

INTEGRATED FRAMEWORK OF INSTITUTIONAL ANALYSIS
TOWARDS AND DEVELOPMENT ON EFFECTIVE
MARINE SPATIAL PLANNING IN MALAYSIA

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DEDICATION

*Specially to my beloved grandmother, **Zainab binti Yahaya***

*Thank you for everything
All your loves and kindness
Always be there
In my heart forever*

*To my mother, **Rohana Tang binti Abdullah***

and

*To my father, **Mohd Yatim bin Abu Bakar**
Thank you for made me happen into this world*

*To my brothers and sister
Amir & Ila, Duan and Mira & Izwan
Thank you for all the love*

*To my aunt family, **Sarifah and Tahir***

*And to my uncle family, **Saridan**
Thank you for your cares and concerns
Along the way to my graduation*

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*Families in **Pulau Sebang-Tampin**
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Angah, Abg Adi, Along, Kak Zue,
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Mak Busu, Pak Busu, Mak Uda, Uncle Saleem & Makcik Idah
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All your loves, cares and memories
Will always remain
In me... forever*

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*Hopefully the friendship that we build
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ABSTRACT

Marine spatial planning is defined as a set of processes that govern the spatial activities among the marine institutions that contribute to effective governance of marine spaces. There are five established components of effective marine spatial planning practices namely institutions involvement; capacity, learning and awareness; leadership and communication; evidence and uncertainty, and land-sea coordination. While marine spatial planning is important for centralized marine spatial governance, Malaysia still lacks policy on interactions among marine institutions, especially on the development of an effective spatial plan or marine spatial planning. Therefore, the aim of this study is to develop a framework of institutional analysis that could contribute towards effective practice of marine spatial planning for Malaysia. The mixed method approach is used which includes the distribution of semi-structured questionnaire to 45 respondents from Technical Committee and telephone interview with eight respondents from the Implementer Committee of Semporna Marine Spatial Planning Committee. The proposed framework is then validated based on experts' opinions generated from the semi-structured questionnaire. Findings show that there is a positive correlation agreement on the components of effective marine spatial planning practice: institutions involvement ($r=0.908$), capacity, learning and awareness ($r=0.833$), leadership and communication ($r=0.839$), evidence and uncertainty ($r=0.823$), and land-sea coordination ($r=0.926$). The respondents also recognize that environmental preservation is an important component for an effective marine spatial plan. The validation of the findings reveals that each component is significantly reliable ($\alpha=0.834$) for Malaysian marine spatial planning practice. The result on extending the institutional analysis framework into the marine spatial planning practice shows an emphasis on seven rules i.e. position rules, boundary rules, choice rules, aggregation rules, information rules, payoff rules, and scope rules, all of which explain the organizational behaviour among the Implementer Committee for Malaysia Marine Spatial Planning. The result also indicates that there are five initial plans (Biodiversity Conservation, Tourism, Mariculture, Fisheries and Culture & Heritage) developed by the committee. The rules perspectives from the findings are valuable for a new proposed framework of policy formation towards Malaysian Marine Spatial Planning.

ABSTRAK

Perancangan ruang marin dapat didefinisikan sebagai set proses untuk mentadbir aktiviti ruang dalam kalangan institusi marin bagi membentuk pentadbiran kawasan marin yang efektif. Terdapat lima komponen perancangan ruang marin yang berkesan, iaitu penglibatan institusi; kapasiti, pembelajaran dan kesedaran; kepimpinan dan komunikasi; bukti dan ketidakpastian, dan koordinasi darat-laut. Walaupun perancangan ruang marin adalah penting untuk tadbir urus tadbir maritim berpusat, Malaysia masih tidak mempunyai dasar interaksi dalam kalangan institusi marin, terutamanya dalam pembangunan pelan ruangan mahupun perancangan ruang marin yang berkesan. Oleh itu, tujuan kajian ini adalah untuk membentuk kerangka analisis institusi ke arah pelaksanaan perancangan ruang marin yang efektif bagi Malaysia. Pendekatan kaedah gabungan telah digunapakai yang melibatkan edaran borang kaji selidik separa struktur kepada 45 orang responden daripada Jawatankuasa Teknikal dan temu bual melalui telefon dengan lapan orang responden daripada Jawatankuasa Pelaksana bagi Jawatankuasa Perancangan Ruang Marin Semporna. Kerangka kerja yang dicadangkan kemudiannya ditentusahkan berdasarkan pendapat pakar menggunakan borang kaji selidik semi struktur. Dapatan kajian menunjukkan terdapat hubungan korelasi yang positif terhadap komponen amalan perancangan ruang marin yang berkesan: penglibatan institusi ($r=0.908$), kapasiti, pembelajaran dan kesedaran ($r=0.833$), kepimpinan dan komunikasi ($r=0.839$), bukti dan ketidakpastian ($r=0.823$), dan koordinasi darat-laut ($r=0.926$). Responden juga mengenal pasti bahawa pemuliharaan persekitaran sebagai komponen penting untuk mencapai perancangan ruang marin yang efektif. Ketentusahan dapatan menunjukkan bahawa setiap komponen dapat diterima ($\alpha = 0.834$) untuk amalan perancangan ruang marin Malaysia. Dapatan kajian, iaitu untuk memperluaskan rangka kerja analisis institusi ke dalam amalan perancangan ruangan marin menunjukkan penekanan kepada tujuh peraturan, iaitu peraturan kedudukan, peraturan sempadan, peraturan pilihan, peraturan agregat, peraturan maklumat, peraturan pembayaran, dan peraturan skop, yang menjelaskan tingkah laku organisasi dalam kalangan Jawatankuasa Pelaksana Perancangan Ruangan Marin Malaysia. Dapatan kajian juga menunjukkan terdapat lima rancangan awal (Pemuliharaan Biodiversiti, Pelancongan, Marikultur, Perikanan dan Kebudayaan & Warisan) yang dibangunkan oleh jawatankuasa tersebut. Perspektif peraturan dalam dapatan kajian ini telah mewujudkan kerangka baharu bagi pembentukan polisi terhadap perancangan ruang marin Malaysia.

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Integrated Framework of Institutional Analysis on
Effective Marine Spatial Planning Practice

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LIST OF ABBREVIATIONS

ANOVA	-	Analysis of Variance
IAD	-	Institutional Analysis and Development
MSP	-	Marine Spatial Planning
NGO	-	Non-Governmental Organization
PITAM	-	Population, Intervention, Theory, Analysis and
UNCLOS	-	United Nation Convention on the Law of the Sea
UNESCO	-	United Nations Educational, Scientific and Cultural
NOAA	-	National Oceanic and Atmospheric Administration
WWF	-	World Wildlife Fund
MMEA	-	Malaysian Maritime Enforcement Agency
ESSCOM	-	The Eastern Sabah Security Command
UMS	-	Universiti Malaysia Sabah
LKIM	-	Lembaga Kemajuan Ikan Malaysia
ESSCOM	-	The Eastern Sabah Security Command
UTM	-	Universiti Teknologi Malaysia
ITB	-	Institut Teknologi Bandung
UMT	-	Universiti Malaysia Terengganu
JUPEM	-	Jabatan Ukur dan Pemetaan Malaysia

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This research explores on institutional effectiveness towards the practice of marine spatial planning (MSP) in Malaysia especially in Semporna, Sabah which had been chosen as the pilot study for MSP implementation. Presently, there are no established policy framework at the international level on the indicator of institutional arrangement towards an effective marine spatial planning practice. Likewise, at the national level also witnesses that there are no marine policy on governing the marine institutions' activities for Malaysia marine spaces. Hence, in order to propose into the solution, this first chapter introduces the concept of the research. It consists of ten main sections started with the overview and introduction of the research, followed by the background of the research, formulation of the problem statements and addressing the research gap. Later, this chapter states the research questions, the aim and objectives, scopes of the research that bound the direction of the research, significance of the research, general methodology and summarizes it with the thesis structure.

1.2 Background of the Research

Malaysia has given a high priority to the marine ecosystem and marine boundaries management since the ratification of international marine jurisdiction known as the United Nations Convention on the Law of the Sea (UNCLOS) onwards from the date of 14 October 1996. The reason concerning the ratification of the law is due to preserving the security and protection offered by the Convention following the maritime claim of neighbouring states and neighbouring countries (Cockburn et al, 2003; Sutherland & Nichols, 2006a; Marroni, 2014). Moreover, the Convention is about the international juridical agreement that provide the guideline of the rights, responsibilities, and restrictions of maritime countries especially in dealing with the limit and boundaries of governing the marine activities (United Nation, 2013). Therefore, the ratification into UNCLOS is a starting point for Malaysia to prepare towards having an effective and sustainable governance of the maritime territory.

Since Malaysia is located in the Malay archipelago, with the total coastline of 4,675 kilometres that covered 574,000 kilometres square (km²) (Taib, 2010) of coastal area, the need for an effective spatial plan is crucial. Additionally, Malaysia is also surrounded by nine neighbouring countries such as Singapore, Brunei Darussalam, Vietnam, Laos, Philippines, Indonesia, Cambodia, Myanmar, and Thailand as illustrated in Figure 1.1.

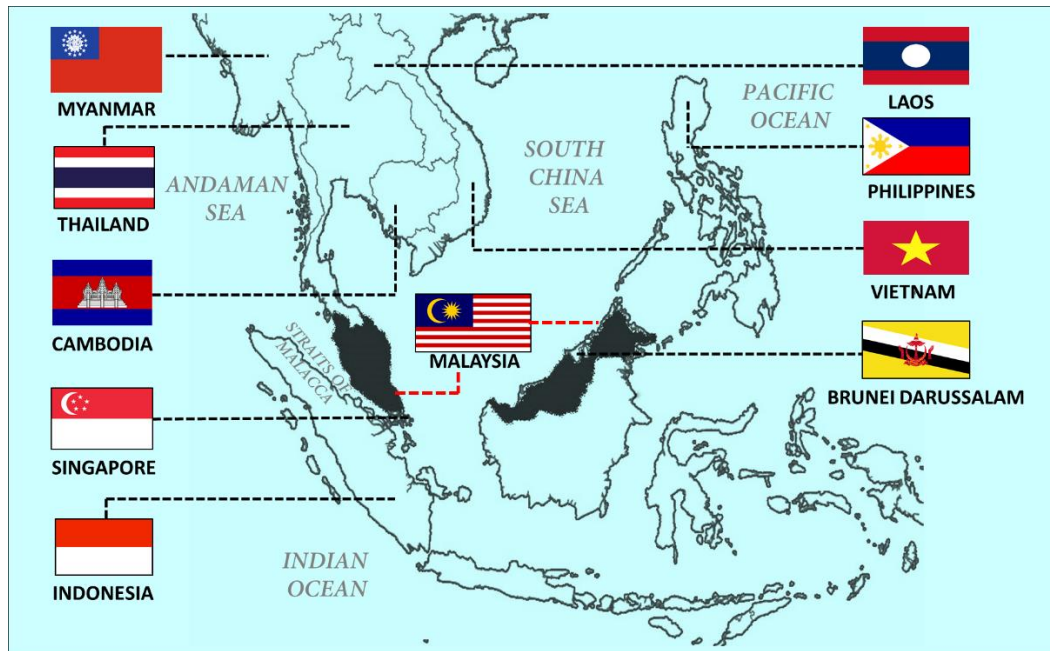


Figure 1.1 Malaysia Neighbouring Countries

Realizing the critical need to effectively and sustainably manage and maintain the marine territory, Malaysia is deliberately study on developing a marine plan to strive for effective governance of the marine spaces. Moreover, it is an alternative to preserve the marine treasures mainly when the proposition to govern and plan the marine spaces was highlighted in the Eleventh Malaysia Plan that discussed on the strategic plan of Malaysia between the years of 2016 towards year of 2020. Significantly, the priority to produce a sustainable and effective plan to govern the marine spaces is due to the undefined marine jurisdictions for the institutional arrangement (Abdullah et al, 2014; Omar et al, 2015). Clearly, the undefined marine jurisdictions in Malaysia and other maritime nations are caused by the difficulty to determine the institutional territory of the marine spaces. Moreover, according to number of scholars, the institutional territory is important to propose the marine policies towards the integration of marine and terrestrial spatial plan (Binns, 2004; Tsamenyi & Kenchington, 2012; Mills et al, 2015)

In spite of that, the increasing number of marine activities in the coastal area had forced the government to search for the most effective and sustainable alternative to overcome the situation. Marine activities such as oil and gas exploration, maritime

transportation, submarine cable and pipeline routes, fishing areas, port, shipping, light house for shipping, living and non-living resources, natural resources, forestry, wildlife, jurisdiction, enforcement, tourism, heritage and telecommunication (Vivero & Mateos, 2012; Mayer et al, 2013; Calado & Bentz, 2013; Abdullah et al, 2014; Heffernan, 2015; Omar et al, 2015; Flannery et al, 2016; Putten et al, 2016; Gorman et al, 2017; Smythe, 2017) had caused the state of undefined and overlapped task of institutional network. Eventually, the growing number of complicated networking among marine institutions lead to the overlapping of rights, restrictions and responsibilities among them (Yatim et al, 2016; Fujita et al, 2013; Binns, 2004 and Bennett, 2007). Hence, in order to deal with these complicated circumstances of the marine space governance, an effective planning process should be adopted into a system known as marine spatial planning (Collie et al, 2013; Fletcher et al, 2013; Flannery & Cinneide, 2012; Olsen et al, 2014; Santos et al, 2015; Caldow et al, 2015; Scarff et al, 2015; Jay et al, 2016).

Over a decade, previous studies on introducing the concept of marine spatial planning practice among the maritime nations proved that adaptation of the plan can lead into sustainable governance for marine spaces. Another point is that, marine spatial planning is seen as the core element in marine spatial governance by offering a strategic, integrated and centralised management system to the maritime nations (Oxley, 2006; Calado et al, 2012; Kyriazi et al, 2013; Scarff et al, 2015). Most importantly, the adaptation of integrated concept of marine spatial planning is to achieve a sustainable marine spatial governance by combining the spatial process into a discipline of institutional, legal and/or technical (Binns et al, 2003; Widodo, 2004; Binns et al, 2004; Rajabifard et al, 2005;. Griffith-Charles & Sutherland, 2014). In addition, marine spatial governance which is also known as marine cadastre; is the main result from effective planning and institutional arrangements, legal and technical components (Binns et al, 2003; Binns, 2004; Sutherland & Nichols, 2006b; Abdullah et al, 2014; Abdullah et al, 2015). The inter-connection between marine spatial planning and marine spatial governance is shown in Figure 1.2.

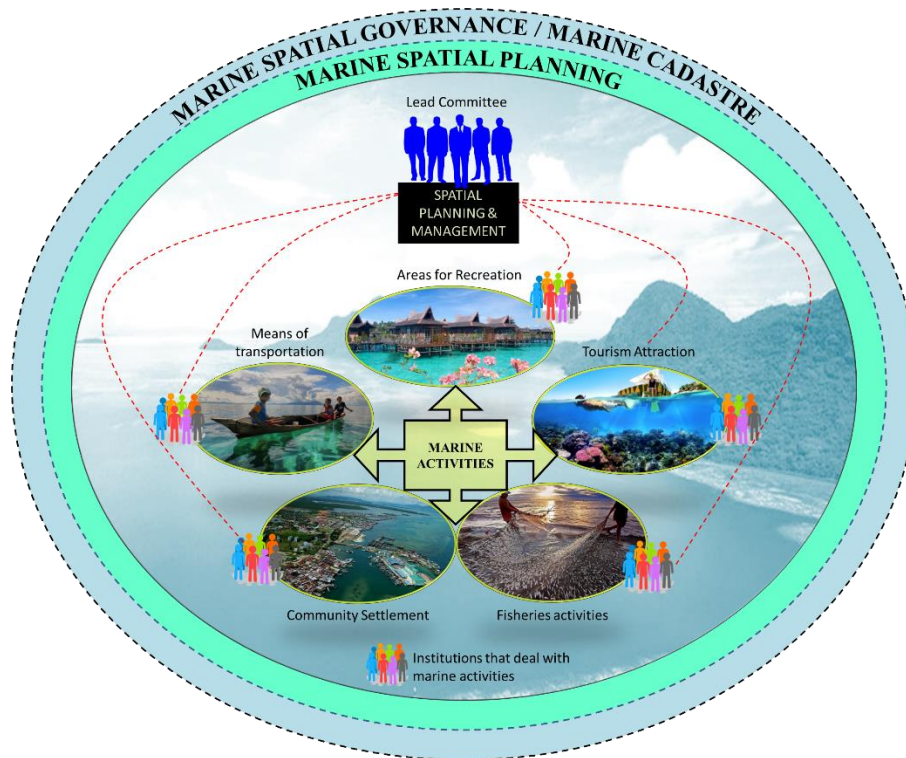


Figure 1.2 Connection of Marine Spatial Planning and Marine Spatial Governance

On top of that, marine spatial planning is a process that proposes an effective and sustainable plan to conquer the overlapping institutional roles for marine institutions (Duck, 2012; Scarff et al, 2015). Realizing the importance of marine spatial planning concept for maritime nation, number of scholars that had addressed the topic for the past decade are increasing. Since the important consideration fall beneath the institutional behaviour, integration of managerial discipline with marine spatial planning practice must be considered to propose a plan towards policy formation especially on marine institutional arrangement (Thompson, 1999; Hagedorn, 2007; Devkar et al, 2009; KoUn Kim, 2012; Whalen, 2013; Shah & Niles, 2016). Moreover, Omar et al (2015) and Abdullah et al (2014) had also suggested to consider integrating the analysis that highlighted the importance of the institutional arrangement framework in the effective practice of marine spatial planning, especially in Malaysia.

Above all, since marine spatial planning implementation is regarded as the integrated managerial tool to achieve effective and sustainable governance, the new knowledge chosen to be integrated with the MSP process is known as the Institutional Analysis and Development (IAD) Framework (Ostrom, 2014; 2011; 2010a; 2010b; 2003). The selection of integration with the IAD framework concept had developed the analysis of collective action problems involving social structures, positions, and rules in order to understand the institution behaviour and the changes over time to guaranteed the sustainability of the plan (Herzberg & Allen, 2012; Bitzer & Glasbergen, 2010; Glover et al, 2014; Raheem, 2014). Thus, a framework that combines the effective practice of marine spatial planning with institutional analysis and development should highlight the working rules adapted in the IAD framework. This is done to evaluate the behaviour within the institutional arrangements among marine spatial planning committee in Malaysia.

1.3 Problem Statement

The early stages of marine spatial planning practice in Malaysia highlighted three (3) problematic phenomena that lead towards the need to perform this research. Hence, the problem statement of the research is explain as follows:

1.3.1 Overlapping Roles among Marine Institutions

As mentioned earlier, the growing activities in marine areas has urged the nation to have a mechanism to plan, control and manage responsible institutions involved. This is because these activities led to the overlapping roles among marine institutions (Sutherland, 2005; Liu et al, 2012; Abdullah et al, 2014; Raakjaer et al, 2014; Kastrisios & Tsoulos, 2016; Ran & Nedovic-Budic, 2016; Prestrelo & Vianna, 2016). According to (Plasman, 2008; Fletcher et al, 2011; Fletcher et al, 2013), most

of the maritime nations have move towards having a specific management approach to measure the effectiveness of marine spatial governance. Malaysia now is laterally moving forward among the others to have an effective tool of marine spatial governance. It seems that the first thing needed is a proper effective spatial plan on the institutional behaviours to gain insight of the working MSP committee in Malaysia.

The need to study the institutional behaviours among institutions is important. This is because marine institutions exist in various platforms (government, non-government and academic institution), and they also came with a mandate to regulate different activities on marine spaces. The existence of various institutions might create unclear competencies due to overlapping rights, restrictions and responsibilities from the confusion on the institutions roles, duplication of work and complex managerial implementation (Liu et al, 2012). However, adaptation of the marine spatial planning concept in the governance system is regarded as a mean to reduce conflicts between marine users from different institutions (Liu, et al, 2011; Deidun et al, 2011; Lockhart et al, 2012; Flannery & Cinneide, 2012; Kvalvik, 2012; Longley & Lipsky, 2013; Lester et al, 2013; Calado & Bentz, 2013; Soma et al, 2014; Uzun & Celik, 2014; Scarff et al, 2015; Jay et al, 2016).

Apart from the increasing marine activities, there are also conflicts in marine environment due to the less effective measure among marine institutions' management regime. Moreover, the conflicts emerged from the overlapping jurisdictions of marine institutions that leads to less effective governance of marine spatial governance and marine spatial planning process. Therefore, the first step to establish marine spatial planning process is to identify the multiple conflicts rooting from the overlapping of marine institutions roles can leads to a solution framework for effective marine spatial plan (Prestrelo & Vianna, 2016).

Above all, the need to have an effective management of marine spatial planning practice is crucial for the maritime nations. It is especially important for Malaysia that is surrounded by approximately 4,320 kilometres of coastlines and variety of biodiversity activities in its coast. In addition, along the shoreline distance of 4,492 kilometres in Peninsular Malaysia and 2,755 km in Sabah and Sarawak, there are clusters of more than 32 attractive islands (Department of Marine Park Malaysia, 2012) for tourist attraction. Without an effective plan to manage the environment, it will definitely affect the sovereignty of the country.

1.3.2 Redundancies of Marine Spatial Information

Secondly, the need to have an effective marine spatial planning practice is due to the duplication of marine data collection among different marine institutions. This duplication leads to redundancies of marine spatial information. Since there are no centralised institutions that are assigned to manage all of the process of data gathering, processing, and distribution of the marine information, a condition known as “data silo” should be created (Binns, 2004a; Binns et al, 2004b; Ng’ang’a et al, 2004; Abdullah et al, 2014; Omar et al, 2015; Jay et al, 2016). The “silo” phenomenon refers to the same process of data collection, data processing, and data distribution performing separately by multiple institutions to ensure the data are available to the public or certain needs.

The data collection process by the marine institutions are the time consuming and costly (Battista & O’Brien, 2015). Therefore, by adapting the marine spatial planning in the institutional management system, the concept of centralised institution can control each activity of the institutions. The proposition of the framework will be beneficial for the economic performance of the country.

However, the proposal to assign the leading institution to manage the marine information has always ended without a specific solution. The reason why the problem occurs is that there is a lack of awareness and communication among the marine committees that is resulted from the ‘silo’ phenomenon discussed earlier (Fletcher et al, 2011; Fletcher et al, 2013; Tarmidi et al, 2016). Since there is no central institution to group all the marine institutions under one roof of management, it creates the uncontrolled activities of extracting benefits from the oceans. Moreover, the process of sharing knowledge or spatial information is difficult due to the reluctance to release the information to other institutions. The condition of ‘institutional-listic’ among the stakeholders themselves were difficult to be avoided due to the price they need to pay in order to retrieve the information. Therefore, the implementation of an effective institutional behaviour for marine spatial planning practice will analyse the relationship among the institutions regarding the perspective of managing the marine spatial information. As a result, from the effective marine plan, the leading institution will be able to resolve the institutional conflicts on the dissemination of spatial information.

Currently, Malaysia marine spaces are not governed by any centralised institution but are managed separately by each institution with different interest on the available marine resources (Omar et al, 2015 and 2017). Meanwhile, the concept of marine spatial planning involves institutions that have interest in the marine resources. Presently, the study for effective practice of marine spatial planning in the ASEAN (Association of Southeast Asian Nations) realm is less focused as there are only few studies on the effectiveness of MSP practice and these studies were conducted in Australia and United Kingdom (Kenchington & Day, 2011; Fletcher et al, 2013; Soma et al, 2014). Therefore, it is important to analyse the effectiveness components from the Malaysia perspective for the implementation of the marine spatial planning concept for ASEAN region.

1.3.3 Need for the Framework of Institutional Analysis and Development in Marine Spatial Planning Practice

The pressure for maritime nations to focus on the institutional arrangement, especially for marine spatial planning practice is to make sure that each institution is able to communicate and work together in an integrated way as a team (Olsen et al, 2014). More importantly, since the need to involve all marine institutions under a centralised management is critical for marine spatial planning practice, the focus should be to understand how these institutions could influence marine spatial planning activities. It is commonly known that involvement from multiple institutions would create a messy web of interactions among them. Therefore, the arrangement to study the behaviour of the marine institutional interactions can be achieved through the integration with the Institutional Analysis and Development (IAD) Framework.

The integration of IAD framework and effective marine spatial planning practice proposed in the research is to fill the gap of establishing the marine policy for the institutions (Flannery & Ó Cinnéide, 2012; Domínguez-Tejo et al, 2016). Providing that the institutional gap is able to affect the majority of the marine institutions involved especially in the same realm as Malaysia towards an effective marine spatial planning practice since it is an important and complex procedure to develop a marine policy. According to Binns et al (2004), regarding the complexity of developing a marine policy, the study needs to be focused on the marine institutional relationship to achieve an effective and sustainable framework of institutional behaviour.

Marine policy indicates that in order to achieve an effective and sustainable marine spatial governance, it is crucial for the nation to have an effective marine spatial plan. Hence, there is a crucial need to have an IAD framework for effective marine spatial planning practice (Flannery & Ó Cinnéide, 2012). The framework that is adapted in this research is a modified IAD framework that is adapted to ensure the

effectiveness of MSP implementation to form an effective institutional behaviour among the marine committees (Omar et al, 2015; Domínguez-Tejo et al, 2016).

Limited studies have been conducted on establishing the integrated institutional analysis and development framework for effective marine spatial planning practice. Hence, this study attempts to fill the gap of knowledge. Moreover, an effective MSP should be able to propose a solution to resolve the marine spatial governance issues on legislation, data management, and institution (Smythe, 2017). Moreover, by combining the institutional analysis and development idea with marine spatial planning, the outcome is about deriving the action-situation unit from the framework for MSP practice as highlighted in the research questions which will be answered.

1.4 Knowledge Gap and Hypothesis

Marine spatial planning is seen as the main agenda for maritime nation. The introduction of the concept was initiated from the Western realm such as England, Scotland, United Kingdom, Canada, and Australia and only few from Asia regions such as China and Indonesia to produce a marine spatial plan to govern the marine space. On top of that, Malaysia is among the maritime nations that takes an initiative to implement the marine spatial planning to sustainably govern the marine space. On top of that, the introduction of Semporna Marine Spatial Planning in the district of Semporna, Sabah is seen as a good start for Malaysia to have a sustainable and effective governance of marine spaces. Semporna MSP had started the programme back in June 2014 and it is still at the infancy stage. The integration with institutional analysis and development framework from the research is proposed as an effective direction for the institutions.

Nevertheless, during the planning stage of establishing the effective marine spatial plan for Malaysia in general, it is a priority to understand the roles of the institutions to gain insight into the institutional behaviour among the committee. Moreover, effective institutional behaviour is about determining the effective solutions of the marine spatial governance. On top of that, the knowledge gap is defined as the loophole or the problematic issue from previous research that lead to proposed solutions which can contribute to the body of knowledge in a given field of study. By the same token, Talib (2014) introduced five conditions upon the identification of the knowledge gap from previous studies and the conditions are listed as **Population, Intervention, Theory, Analysis and Methodology (PITAM)** and are explained in Table 1.1 :-

Table 1.1 Knowledge Gap Conditions

No.	Abbreviation	Knowledge Gap Elements	Description
a)	P	Population	Previous research did not cover all criteria that represent the population such as gender, academic background, location, religion, occupation etc.
b)	I	Intervention	Previously, the intervention or the method that is being implemented by other scholars is outdated and new intervention was proposed for the current research.
c)	T	Theory	There are new theories acquired from current scholars to make it suitable to be tested with same previous research. In addition, the theories integrated also make the gap available to be studied.
d)	A	Analysis	Different types of statistical analysis will give different result of final output. Hence, the use of most suitable analysis to analyse the final output will lead to result that is more precise.
e)	M	Methodology	There are possibilities that previous method of research is not comprehensive anymore. The option of mixed method applied for the research will fill some available gaps.

Although studies on marine spatial planning are increasing among scholars, there are none of the studies that integrate the framework of institutional analysis and development with the effective components of marine spatial planning practice. No studies on this were reported in small countries including Malaysia. Since the research on the issue is minimal, not only in Malaysia but also in other international countries, the lack of research in the issue and can be considered as the knowledge gap in the research. Therefore, to fill in the gap, this study aims to develop a framework of institutional analysis and development for an effective practice of marine spatial planning in Malaysia. Since this is the first attempt to integrate the institutional analysis and development (IAD) idea into the effective practice of marine spatial plan, it is believe that the outcomes are able to make a significant contribution to the knowledge within the marine spatial planning field.

1.5 Research Questions

Accommodating all the concerns of establishing the framework of institutional analysis of effective marine spatial planning practice, the research questions to be answered in the research are:-

- a) What are the effective practices of marine spatial planning in Malaysia?
- b) What are the institutional behaviours upon implementing the marine spatial planning in Malaysia?
- c) How would the rules-in-use of institutional analysis in marine spatial planning practice enable the establishment of the policies for Malaysia marine plan?

1.6 Aim and Objectives

The aim of this research is to develop a framework of institutional analysis for an effective marine spatial planning practice in Malaysia.

For this aim, there are three (3) specific objectives of the research:

- a) To identify and analyse the major components that lead into effective marine spatial planning practice in Malaysia;
- b) To examine the institutional behaviour among the marine spatial planning committees in Malaysia;
- c) To develop the Malaysia Framework of Institutional Analysis towards the effective Marine Spatial Planning practice and validate the effectiveness's reliability and applicability.

1.7 Scope of Research

To develop and validate a framework of institutional analysis for an effective marine spatial planning practice, the scope of the study is as follows:

- a) As for Malaysia, the concept of marine spatial planning is still at the early stage of implementation and Sabah has taken the initiative to strive into the development of the plan. Among other districts, Semporna was chosen since it is a popular attraction for marine activities among local and international tourists. Therefore, the research is focused on the institutional behaviour of

marine institutions that are involved with the development of Semporna Marine Spatial Planning.

- b) The marine institutions that are involved with the development of Semporna MSP can be divided into three groups; Steering Committee, Technical Committee, and Implementer Committee. The first objective of the research is the identification of the effective practice of MSP and the respondents involved are from the Technical Committee since the committees are involved with the decision-making process and data management for the planning system. Later, in answering the second objective, the respondent is from the Implementer Committee since there are five (5) spatial plans that were put in charge for the committee. The institutional behaviour of the Implementer Committee suggests that the pilot outcome that can be guidelines for Malaysia to have an effective institutional framework for MSP practice.
- c) Hence, in order to analyse the institutional behaviour among the committee of Semporna MSP, the Institutional Analysis and Development (IAD) framework was adapted in the research. Moreover, the analysis proposes the solution of the policy reformation, especially regarding the economic efficiency, fiscal equivalence, distributional equity, accountability, sustainability, and conformance to value of marine committee.
- d) This study was conducted by applying a mixed method approach as the research methodology. A set of validated questionnaires were distributed to the Technical Committee of Semporna MSP to identify the effective components for the practice of marine spatial planning. As for the second stage of analysing the institutional behaviour of Implementer Committee, telephone interview was used to clarify the rules involved in the IAD components that determine the institutional arrangement on the interaction with other committee members.

1.8 Significance of the Research

The significance of the research is to highlight the importance of institutional study towards ensuring effective marine spatial planning practices and to prepare Malaysia towards sustainable governance of marine spaces. Moreover, when a maritime nation is planning to produce an effective and sustainable spatial plan for marine planning, the involvement from every related institution is crucial, especially at the early stage of implementation. Similarly, to Malaysia, the idea of starting a marine spatial planning practice was initiated by the Town and Regional Planning Department of Sabah (TRPD) with the collaboration of WWF-Malaysia as the leading institutions to produce the plan starting from the district of Semporna, Sabah and being used as a reference by other districts as well as other states in Malaysia. WWF-Malaysia stands for World Wide Fund for Nature, the international conservation organization that focuses on scientific research which covers the broader issues of the natural environment, incorporating such aspects as policy work, environmental education, public awareness and campaigns.

Since the issue in the development of the plan is to manage the needs and converging the roles for each institution, therefore, the outcome of the research is important for the evaluation of the institutional behaviours towards the establishment of a centralised institution to lead the marine governance in Malaysia. The research highlights the effectiveness components for an effective practice of marine spatial planning. Even though the responses were acquired from the committee of Sabah as the pioneer plan in Malaysia, the strategy may be adopted by other states and the whole Malaysia towards the reformation of marine policy.

Finally, the research provides an in-depth knowledge of effective components to be adapted into the framework in order to have a marine spatial planning by the nation as well as the institutional analysis to achieve the goals. This research provides the initial guiding step into a comprehensive study of effective marine spatial planning for each marine institution of Malaysia.

1.9 General Methodology

The overall research methodology consists of literature review and questionnaire distribution are conducted to gain the result on the effective components for marine spatial planning practice in Sabah. Additionally, telephone interviews were conducted to map the institutional behaviour for marine institutions in Sabah. Both integration of quantitative and qualitative measures for establishing the selection framework were employed in this study. In summary, the research is conducted through the following methodology.

i) Literature Review

An extensive literature review on the effective practice of marine spatial planning and institutional analysis and development framework was carried out. The process of literature review involves data gathering from journals, conferences papers, books, and research reports.

ii) Questionnaire Distribution

Semi structured questionnaires were distributed to the Technical Committee of Semporna MSP practice to gather information on effective practice of marine spatial planning. The questionnaires were distributed on a conference session that was held in Tabung Haji Kota Kinabalu, Sabah that includes the Technical Committee as the audience.

iii) Telephone Interview

The third stage of the research is to analyse the institutional analysis and development framework and the respondent for the matter is the Implementer Committee. The method used to collect the data is using telephone interview.

iv) Questionnaire Distribution (Validation)

The final stage of the research is to validate the findings of the effectiveness practice of marine spatial planning integrated with the framework of IAD for Semporna case study. The experts selected to validate the outcome were among the practitioner that have experiences in marine spatial planning and marine spatial governance. The method used to validate the findings is using the questionnaire distribution among the experts.

Detailed explanations of the research methodology and analysis method as well as the institutions that are involved for each committee and the experts' selection are elaborated in Chapter 4: Research Methodology of the thesis.

1.10 Structure of the Thesis

This research has been structured into seven (7) main chapters. The chapters of this study are outlined as follows.

Chapter 1 introduces the current review of effective marine spatial planning practice and the relation towards achieving the sustainable marine spatial governance. The problem of the research was identified by constructing clear objectives and the direction of the study.

An overview of the background of the effective marine spatial planning practice with particular reference to the institutional analysis is provided in Chapter 2. This chapter starts with the issues arose from the marine spatial planning practice which are data, stakeholder, and governance The focus of the research is on the

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