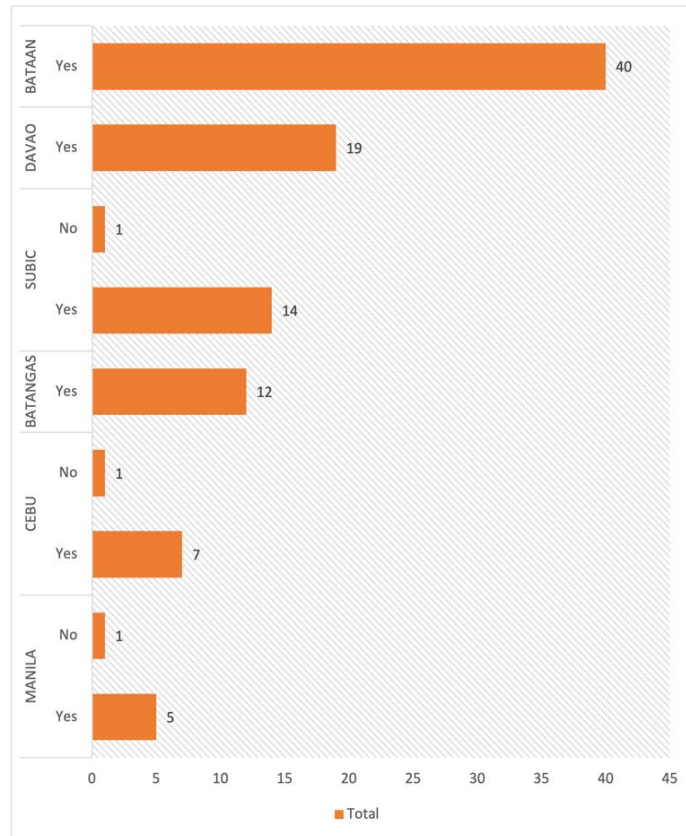


Figure 12. Rules and Regulation of Each Agency

Figure 13 shows most of the respondents are aware that there are standard rules and regulations for inter-agency collaboration in the OSS. Under the Joint Circular No. 1 series of 2020, the protocols for the management and operation of the OSS are established.

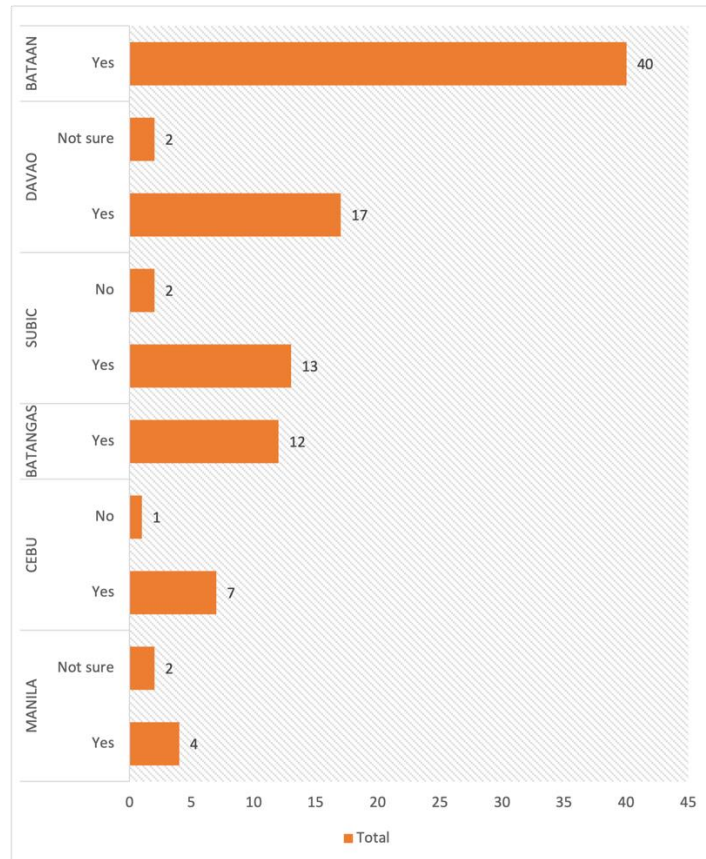


Figure 13. Standard Rules and Regulations for Inter-agency Collaboration

Figure 14 shows most of the respondents know about risk. However, two respondents from Davao, Subic, and Cebu and one from Manila indicated that they do not have knowledge of risk. This indicates that the OSS personnel need to create awareness of possible risks or hazards to the organisation. No awareness or understanding of risk can affect risk pre-assessment and eventually the remaining phases of risk governance.

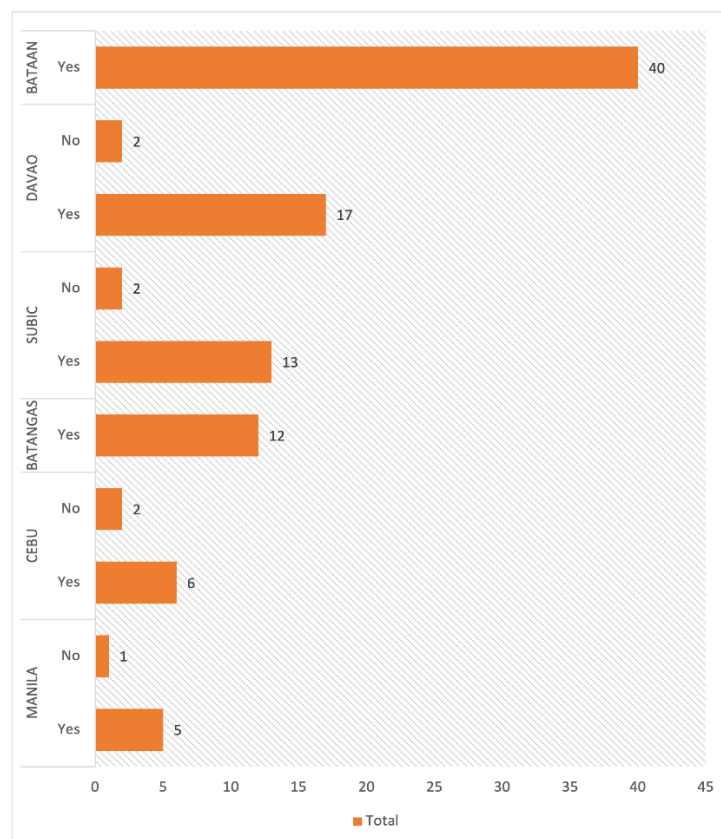


Figure 14. Knowledge of Risk

Figure 15 shows most of the respondents from all the OSS perceive risk as having both negative and positive outcomes, 15 with negative outcomes only, and eight with positive outcomes only.

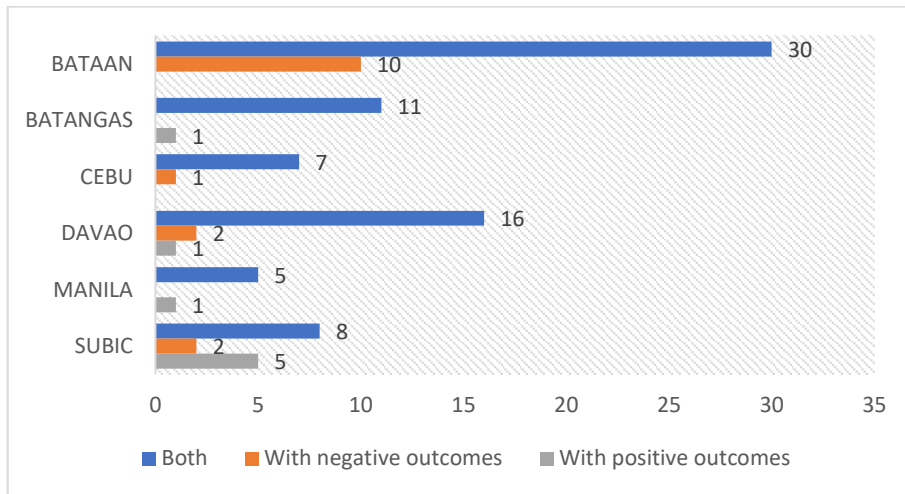


Figure 15. Perception of Risk

Figure 16 shows 66% of the respondents cited the effects of the COVID-19 pandemic as a factor affecting their perception of risk, 6% cited their experience and knowledge, 5% their positive attitude, 5% the environment or situation, 5% performance of duty, 3% others such as faith in God and technology, and 10% did not provide answers.

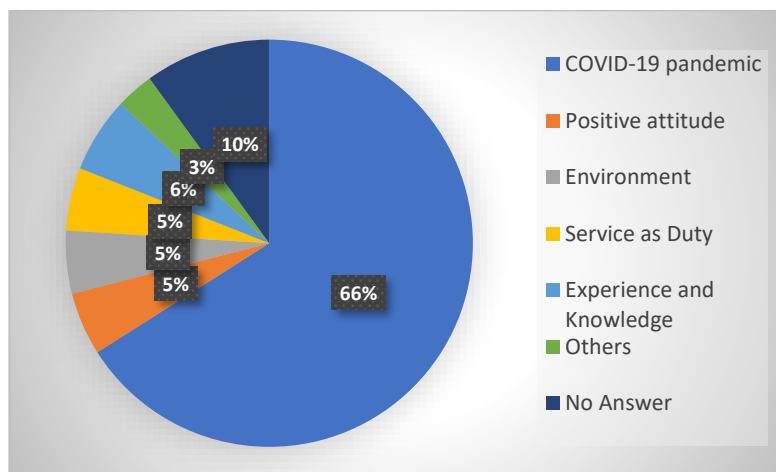
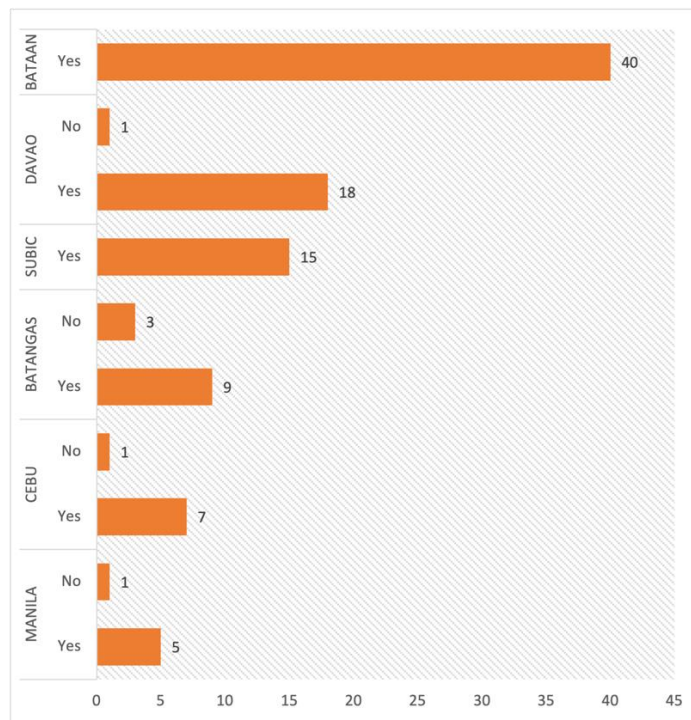


Figure 16. Factors Affecting the Perception of Risk

Figure 17 shows that most of the respondents are influenced by experience, perception, emotional or value-based concerns in their decision to handle risks. In contrast, ten respondents answered no from the following OSS: Davao, Batangas, Cebu, and Manila.



*Figure 17. Do Experience, Perception, and Values Influence Decisions in Handling Risk*

Figure 18 shows that most respondents, except those from Manila, believe that change crew hubs have risk assessment and management strategies, and ten are unsure, and two said no. The respondents identified the guidelines and protocols from the Inter-Agency Task Force (IATF), DOTr, and local government policies as risk assessment and risk management strategies applied in the change crew hubs.

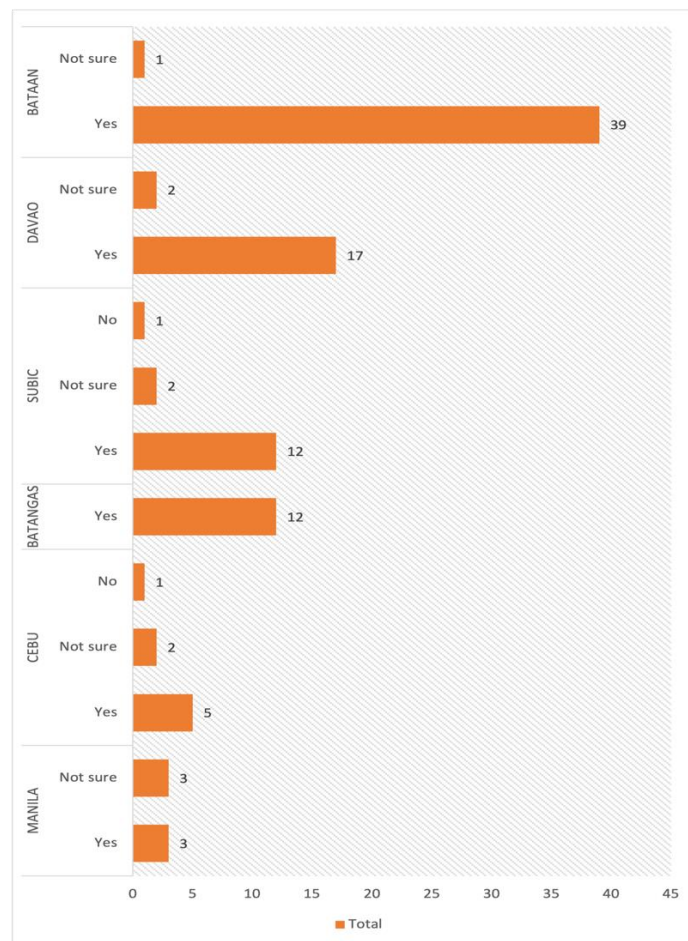


Figure 18. Does the Change Crew Hub have Risk Assessment and Risk Management Strategies

Figure 19 shows most of the respondents from all OSS said the change crew hubs conduct risk pre-assessment.

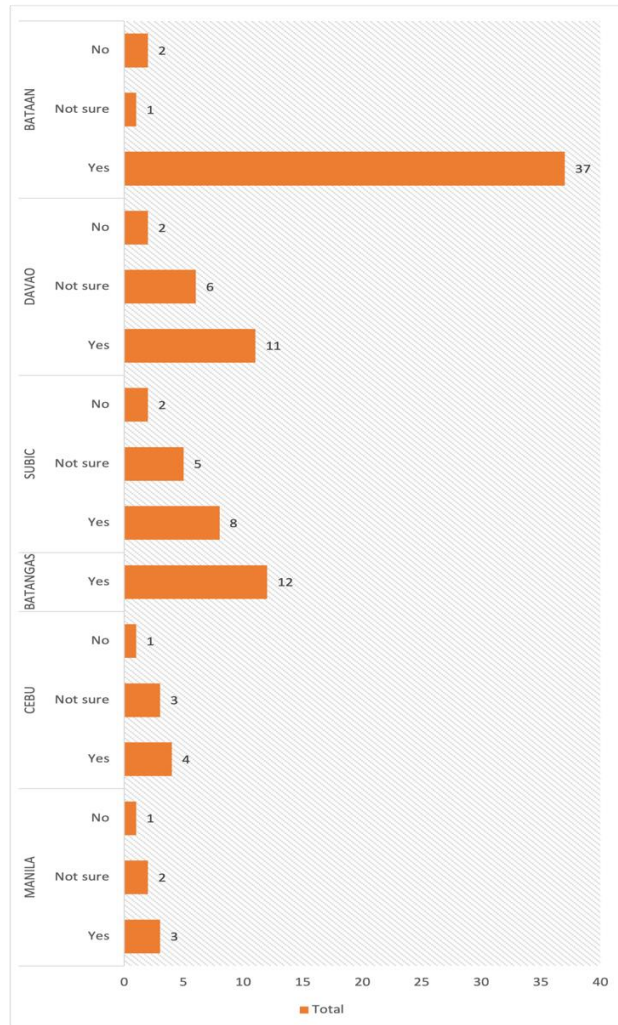
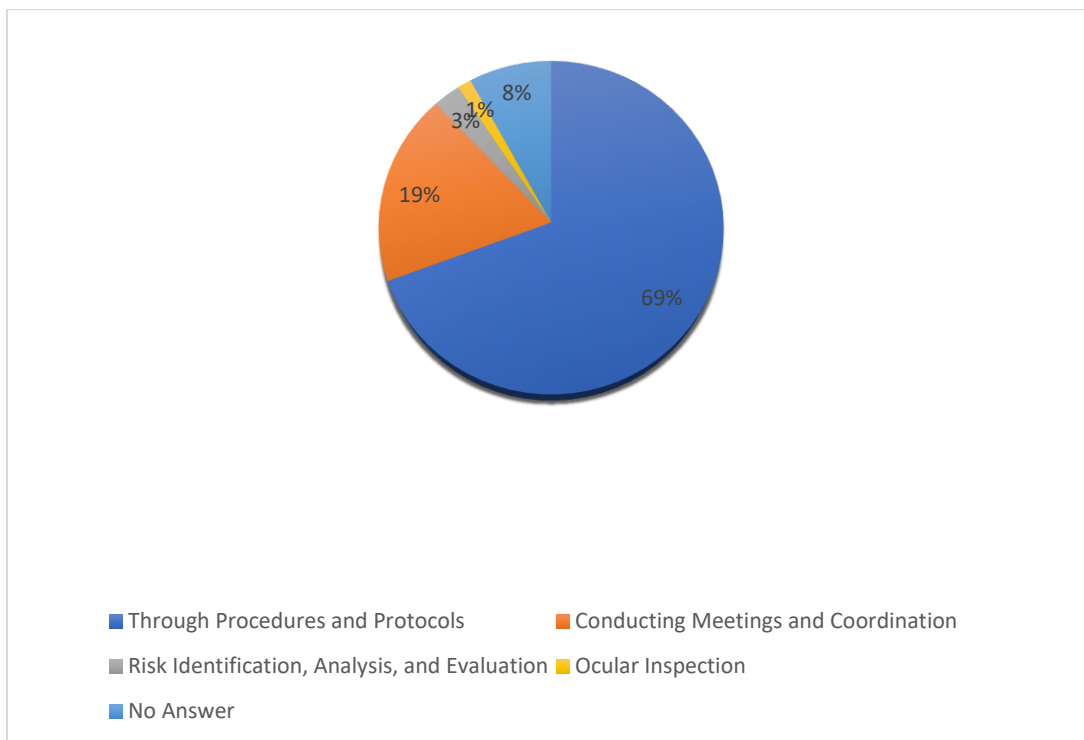


Figure 19. Does the Change Crew Hub Conducts Risk Pre-assessment



Figure 20 shows that 69% of 75 respondents are of the view that the OSS conducts risk pre-assessment. The said pre-assessment is done through the guidance from procedures and protocols. 19% said the pre-assessment is conducted through inter-agency and stakeholder meetings and coordination, 3% through risk identification, analysis, and evaluation, 1% through ocular inspection of the change crew hubs and its operation, and 8% did not provide answers.



*Figure 20. How Risk Pre-assessment is Conducted*

Figure 21 shows that most of the respondents from Bataan, Davao, Manila, and Subic answered that OSS uses analytical tools and methods to assess risk. In contrast, the majority from Cebu are not sure.

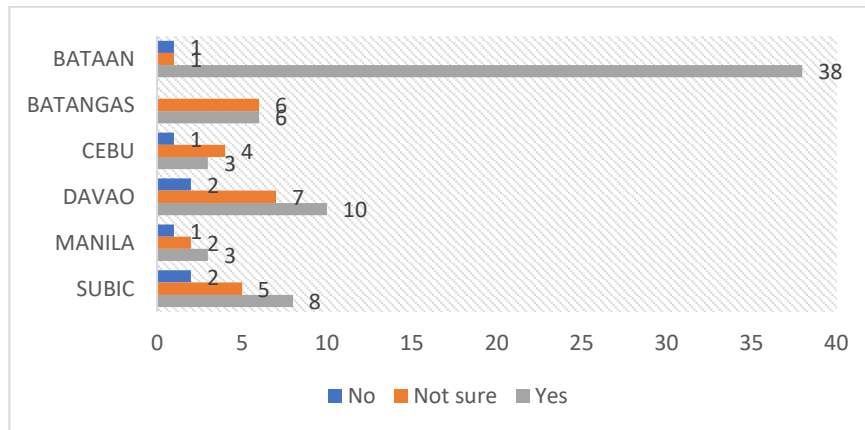


Figure 21. Does the Change Crew Hub have Analytical Tools and Methods in Assessing Risk

Figure 22 shows that 68% of the 68 respondents who answered the question indicate that the OSS have analytical tools and methods by employing survey, quantitative analysis, 4% Failure Mode and Effects Analysis (FMEA), 3% SWOT Analysis, 3% through proper communication, and 15% did not provide answers.

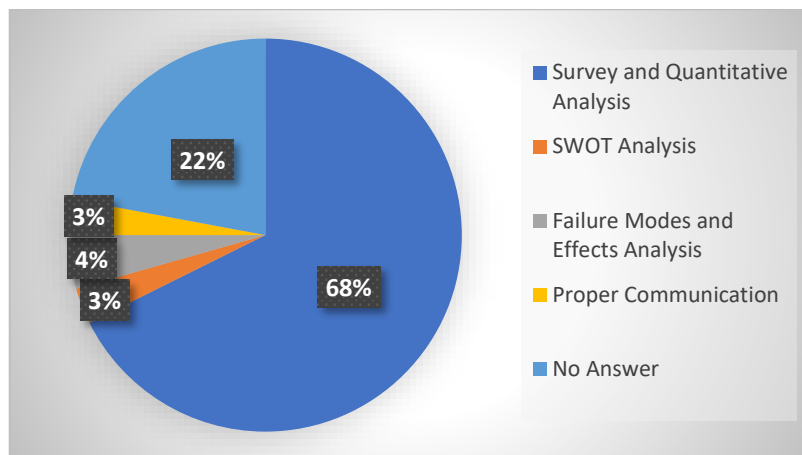


Figure 22. Analytical Tools and Methods Used in Assessing Risk

Figure 23 shows that most of the respondents in all OSS said the OSS has an internal communication process, four are unsure, and two answered no.

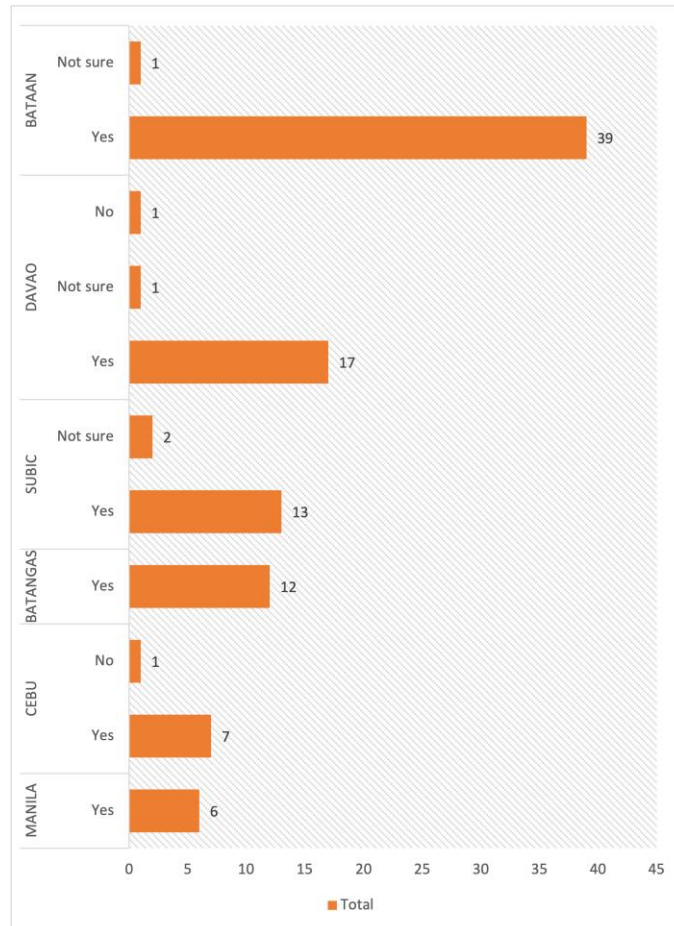


Figure 23. Does the Change Crew Hub Have Internal Communication

Figure 24 shows that most of the respondents in all OSS said the change crew hubs have external communications to and between risk-affected parties, stakeholders, and the media, 12 are unsure, and three answered no.

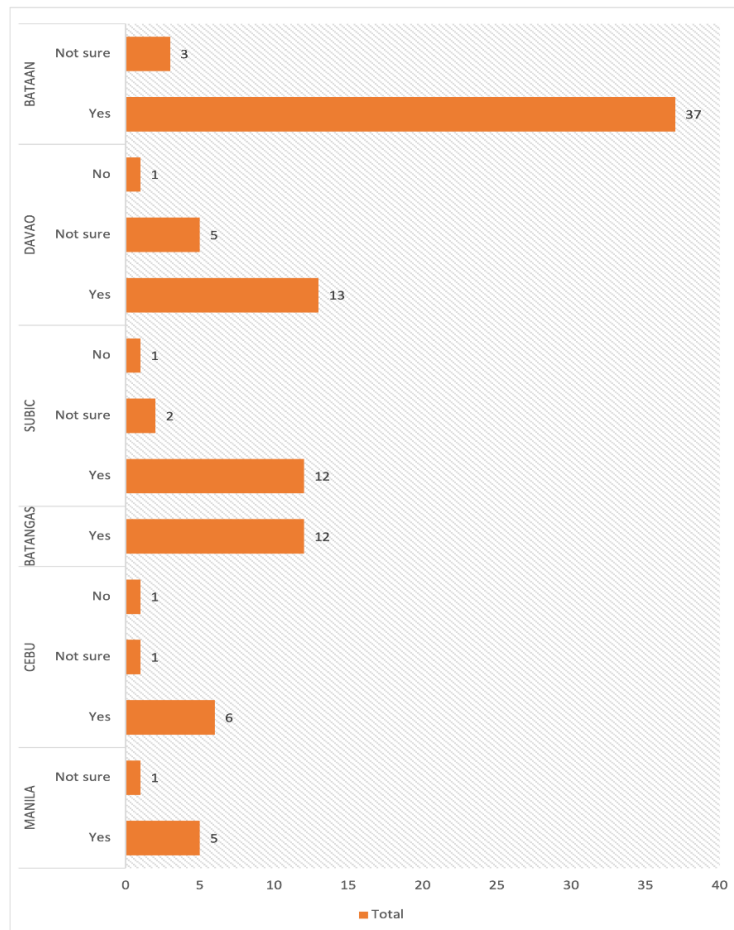


Figure 24. Does the Change Crew Hub Have External Communication

Figure 25 shows that most OSS respondents except in Manila answered that the change crew hubs have a facilitator in charge of the risk communication process, 19 are not sure, and three answered no.

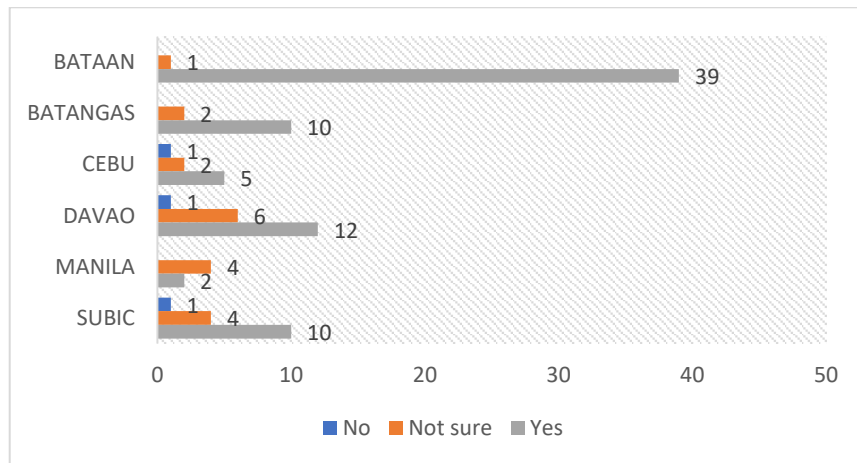


Figure 25. Does the Change Crew Hub have a Facilitator in Charge of the Risk Communication Process

Figure 26 shows most of the respondents in all OSS said the change crew hubs have a spokesperson to inform the public, stakeholders, and the media about risk and its consequences, seventeen are not sure, and four answered no.

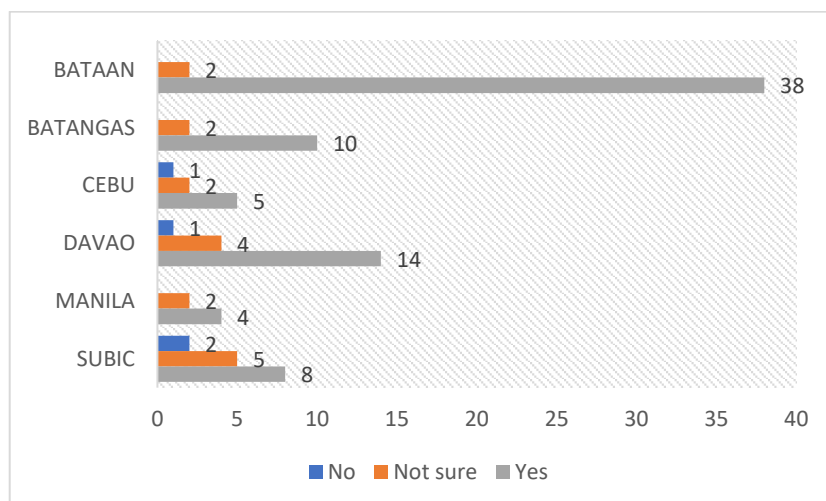


Figure 26. Does the Change Crew Hub have a Spokesperson

Figure 27 shows most of the respondents in Bataan, Batangas, and Davao are involved in the risk assessment process.

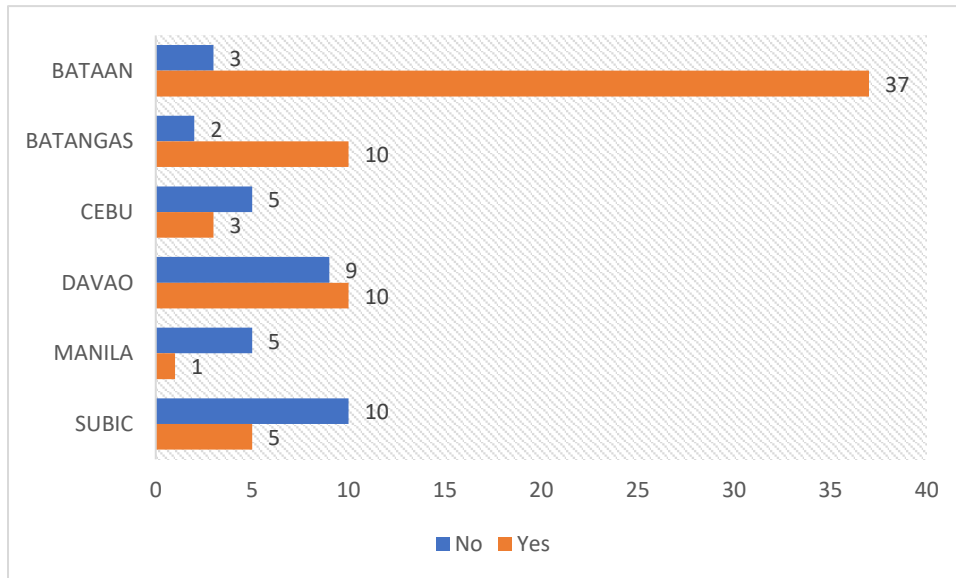


Figure 27. Are you Involve in the Risk Assessment Process

Figure 28 shows 64% of the 66 respondents who participate in the risk assessment process perform data gathering and encoding, 32% for security and safety assessment, and 4% did not provide answers.

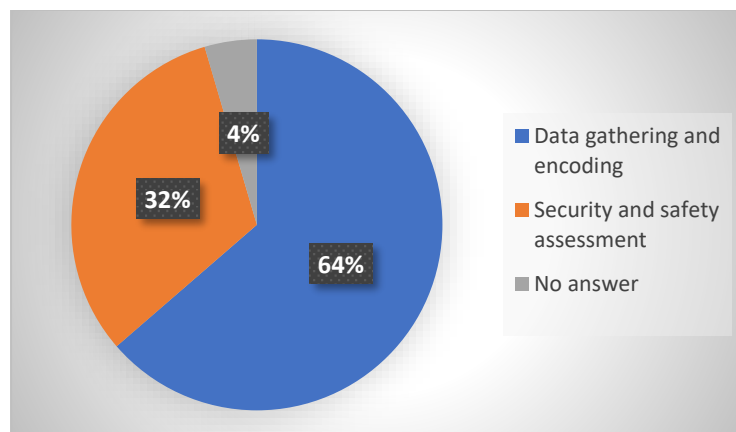


Figure 28. Role in the Risk Assessment Process

Figure 29 shows that most OSS respondents except in Bataan are not involved in decision-making and risk management.

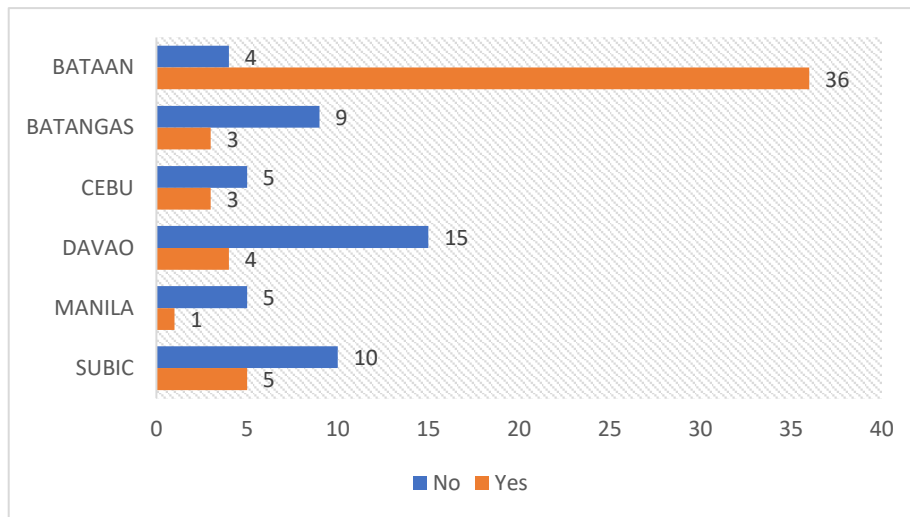


Figure 29. Are you Involve in Decision-making and Risk Management

Figure 30 shows 75% of the 52 respondents involved in decision-making and risk management said they implement guidelines and protocol, 17% are decision-makers, and 8% did not provide answers.

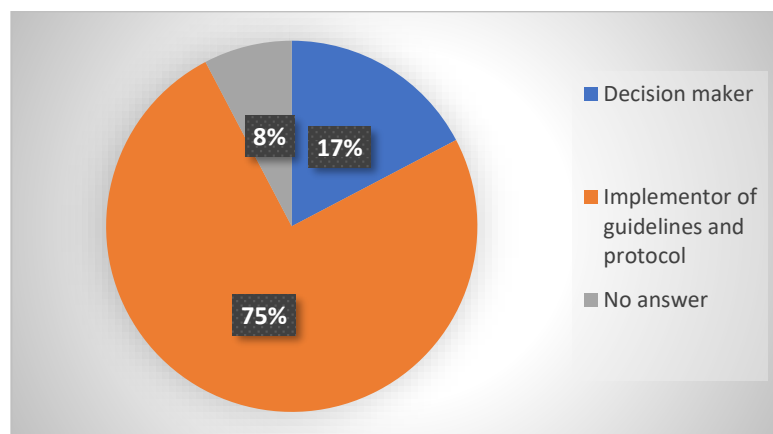


Figure 30. Role in Decision-making and Risk Management

#### 4.2.3 Perception of Respondents on How to Optimise Risk Governance

Section C of the survey questionnaire displayed the respondents' level of agreement and disagreement with the statements provided on how to optimise risk governance in the change crew hubs based on a scale of 1 to 5 where (1) is strongly disagree, (2) disagree, (3) undecided, (4) agree, and (5) strongly agree. The frequency count, percentage, rank, and weighted mean were used to analyse the data (Rosales, 2020, 6:12). The weighted mean was derived from the sum of the same responses per statement, then multiplying the sum with the corresponding response scale, getting the product, and dividing by the respondents' total number. For example, if 78 people selected "Strongly Agree," 21 "Agree," and one "Undecided," multiply each number with the corresponding rate scale (78 with 5, 21 with 4, and 1 with 3). After getting the product, get the total sum and divide by the total number of respondents, which is 100 in this study, to get the weighted mean. The weighted mean indicates the general perception of the respondents to each item given. The Likert scale shown in Table 1 was used to assess the perception of the respondents.

Table 1. *Scaling Approach*

<b>Rating Scale</b>	<b>Range Interval</b>	<b>Description</b>	<b>Interpretations</b>
1	1.0 – 1.80	Strongly Disagree	Indicates that the statement provided is <b>most insignificant</b> in optimizing risk governance in the change crew hub
2	1.81 – 2.60	Disagree	Indicates that the statement provided is <b>insignificant</b> to in optimizing risk governance in the change crew hub
3	2.61 – 3.40	Moderately Agree	Indicates that the statement provided is <b>moderately significant</b> in optimizing risk governance in the change crew hub
4	3.41 – 4.20	Agree	Indicates that the statement provided is <b>significant</b> in optimizing risk governance in the change crew hub
5	4.21 – 5.00	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimizing risk governance in the change crew hub



Figure 31 shows that 78% of the respondents strongly agree, 21% agree, and 1% are undecided that the OSS should have a clear organisational structure for effective and efficient operation to optimise risk governance.

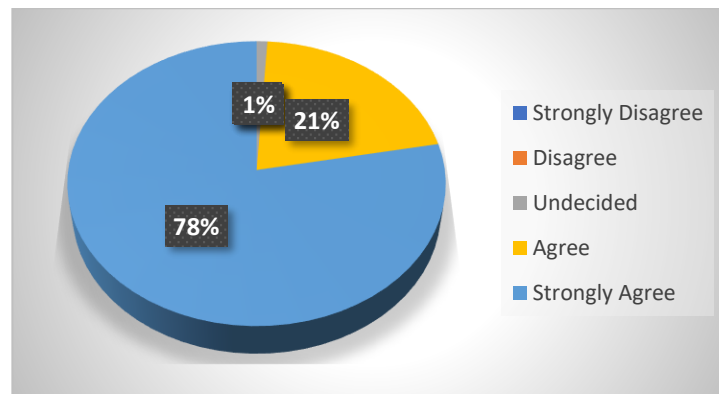


Figure 31. Frequency of Perception for a Clear Organisational Structure

Table 2 shows a mean response of 4.77, indicating that respondents “Strongly Agree” that a clear organisational structure is important for effective and efficient operation.

Table 2. Mean Response if a Clear Organisational Structure is Important

Particulars	Weighted Mean	Description	Interpretation
A clear organisational structure for effective and efficient operation	4.77	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 32 shows 74% of respondents strongly agree, 24% agree, and 2% undecided that the OSS should have well-defined and legally binding roles and responsibilities.

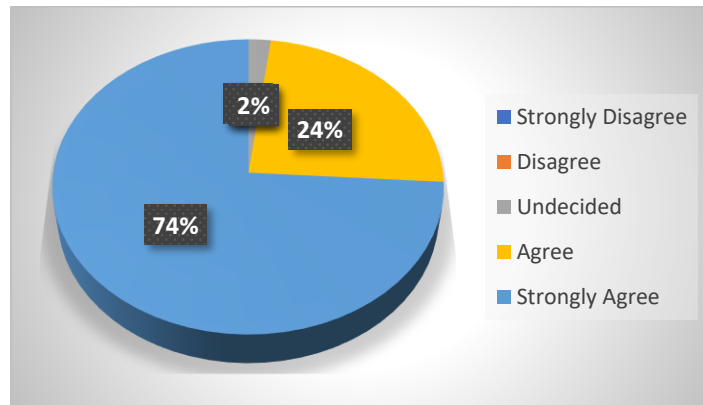


Figure 32. Frequency of Perception for Well-defined and Legally Binding Roles and Responsibilities

Table 3 shows a mean response of 4.72, indicating that respondents “Strongly Agree” that the OSS should have well-defined and legally binding roles and responsibilities.

Table 3. Mean Response to Well-defined and Legally Binding Roles and Responsibilities

Particulars	Weighted Mean	Description	Interpretation
Well-defined and legally binding roles and responsibilities	4.72	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 33 shows 75% of the respondents strongly agree, 24% agree, and 1% are undecided that personnel working in the OSS should know about risk governance.

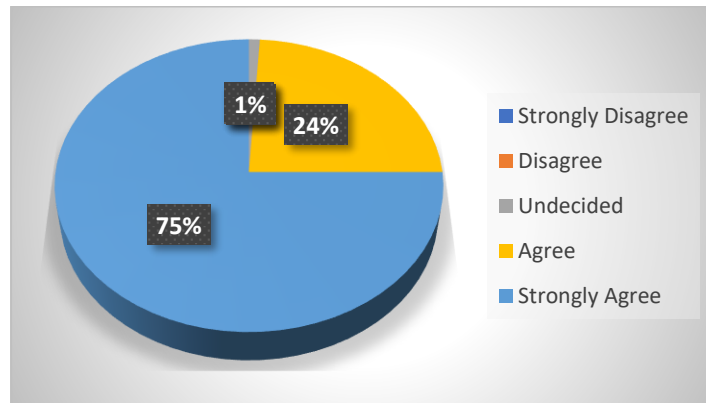


Figure 33. Frequency of Perception on the Importance of Personnel with Knowledge of Risk Governance

Table 4 shows a mean response of 4.74, indicating the respondents “Strongly Agree” that personnel of the OSS should have knowledge of risk governance.

Table 4. Mean Response to Personnel with Knowledge of Risk Governance

Particulars	Weighted Mean	Description	Interpretation
Personnel with knowledge of risk governance	4.74	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 34 shows 80% of the respondents strongly agree, 19% agree, and 1% are undecided that good working relationships and collaboration with other agencies are needed to optimise risk governance.

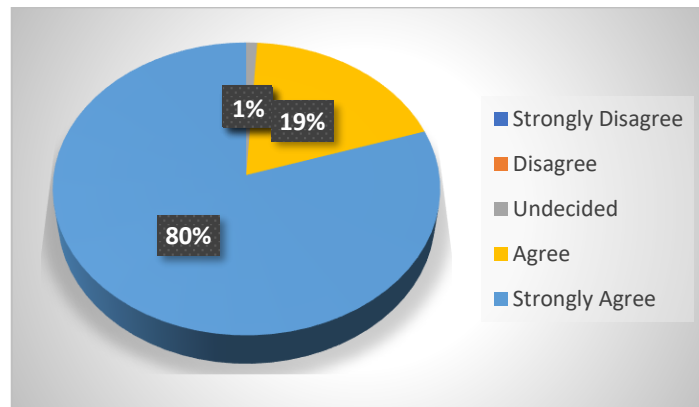


Figure 34. Frequency of Perception on Good Working Relationship and Collaboration with other Agencies

Table 5 shows a mean response of 4.79, indicating the respondents “Strongly Agree” that good working relationships and collaboration with other agencies are essential to optimise risk governance.

Table 5. Mean Response to the Importance of Good Working Relationships and Collaboration with other Agencies

Particulars	Weighted Mean	Description	Interpretation
Good working relationship and collaboration with other agencies	4.79	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 35 shows 74% of the respondents strongly agree, 24% agree, and 2% are undecided that the OSS should have a sustainable risk decision and flexible risk assessment and management.

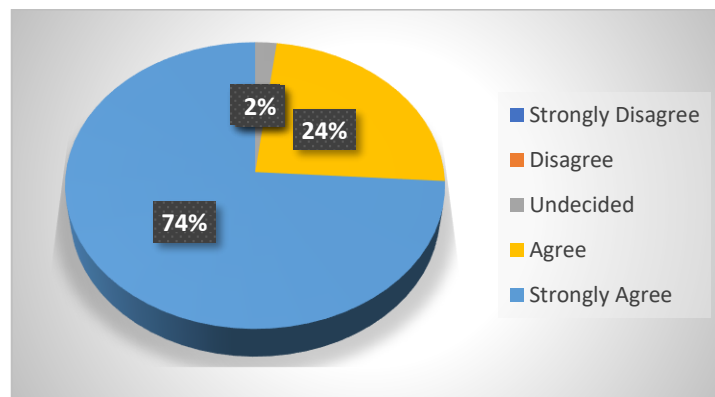


Figure 35. Frequency of Perception on Sustainable Risk Decision and Flexible Risk Assessment and Management

Table 6 shows a mean response of 4.72, indicating the respondents “Strongly Agree” that a sustainable risk decision and flexible risk assessment and management are significant in optimising risk governance.

Table 6. Mean Response to the Importance of a Sustainable Risk Decision and Flexible Risk Assessment and Management

Particulars	Weighted Mean	Description	Interpretation
Sustainable risk decision and flexible risk assessment and management	4.72	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 36 shows 68% of the respondents strongly agree, 30% agree, and 2% are undecided that the OSS should have scientific tools and methods in risk assessment.

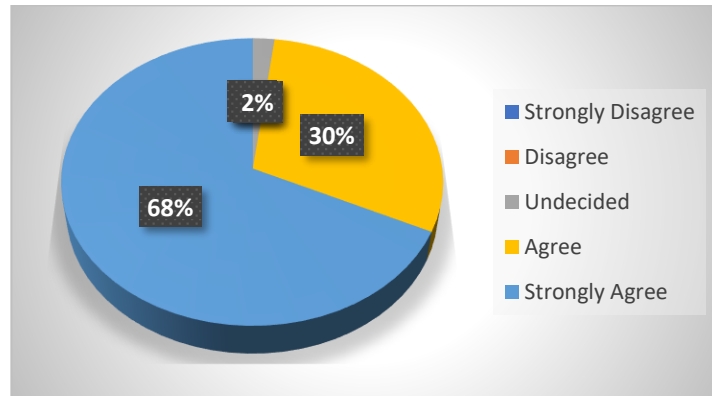


Figure 36. Frequency of Perception on Scientific Tools and Methods in Risk Assessment

Table 7 shows a mean response of 4.6, indicating the respondents “Strongly Agree” that scientific tools and methods should be used in assessing risks.

Table 7. Mean Response on the Importance of Scientific Tools and Methods in Risk Assessment

Particulars	Weighted Mean	Description	Interpretation
Scientific tools and methods in assessing risks	4.66	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 37 shows 69% of the respondents strongly agree, 29% agree, and 2% are undecided that the OSS should have criteria in identifying, assessing, and managing risks.

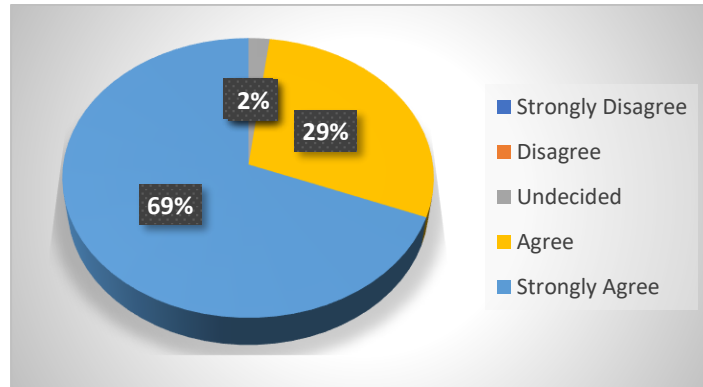


Figure 37. Frequency of Perception on Criteria in Identifying, Assessing, and Managing Risks

Table 8 shows a mean response of 4.67, indicating the respondents “Strongly Agree” that there should be criteria in identifying, assessing, and managing risks.

Table 8. Mean Response to the Importance of Criteria in Identifying, Assessing, and Managing Risks

Particulars	Weighted Mean	Description	Interpretation
Criteria in identifying, assessing, and managing risks	4.67	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 38 shows 70% of the respondents strongly agree, 28% agree, and 2% are undecided that the OSS should exercise transparency and accountability in risk evaluation.

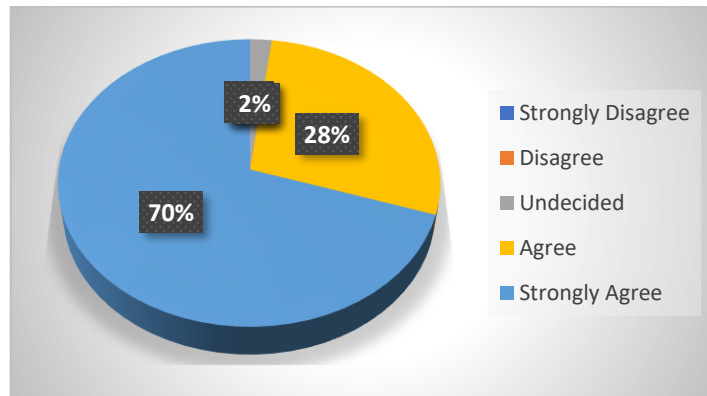


Figure 38. Frequency of Perception on Transparency and Accountability in Risk Evaluation

Table 9 shows a mean response of 4.68, indicating respondents “Strongly Agree” that there should be transparency and accountability in risk evaluation.

Table 9. Mean Response to Transparency and Accountability in Risk Evaluation

Particulars	Weighted Mean	Description	Interpretation
Transparency and accountability in risk evaluation	4.68	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub



Figure 39 shows 71% of the respondents strongly agree, 26% agree, and 3% are undecided that the OSS should collaborate with stakeholders and pay adequate attention to their concerns.

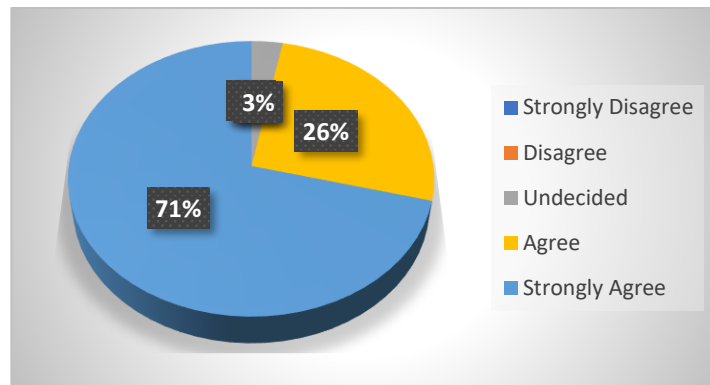


Figure 39. Frequency of Perception on Collaboration with Stakeholders and Provide Adequate Attention to their Concerns

Table 10 shows a mean response of 4.68, indicating the respondents “Strongly Agree” that collaboration with stakeholders and giving adequate attention to their concerns should be achieved.

Table 10. Mean Response to Collaboration with Stakeholders and Providing Adequate Attention to their Concerns

Particulars	Weighted Mean	Description	Interpretation
Collaboration with stakeholders and adequate attention to their concerns	4.68	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 40 shows that 74% of the respondents strongly agree, 25% agree, and 1% are undecided that the OSS should have an internal communication process for risk assessment and management.

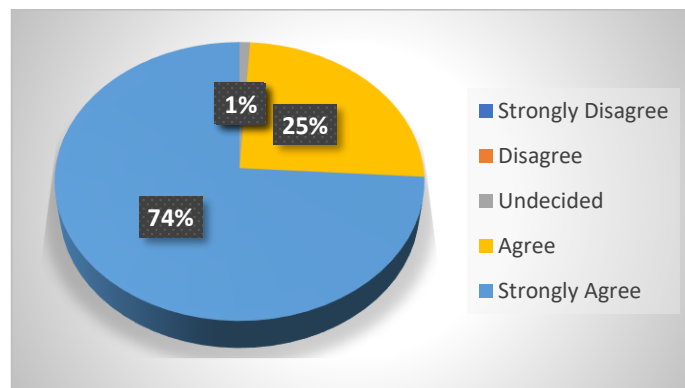


Figure 40. Frequency of Perception on the Internal Communication Process

Table 11 shows a mean response of 4.76, indicating that respondents “Strongly Agree” that the change crew hub should have an internal communication process for risk assessment and risk management.

Table 11. Mean Response to the Internal Communication Process

Particulars	Weighted Mean	Description	Interpretation
Internal communication process for risk assessment and risk management	4.76	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 41 shows that 74% of the respondents strongly agree, 25% agree, and 1% are undecided that the OSS should have an effective external communication process for risk assessment and management.

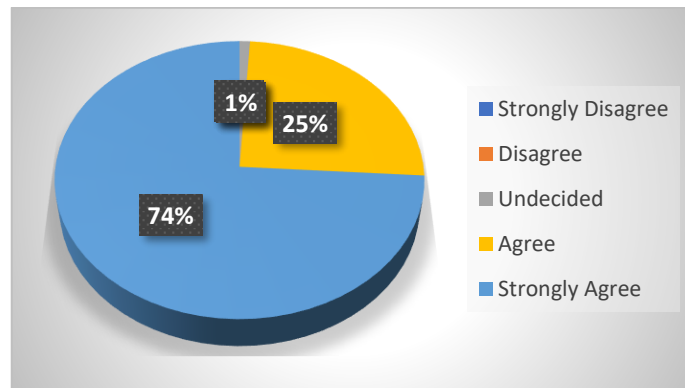


Figure 41. Frequency of Perception on the Effective External Communication Process

Table 12 shows a mean response of 4.76, indicating that respondents “Strongly Agree” that the OSS should have an effective external communication process for risk assessment and risk management.

Table 12. Mean Response to the Effective External Communication Process

Particulars	Weighted Mean	Description	Interpretation
Effective external communication process for risk assessment and risk management	4.76	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 42 shows 70% of the respondents strongly agree, 28% agree, and 2% are undecided that the OSS should have a communication process adapted to the risk category such as simple, complex, uncertain, and ambiguous.

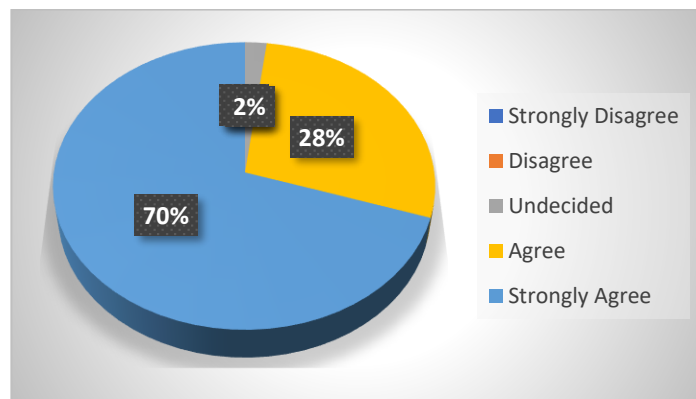


Figure 42. Frequency of Perception on Communication Process that is Adapted to Risk Category

Table 13 shows a mean response of 4.68, indicating that respondents “Strongly Agree” that communication should be adapted to the risk category.

Table 13. Mean Response to Communication Process Adapted to the Category of Risk

Particulars	Weighted Mean	Description	Interpretation
Communication that is adapted to the category of risk (simple, complex, uncertain, ambiguous)	4.68	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 43 shows 73% of the respondents strongly agree, 24% agree, and 3% are undecided that the OSS should practice responsible information dissemination of risk and its consequences to the public and the media.

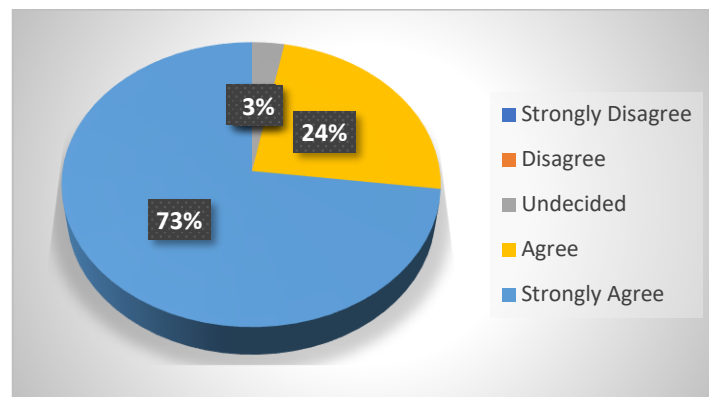


Figure 43. Frequency of Perception on Responsible Information Dissemination

Table 14 shows a mean response of 4.70, indicating respondents “Strongly Agree” that responsible information dissemination to the public and the media should be practiced.

Table 14. Mean Response to Responsible Information Dissemination

Particulars	Weighted Mean	Description	Interpretation
Responsible information dissemination to the public and the media	4.70	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 44 shows 70% of the respondents strongly agree, 28% agree, and 2% are undecided that the OSS personnel in management and operational levels should be provided with education and training on risk governance.

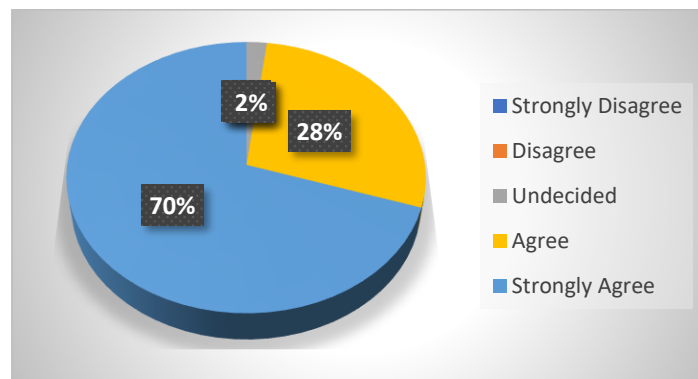


Figure 44. Frequency of Perception on Education and Training on Risk Governance

Table 15 shows a mean response of 4.68, indicating respondents “Strongly Agree” that education and training on risk governance should be conducted to personnel in management and operational levels.

Table 15. Mean Response to Education and Training on Risk Governance

Particulars	Weighted Mean	Description	Interpretation
Education and training on risk governance for the change crew hub personnel in management and operational levels	4.68	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 45 shows 69% of the respondents strongly agree, 28% agree, and 3% are undecided that the OSS should have an effective customer feedback tool.

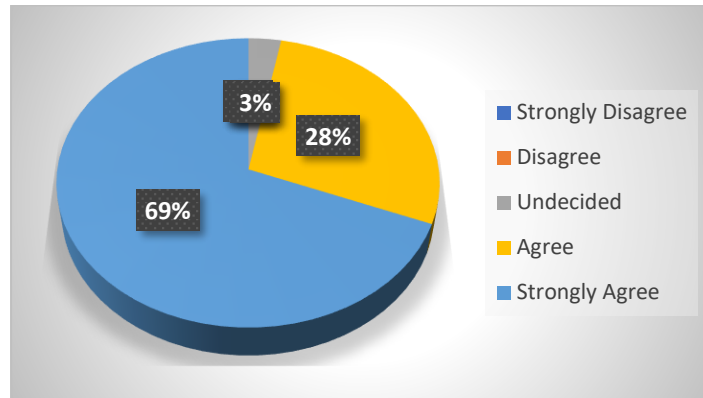


Figure 45. Frequency of Perception on Effective Customer Feedback Tool

Table 16 shows a mean response of 4.66, indicating respondents “Strongly Agree” that the OSS should have an effective customer feedback tool.

Table 16. Mean Response to Effective Customer Feedback Tool

Particulars	Weighted Mean	Description	Interpretation
Effective customer feedback tool	4.66	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 46 shows 69% of the respondents strongly agree, 28% agree, and 3% are undecided that the OSS should have a monitoring tool to evaluate effectiveness of risk management.

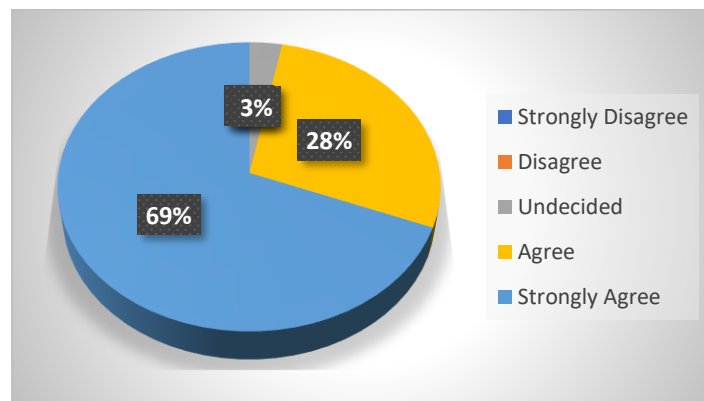


Figure 46. Frequency of Perception on Monitoring Tool to Evaluate Effectiveness

Table 17 shows a mean response of 4.66, indicating respondents “Strongly Agree” that a monitoring tool should be used in evaluating the effectiveness of risk management.

Table 17. Mean Response to Monitoring Tool in Evaluating Effectiveness

Particulars	Weighted Mean	Description	Interpretation
Monitoring tool to evaluate the effectiveness of risk management	4.66	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub



Figure 47 shows 67% of the respondents strongly agree, 30% agree, and 3% are undecided that the OSS should have an appropriate risk governance framework to guide risk assessment and management.

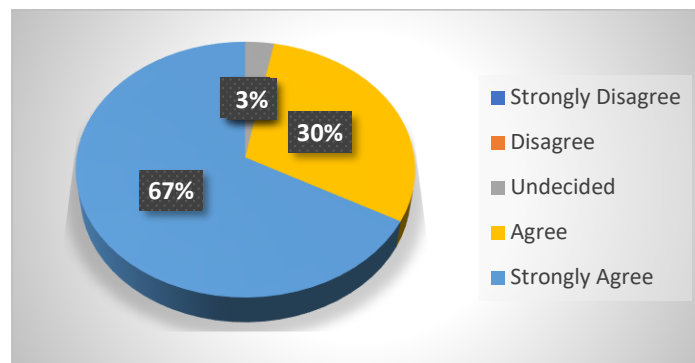


Figure 47. Frequency of Perception on Appropriate Risk Governance Framework

Table 18 shows a mean response of 4.64, indicating respondents “Strongly Agree” that an appropriate risk governance framework is vital to guide in risk assessment and risk management.

Table 18. Mean Response to the Appropriate Risk Governance Framework

Particulars	Weighted Mean	Description	Interpretation
Appropriate risk governance framework as a guide in risk assessment and risk management	4.64	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 48 shows 73% of the respondents strongly agree, 25% agree, and 2% are undecided that the OSS should have reliable data in risk assessment.

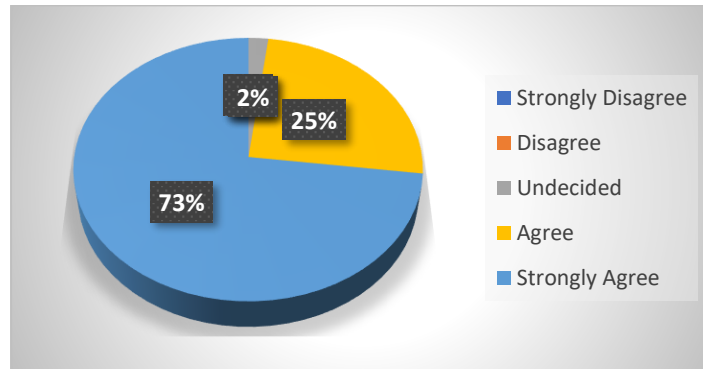


Figure 48. Frequency of Perception on Reliable Data in Risk Assessment

Table 19 shows a mean response of 4.71, indicating respondents “Strongly Agree” that reliable data is vital in risk assessment.

Table 19. Mean Response to Reliable Data in Risk Assessment

Particulars	Weighted Mean	Description	Interpretation
Reliable data in risk assessment	4.71	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 49 shows 71% of the respondents strongly agree, 26% agree, and 3% undecided that the OSS should practice timeliness in decision and action.

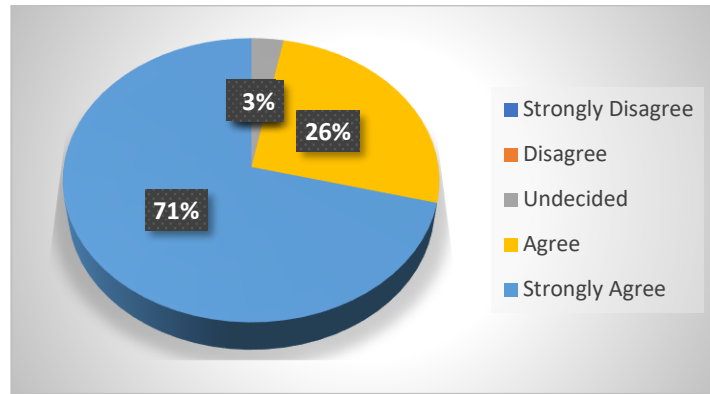


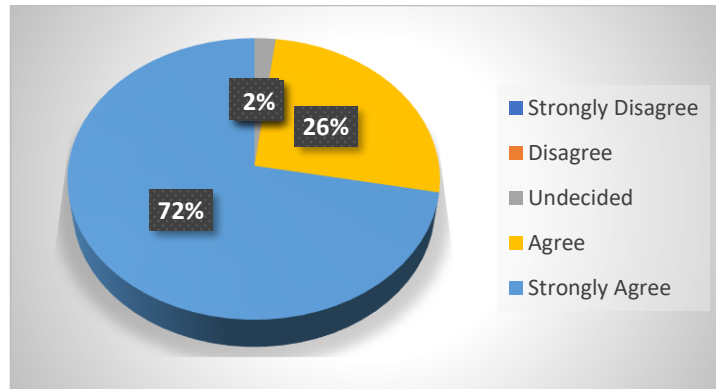
Figure 49. Frequency of Perception on Timeliness in Decision and Action

Table 20 shows a mean response of 4.68, indicating respondents “Strongly Agree” that timeliness is essential in decision and action.

Table 20. Mean Response to Timeliness in Decision and Action

Particulars	Weighted Mean	Description	Interpretation
Timeliness in decision and action	4.68	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

Figure 50 shows 72% of the respondents strongly agree, 26% agree, and 2% are undecided that higher authorities and the national government should support the OSS and collaborate with relevant international organisations.



*Figure 50. Frequency of Perception on Support from Higher Authorities, National Government, and Collaboration with Relevant International Organisations*

Table 21 shows a mean response of 4.70, indicating respondents “Strongly Agree” that the OSS needs support from higher authorities, national government, and collaboration with relevant international organisations.

*Table 21. Mean Response to Support from Higher Authorities, National Government, and Collaboration with Relevant International Organisations*

<b>Particulars</b>	<b>Weighted Mean</b>	<b>Description</b>	<b>Interpretation</b>
Support from higher authorities, national government, and collaboration with relevant international organisations	4.70	Strongly Agree	Indicates that the statement provided is <b>most significant</b> in optimising risk governance in the change crew hub

The overall weighted mean rating of the 20 items is 4.70, which denotes that the respondents strongly agree that the given statements are most significant in optimising risk governance in the OSS.

#### 4.2.4 Risks that Disrupt Operation and Perception on the Advantages and Disadvantages of an Inter-agency Organisation

Section D of the questionnaire delved into the respondents' opinions on what risks they believe cause disruptions in the operation of the OSS, the advantages of an inter-agency organisation, and its challenges. This section provided the researcher with additional information on possible hindrances and opportunities for optimising risk governance in the change crew hubs.

Figure 51 shows 58% of the respondents identified exposure to seafarers positive for the COVID-19 virus as a risk that disrupts the operation of the OSS, 26% answered none, 6% said the delay in the arrival of vessels, 6% associated bad weather conditions to risk, 3% communication problem with the stakeholders, and 1% lack of facility for quarantine.

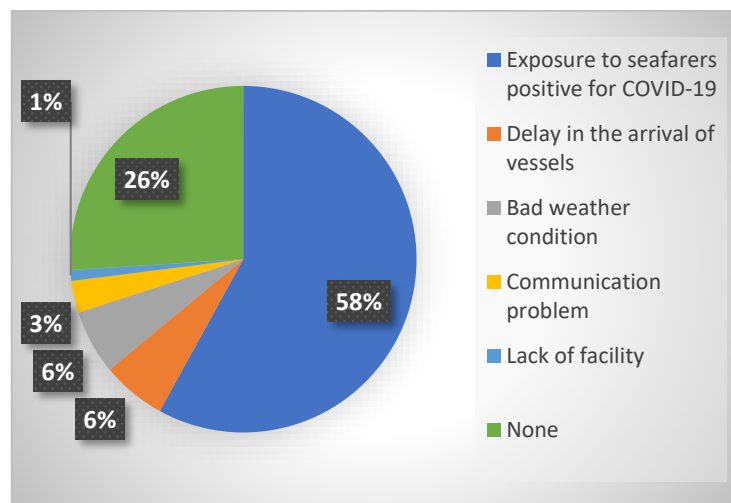


Figure 51. Risks that Disrupt Change Crew Hub's Operation

Figures 52 and 53 show how the respondents perceived advantages of an inter-agency organisation: 57% effective operation and management, 23% efficient operation and use of resources, 10% collaboration, 5% help generate income for the country, and 5% do not have an idea. Most of the respondents in all OSS except in Cebu answered effective operation and management.

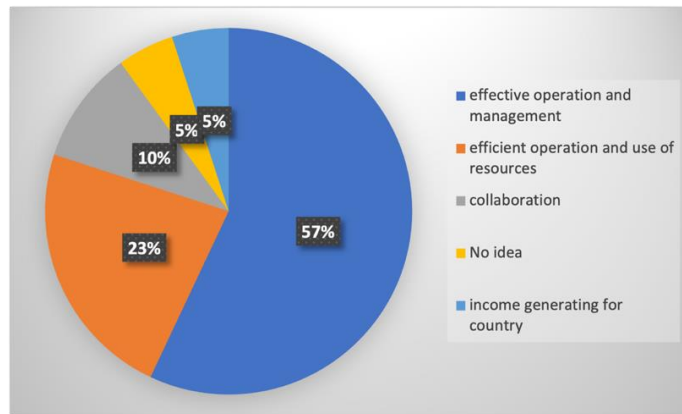


Figure 52. Advantages of an Inter-agency Organisation

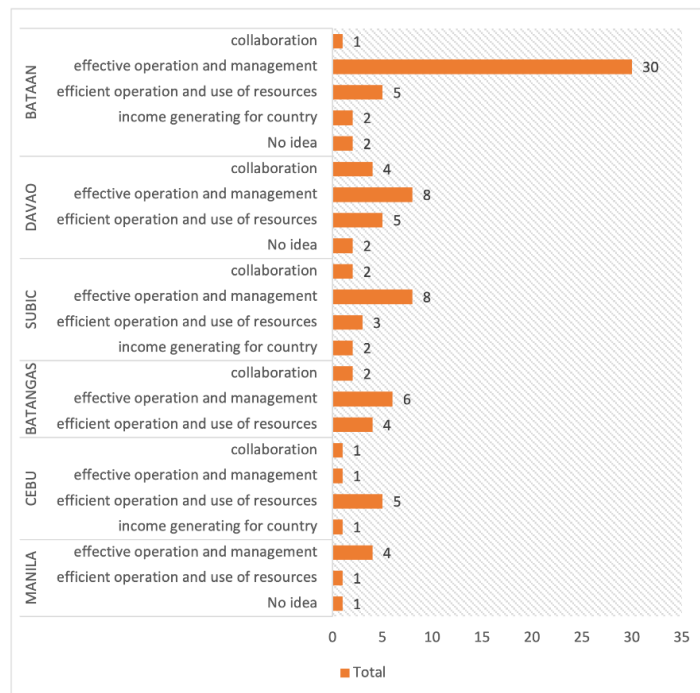


Figure 53. Distribution of Responses on Advantages of an Inter-agency Organisation

Figures 54 and 55 show 36% of the respondents identified difficulty in validating data as a disadvantage of an inter-agency organisation, 22 % none, 21% personnel violating protocols, 9% lack of accountability and decision-making structure, 8% inefficient communication, 2% corruption, and 2% change in leadership and personnel. Most of the problems encountered in Bataan are difficulty in validating data, personnel violating protocols in Davao and Batangas, inefficient communication in Subic, lack of accountability and decision-making structure in Cebu and Manila. Further, all the OSS have problems with people violating its protocols.

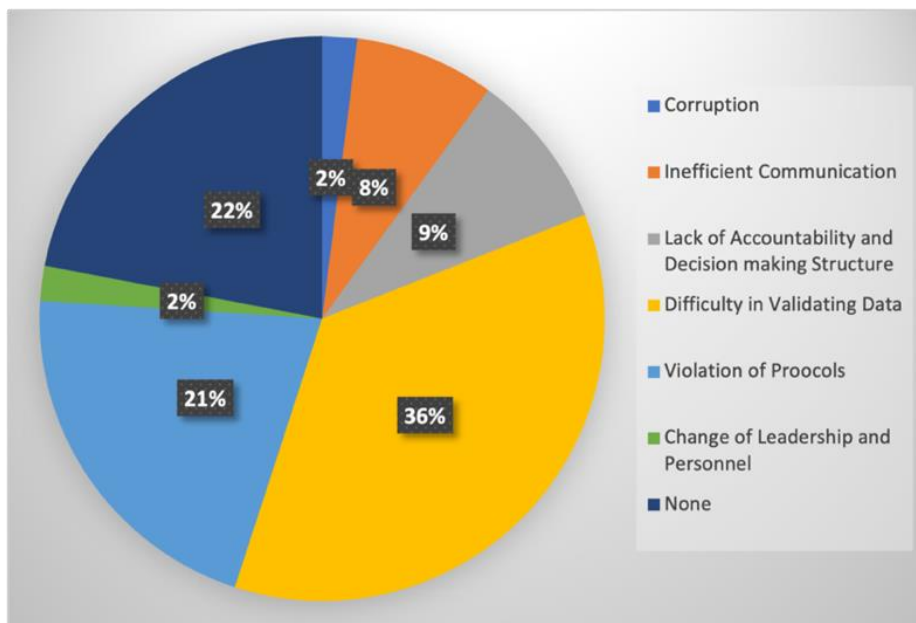


Figure 54. Disadvantages of an Inter-agency Organisation

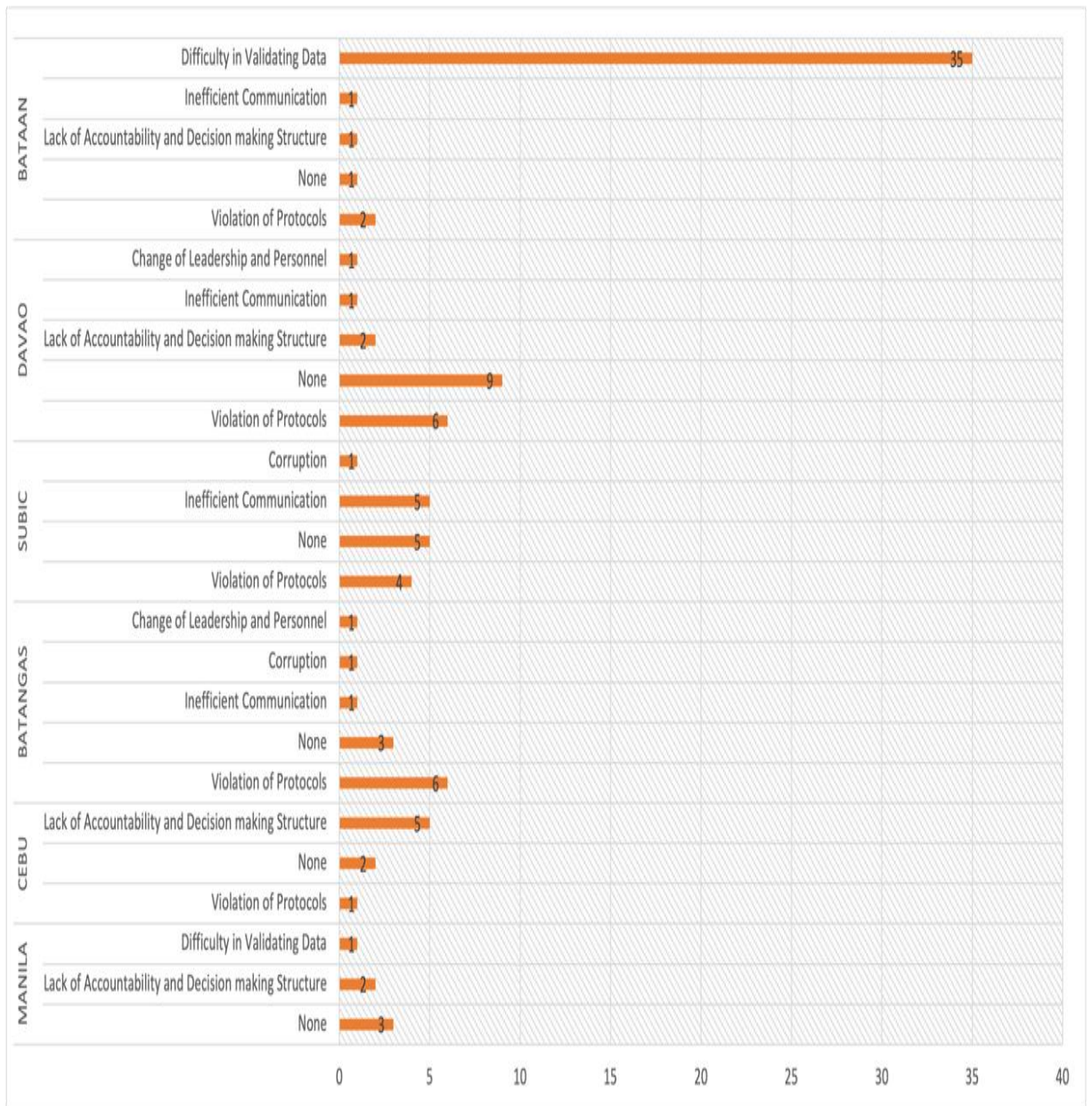


Figure 55. Distribution of Responses on the Disadvantages of an Inter-agency Organisation

#### 4.3 Online Interview: Data Presentation and Analysis

The researcher interviewed seven personnel from the management level who are working in the OSS. Interviews were needed to generate a balanced source of information for this study since data gathered from the survey were mainly from



personnel at the operational level. The semi-structured interviews utilising open-ended questions were conducted through the online meeting software Zoom. Before the interview, the researcher sent an e-mail with the information sheet and consent form to respondents from different agencies involved in the change crew hubs. During the interview, the researcher asked for the interviewee's approval for the activity to be recorded. Finally, the researcher manually transcribed, translated the statements from Filipino to English, and analysed the data into themes based on the information needed to answer the research questions.

The respondents from the management level of the change crew hubs are represented by the following:

- Respondent 1 (R1): Head, One-Stop-Shop Subic
- Respondent 2 (R2): Manager, Malayan Towing and Salvage Corporation
- Respondent 3 (R3): Senior Shipping Operations Specialist, MARINA Davao
- Respondent 4 (R4): Deputy Commander, Coast Guard District Batangas
- Respondent 5 (R5): Head, PCG Medical Team, OSS Cebu
- Respondent 6 (R6): Head, PCG Medical Team, OSS Batangas
- Respondent 7 (R7): Head, Security Unit, OSS Batangas

#### 4.3.1 Rules, Regulations, Processes, and Mechanisms in Risk Governance

This section answers research question number one. Each agency and stakeholder involved in the management and operation of the OSS has specific tasks and responsibilities stipulated in section III<sup>3</sup> and section IV<sup>4</sup> of the Joint Circular No. 01 Series of 2020 dated July 2, 2020, and in a memorandum issued by the DOTr on Philippine Green Lane One-Stop-Shop Organization. Aside from the guidelines stated

---

<sup>3</sup> Section III. Responsibilities of the Seafarer and the Licensed Manning Agency or Shipping Principal or their Agents

<sup>4</sup> Section IV. Responsibilities of the Philippine Government. This section provides the responsibilities of relevant national government agencies.

in the joint circular, the OSS operations are guided by the Crew Change Protocol issued by the DOTr. However, processes or mechanisms on risk assessment and risk management as requirements for national government agencies were not explicitly mentioned in both regulations. Nevertheless, paragraph 2 of section IV of the Joint Circular directs national government agencies to develop, if warranted, appropriate guidelines to supplement this joint circular. For the respondents (except R2, who said the OSS has no risk assessment regulations), the guidelines from the IATF and DOTr are the mechanism used in risk governance by the change crew hubs. Another means is through collaboration with other government agencies in monitoring risks (R5, R7). Hence, when they encounter risks in their respective tasks, R4 said they follow their agency's risk assessment for security, while R5 mentioned for health and safety, officers from BOQ (Bureau of Quarantine) determine risks and provide direction on whether to continue or stop the crew change.

On the other hand, the authorised ship-to-shore vessel providers must develop management plans to prevent and control the spread of the COVID-19 virus. Moreover, they must ensure a safe and healthy working environment, identify risks, and take necessary measures to manage and mitigate those risks.<sup>5</sup> Malayan Towage and Salvage Corporation have internal risk assessment processes and mechanisms in their Safety Management System (SMS) manual. MARINA requires authorised ship-to-shore vessel providers to include risk assessment and mitigation in their safety manuals (R3).

#### 4.3.2 Processes in Collecting Risk Information, Risk Analysis, and Communication

This section answers research question number two. In collecting risk information, first, the respondents differentiated risk from uncertainty. R1 identifies risk as a situation that can harm safety and security. Risks are classified according to their

---

<sup>5</sup> Paragraphs 1 and 2 of the Requirements for Authorized Ship-to-Shore Vessel Providers as stated in the Crew Change Protocol

effects on the well-being of the personnel in the change crew hub, clients, and the environment. For R2, his company classifies risk into three: risk to humans, the environment, and property. Both R3 and R5 believe that risk is something whose potential outcome or threat is already known; hence you have a prepared solution to avoid its adverse effects. As for uncertainty, it is a state of mind of being unsafe or a condition to cause harm (R1, R2). On the other hand, R3 and R5 opined uncertainty as a state in which you cannot predict an outcome because of the lack or absence of reliable data.

Risk information is gathered from and analysed through collaboration with other agencies by information sharing and contingency plans, conducting pre-operational meetings, and through risks identified by the IATF, Department of Health (DOH), and the World Health Organisation (WHO) (R4, R7, R6, R5).

The change crew hubs consider stakeholders' opinions, values, and concerns about risk. MARINA values the shipping companies' risk assessment and mitigation inputs by identifying risks onboard vessels with its corresponding control measures included in their SMS manual (R3). Security units of the OSS consider the welfare of passengers of domestic ships in the port by ensuring their safety and security from any adverse effects from the operation of the change crew hub (R7). However, for R2, intervention from stakeholders will only add additional work to their control measures and managing risks.

On the level of involvement, accountability, and responsibility of stakeholders in risk assessment, each stakeholder has its duties to observe and comply based on the policies and guidelines of higher authorities (R1, R5). Moreover, R6 opined that the responsibility and accountability of the stakeholders should be the same as that of the agencies involved in the OSS

*Once they declare wrong information, like asserting false-negative results for the COVID-19 virus and providing false documents, it will be difficult to control the overall risk of the virus.*

Disagreements or conflicts among the agencies and stakeholders sometimes happen in assessing perceptions and concerns in risk analysis. Conflicts arise from each agency having its own vision and functions and even attitude towards performing duties in the OSS (R1). During the first few weeks of operating the OSS, agencies are only concerned with their own tasks. There was no camaraderie, and finger-pointing happened when the operation failed (R4).

To resolve disagreements, the secretariat of the OSS calls for a meeting with partner agencies and stakeholders and briefing and debriefing of personnel are conducted before and after the operation (R5, R7). Opinions of all the agencies involved are considered to check if they are not in conflict with the existing safety measures to maintain a safety culture in the workplace (R3). Among the suggestions, the most practical and effective idea is adopted (R2). Another solution to avoid disagreements is good communication among the agencies and well-defined responsibilities and accountability for the agencies and the stakeholders (R6). Moreover, R1 opined

*all agencies' efforts should be harmonised for a common goal and united to create a harmonious working relationship for optimum performance of duties.*

Communication is essential and critical in gathering risk information and risk analysis. In the OSS internal communication, the agencies use the Viber<sup>6</sup> group chat to coordinate and disseminate information and prevent red tape (R3, R4, R5, R7). Internal communication is done through a formal channel based on the organisational structure

---

<sup>6</sup> Viber is a social media platform that allows for group formation and communication within the group via text messages as well as audio-visual communication possibilities.

of the OSS (R1). Stakeholders and the OSS personnel discuss through Shipboard Pre-Arrival Meeting (SPAM) and regular meetings for information sharing (R2, R7). For external communication, a secretariat is appointed to screen details to prevent false information before it is released to the public and the media by the authorised spokesperson of the OSS (R1, R5, R6).

#### 4.3.3 Procedures in Decision-making, Risk Management, and Implementation

This section answers research question number three. All the agencies and relevant stakeholders involved act as recommending bodies based on their specific roles in the OSS (R1, R2, R4, R7). As explained by R5,

*the primary agencies involved include the BOQ personnel serving as health and safety officers during a crew change. The IATF assesses the COVID-19 pandemic situation and gives inputs on how to manage risks. The OTS is the head of operations that provides guidance and measures to mitigate risks.*

However, sometimes there are problems or negotiations (which they think are not a concern of other agencies) in their tasks that need an immediate solution which they resolve on their own (R3, R6).

The collective decision of all involved agencies and stakeholders is attained through meeting with partner agencies and stakeholders and consulting with higher authorities for their guidance and approval before coming up with a decision or action plan (R1, R5, R6). Historical cases and best practices of each agency are also considered in decision-making (R2). However, for R3 and R4, only the leading agencies in the OSS are involved in decision-making. The rest are just supporting groups.

In managing risks, different options are given and evaluated to fit every situation. Options and actions are determined and prioritised by evaluating risks depending on their severity (R2). Series of extensive meetings and assessments with stakeholders are conducted to assess risks and develop the most feasible measures and alternatives (R3, R4, R7). Different strategies and expertise of each agency are considered in generating diverse options (R1). Evaluation criteria are based on the guidelines and protocols issued by the DOH and IATF to mitigate the risks of COVID-19 (R5, R6).

The change crew hubs utilise feedback mechanisms to validate the effectiveness and efficiency of their services. Shipping companies, manning agencies, seafarers, and the public send their concerns to the Viber group chat of the OSS. This platform immediately addresses their issues by the concerned agency (R4, R5, R6). Other OSS have a client feedback form where they can write their complaints or suggestions to improve the services provided by the OSS (R3, R7). The increasing number of vessels visiting the Subic Port for crew change indicates that the clients are satisfied with their services (R1). According to R2, among the OSS in the country, OSS Subic performs best.

#### 4.3.4 Actions to Optimise Risk Governance for a Resilient and Sustainable Change Crew Hub

This section answers research question number four. The respondents provide several recommendations to optimise risk governance in the change crew hubs. First, the government should support the OSS with funds, sufficient human resources, and appropriate facilities, and complete equipment for its operation (R2, R4, R7). The OSS should have reliable data and a database to be used in updating policies (R6). A systematic but flexible procedure in operation, maintaining a feedback mechanism, and updating policies to improve the OSS services and performance were also mentioned (R4, R7). Both R1 and R5 suggested the assignment of personnel dedicated only to OSS and avoiding rapid changes of leadership, which impedes the systematic operation of the change crew hub. Furthermore, R5 recommended the imposition of

finer or penalties commensurate with violations committed by people and institutions of the protocols and regulations of the OSS.

Finally, to achieve resilient and sustainable operations of the change crew hubs in the Philippines, the government or the agencies involved should have a holistic approach to operating and managing the OSS (R4). Personnel in the OSS should be provided with proper education and training (R6). Communication, coordination, and cooperation should be strengthened in a multi-agency organisational setup (R3). The government, with the help of OSS, should be proactive to risks and threats that may arise and continue to be a reliable provider of competent and healthy seafarers to the international maritime industry because:

*if manning agencies and shipping companies lose confidence in us, they will choose other countries that offer change crew services. When that happens, the Philippines' change crew hubs will eventually die. (R5)*

#### 4.4 Quantitative and Qualitative Data Analysis: Comparison, Integration, and Interpretation

This section compares, integrates, and interprets quantitative and qualitative data analysis using the IRGC Risk Governance framework. The IRGC framework is the foundation of this study and was used to verify the strength and gaps of risk governance in an inter-agency organisation. Moreover, this section identified the areas which should be improved to optimise risk governance and develop resilient and sustainable change crew hubs in the Philippines.

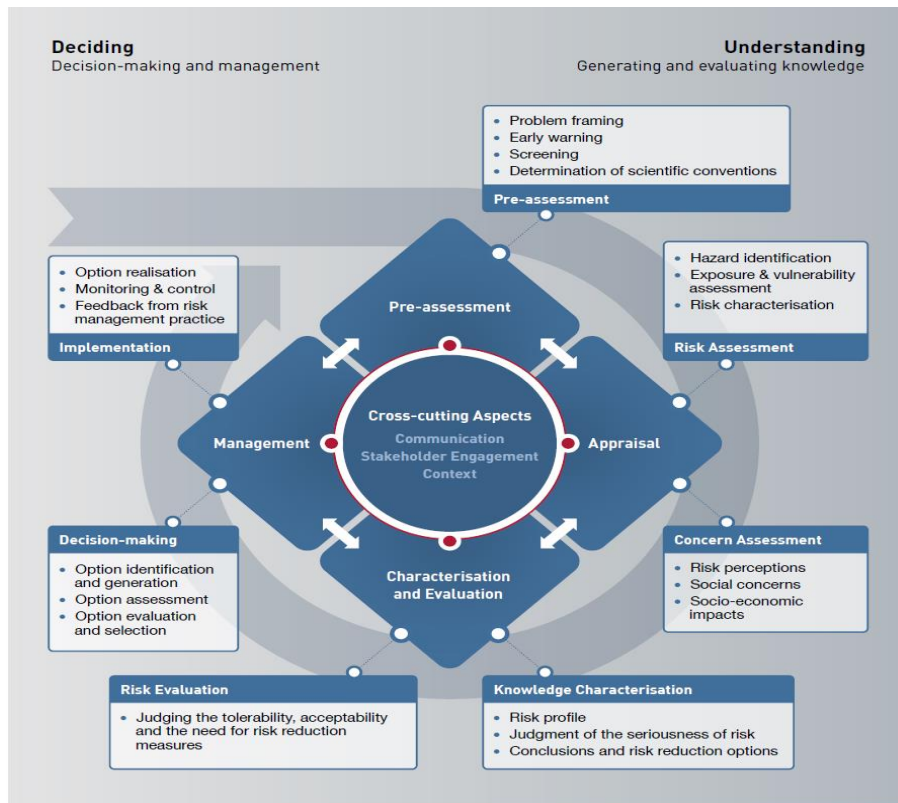


Figure 56. The IRGC Risk Governance Framework

Source: International Risk Governance Council. (2017). Introduction to the IRGC risk governance framework. <https://www.irgc.org>.

The IRGC risk governance framework is organised logically into four phases: pre-assessment, appraisal, characterisation/evaluation, and management. A fifth, risk communication accompanies all four phases. Each phase outlines tasks considered to be critical components of good governance. The five phases correspond to risk governance’s two primary challenges: creating and gathering knowledge about the risk and making decisions to mitigate, control, or manage it. These two challenges are portrayed in the horizontal axis of the framework: appraisal (assessment) and management. Additional phases are also present where knowledge and values are inextricably linked: pre-assessment and characterisation/evaluation. These two phases are vertically oriented and serve as links between knowledge and values. Renn and Walker (2008) explained that this design



*Avoids the naïve separation of facts and values and escapes the dilemma posed by post-modern relativity by respecting the analytical distinctions between the real world and the world of values even if they clearly interact.*  
(p.347)

#### 4.4.1 Rules, Regulations, Processes, and Mechanisms used in Risk Governance

Based on the data collected from the survey and interview, most respondents from the operational level and all from the management level know that the OSS has an organisational structure. Their process and mechanisms in risk governance depend on the Joint Circular No. 01 series of 2020 and the protocols issued by higher authorities such as the DOTr, DOH, and BOQ. Aside from these guidelines, each agency is guided by its respective regulations in performing its distinct tasks. Delineation of responsibilities is vital in every organisation. However, in a unique setup such as the change crew hub in the Philippines, which is composed of several agencies, there is a need for a suitable governance mechanism that will optimise collaboration among these agencies and lessen conflicts. Legally binding and well-defined rules and regulations should be implemented to ensure accountability from the agencies and relevant stakeholders.

#### 4.4.2 Processes in Collecting Risk Information, Risk Analysis, and Communication

Pre-assessment plays a vital role in risk framing. Many of the disputes surrounding risks and the risk management decisions taken in response to them may be traced back to fundamentally divergent frames of reference (Renn & Walker, 2008). In this study, the respondents' knowledge, experience, values, specific roles, and existing regulations influenced their differences in framing risks. Respondents from the operational level frame risks based on their threats to the performance of their tasks and their well-being. They are more concerned about exposure to seafarers positive for COVID-19 virus, delay in the arrival of vessels, bad weather conditions,

communication problems with stakeholders such as foreign seafarers and manning agencies, and lack of facility.

On the other hand, respondents from the management level focused on classifying risks (human, environment, and property), predictability of outcomes, known solutions and options, and reliable data assessing risks. The researcher considers both opinions are essential in risk pre-assessment in the OSS. For the operational level, concurrent information can be gathered. The management level can provide existing legal, regulations, social and economic references, and scientific methods in pre-assessing risks. Hence, in framing risks, both information or opinion from the operational and management levels should be considered and evaluated to create the same risk frame.

Understanding stakeholders' various concerns, expectations, and views and the public is critical to developing effective communication and management methods. In some circumstances, failing to consider them can increase risk. Instead of simply addressing their worries, public communication campaigns on risk awareness can assist in risk appraisal through concern assessment (Renn & Walker, 2008). Both respondents from the interview and survey mentioned they consider stakeholders' importance, opinions, and concerns in risk analysis. They also value the welfare of the public. However, discernment of risk by personnel in the OSS should be given the same consideration. Each agency involved in crew change has its specific roles and responsibilities. Focusing only on their respective tasks limits their capacity for a comprehensive characterisation and evaluation of risks. As a result, a balanced risk tolerability and acceptability assessment and early recommendations for the best management strategy must be established. These elements include the benefits or possibilities connected with assessing risk and quality of life and sustainability concerns. There are nearly always trade-offs between all these elements (Renn & Walker, 2008). The OSS complies in this area by doing a SWOT analysis, conducting surveys, and generating several options on mitigating risks of different classifications. In addition, through

collaboration, a shared understanding of risk is developed, and the best solution is created.

One of the most challenging tasks in risk governance, according to Fairman, 2007 (as cited by Renn and Walker, 2008) is establishing the line between intolerable and tolerable risks or between tolerable and acceptable risks. As a result, the IRGC approach emphasises that the tolerability/acceptability decision should be made as transparent as possible to all parties involved. The organisations making the decision should have the abilities, resources, knowledge, and sensitivity to make an informed, balanced, and fair decision. Through the data gathered, the OSS must improve in this area. The government must invest and provide adequate facilities and equipment such as a reliable database for data that will support claims on risks and outcomes and not rely on conventions and regulations alone. Other communication platforms must be explored, such as an open forum or public consultation aside from the Viber group chat in informing the public and stakeholders about risks. Though social media is fast and inexpensive communication, its reliability and security can be questionable sometimes. As mentioned by the respondents, information sharing with other agencies and relevant stakeholders is crucial for sharing best practices and standards in assessing, mitigating, and managing risks.

Being an inter-agency organisation with participation from several stakeholders, communication is the greatest challenge in the OSS, as mentioned by the respondents. This communication problem can be among agencies, between agencies and stakeholders, between agencies and the public and media, and between agencies and private sectors. In the IRGC framework, risk communication is the factor that holds all the phases in risk governance. Failure in communication in any of the four stages of risk governance will affect the performance of the change crew hubs in assessing, mitigating, and managing risks. Hence, open communication inclusive of all relevant stakeholders and the public must be maintained. It ensures that stakeholders make

well-informed options regarding the risk, considering their interests, concerns, beliefs, and resources while balancing evidence-based knowledge (IRGC, 2017).

Delineation of responsibility is advantageous for the OSS. It gives clear boundaries of roles and responsibilities that avoid overlapping of tasks and competition among the agencies. Each agency's strengths and strategies can be used in procedures of the crew change where they are best suited. However, the lack of a shared vision, mission, functions, and core values may hinder optimising the collaboration of these agencies. Though they are different agencies with different tasks, they are still working for one organisation, the change crew hub. They must have the same mental picture of the purpose of the OSS and how to unite to achieve its goal.

#### 4.4.3 Procedures in Decision-making, Risk Management, and Implementation

The IRGC's framework is based on an inclusive governance paradigm, which means that professionals, corporations, and civil society all have a role to play. Inadequate understanding of and planning for differing stakeholders' concerns, perceptions, and values, as well as poor communication, can lead to a lack of trust in decision-makers, a lack of confidence in the decisions made, and difficulties in putting management plans into action (Renn & Walker, 2008).

Having several agencies and stakeholders involved in the change crew hub's operation and management means having multifaceted policies, diverse opinions, and complexity in the decision-making process. Several options in every issue may arise. In the IRGC framework, integrating these possibilities into the decision-making process is the emphasis of this phase. This is accomplished by informing the selection and evaluation of risk management alternatives using information from various phases of the risk governance cycle (Renn & Walker, 2008). However, these options are not inclusive of management strategies. Every type of risk must have a particular management strategy. Based on the data gathered, all the agencies and stakeholders

involved conduct regular meetings to develop solutions and options to every problem or risk that may disrupt the operation of the OSS. These solutions and options and the criteria in developing them must be under the existing guidelines and protocols. In addition, they are based on the best practices of the agencies and stakeholders. Options are categorised to fit each situation and prioritised depending on the severity of the risk that needs to be managed. However, these agencies are just recommending bodies. It is the higher authorities such as the DOTr and the IATF that make the final decision. This is a long and bureaucratic process. Chances are some agencies resort to making their own decisions when faced with problems that need an immediate solution without informing other agencies in the OSS. This setback can be avoided if experts on risks are assigned to the OSS to guide the agencies in assessing and evaluating risks, decision-making, and managing risks. Besides, it is the responsibility of the OSS to manage risks in their operation.

On the other hand, the participation of relevant stakeholders and the public in various phases of the risk governance process is highly valued. However, their participation must be under the characteristic of the risk which their expertise, knowledge, and experience are necessary for significant credible inputs, as shown in Figure 57.

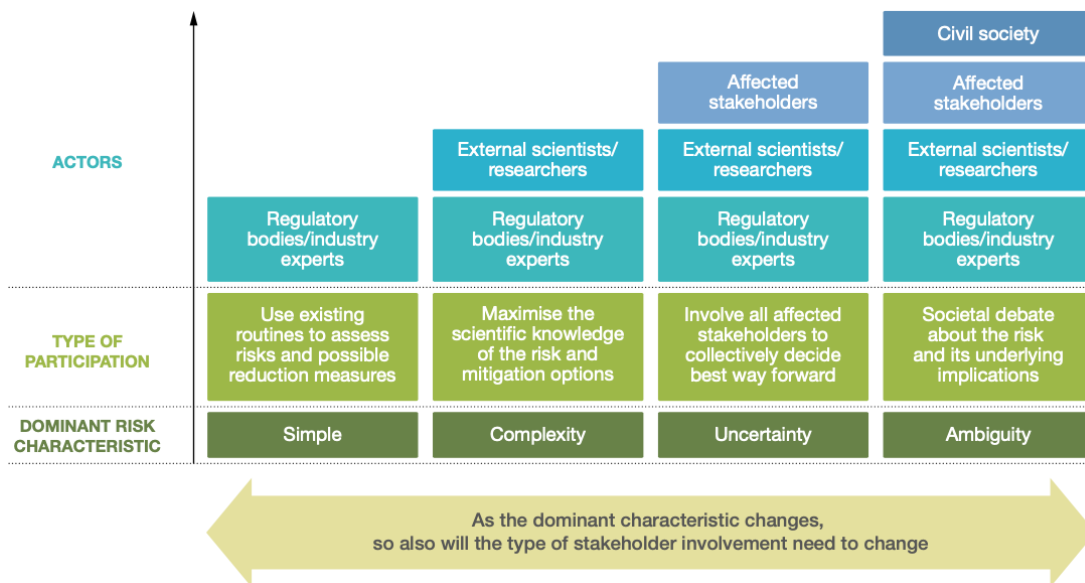


Figure 57. The IRGC Risk Governance Stakeholder Engagement Escalator

Source: International Risk Governance Council. (2020). Involving stakeholders in the risk governance process. Lausanne: EPFL International Risk Governance Center. [www.irgc.epfl.ch](http://www.irgc.epfl.ch).

The IRGC understands that the agency or organisation in charge of risk management is ultimately responsible for the final decision. In this case, the change crew hub must have the final decision and be the responsible organisation for managing risk. The goal of the inclusive governance model is to ensure that decision-makers have asked all the appropriate questions and have the most up-to-date information with which to make their decisions (Renn & Walker, 2008). Based on the data collected, the organisation applies this. However, by always relying on the final decision of higher authorities and the existing policies, the capability of the managers in the OSS to exercise critical thinking, flexibility to change, full potential in leadership, timely decision-making, and responsibility for their actions and decisions, are limited/compromised.

Furthermore, to validate the effectiveness of the implemented risk management measures and the need to update them, the OSS must maintain an efficient feedback tool. However, this feedback mechanism must not be limited to social media platforms such as the Viber group chat. Though this tool is cheap, fast, and practical, as stated

by the respondents of this study, the change crew hubs should not rely too much on this. Regular open forums, public consultation, and community awareness programs are great ways to observe how people feel and react to every problem or risk and its corresponding benefits and threats to their well-being, livelihood, community, and others. Creating a real and personal relationship with the public can gain their trust and respect than in a virtual mode. Moreover, at all levels of the risk governance process, the change crew hubs should ensure a two-way interaction with the public, not just informing them (IRGC, 2017).

Finally, it is necessary to carefully examine and assess risks to comprehend better and mitigate the hazards associated with operating and managing change crew hubs in the Philippines. One of the methods for doing this is the Bowtie method. The researcher developed a comprehensive analysis and evaluation of risk broken down in context using the said method to guide the change crew hubs in creating scenarios, providing preventive and control measures, and assessing the impact of risks.

The Bowtie analysis owes its development to four methodologies that came before it: Fault Tree Analysis (FTA), Event Tree Analysis (ETA), Cause-and-Effect Diagrams, and Barrier Thinking. The FTA is identified by Ericson, 1999 (as cited by Ruijter and Guldenmund, 2016) as a tool for visualising a system's failure processes in a diagram. It is frequently employed to make the bowtie's left side. The right side of the bowtie is typically represented by the ETA, in which an initial event is chosen, followed by possible outcomes or system breakdowns. It is worth noting that the FTA traces a causal direction backward from a single event, whereas the ETA begins with a single event and then examines the possibilities afterward (Ruijter & Guldenmund, 2016). Nielsen, 1971 (as cited by Ruijter and Guldenmund, 2016) stated that Causal Consequence Diagram starts with a fault tree and then moves into an event tree through a critical event. The critical event is a transgression of the safety limit of a vital reactor parameter.

On the other hand, Barrier Thinking deals with barriers as part of a system that prevents deviations. There are often multiple barriers such that if one fails, there is a contingency (Ruijter & Guldenmund, 2016). In addition, barriers must be adequate, independent, and auditable (McLeod & Bowie, 2018).

The Bowtie method blends a Cause Consequence Diagram with barriers to create a single diagram. It seeks to figure out which actions can have negative consequences and how those outcomes can be avoided by developing various scenarios (Ruijter & Guldenmund, 2016). The bowtie analysis includes four major elements: top event, threats and consequences, barriers, and management systems. The top event occurs in several different contexts. It is crucial since it can have a series of negative consequences. On the left side of the bowtie are the threats or causes, while on the right side are the effects. Both have barriers that can be used to eliminate, avoid, recover from, or alleviate the loss of control. Underneath the barriers to implement and maintain them are further layers of management systems (Ruijter & Guldenmund, 2016).

In the researcher's Bowtie analysis<sup>7</sup> (see Figure 58), the top event selected is seafarers positive for the COVID-19 virus since this is the most serious concern of the change crew hubs during this study. For the causes and effects, the researcher, in addition to her perception, identified them from the themed responses of the respondents in the survey and interview and answers in the Likert scale. The preventive and mitigating or control barriers are based on the understanding or opinion of the researcher. Hence, the Bowtie analysis of this study is not a full complexity of the reality or reflects all the details of analysing, preventing, and mitigating risks in the operation of the change crew hubs. For the management systems, the OSS managers, in collaboration with the stakeholders, the public, and relevant private institutions, should develop a Risk

---

<sup>7</sup> To have a clear copy of the Bowtie analysis shown in Figure 58, the diagram was divided into three parts and can be found in the Appendices of this study from page 110 to page 112.



Assessment and Management System or a Risk Governance System that should be incorporated in the organisation's daily operation to implement and maintain the barriers. This system should have policies, procedures, task instructions, checklists, job descriptions, manuals, communication processes, performance standards, and other vital components. Further, before implementing mitigation or control barriers, the OSS should weigh its benefits versus the expenses, resources, consequences, and time needed to execute it. Finally, barriers must be examined or reviewed to see what causes it to fail to perform as planned and what measures must be taken to prevent it from failing (McLeod & Bowie, 2018).

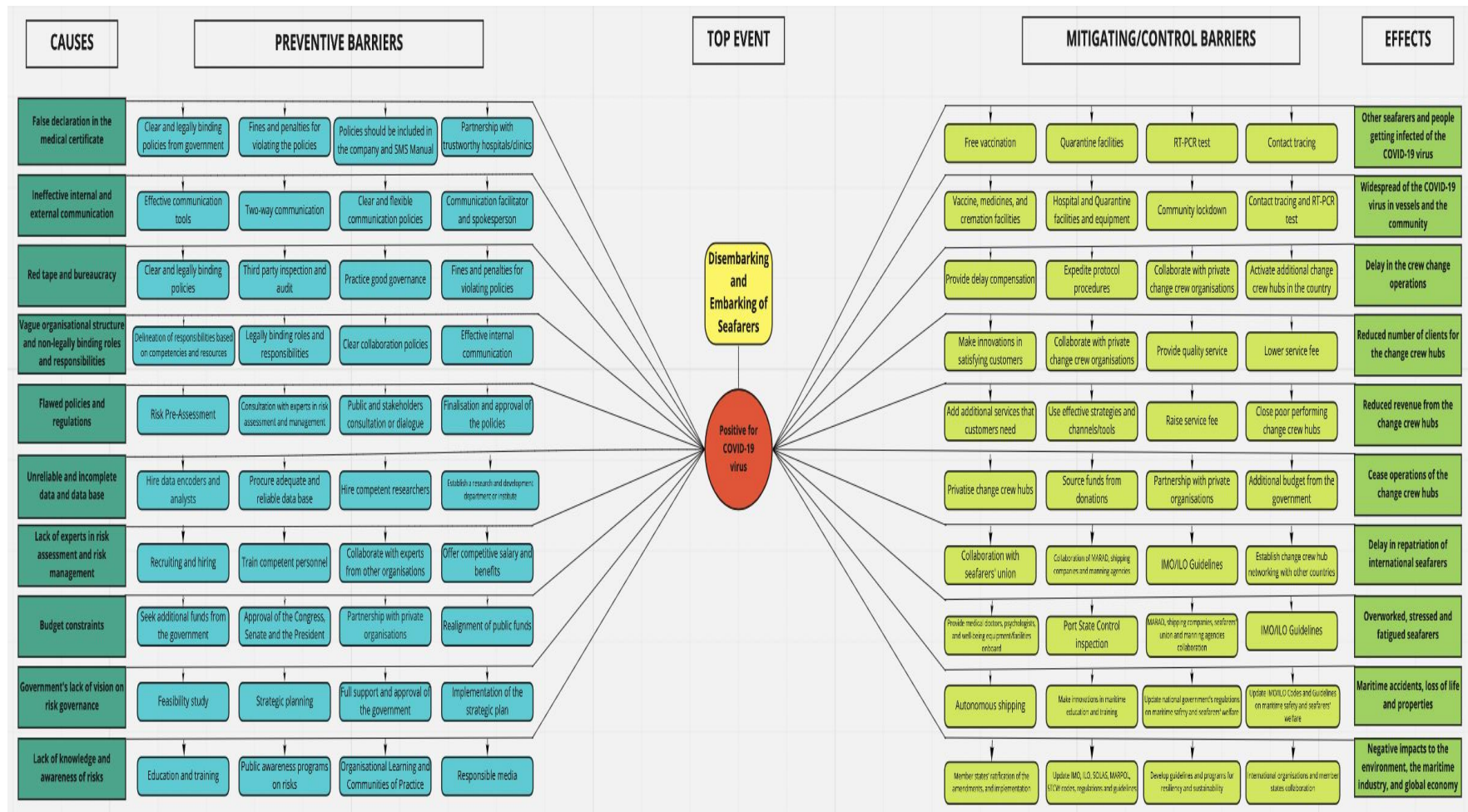


Figure 58. Bowtie Analysis of the Study

## Chapter 5 Conclusion and Recommendation

### 5.1 Introduction

This chapter presents the summary of the results and analysis discussed in Chapter 4. The researcher's recommendation on optimising risk governance in the Philippines' change crew hubs is based on the data gathered from the respondents in the survey and interview. The IRGC Risk Governance Framework, which was discussed in the literature review, and the synthesis of the data analysed in the previous chapter will validate the significance of optimum risk governance in an inter-agency organisation to be sustainable and resilient from risks and uncertainty. The limitations of the study are presented for future research on the same or related topic to consider.

### 5.2 Summary of the Results

The One-Stop-Shops (OSS) in the Philippines were activated last year through the Joint Circular No. 01 series of 2020 to facilitate the safe travel of seafarers, crew change, and other services while ensuring adequate COVID-19 infection prevention measures are in place. It is operated and managed by different agencies of the government. As a young and inter-agency organisation, various challenges and risks are expected to test the effectiveness and efficiency of its operation. However, these difficulties can be transformed into strengths with good governance and risk governance. In Table 22, the advantages and challenges of an inter-agency organisation as identified by the respondents in this study is shown:

Table 22. Advantages and Disadvantages of an Inter-agency Organisation

<b>ADVANTAGES</b>	<b>CHALLENGES</b>
Effective operation and management	Difficulty in validating data
Efficient use of resources	Violation of protocols
Collaboration	Lack of accountability and decision-making structure
Helps generate income for the country	Inefficient communication
	Constant replacement of leaders and personnel

First, by recognising the advantages and challenges of an inter-agency organisation, the researcher determined how to use the advantages in reinforcing risk governance in the OSS, generating solutions for the gaps, and turning challenges into opportunities.

Second, to complete the study, the data gathered from the respondents in the survey and interview were categorised into themes. The analysis of the data is supported by information from the official documents of the OSS. The researcher's quantitative and qualitative data and analysis are compared, integrated, and interpreted based on the IRGC risk governance framework phases. The themes identified in the study are categorised into the following:

.1 Organisational Capacity

1. *Human Resources*
2. *Funds*
3. *Facilities/Equipment*

.2 Governance

1. *Rules and regulations*
2. *Structure*
3. *Style*

.3 Perception of Risk

1. *Experience*

2. *Knowledge*
3. *Values*
4. *Society*
5. *Technology*

#### .4 Risk Assessment/Evaluation Process

1. *Pre-assessment*
2. *Tools*
3. *Stakeholders'/Public's level of involvement*
4. *Data*
5. *Criteria for evaluation*

#### .5 Decision-making Process

1. *Options*
2. *Prioritisation of Options*
3. *Stakeholders'/Public's level of involvement*
4. *Collective Decision*

#### .6 Risk Management and Implementation

1. *Stakeholders'/Public's level of involvement*
2. *Rules and Regulations*
3. *Evaluation of effectiveness and efficiency*

#### .7 Communication

1. *Internal*
2. *External*

#### .8 Monitoring and Feedback

1. *Social Media*
2. *Other Feedback Forms/Methods*

From the researcher's analysis, risk governance can be optimised in the Philippines' change crew hubs by incorporating the IRGC risk governance framework in its system. When used as a normative notion, risk governance describes the principles of good governance that are critical in government-run organisations. Transparency, effectiveness, and efficiency are among these principles, as are accountability, strategic planning, sustainability, justice and fairness, respect for the rule of law, and

the need for that the chosen solution to be politically and legally feasible, as well as morally and publicly acceptable. The challenge now for the change crew hubs is to improve risk governance so that societies can profit from opportunities while limiting the negative repercussions of the risks that come with them (Renn & Walker, 2008).

### 5.3 Recommendations

Risk governance is not something that happens in a vacuum. It is also not something that can be applied uniformly across all regions, geopolitical cultures, institutions, and risk types. The risk governance process is influenced by several elements, including organisational capacity, actor network, social climate, and political and regulatory culture (Renn & Walker, 2008). Therefore, it is not a framework that fits all. To optimise risk governance in the Philippines' change crew hubs, the organisation must adjust or improve in some contextual factors.

*Organisational Capacity.* The Philippines' change crew hubs must be provided with human resources with the right skills, knowledge, and competencies needed in risk governance. Hence, education and training on risk governance must be consistently conducted for them. In addition, constant change of leaders and personnel in the OSS should be avoided. As a young organisation, the OSS needs leadership stability, establishing an environment for collaboration and cooperation, knowledge management, and organisational learning. Adequate facilities, complete equipment, legally binding rules, and regulations, and an environment for optimising collaboration or organisational integration are also valuable. Moreover, the OSS must have collective core values, vision, mission, and functions for all its personnel to have the same mental picture on the purpose of the change crew hub, develop strategic plans to achieve its goal and be sustainable, and how to develop it into an organisation that is resilient to the disruptions of risks.

*Actor Network.* The OSS must have a clear division of responsibilities for all the agencies and stakeholders involved in dealing with every type of risk and those who can manage its outcomes. A transparent division of duties will avoid abuse of power and finger-pointing in the network. This network includes policymakers, politicians, international organisations, private institutions, the public, media, industries, seafarers' unions, and other relevant stakeholders. Moreover, effective communication must be exercised to strengthen this network and produce appropriate decisions and risk management measures. However, as some of the respondents in this study suggest, every agency and stakeholder must be accountable for performing their responsibilities. This measure is necessary to instil professionalism and discipline among its personnel and stakeholders.

*Understanding Social Climate.* This context will aid the OSS to prepare for change those risks may generate and develop a risk management decision and acceptable measures to the stakeholders and the public. These measures must be credible in presenting their benefits and possible negative consequences. As much as possible, these measures are outputs of a balanced evaluation of risks and their outcomes from all relevant agencies and stakeholders. With a perception that risk management measures are fair and feasible, stakeholders and the public will trust the change crew hub's regulations and respect its authority. Moreover, in understanding the social climate, implementation of and compliance to risk management measures will not be challenged with objections. The OSS will retain the trust of seafarers, manning agencies, and shipping companies and may attract more clients to avail of its services.

*Political and Regulatory Culture.* Not all countries, even organisations of the same country, have the same method in handling and controlling risks. Depending on characteristics such as national culture, political tradition, regulatory systems, and social conventions, the same risk may be assessed differently and subject to a different management decision (Renn & Walker, 2008). Most Filipino people are known to be resilient with respect to any problem that comes their way and are told not to complain

but be tough and be contented in what is offered to them. This has been ingrained in the national culture and social norms, especially during the COVID-19 pandemic. This attitude can be traced to the respondents' responses to some of the questions in this study. Some respondents said when the task is vague, they make adjustments to perform them because it is their duty to serve. If they lack equipment or facility, they just improvise and make do with what is available. For the researcher, this attitude or value system will affect the personnel's perception in assessing, decision-making and managing risks. Constructive criticism of the government's regulations must be encouraged for necessary changes and prompt actions. Blind cooperation from the people is destructive to good governance. To improve the change crew hub system, the government must give all the support the organisation deserves.

Moreover, the researcher considers the IRGC risk governance framework the most appropriate for the Philippines' change crew hubs in assessing, mitigating, and managing risks. The researcher developed a novel framework to fit the young organisation, as shown in Figure 59. The same framework will also try to optimise risk governance and create resilient and sustainable change crew hubs. In the framework, the researcher suggested the following: for the government to remedy the gaps or hindrances in achieving resilient and sustainable risk governance; and the organisation to ensure that its core values, vision, mission, and functions are aligned with the contributing factors that made risk governance resilient and sustainable. The core values should reflect the characteristics of good governance. In addition, the vision, mission, and functions should encompass the purpose of risk governance, what to do to achieve it, how to achieve it, and why the goal should be achieved. However, it is worthy to note that the novel framework is not absolute. It is subject to modification depending on the changes in the contextual factors, technological development, and globalisation of economies that may affect the resiliency and sustainability of risk governance in the change crew hubs.



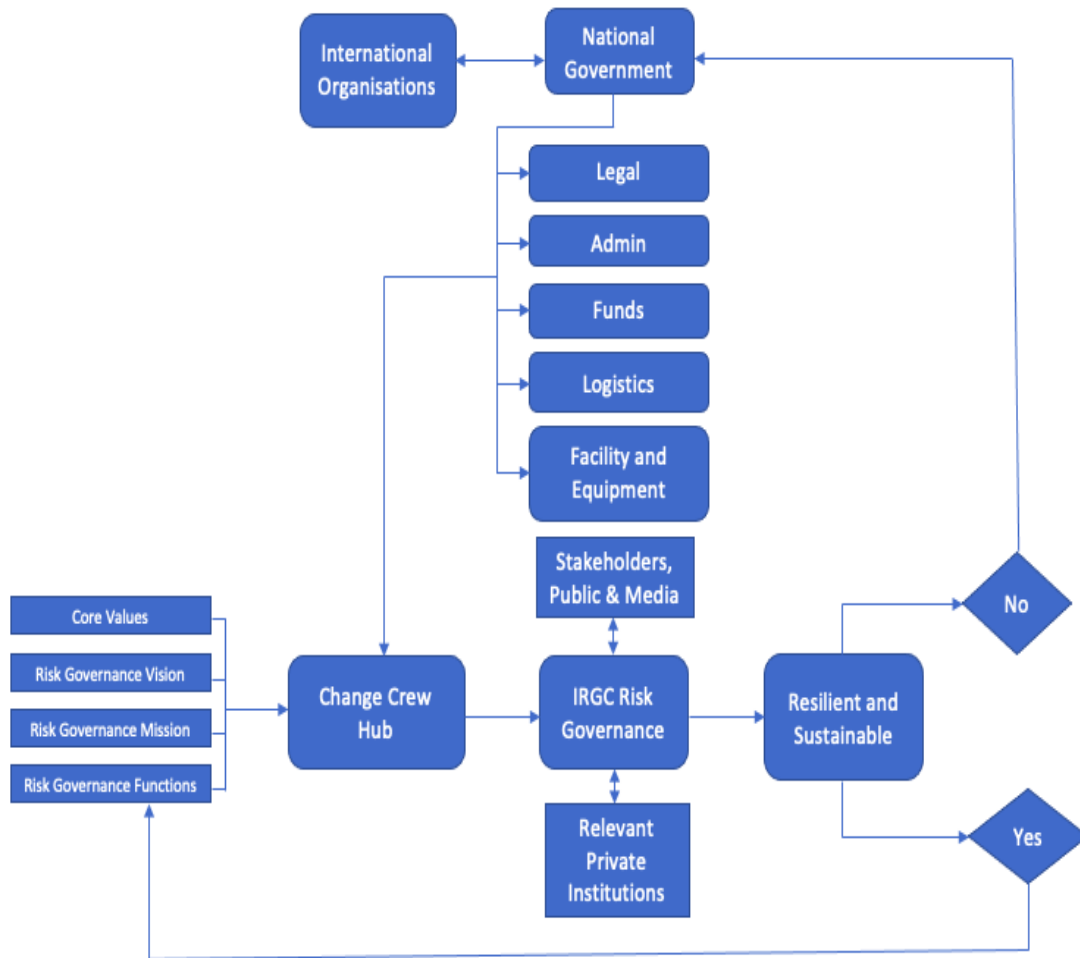


Figure 59. Proposed Framework for Optimising Risk Governance in the Philippines' Change Crew Hub System

Finally, to further understand and control risks inherent to operating and managing the change crew hubs in the Philippines, the researcher recommends using the Bowtie method to analyse and assess risks systematically. The Bowtie analysis that the researcher developed (see Fig. 58) can be utilised as a guide in examining and evaluating risks in detail and in creating different scenarios of risk disruptions. By creating scenarios and analysing them using the Bowtie method, change crew hub managers can easily perceive what preventive and control measures are needed and what threats require immediate solutions and resources.

## 5.4 Conclusion

Whatever its characteristic (simple, complex, uncertain, and ambiguous), risk can have positive and negative outcomes. Proactive organisations with resilient mechanisms to mitigate and manage risks can even turn their adverse effects into opportunities. The COVID-19 pandemic brought various challenges to the Philippines, particularly the economy, health, education, safety, and security. However, the crisis opened room for hope and opportunity when the country activated its six change crew hubs to facilitate international seafarers' safe transit and repatriation. The change crew hubs created jobs for the Filipinos, assisted many seafarers, and generated revenues for the country.

Nonetheless, with other countries creating their change crew hubs, the Philippines must enhance its services to retain the trust of its customers and attract more clients. One aspect that must be improved in the change crew hub is its risk assessment and management strategies. By incorporating and optimising risk governance in its system, the Philippines' change crew hub will continue to thrive and be an outstanding partner of the International Maritime Organisation in protecting the rights, welfare, and well-being of one of the modern time heroes and heroines: the seafarers.

## 5.5 Limitations and Future Research

Initially, the researcher intended to have a balanced number of respondents from the operational and management levels from all the agencies involved in the change crew hubs. However, geographical issues (the author is in Malmö, Sweden, and the respondents are in the Philippines), and time constraints impeded this plan. Consequently, the research was limited to those who first accomplished the survey questionnaire and agencies that agreed to provide respondents for the interview. For the data gathering, the researcher relied on online interviews and surveys. Observation of the change crew hub's operation could have added valuable information to the study.

Moreover, the Likert response format used in the questionnaire was not based on a Likert scaling process. The response format only gave specific information on the specific items and not a cumulative result from the scores of all items. The results are in descriptive form only and cannot be tested for internal consistency using Cronbach Alpha, for example. Future researchers may consider developing a Likert Scale that can measure some of the constructs discussed in this work.

Finally, the researcher used the IRGC Risk Governance only as her framework to validate the arguments in the study. Future research related to this topic may explore other risk assessment and risk management frameworks, in addition to the IRGC Risk Governance Framework, for a more comprehensive result and creation of a framework that is adapted to each risk governing organisation's specific situation and demands.

## References

- Bloom, N. (2014). Fluctuations in uncertainty. *Journal of Economic Perspectives*, 28(2), 153-76. DOI:10.1257/jep.28.2.153.
- Cashdan, E. (2019). *Risk and uncertainty in tribal and peasant economies*. Routledge.
- Cedergren, A., & Tehler, H. (2014). Studying risk governance using a design perspective. *Safety Science*, 68, 89-98. <https://doi.org/10.1016/j.ssci.2014.03.006>.
- Choi, C., & Choi, J. (2018). Development and distribution of risk governance framework in terms of socially viable solutions. *The Journal of Asian Finance, Economics, and Business*, 5(3), 185-193. <https://doi.org/10.13106/JAFEB.2018.VOL5.NO3.185>.
- Clahsen, S., van Kamp, I., Hakkert, B., Vermeire, T., Piersma, A., & Lebet, E. (2019). Why do countries regulate environmental health risks differently? A theoretical perspective. *Risk Analysis*, 39(2). DOI:10.1111/risa.13165.
- Cleden, M. D. (2012). *Managing project uncertainty*. Gower Publishing, Ltd.
- Collins, H. (2014). Rejecting knowledge claims inside and outside science. *Social Studies of Science*, 44(5), 722-735. <https://doi.org/10.1177/0306312714536011>.
- Creswell, J. W. (2013). Steps in conducting a scholarly mixed methods study. [www.digitalcommons.unl.edu/dberspeakers/48/](http://www.digitalcommons.unl.edu/dberspeakers/48/)
- Department of Transportation. (2020). DOTr conducts first crew change operations at the Port of Capinpin in Bataan. <https://dotr.gov.ph/55-dotnews/2280-dotr-conducts-first-crew-change-operations-at-the-port-of-capinpin-in-bataan.html>.
- Doumbia-Henry, C. (2020). Shipping and COVID-19: protecting seafarers as frontline workers. *WMU Journal of Maritime Affairs* 19, 279-293. <https://doi.org/10.1007/s13437-020-00217-9>.
- Farber, D. A. (2011). Uncertainty. *Georgetown Law Journal*, 99(4), 901-960. Retrieved from <https://heinonline.org/HOL/P?h=hein.journals/glj99&id=909>.
- Hartford, D. N., & Baecher, G. B. (2004). *Risk and uncertainty in dam safety*. Thomas Telford.

- Himmelman, A.T. (2001). On coalitions and the transformation of power relations: Collaborative betterment and collaboration. *American Journal of Community Psychology*, 29(2), 277-284. DOI:10.1023/A:1010334831330.
- Hox, J. J., & Boeijs, H. R. (2005). Data collection, primary versus secondary.
- International Risk Governance Council. (2010). The emergence of risks: contributing factors. [www.irgc.org](http://www.irgc.org).
- International Risk Governance Council. (2017). The need for risk governance. *Introduction to the IRGC risk governance framework, revised version*. EPFL International Risk Governance Center. [www.irgc.org](http://www.irgc.org).
- International Risk Governance Council. (2017). Introduction to the IRGC risk governance framework. [www.irgc.org](http://www.irgc.org).
- International Risk Governance Council. (2018). The emergence of risks: contributing factors. [www.irgc.org](http://www.irgc.org).
- Ivankova, N. V., & Creswell, J. W. (2009). Mixed methods. *Qualitative research in applied linguistics: A practical introduction*, 23, 135-161.
- Kılınc, H., & Fırat, M. (2017). Opinions of expert academicians on online data collection and voluntary participation in social sciences research. *Educational Sciences: Theory & Practice*, 17(5). DOI:10.12738/estp.2017.5.0261.
- Klinke, A., & Renn, O. (2006). Systemic risks as challenge for policy making in risk governance. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* 7, (1), Art. 33. <https://doi.org/10.17169/fqs-7.1.64>.
- Le, T. T., Tran, T. T., Ho, H. T., Vu, A. T., & Lopata, A. L. (2018). Prevalence of food allergy in Vietnam: comparison of web-based with traditional paper-based survey. *World Allergy Organization Journal*, 11(1), 1-10. <https://doi.org/10.1186/s40413-018-0195-2>.
- Martins, F. S., da Cunha, J. A. C., & Serra, F. A. R. (2018). Secondary data in research—uses and opportunities. *PODIUM sport, leisure and tourism review*, 7(3). <https://doi.org/10.5585/podium.v7i3.316>.
- McLeod, R.W., & Bowie, P. (2018). Bowtie Analysis as a perspective risk assessment technique in primary healthcare. *Policy and Practice in Health and Safety*, 16(2), 177-193. <https://doi.org/10.1080/14773996.2018.1466460>.
- Nowotny, H. (2015). *The cunning of uncertainty*. John Wiley & Sons.

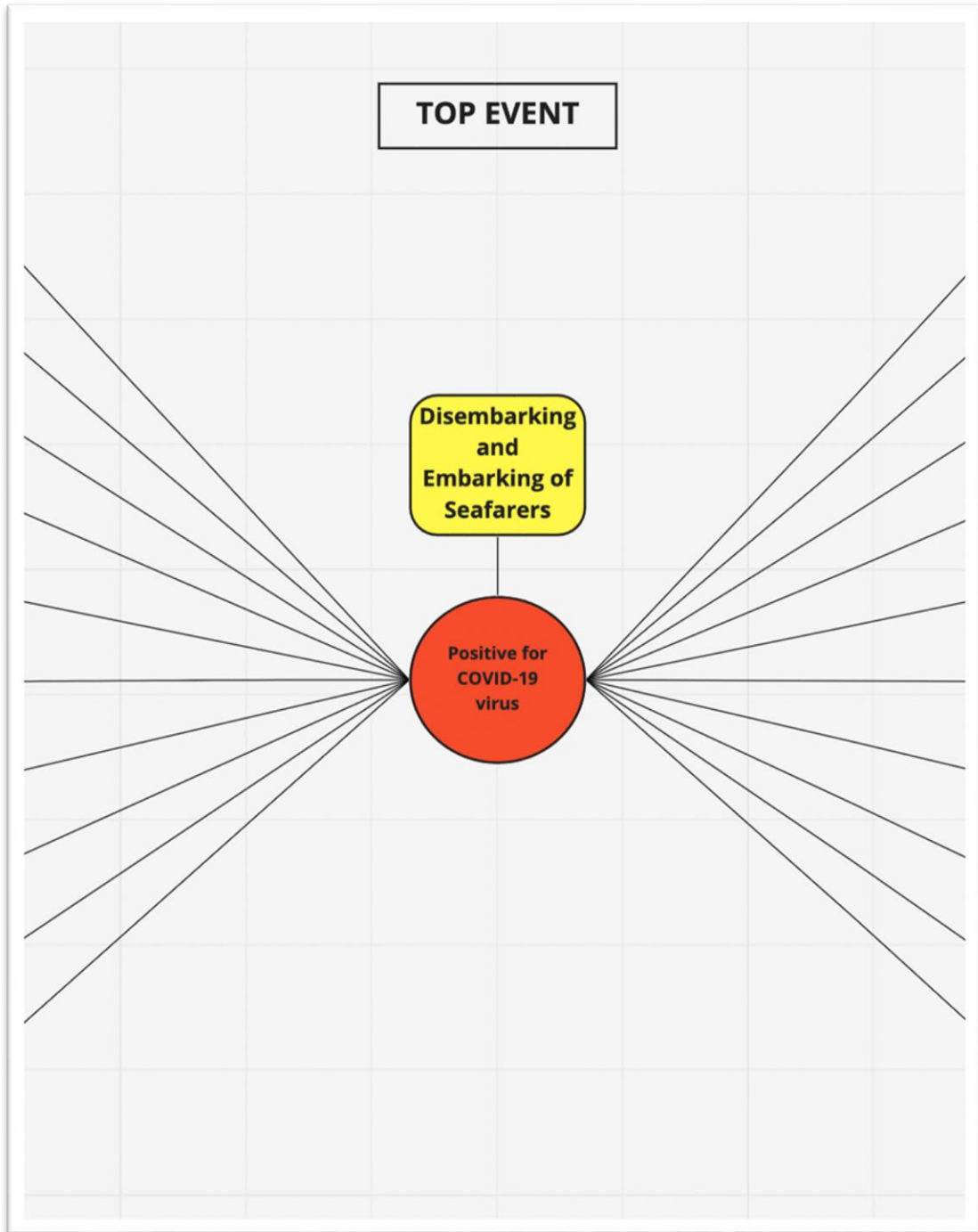
- O'malley, P. (2012). *Risk, uncertainty, and government*. Routledge.
- Organisation for Economic Co-operation and Development. (2003). Emerging risks in the 21<sup>st</sup> century: an agenda for action. [www.oecd.org/futures/globalprospects/37944611.pdf](http://www.oecd.org/futures/globalprospects/37944611.pdf).
- Organisation for Economic Co-operation and Development. (2003). Emerging systemic risks. *Final Report to the OECD Futures Project*.
- Rachev, S. T., Stoyanov, S. V., & Fabozzi, F. J. (2011). *Risk and uncertainty* (Vol. 211). John Wiley & Sons.
- Ray-Bennett, N., Mendez, D., Alan, E., & Morgner, C. (2020). Inter-agency collaboration in natural hazard management in developed countries. *Oxford Research Encyclopedia of Natural Hazard Science*. <https://doi.org/10.1093/acrefore/9780199389407.013.176>.
- Renn, O., Klinke, A., & Schweizer, P.H. (2018). Risk governance: Application for urban challenges. *International Journal of Disaster Risk Science*, 9(4), 434-444. <https://doi.org/10.1007/s13753-018-0196-3>.
- Renn, O., Laubichler, M., Lucas, K., Kröger, W., Schanze, J., & Schweizer, P.J. (2020). Systemic risks from different perspectives. *Risk Analysis*, 0(0). DOI:10.1111/risa.13657.
- Renn, O. (2008). Chapter 1: White paper on risk governance: Toward and integrative framework. *Global Risk Governance*, 3-60.
- Renn, O., & Walker, K. (2008). Chapter 14: Lessons learned: A re-assessment of the IRGC framework on risk governance. *Global Risk Governance*, 331-367.
- Rosales, S. [DocShe Rosales]. (2020, December 1). How to compute survey result using weighted mean – DocShe Rosales [Video]. YouTube. <https://www.youtube.com/watch?v=Aq--Z7zxCrO>.
- Ruijter, A., & Guldenmund, F. (2016). Bowtie method: A review. *Safety Science*, 88, 211-218. <https://doi.org/10.1016/j.ssci.2016.03.001>.
- Schweizer, P. J. (2019). Systemic risks—concepts and challenges for risk governance. *Journal of Risk Research*, 1-16. <https://doi.org/10.1080/13669877.2019.1687574>.
- Sienkiewicz-Małyjurek, K. (2021). Interpretive structural modelling of inter-agency collaboration risk in public safety networks. *Quality & Quantity*, 1-29.

- Thiele, C.J., & Hudson, M.D. (2021). Uncertainty about the risks associated with microplastics among lay and topic-experienced respondents. *Scientific Reports*, 11:1, 7155. <https://doi.org/10.1038/s41598-021-86569-5>.
- United Nations Conference on Trade and Development. (2020). Review of Maritime Transport 2020. [https://unctad.org/system/files/official-document/rmt2020\\_en.pdf](https://unctad.org/system/files/official-document/rmt2020_en.pdf).
- Whelan, C. (2017). Managing dynamic security networks: Towards the strategic managing of cooperation, coordination, and collaboration. *Security Journal*, 30(1), 310-327. <https://link.springer.com/article/10.1057/sj.2014.20>.
- Van Asselt, M. B., & Renn, O. (2011). Risk governance. *Journal of risk research*, 14(4), 431-449. <https://doi.org/10.1080/13669877.2011.553730>.
- Zinn, J. O. (2006). Recent developments in sociology of risk and uncertainty. *Historical Social Research/Historische Sozialforschung*, 31(2), 275-286. Retrieved from <http://www.jstor.org/stable/20762130>.
- Zinn, J. O. (Ed.). (2009). *Social theories of risk and uncertainty: An introduction*. John Wiley & Sons.

# Appendices

## Appendix A

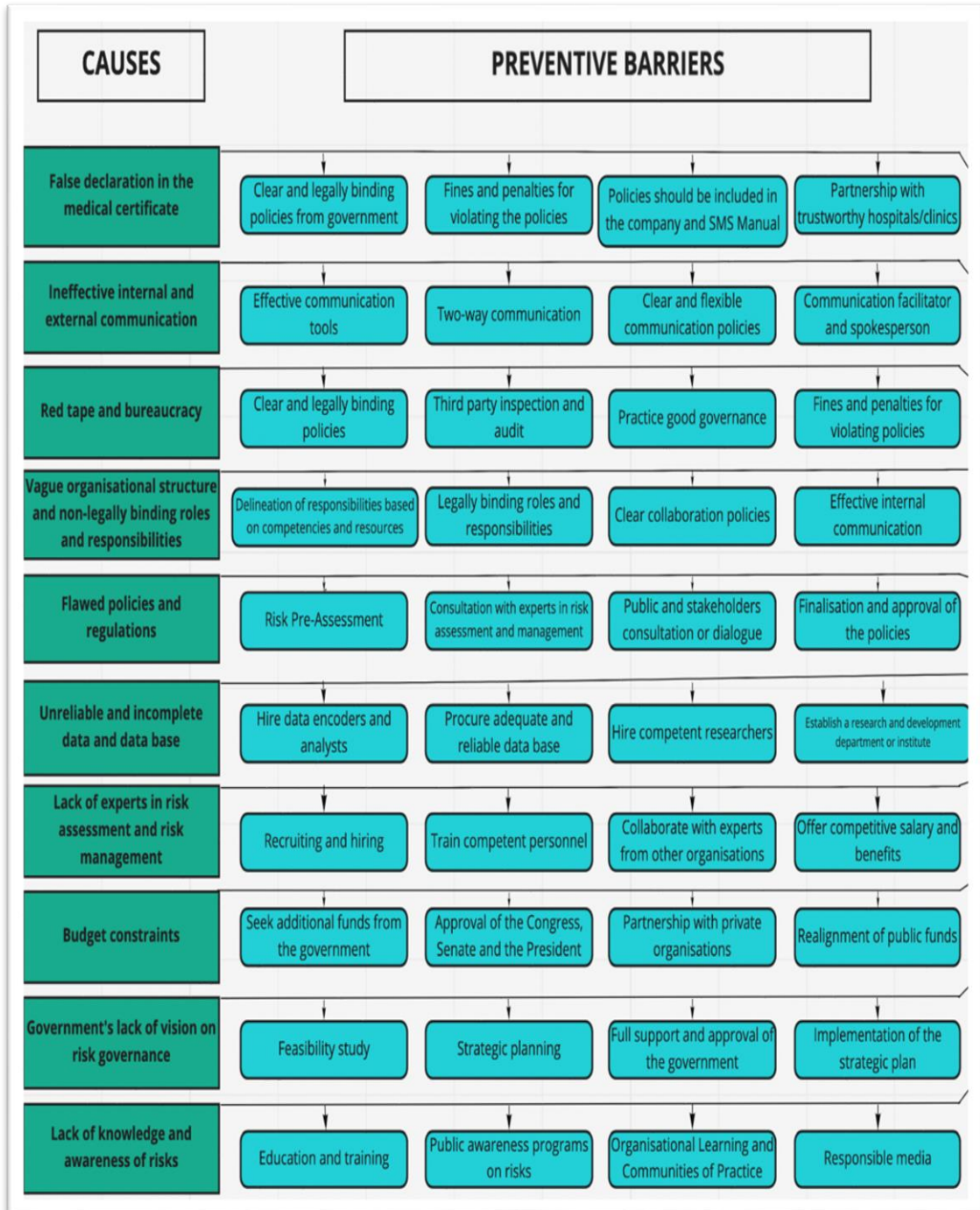
### Bowtie Analysis of the Study





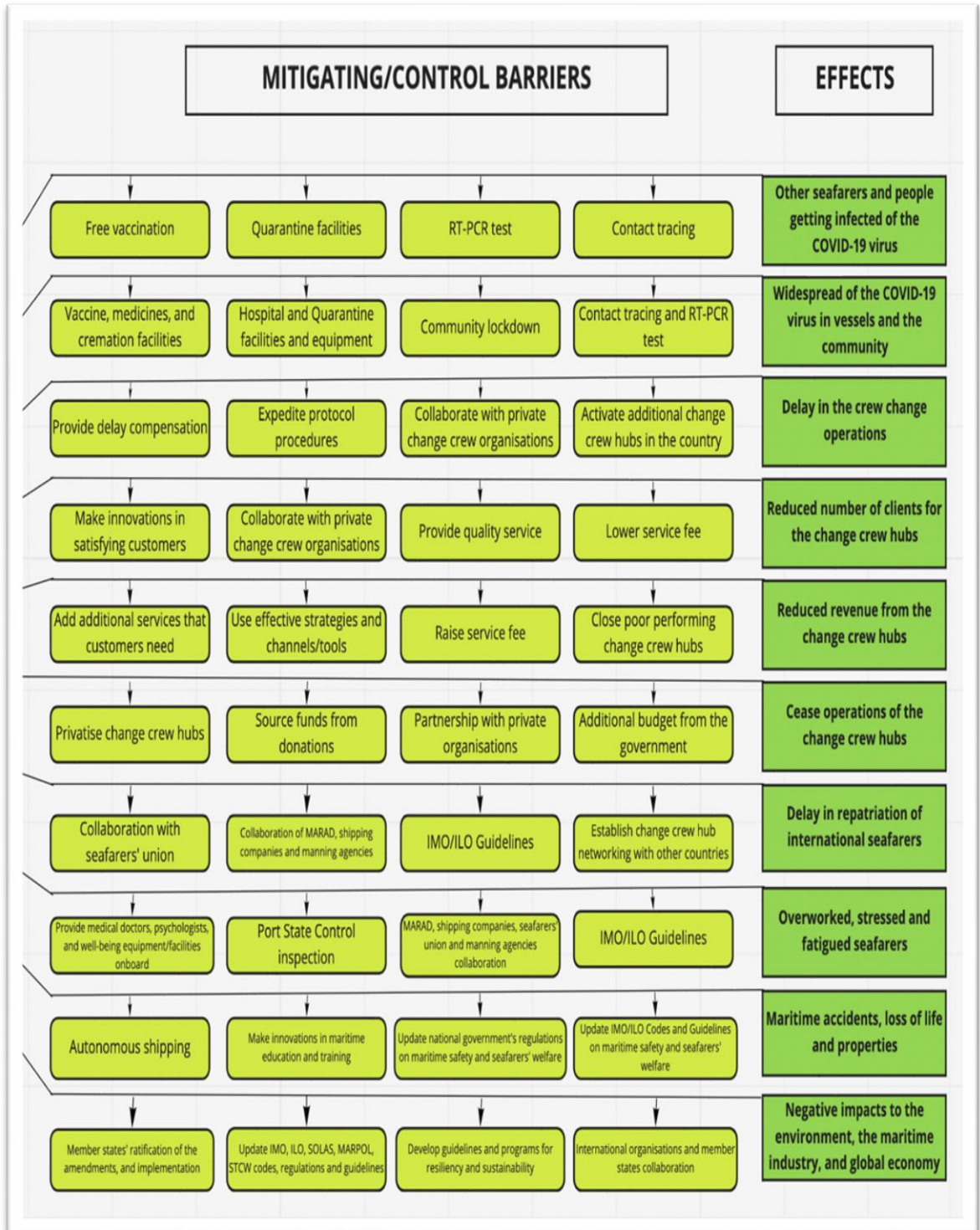
## Appendix B

### Bowtie Analysis of the Study



## Appendix C

### Bowtie Analysis of the Study



## Appendix D

### Survey Questionnaire



You are invited to participate in this survey on the research about 'Optimizing Risk Governance: A Case Study of the Philippines Change Crew Hub System.' We will be grateful if you will take a few minutes of your time to accomplish it. Please note that your participation in this study is voluntary, and there is no payment involved. It is vital for us to solicit your inputs and opinion. Your feedback will be treated with the utmost confidentiality. Thank you so much for your efforts and unwavering support.

### QUESTIONNAIRE

#### SECTION A

This section is intended to know the respondent's profile. Please answer by writing in the spaces provided and ticking the right box.

1. **Name (optional):** \_\_\_\_\_
2. **Age:** \_\_\_\_\_
3. **Gender:** \_\_\_\_\_
4. **Rank (if applicable):** \_\_\_\_\_
5. **Designation:** \_\_\_\_\_
6. **Level of involvement in the change crew hub** (*check appropriate box*)
  - Management Level
  - Operational Level
7. **Change crew hub location:** \_\_\_\_\_

#### SECTION B

This section is intended to help us understand how the Philippines change crew hubs are created and what rules, regulations, processes, and mechanisms it uses in risk governance. In this part of the questionnaire, you are asked to fill in the blanks, answer yes/no/not sure as required, and tick the appropriate box. This will be followed by a few questions your answers to, which will be genuinely valued.

1. **What organization/agency do you belong?**  
\_\_\_\_\_
2. **How long have you been working in the change crew hub?**  
\_\_\_\_\_
3. **What is your role in the change crew hub?** (*kindly describe your duties and responsibilities*) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**4. Is the change crew hub facility equipped and funded to perform an effective and efficient operation?**

- Yes
- No
- Not sure

**5. How many personnel are working in the change crew hub?**

\_\_\_\_\_

**6. Does the change crew hub have an organizational structure?**

- Yes
- No

**7. Does your agency have its own rules and regulations in your operation in the change crew hub?**

- Yes
- No

**8. Are there standard rules and regulations for the efficient collaboration of agencies involved in the management and operation of the change crew hub?**

Yes (please indicate the agency/agencies that issued the rules and regulations)

\_\_\_\_\_

- No
- Not sure

**9. Do you have knowledge of risk?**

- Yes
- No

**10. If yes, how do you perceive risk?**

- With negative outcomes
- With positive outcomes
- Both

**11. What factor/s influence/s your perception of risk?**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**12. Does experience, perception, and emotional or value-based concerns influence your decisions in handling risks?**

- Yes
- No

**13. Does the change crew hub have risk assessment and risk management strategies?**

- Yes
- No
- Not sure

**14. Does the change crew hub personnel conduct risk pre-assessment?**

Yes (please indicate how do you conduct pre-assessment) \_\_\_\_\_

- 
- No
  - Not sure

**15. Does the change crew hub have analytical tools and methods to assess risks?**

Yes (please elaborate what analytical tools and methods are used)

- 
- 
- No
  - Not sure

**16. Does the change crew hub have an internal communication flow process?**

- Yes
- No
- Not sure

**17. Does the change crew hub have external communication to and between risk-affected parties, stakeholders, and the media?**

- Yes
- No
- Not sure

**18. Is there a facilitator in charge of the risk communication process in the change crew hub?**

Yes (kindly indicate from what agency)

---

No

Not sure

**19. Does the change crew hub have a spokesperson to inform the public, stakeholders, and the media about the risk and its consequences?**

Yes (kindly indicate from what agency)

---

No

Not sure

**20. Are you involve in the risk assessment process?**

Yes (kindly elaborate your involvement)

---

No

**21. Are you involve in decision-making and risk management?**

Yes (kindly elaborate your involvement)

---

No

## SECTION C

In this section, kindly express your agreement or disagreement with the statements about how to optimize risk governance in the change crew hub based on a scale of 1 to 5 where (1) strongly disagree, (2) disagree, (3) undecided, (4) agree, and (5) strongly agree. Tick the appropriate box as required.

<b>The change crew hub should have the following to optimize risk governance...</b>	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
1. a clear organizational structure for effective and efficient operation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. well-defined and legally binding roles and responsibilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. personnel with knowledge of risk governance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. good working relationship and collaboration with other agencies in the change crew hub	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. sustainable risk decision and flexible risk assessment and management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. scientific tools and methods in assessing risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. criteria in identifying, assessing, and managing risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. transparency and accountability in risk evaluation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. collaboration with stakeholders and adequate attention to concerns of different stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. internal communication flow/process for risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

assessment and risk management					
11. effective external communication flow/process for risk assessment and risk management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. communication that is adapted to the category of risk (simple, complex, uncertain, ambiguous)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. responsible information dissemination to the public and the media	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. education and training on risk governance for the change crew hub personnel in management and operational levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. effective customer feedback tool	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. monitoring tool to evaluate the effectiveness of risk management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. appropriate risk governance framework as a guide in risk assessment and risk management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. reliable data in risk assessment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. timeliness in decision and action	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. support from higher authorities, national government, and collaboration with relevant international organizations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. Did you encounter a risk that disrupts the operation of the change crew hub? What did you learn from the experience? \_\_\_\_\_



---

---

22. What are the advantages of an inter-agency organization such as the change crew hub in the Philippines?

---

---

---

---

23. What are the challenges in risk governance in an inter-agency organization, such as the change crew hub in the Philippines?

---

---

---

---

We appreciate and thank you for taking the time to complete the survey.

## Appendix E

### Interview Instrument



### INTERVIEW INSTRUMENT

You are invited to participate in this semi-structured interview on the research about 'Optimizing Risk Governance: A Case Study of the Philippines Change Crew Hub System.' We will be grateful if you will take a few minutes of your time to contribute to this study. Please note that your participation in this study is voluntary, and there is no payment involved. It is vital for us to solicit your inputs and opinion. Your feedback will be treated with the utmost confidentiality. Thank you so much for your efforts and unwavering support.

**Name (optional):** \_\_\_\_\_  
**Gender:** \_\_\_\_\_  
**Organization:** \_\_\_\_\_  
**Rank (if applicable):** \_\_\_\_\_  
**Position:** \_\_\_\_\_  
**Change crew hub location:** \_\_\_\_\_

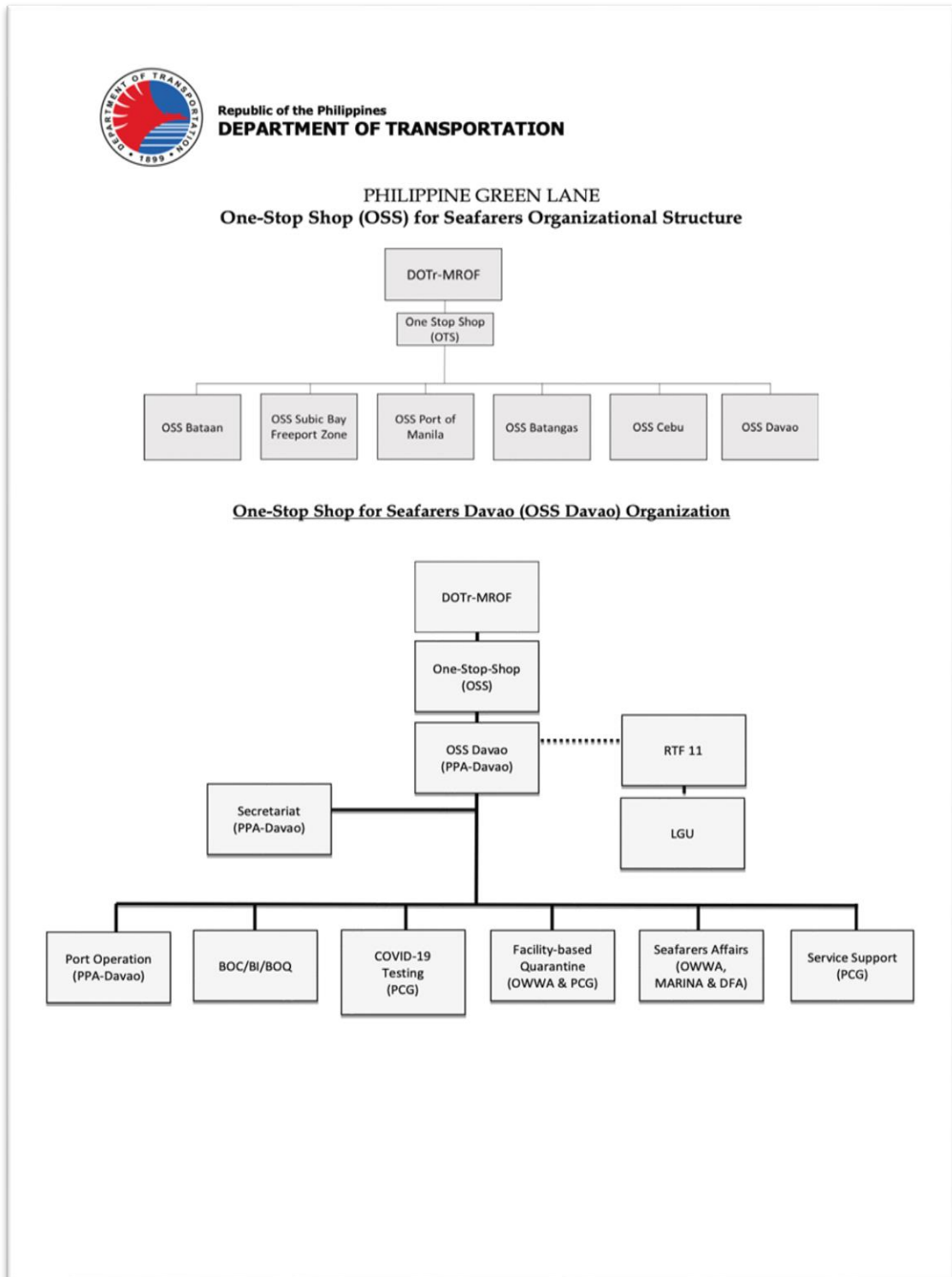
QUALITATIVE PROCESSING WORKSHEET			
No.	Questions	Respondent's Response	Researcher's Notes
1.	What are the roles and responsibilities of your agency in the change crew hub?		
2.	What is the framework or model used in the risk assessment and management in the change crew hub? How are risk control measures and risk management are undertaken in the change crew hub system?		
3.	How do you identify and classify risk? How do you differentiate risk from uncertainty?		

4.	Do you consider stakeholders' opinions, values, and concerns about risk? What is the level of their involvement, accountability, or responsibility in risk assessment?		
5.	How do you resolve conflict among agencies in the assessment of perceptions and concerns in risk analysis?		
6.	How do you facilitate internal communication in the change crew hub and external communication to and between risk-affected parties, stakeholders, the public, and media?		
7.	What agencies and stakeholders are primarily involved in the risk management process? What is their level of responsibility for decisions about the risk and its management?		
8.	How do you come up with options in managing risks? How are these options evaluated and prioritized? What are the evaluation criteria?		
9.	In decision making, how do you come up with a collective decision with other agencies involved in the change crew hub management and operation?		
10.	What is your feedback mechanism? How do you know about the effectiveness and efficiency of your services to international seafarers?		
11.	What measures are needed for sustainable risk governance and to ensure the effectiveness of risk management in the long term regarding compliance, enforcement, and monitoring?		

12.	How could the Philippines develop and sustain a resilient change crew hub system?		
-----	---	--	--

## Appendix F

### One-Stop-Shop Organisational Structure



## Appendix G

### Crew Change Protocol



Republic of the Philippines  
**DEPARTMENT OF TRANSPORTATION**

#### **CREW CHANGE PROTOCOL OF PORT OF BATANGAS IN RESPONSE TO COVID-19**

09 December 2020

Pursuant to Joint Circular No. 1 Series of 2020 *"Guidelines for the Establishment of the Philippine Green Lane to Facilitate the Speedy and Safe Travel of Seafarers, Including their Safe and Swift Disembarkation, and Crew Change During the COVID-19 Pandemic"*, a One-Stop Shop (OSS) for Seafarers is established in Port of Batangas to facilitate crew changes following established COVID-19 protocols.

The OSS shall be operated by the Inter-Agency Task Force (IATF) on Crew Change composing of the following government agencies: Department of Transportation (DOTr) and its attached agencies - Office for Transportation Security (OTS), Philippine Ports Authority (PPA), Cebu Port Authority (CPA), Philippine Coast Guard (PCG), and Maritime Industry Authority (MARINA); Department of Health (DOH) and Bureau of Quarantine (BOQ); Bureau of Immigration (BI); Bureau of Customs (BOC); and, Overseas Workers Welfare Administration (OWWA), Department of Foreign Affairs (DFA), Philippine Overseas Employment Administration (POEA), Office of Civil Defense (OCD) and Local Government Units (LGUs).

Under the OSS for Seafarers, the OSS Port of Batangas is activated to perform operational control for the smooth implementation of this Protocol in the area. It shall be assisted by a Secretariat who oversees the OSS Port of Batangas Command Center where real-time and inter-agency coordination on all OSS Port of Batangas operations are raised.

With reference to Joint Circular No. 1, this protocol shall apply to the following:

- a) Filipino Seafarers Joining a Ship Docked in the Philippines or Overseas (Outbound);
- b) Filipino Seafarers Leaving a Ship (Inbound);
- c) Foreign Seafarers Joining a Ship Docked in the Philippine Seaport from the Airport (Airport to Ship);
- d) Foreign Seafarers Leaving a Ship Docked in Philippine Seaport to an Airport (Ship to Airport);

APO COURT CORNER SERGIO OSMENA ST  
CLARK FREEPORT ZONE  
2009 ANGELES CITY, PAMPANGA

TELEFAX: (632) 723-4925  
TRUNKLINE: 790-8300/790-8400  
DOTR ACTION CENTER HOTLINE: 7890

## I. PROCESS FLOW

The Crew Change Protocol of Port of Batangas is based on the guidelines prescribed under the International Maritime Organization (IMO) Circ. Letter No. 4204/Add.14 “Recommended framework of protocols for ensuring safe ship crew changes and travel during the COVID-19 Pandemic”. It covers the Procedures for Seafarers Leaving a Ship (Off-signers) as presented in Figure 1 and Procedures for Seafarers Joining a Ship (On-signers) in Figure 2.

To ensure the seamless and secured movements relative to crew changes, the PCG shall closely monitor the activities of the Shipping Agents, Licensed Manning Agencies (LMAs) and the seafarers. A vehicle provided by the shipping agent/LMAs shall also be used to transport the seafarers using a strict **Point-to-Point** Scheme.

The LMAs shall be a holder of a PPA Accreditation and shall secure the Permit to Operate (PTO) from PPA-PMO Batangas.

The transport service provider of the departing and arriving seafarers shall be duly accredited by PPA and shall secure the PTO from PPA-PMO Batangas.

Figure 1. Procedures for Seafarers Joining a Ship (On-signers)

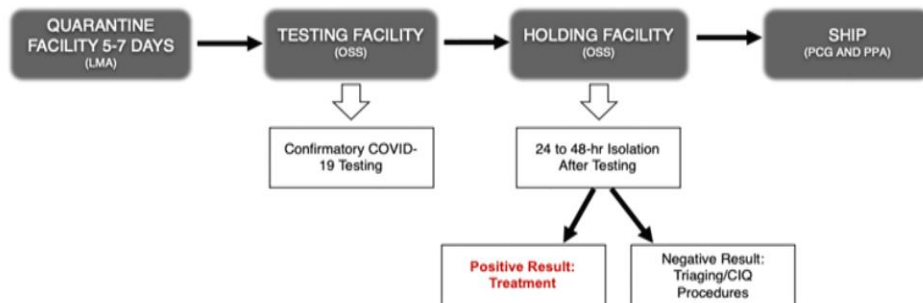
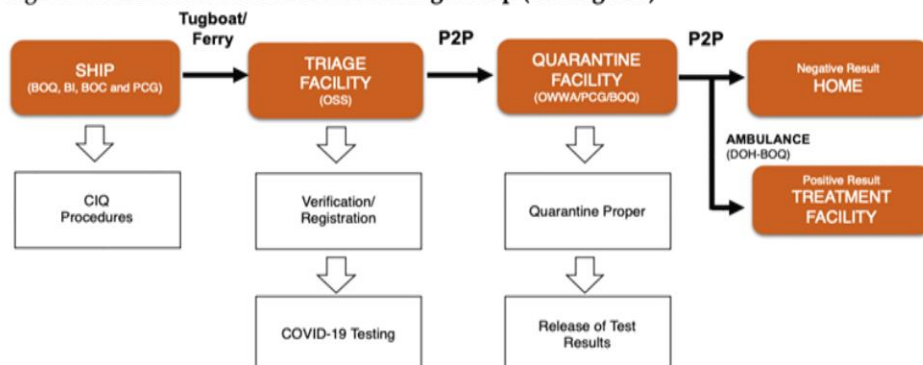


Figure 2. Procedures for Seafarers Leaving a Ship (Off-signers)



## **II. SPECIFIC PROCEDURES FOR SEAFARERS JOINING A SHIP (ON-SIGNERS)**

### **A. MANDATORY QUARANTINE**

On-signers are required to undergo a mandatory quarantine at a DOH-accredited facility. They must be quarantined for a minimum of five (5) days prior to their scheduled confirmatory RT-PCR test. Minimum health standards must always be observed by the seafarers. Meanwhile, unnecessary interaction with others is strictly prohibited and visitors and/or well-wishers are not allowed in the facility.

### **B. CONFIRMATORY RT-PCR TESTING**

Confirmatory testing through the authorized laboratory identified by the OSS shall be done 24-48 hours prior vessel arrival. Seafarers remain at the holding facility authorized by the OSS after extraction

### **C. ISOLATION**

Seafarers must be isolated until the release of their negative test results and scheduled embarkation. Once their test results are negative, they shall be considered sanitized and will be issued outgoing Quarantine Medical Certificate by BOQ. If positive, the BOQ will contain all seafarers and inform the LMA for proper coordination for re-swabbing of the entire group.

### **D. PRE-EMBARKATION**

When seafarers are ready to board their vessel, coordination must be done between the LMAs and OSS Port of Batangas. After securing the clearance from OSS, seafarers shall be transported directly via P2P Vehicle to the waiting area for onsigners.

Seafarers shall undergo mandatory CIQ procedures including physical check-up by BOQ. They must wear a complete medical Personal Protective Equipment (PPE) which consists of face mask, face shield, coverall with hood, and gloves. Shoe covers are removed from the requirement for the safety of the crew, provided that their footwear shall be disinfected frequently.

The LMA / Shipping Agent must prepare the following documents of the seafarers in addition to the regular departure documents:

- 1) Negative Covid-19 RT-PCR Test Result
- 2) Quarantine Medical Certificate

Seafarers cleared for departure shall board the P2P bound to their port of embarkation.



### C. EMBARKATION

Seafarers must undergo the regular embarkation procedures. Upon embarkation, they shall no longer be allowed to disembark the vessel unless cases of emergency.

## III. SPECIFIC PROCEDURES FOR SEAFARERS LEAVING A SHIP (OFF-SIGNERS)

### A. SHIP ANCHORAGE

All arriving vessels shall stay in the designated anchorage site authorized by the PPA and PCG. Existing procedures of PPA for anchorage shall be observed.

For ship-to-shore or shore-to-ship transfer, the Shipping Agents/LMA must arrange the transportation requirements to and from the anchorage area. Passenger vessels must comply with the social distancing protocol, 50% seating capacity limitation, and disinfection.

Disembarking seafarers must observe health and safety protocols such as disinfection, hand washing, social distancing and wearing of full Personal Protective Equipment (PPE). In accordance with the ship's COVID-19 plans and procedures, they must also inform the Master and shipping agent if they show any COVID-19 symptoms.

#### A.1. Customs, Immigration and Quarantine (CIQ) Procedures



For the CIQ Arrival Formalities, the Shipping Agent must prepare the following documents in addition to the Arrival Documents of the seafarers:

- 1) Patient Health Profile,
- 2) Patient Undertaking Form,
- 3) Case Investigation Form for Covid-19,
- 4) Laboratory Request Form,
- 5) Accommodation reservation for Quarantine Facility, and
- 6) OWWA Project Care

If a seafarer is exhibiting any COVID-19 symptom, he or she will be extracted from the shipping authorized vessel. The BOQ Officer leads the extraction process with strict observance of infection prevention and control protocols. The BOC, BI, PCG, and PPA will assist the BOQ for the swift transfer of the patient to the medical facility. The rest of the vessel crew will be placed under quarantine and BOQ jurisdiction.

In embarkation and disembarkation of vessel, other government and non-government personnel are restricted without clearance from the BOQ Officer. The BOQ Officer will first determine the health condition of the vessel and the off-signing crew prior to issuance of clearance. He/she will also check the RT-PCR results and compliance to quarantine procedure while waiting for the results of the on-signing crew. If all are appropriate, BOQ will issue free pratique.

Upon issuance of free pratique, officers from BOC, BI, and PCG shall board the vessel to conduct their inspection. Cleared seafarers shall board the transfer vessel bound to the Triage Facility for the completion of the succeeding procedures under this Protocol.

#### **A.2. Conduct of Swab Testing Onboard**

Swabbing on board the vessel is only applicable to the cruise ship permitted to be used as a quarantine facility. For this purpose, the LMAs must secure a permit from BOQ.

### **B. TRIAGE PROCEDURES**

Upon arrival at the Triage Facility, seafarers must immediately proceed to the registration booth and undergo the mandatory swab testing procedure.

**Step 1: Registration.** It is advised for the seafarers to complete the online registration of the OSS-identified molecular laboratory prior to their entry to Port of Batangas. They must ensure the accuracy of all encoded items as these will be reflected in their Bureau of Quarantine Certificate.

**Step 2: Verification and Barcode.** Seafarers shall receive a verification e-mail of the encoded details along with a QR Code. This QR code must be presented in the registration booth to receive three barcode stickers from the attending personnel. Two stickers shall be used as identification for the specimen and the remaining will be the seafarer's copy.

**Step 3: Swab Testing.** The two barcodes for the specimen shall be submitted to the testing booth swabber. A nasopharyngeal swab will be taken from the cavity between the nose and mouth for 15 seconds and on the other side of the nose. The swab is then inserted into a container.

A separate bin will be designated for the materials used during testing. After completing the Triage Procedures, the seafarers must immediately board the P2P Vehicle bound to their designated quarantine facility. Their vehicle shall be escorted by the PCG or the PNP.

### **C. QUARANTINE PROPER**

All seafarers shall be subjected to any of the following quarantine options: (a) DOH/BOQ Accredited Hotels; or (b) Government Quarantine Facilities. They must proceed directly to their individual single occupancy rooms immediately after the triaging and swabbing process.

Pending the release of the swab result, seafarers are not allowed to leave the said facility nor interact with others. Visitors are strictly prohibited. Seafarers are advised to continuously follow the safety protocol set by the DOH and monitor their body temperature twice a day.

In case of a health emergency, the DOH-BOQ will coordinate with the seafarer and his or her LMA for the medical examination. The BOQ Medical Team will determine the appropriate medical management for the seafarer wherein all corresponding needs shall be supported by the LMA.

In case of emergency or suspected case of COVID-19 process is as follows:



#### **C.1. RELEASE OF TEST RESULTS**

The swab result will be sent via email or SMS within 72 hours.

Once the **NEGATIVE** result has been released, the LMAs must arrange for the P2P transportation of the seafarers bound to their residence or port/airport of destination.

For those who will have a **COVID POSITIVE** result, DOH-BOQ will extract the affected seafarer and will transport him/her to the Temporary Treatment and Monitoring Facility (TTMF).

#### **D. DEPARTURE**

The LMAs must coordinate with OWWA and PCG prior to the seafarers' departure. The transportation to be provided to the departing seafarers must still observe the P2P scheme.

A sworn statement shall be signed by the manning agency, passengers and driver of the shuttle service affirming that a stop-over would lead to legal impediment. Should there be a delay, seafarers must stay at the designated holding area until their service arrives.

#### **REQUIREMENT FOR THE LICENSED MANNING AGENCIES AND SHIPPING AGENTS**

- 1) Provide all necessary documents and certificates via online for the swift processing of the crew change.
- 2) Complete details of disembarking crews shall be provided to OWWA prior to disembarkation or crew change.
- 3) LMAs and/or ship agents must inform OWWA if they have already booked or not for hotel as quarantine facility.

- 4) Comply with the entry requirements of the province of Batangas.
- 5) Provide transport vehicle/s for seafarers from port to quarantine facility.
- 6) Provide full PPEs (face mask, face shield, gloves and hazmat suit) for off-signing and on-signing crew all throughout the process of crew change.
- 7) Coordinate with the government agencies for the smooth step-by-step movement of crew.
- 8) Provide a re-sealable transparent plastic bag or envelope where seafarers documents will be placed.
- 9) Ensure that all crew are pre-registered prior to disembarkation.
- 10) Mark the transport vehicle with a **Green Lane Program Banner**.
- 11) Ensure compliance with the pre-disembarkation and pre-embarkation requirements.
- 12) Notify details of vessel arrival 72 hrs prior. In case of reasonable changes, shipping agents must advise OSS Port of Batangas for appropriate coordination and revision on the plotting details.

#### **REQUIREMENTS FOR THE GOVERNMENT**

- 1) Provide seafarers any necessary exemptions from national travel or movement restrictions in order to facilitate their repatriation, provided they carry evidence of being a seafarer, consistent with the recommendation included with the recommendation included with IMO Circular Letter No. 4204/Add.6 to "designate professional seafarers and marine personnel, regardless of nationality when in their jurisdiction, as "key workers" providing an essential service."
- 2) Practice standard infection prevention and control measures especially during the specimen collection.
- 3) Observe guidelines on proper donning and doffing of PPE.
- 4) Practice daily disinfection and disposal of hazardous materials.
- 5) Ensure completion of crew change operations within 24 hours.
- 6) Ensure availability of 1-2 personnel of CIQ to conduct physical assessment, documentary counterchecking (immigration and customs) at OSS facility prior to boarding of embarking crews.

#### **REQUIREMENTS FOR AUTHORIZED SHIP-TO-SHORE VESSEL PROVIDERS**

- 1) Provide a safe and healthy workplace to all workers and customers by developing management plans to prevent and control the spread of COVID-19 virus.
- 2) Ensure a safe and healthy working environment, and identify risks and take necessary measures to control and mitigate those risks.
- 3) Ensure that all employees strictly comply with Safety & Health Protocol at all times, and take all necessary precautions to protect themselves, their colleagues, the ship and its passengers.
- 4) Provide workers with adequate information about the health hazards involved in their work and provide adequate personal protective clothing and equipment.
- 5) Fully implement and abide with established health and safety protocols.

#### **ONBOARD SAFETY PROTOCOL & PROCEDURES FOR SERVICE PROVIDERS AND BOARDING OFFICERS**

- 1) All onboard personnel must have a negative RT-PCR test result.

- 2) Onboard personnel must always wear their PPE during embarkation and disembarkation procedures.
- 3) No Face Mask, No Face Shield, No boarding policy. Onboard personnel must wear face mask and face shield for protection and maintain proper hygiene like washing of hands or using alcohol.
- 4) Strictly observe and maintain social distancing during embarkation and disembarkation of passengers and for the whole duration of voyage. Avoid close contact (2 meter or 6 feet) and avoid conversation with the passenger.
- 5) Foot bath & Hand sanitizer are made available for disinfection and sanitizing before boarding of passenger.

#### **ONBOARD SHIP SANITATION**

- 1) Sanitary alcohol, hand sanitizer and foot bath must be made available at the ship entrance.
- 2) All common areas shall be cleaned and disinfected prior and after every disembarkation of passengers, especially the following:
  - Gangway hand rails
  - Catwalk railings
  - Door surfaces
  - Comfort rooms
  - High-touch areas
  - Accommodation

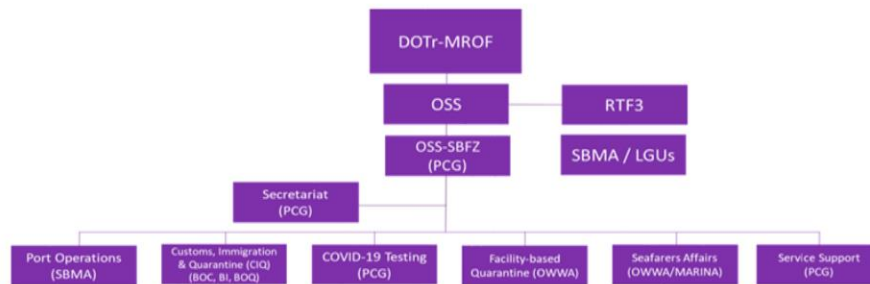
## Appendix H

### OSS Task and Responsibilities



Republic of the Philippines  
**DEPARTMENT OF TRANSPORTATION**

#### PHILIPPINE GREEN LANE One-Stop Shop (OSS) Subic Bay Organization



#### Tasks and Responsibilities

- I. DOTr-Management of Returning Overseas Filipinos (DOTr-MROF)**
  - Provides strategic leadership and policy guidance
  - Ensures fund support for the smooth operations of the Crew Change Hubs
- II. One-Stop Shop (OSS)**
  - Performs oversight of the whole OSS operations
  - Maintains overall database
  - Ensure inter-agency coordination
  - Submit reports to DOTr-MROF
  - Schedule regular meetings
- III. Regional Task Force Central Luzon (RTF3), Local Government Units and Subic Bay Metropolitan Authority**
  - Conduct inter-agency coordination
  - Provide recommendations
- IV. OSS-Subic Bay (PCG as Lead)**
  - Perform operational control at Subic Bay
  - Ensure consistent inter-agency coordination
  - Submit reports to OSS
  - Organize the Secretariat

DOTr-Clark  
SERGIO OSMEÑA ROAD, CLARK FREEPORT,  
ANGELES CITY, PAMPANGA

TELEFAX: (632) 723-4925  
TRUNK LINE: 790-8300/790-8400  
DOTr ACTION CENTER HOTLINE: 7890

**V. Secretariat (PCG)**

- Schedules regular meetings
- Prepares daily reports and documentations
- Maintains a Command Center for real-time coordination
- Provides updates to the RTF3, LGUs and SBMA on all OSS Operations
- Maintains a database
- Prepares a centralized hotline for Subic Bay operations

**VI. Port Operations (SBMA)**

- Schedules ship arrivals and departures
- Receives Notice of Arrival and submit to the secretariat for dissemination
- Coordinates crew transfer vessels
- Ensures provisions for gang way, rope, luggage and facility disinfection
- Ensures facility and equipment availability and maintenance
- Provides utilities
- Provides vehicle parking
- Maintains perimeter and port terminal security
- Coordinates for disposal of hazardous materials

**VII. Customs, Immigration and Quarantine (BOC, BI and BOQ)**

- Ensure availability of CIQ officers based on the scheduled arrivals and departures provided by OSS Subic Bay
- Ensure strict compliance with CIQ procedures/entry and exit requirements of seafarers based on national policies and health protocols amid COVID-19
- Conduct inter-agency coordination
- Ensure proper coordination with the seafarer, LMA, and OSS on the CIQ procedures
- Ensure implementation of standard health protocols in the conduct of CIQ procedures
- Provide ambulance and medical personnel for isolation and/or extraction of seafarers
- Ensure smooth implementation of Philippine Green Lane for seafarers

**VIII. COVID-19 Testing (PCG)**

- Ensures smooth conduct of the whole RT-PCR test process including automated passenger data encoding, data verification, swabbing and databasing
- Ensures the proper handling, timely transport and submission of test specimens to the designated laboratories

- Ensures the availability of swab test kits, PPEs, forms, barcodes and other requirement for the OSS operations
- Ensures the accessibility of internet, computer hardware, and database access to the RT-PCR service
- Provides and all other requirements of the automated OSS system
- Submits daily operations report to the Secretariat

**IX. Facility-based Quarantine (OWWA)**

- Ensure pre-designated quarantine facility and rooms prior to arrival of seafarers
- Ensure 100% compliance of disembarking seafarers to the facility-based quarantine protocols

**X. Seafarers Affairs (OWWA/MARINA)**

- Ensure compliance of LMAs with the crew change protocols and LGU requirements
- Ensure that the basic needs of the seafarers are fulfilled by the LMAs
- Liaise with the LMAs on any announcements, concerns and inquiries
- Elevate any concerns or special requests of seafarers or LMAs to the Secretariat for assessment of the OSS

**XI. Service Support (PCG)**

- Provides K9 service for security paneling of luggage, vehicles and other operations related requirements
- Ensures availability of standby ambulance
- Provides support requirements such as docking lineman, baggage handling, ship boarding inspectors and sail clearance as necessary
- Provides security to vehicle movements, quarantine facilities and other security requirements.
- Provides for the transportation, accommodation and meals requirements of all PCG personnel involved in the OSS operations