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Master Thesis

Dynamic Stakeholder Management Approach Using 3C-Model™ as Framework (Case Studies from Indonesia)

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Management Summary

Stakeholder dynamism has been mentioned in several stakeholder related studies to be a limitation and a challenge of their research. Conflicts occurred because of failure to map the dynamism of stakeholders have been found in several case studies. This research attempts to provide a new approach to dynamic stakeholder management using the 3C-Model™ as the base framework.

In this research, several stakeholder theories and project management literatures have been integrated to produce a dynamic stakeholder management tool called the 3C-Tool. The 3C-Tool has been tested against five case studies from different industries, with different level of complexity, and administrative sizes. Case studies were focused on the conflicts that happens to learn the dynamism between stakeholders. Several points of adjustments and revisions were made based on the lessons learned, analysis, reflections, and developments.

Findings suggest that the 3C-Tool can explain and map the dynamism of stakeholders involved in a project or cases. The 3C-Tool presents an analytical approach of stakeholder based on their attributes and a measure to develop strategies managing them. However, it does not predict conflicts driven by the stakeholders. The 3C-Tool can be used for various sizes of projects and cases in mapping and managing dynamic stakeholders. It has to be kept in mind that a proper application of the 3C-Tool needs extra resources from the management.

This new concept has a big room to grow. The development of the 3C-Tool was limited to the case studies. Furthermore, stakeholders observed in the conflicts of the case studies were all external. Further investigations of the use of the 3C-Tool to internal stakeholders and other settings might broaden this concept's application.

Acknowledgements

Table of Contents

Table of Figures

1 Introduction to the Research

1.1 Introduction

Stakeholder management has evolved in the last couple of years due to the importance of its application in projects. Recent studies by Mok, Shen, and Yang (2017) concluded that addressing stakeholder complexity and understanding major risks and drawback in project implementation from the stakeholder perspective are indispensable in project management. Beringer, Jonas, and Kock (2013) show that in practice, stakeholders play an important role in the successful management of projects. However, stakeholder management faces challenges since projects are getting bigger and more complex (Mok, Shen, & Yang, 2015). From a non-technical perspective, one of the keys of a successful project is to maintain an appropriate balance among stakeholder's interests and gaining their support in complex project environment (Mok et al., 2015). Stakeholder analysis and management are used to increase the chances of project success through informing their design, preparation, and implementation; or as part of an evaluation, during or after the project completion. Project personnel come together in a temporary alliance which focuses on, and is time-bound by, the life of the project (Varvasovszky & Brugha, 2000). In chapter 4 of the book 'Culture in International Construction' (Tijhuis & Fellows, 2012), the stakeholders were 'analyzed' individually based on the situation of the project. Various authors have developed different ways in analyzing, mapping, and managing stakeholders (B. G. Cameron, Seher, & Crawley, 2011; Mitchell, Agle, & Wood, 1997; Turner, 2008; Varvasovszky & Brugha, 2000). In this research, their theories are integrated into the stages of the 3C-Model™ by Tijhuis (1996): Contact (Culture), Contract (Structure), and Conflict (Technology). This integration is then developed into a dynamic stakeholder management tool which provides insight to the changing attributes of stakeholders in a project. This research proposes a new approach to managing dynamic stakeholders based on their attributes using the 3C-Model™ stages as a framework.

1.2 Problem Statement

Tijhuis and Fellows (2012) mentioned that identification of stakeholders on any project is important, to determine the immediate concerns and considerations which are likely to impact on the project. During the project, it is important to follow up the stakeholder management process because stakeholder impact is dynamic and changes over time (Olander, 2007). Current studies analyze and manage stakeholders only at the beginning of the project or when they are first encountered. Nash, Chinyio, Gameson, and Suresh (2010) stated that the power and interest of stakeholders are dynamic hence it is important to manage their dynamism properly to achieve a successful project. Mok et al. (2015) suggested undertaking empirical studies to investigate the practical implications of stakeholder management from a different perspective since there haven't been any studies conducted regarding dynamic stakeholder approach. As stakeholders are dynamic, the choice and use of any engagement approach or combination of approaches are always careful and considerate (E. A. Chinyio & Akintoye, 2008). The problem with current stakeholder studies is that when the influence of one or more stakeholder changes, the analysis and management process have to be restructured and replanned from the beginning. Workshops done in a research by E. A. Chinyio and Akintoye (2008) also found that the influences of stakeholder are not static but dynamic. They suggest that there should be a periodic measure on the stakeholder aspect. The levels of power and saliency of stakeholders may change with the passage of time (E. Chinyio & Olomolaiye, 2009). In each project, therefore, there is a need to monitor the stakeholders and their stakes and respond to their dynamism in order to avoid any negative effects. Various stakeholder analysis tools have been developed by many authors but not yet integrated into a systematic framework which can map the stages in a project. The 3C-Model™

offers such framework (later discussed in chapter 2.2). There is no stage-based stakeholder analysis and management study done yet that leads to dynamic stakeholder management which focuses on the different stages of a project.

1.3 Research Objective

The goal of the research is to develop a tool that can map the dynamic attributes of possible stakeholders in each step of the 3C-Model™ in a complex project environment. This tool is then to be used to cope with future conflict with stakeholders. With this, a new approach on stakeholder management is to be created. This study is expected to help future projects in managing stakeholders in a more effective fashion. The following research question will be the main guide of the study:

"Using the 3C-Model™ as a stage-based framework, what are the strategies in mapping and managing dynamic stakeholders?"

In order to answer this question, a comprehensive literature study has been done. Case studies will be discussed in order to give a more comprehensive answer and result to the question.

1.4 Research Questions

In answering the main question 'Using the 3C-Model™ as a stage-based framework, what are the strategies in mapping and managing dynamic stakeholders?', the 3C-Model™ is used as a framework to develop a stakeholder management tool. The main question is broken down into several sub-questions to sharpen the answers:

1. How does the 3C-Model™ operate?
2. What is dynamism?
3. What are stakeholders and their attributes?
4. What is the current state of the art of stakeholder management in the literature?
5. How to develop a tool that integrates the concept of stakeholder dynamics into the 3C-Model™?

To answer the first three questions, a literature review has been made (chapter 2). It discusses the relevant topics about the 3C-Model™, dynamism, and stakeholder theories. The answer to the fourth question includes the definition of stakeholders, stakeholders attribute, and stakeholder management framework. Answering the last question, the development for making a tool is discussed in chapter 3 and presented to an applicable tool in chapter **Error! Reference source not found.**.

Further, to manage stakeholder behavior, Ackermann and Eden (2011) suggested the steps to be taken to conduct a stakeholder research are as such:

1. Identifying who the stakeholders really are in the general situation of each stage.
2. Exploring the impact of stakeholder dynamics.
3. Developing stakeholder management strategies.

These three questions will later be discussed further in chapter 2.5.

1.5 Research Methodology

This research model follows the characteristics of a grounded theory. It is used to develop (formulating, testing and redevelopment) propositions until a broader theory is obtained. Data collection are done by a combination of interview and record review. Analysis is in form of concept formation, development, and modification and integration of the literatures related to the study. The outcome will be a theory supported by examples of data (case studies).

Literature review concerning stakeholder management and the 3C-Model™ was conducted to serve a knowledge base for this study. The theories obtained from the literature review are then incorporated to form a new model of stakeholder management. This serves as a hypothesis of this research. To investigate the later developed model of this research, case studies were held.

As suggested by Yin (2002), to test a causal (or explanatory) case study, one should use internal validity which to determine whether event *x* led to event *y*. One of the several nature of a causal case study is using process-tracing to revise existing theories by tracing mechanism found in cases (Beach & Pedersen, 2016). This research concept follows a theory testing which is one of the variants of process-tracing.

Data collected are from direct interviews with the individuals involved in the case studies. Three of the interviews were conducted face to face, one over a conference call, and one over email correspondence. Their positions and functions, and the case studies general background can be seen in the Appendix. To support the claims by the interviewee, data were also gathered from other sources such as online news report, documents, and photos.

The interviewees have their own perspective towards the research model. It is inevitable that they have their own opinion about what's happening in their own case study. Different subjects of this study might have different opinions concerning a same case or situation. However, it does not become an issue since the proposed research model can be practiced by any subject's angle. Even with a single situation, many case studies could be extracted from different points of view.

A structural guide to the interviews has been created (see Appendix: Interview Methodology and Interview Questions). There were no limitations of interview questions since the interviews were open-ended. Interviews were rather dialogic than just question-answer. Case studies were held not to compare against each other, rather to support how the research model works. The data generated is analyzed against this research model. It is used to see how the research model might operate in certain conditions in the case studies.

The outcome of the case studies is then analyzed using the proposed research model. Lessons learned from the case studies help to support the analysis. After the analysis, it is reflected back to the research model. Alteration and adjustment to the research model is then done based on the findings from the case studies. In the end, the output of this research is the revised research model.

Figure 1 Research methodology for this research

The writer acknowledges that the limitation in a case study is that it is interpretative and subject to the researcher.

The systematic research framework can be seen below in Figure 2.
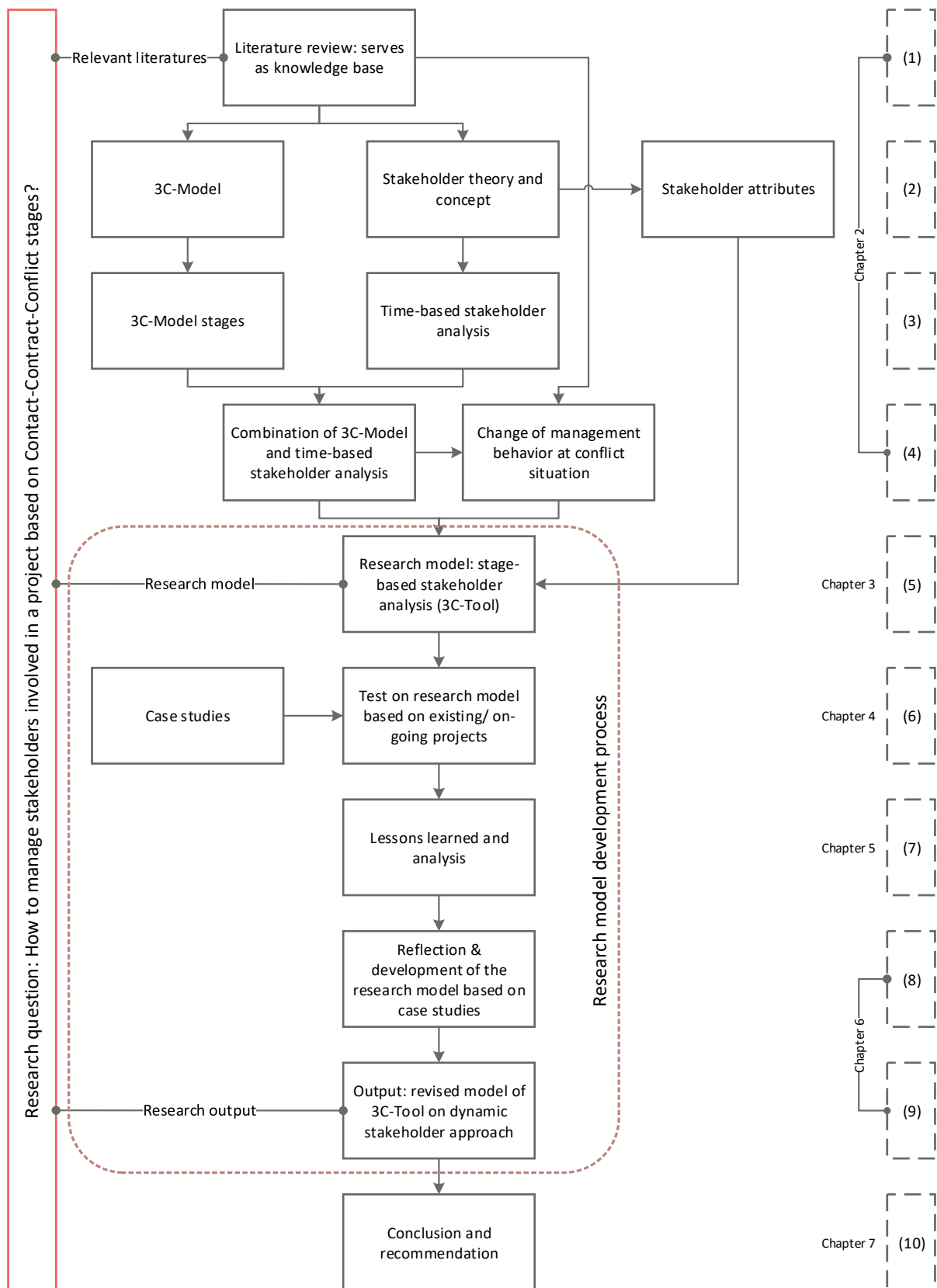
Figure 2 Systematic research framework

The scope of information and context of this research will follow an hourglass-like figure (Figure 3). At the beginning, information is served broadly, discussing relevant literatures. Going down, the context will be narrower and more focused to a specific research model at the middle. It then widens the context based on lessons learned from case studies and end with a broad and general model that can also be applied to other cases outside this research.
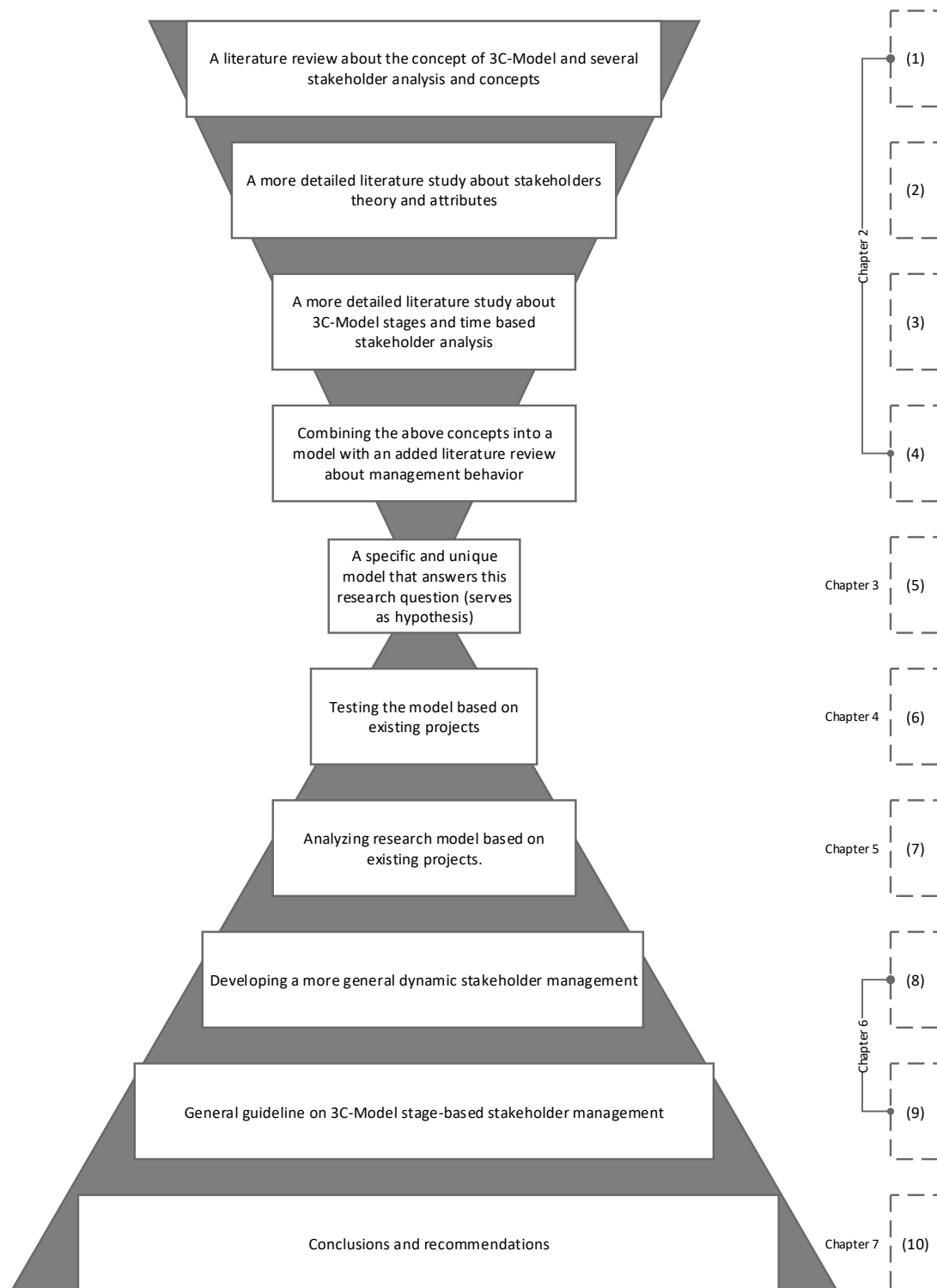
Figure 3 Scope of information and context diagram

2   Literature Review

2.1   Literature Review: 3C-Model™, Dynamism, and Stakeholder Theories (Definition and Analysis)

To serve as a base for the research model, literature review has been done. Three main topics are discussed to answer the three sub-questions: stages in a project (3C-Model™), dynamism in the context of stakeholder management, and stakeholder theories. These three materials will later be integrated in the research approach.

2.2   3C-Model™

Since concerns and priorities change over time; new classes and configurations of stakeholders appear in response to changing circumstances (Post, Preston, & Sauter-Sachs, 2002). The changes can be based on anything and anytime. Tijhuis (1996) introduced a concept with different stages in a multicultural project. The three aspects Contact, Contract and Conflict are related on the basis of 'levels of influence'. In this model, the 'drivers for change' of processes (Contract) within project organizations mainly proved to be 'culture' (Contact) and 'technology' (Conflict) (Tijhuis & Fellows, 2012). Culture influences project organization which then influence technology/ deliverables (Figure 4). As mentioned by Tijhuis and Fellows (2012), the 3C-Model™ is used as a management tool for investigating (behavioral) experiences in construction projects and processes. The 3C-Model™ framework serves to exhibit the stages in a project.
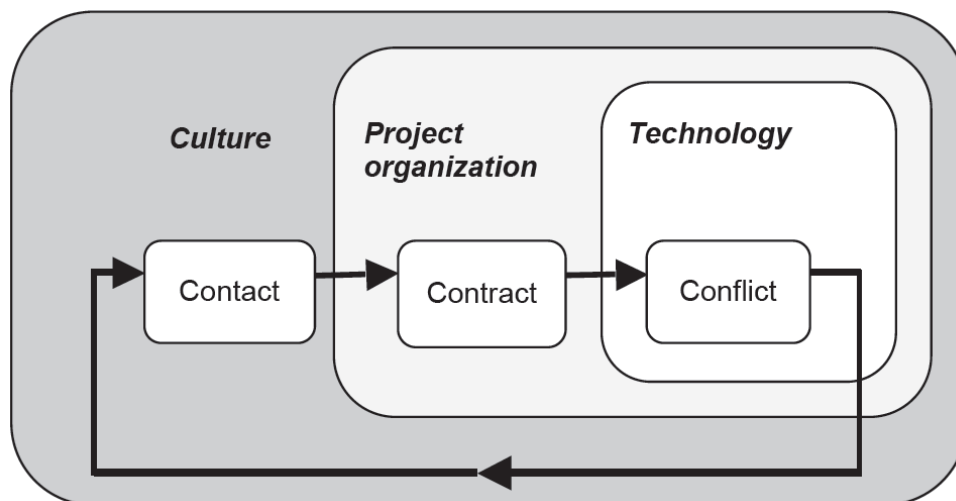
Figure 4 The 3C-Model™ as a framework for investigating (behavioural) experiences in construction processes (Tijhuis, 1996)

The stages in the 3C-Model™ (contact, contract, conflict) display a more precise tool to distinguish moments than the formal stages in a project (pre-contractual, contract, execution). At any given time, some stakeholders will be more important or influencing than others. The changing conditions of a project push management to adapt to these outside influences. Because the needs of an organization change over time, the relative importance of stakeholders will also change as the organization evolves through the stages of start-up, growth, maturity, and transition (Jawahar & McLaughlin, 2001). These four stages, explained by Jawahar and McLaughlin (2001), show the development of growth in an organization. They also offer moments that become the focus of attention in managing certain stakeholders.

The 3C-Model™ has been applied to many different projects. It helps to map and separate stakeholders based on their behavior and standing towards a project. Using this classification of

stakeholders, one can develop a stakeholder approach. However, in the book by Tijhuis and Fellows (2012), stakeholders' behavior in different stages are only labeled to be positive or negative towards a project. Most of the stakeholders are discussed to have the same attitude throughout the case studies. Although it is not uncommon, the levels of power and saliency of stakeholders may change with the passage of time (E. Chinyio & Olomolaiye, 2009). These attributes haven't been discussed in depth by Tijhuis and Fellows (2012).

2.3   Dynamism of Project and Stakeholder

Beringer et al. (2013) stated one must consider that project portfolios and their management are dynamic. During an organization's life cycle, the importance of stakeholders varies at different stages because of their varying potential of contribution and behavior (Beringer et al., 2013). Members of the collaborative come and go and relationships change, the agendas and staff of member organizations change, collaborative agendas change, and so on (Bryson, 2011). Changes of these attributes might affect the project in various ways, one to avoid is if it harms or adds risks to the project. Management has to deal with such change, whether it is positive or negative. So, dynamism in a project can be considered as a change that forces the management to also change so that the balance in the project stays the same or better.

The dynamics in a project can be viewed in two different dimensions. First, Coghlan and Rashford (2006) described the dynamic within the organization level as the increasing development of participation in inter-organizational networks, such as strategic alliances, in inter-organizational collaboration supply chain management through the extended manufacturing enterprise. The dimension that they view dynamism is how organization and stakeholders change their behavior. Second, Gazendam, Jorna, and Cijsouw (2003) defined dynamism in an organization as a propagation (building up) of adaptive patterns of behavior in evolutionary time. This is the dimension of time. Whereas changes happen because of the flow of moments. Both of these dimension of dynamics are later taken into account. Kezsbom and Edward (2001) suggested that cause of the dynamics in a project environment is the characteristic of project life cycle and changing project requirements.

There is a need in managing stakeholder dynamism. Lessons learned from several studies have confirmed the importance of dynamic stakeholder management. Conflicts occurred because of mismanagement or failure to map dynamic stakeholders have been found in several case studies. Atesmen (2014) gathered lessons which described how changes in the upper management can cause a ripple and tsunami effect to the stability project which is to be managed. Positive effects need to be embraced and negative effects need to be avoided. Jepsen and Eskerod (2009) discussed in their research that the coalition between stakeholders often changes during the project as the stages in a project progress. It was necessary to continuously update their stakeholder management approach. Findings by Missonier and Loufrani-Fedida (2014) suggested that interactions between stakeholders changed the alignment of interests, resources, and coordination across the course of a project. This leads to an urgency to adapt stakeholder management regularly. Changing stakes in a project can become a major source of conflict between stakeholders and hence it is worthwhile to manage stakeholders in the best efforts (E. Chinyio & Olomolaiye, 2009). Current studies don't have the tool to manage the dynamics occurred due stakeholder change. One of the discussions by Mok et al. (2017) is that there is a lack of longitudinal studies to investigate the dynamics of stakeholder relationships. Pouloudi and Whitley (1997) also supported this idea. They stated that the generic checklists of stakeholder groups that are often suggested in the literature are inadequate for drawing a realistic picture of a specific inter-organizational environment at a given time, except perhaps momentarily. More research regarding dynamic stakeholder approach and management is needed to comprehend current stakeholder problems met in projects.

2.4   Stakeholder Definition

There are several stakeholder definitions made by different authors. R Edward Freeman (2010) describes stakeholder as any group or individual who can affect or is affected by the achievement of the firm's objectives. Whereas Turner (2008) defines as anybody who has an interest in the project, its work, outputs, outcomes, or ultimate goals. Mitchell et al. (1997) mentioned in their paper that using identification typology, one is able to explain stakeholder salience and dynamism systematically.

Mitchell's stakeholder definition is selected since it is found to be comprehensive and best in categorizing the stakeholders based on their attributes. From the definition of stakeholder attributes, Mitchell et al. (1997) defined different stakeholder classes that are dependent on the distribution of stakeholder attributes such as follows:

1. Dormant stakeholders possess the power to impose their will but do not have any legitimate relationship or urgent claim. Their power remains unused. Because of their potential to acquire a second attribute, management should remain cognizant of such stakeholders, for the dynamic nature of the stakeholder manager relationship suggests that dormant stakeholders will become more salient to managers if they acquire either urgency or legitimacy.

2. Discretionary stakeholders possess the attribute of legitimacy, but they have no power or urgent claim. There is no absolute pressure for managers to engage in an active relationship, although they may choose to do so. The key point regarding discretionary stakeholders is that absent power and urgent claims, there is absolutely no pressure on managers to engage in an active relationship with such a stakeholder, although managers can choose to do so.

3. Demanding stakeholders possess an urgent claim but have no power or legitimate relationship. This is bothersome but does not warrant more than passing management attention. Where stakeholders are unable or unwilling to acquire either the power or the legitimacy necessary to move their claim into a more salient status, the "noise" of urgency is insufficient to project a stakeholder claim beyond latency.

4. Dominant stakeholders are both powerful and legitimate. It seems clear that the expectations of any stakeholders perceived by managers to have power and legitimacy will matter. Dominant stakeholders will have some formal mechanism in place that acknowledges the importance of their relationship with the firm.

5. Dependent stakeholders have urgent and legitimate claims but possess no power. These stakeholders depend upon others for the power necessary to carry out their will. Several stakeholder groups had urgent and legitimate claims, but they had little or no power to enforce their will in the relationship. To satisfy their claims these stakeholders had to rely on the advocacy of other, powerful stakeholders or on the benevolence and voluntarism of the firm's management.

6. Dangerous stakeholders lack legitimacy but possess power and urgency. They will be coercive and possibly violent, making the stakeholder 'dangerous'. Examples of stakeholders using coercive tactics include environmentalists spiking trees in areas to be logged and religious or political terrorists using bombings, shootings, or kidnappings to call attention to their claims.

7. Definitive stakeholders are those that possess both power and legitimacy. They will already be members of an organization's dominant coalition. When such a stakeholder's claim is urgent, managers have a clear and immediate mandate to attend to and give priority to that claim.

2.5 Stakeholder Analysis

Several stakeholder analyses that are relevant to the context of dynamic stakeholder management are combined in this study. Literatures are selected based on the relevance to the 3 main questions in chapter 1.4: stakeholder identification (B. G. Cameron et al., 2011; Mitchell et al., 1997), stakeholder dynamism impact (Jepsen & Eskerod, 2009; Missonier & Loufrani-Fedida, 2014; Olander, 2007; Pouloudi & Whitley, 1997), and stakeholder management strategy (Turner, 2008). The keyword here is 'dynamic', which means that the stakeholders attribute, action, and influence are changing in the project.

2.5.1 Stakeholder Identification

A conventional model by Mitchell et al. (1997) shows what to do to different stakeholders based on their power, legitimacy and urgency towards a project. This concept provides an opportunity for a theory of stakeholder identification to move forward by showing how power and legitimacy interact and, when combined with urgency, create different types of stakeholders with different expected behavioral patterns regarding the firm (Mitchell et al., 1997). Regarding the dynamics of this stakeholder analysis, the urgency factor plays an important role. Situations in a project are constantly changing which might turn normal cases into urgent matter. Mitchell et al. (1997) divide stakeholders into 7 categories: dormant, discretionary, demanding, dominant, dangerous, dependent, and definitive stakeholder (Figure 5). For this research, subjects to be studied are the dominant, dangerous, dependent, and definitive stakeholders. The others who only possess one aspect are not taken into account since they are considered to have little to no significant influence to the outcome of this research.
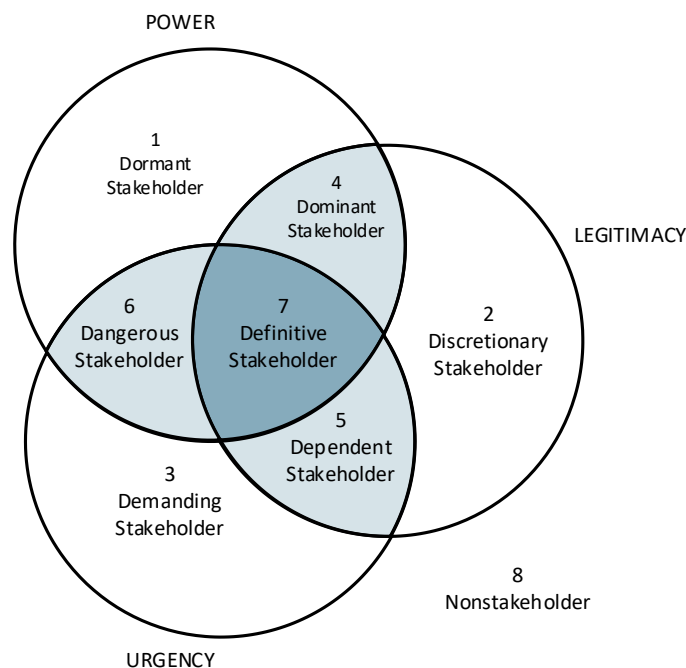
Figure 5 Qualitative classes of stakeholders (Mitchell et al., 1997)

B. G. Cameron et al. (2011) defined a process for ranking stakeholders based on needs and the relative importance of stakeholders to others in the system. Their approach is prioritizing stakeholders based on their importance regarding a firm's goal. As an example, in Figure 6 stakeholders are ranked based on their occurrence. The occurrence of each stakeholder is based on the number of times a stakeholder participates in a series of action in the project. These actions depend on the complexity

of the project, the bigger the project the more actions it has. The purpose of this model is to rank stakeholders based on their occurrence. The higher the number the more important they are considered. However, the problem with this model is that stakeholders might be important even if they don't appear that often and thus not considered as important. In this example, security is the second last 'important' based on the occurrence. Regarding project dynamics, stakeholder occurrence might adjust over time, depending on the stage of the project.

Weighted Stakeholder Occurrence
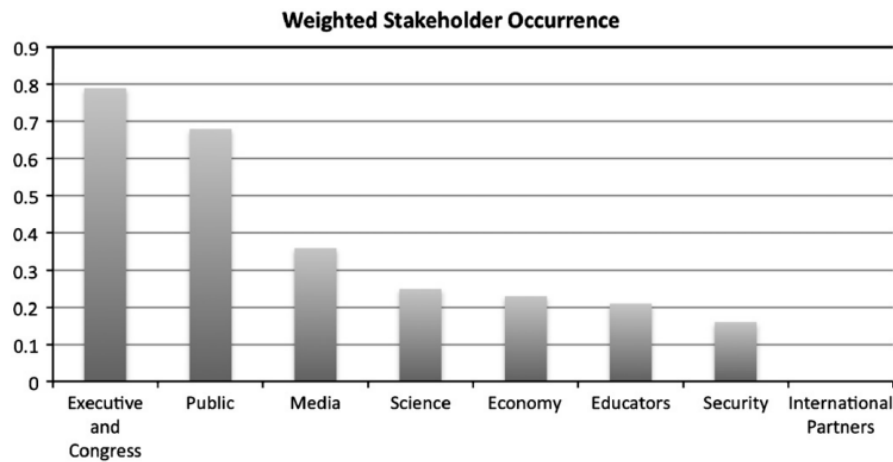
Figure 6 Weighted stakeholder occurrence, indicating presence in important loops (B. G. Cameron et al., 2011)

2.5.2   Stakeholder Dynamism Impact

Murillo-Luna, Garcés-Ayerbe, and Rivera-Torres (2008) concluded in their research that managers, or the people responsible, perceive environmental pressure from different stakeholder groups. The pressure mentioned impacts the decision-making process of the management. In many cases, analyzing stakeholder's impact is useful to better understand the position of each stakeholder at a given time. Olander (2007) proposed a stakeholder impact analysis based on Mitchell's stakeholder classification model. He concluded that the relative importance of different stakeholders depends on the possession of stakeholder attributes. From his stakeholder impact analysis, he found that power is the main attribute in order to affect the project's decision-making process. He then argued that powerful stakeholders must be monitored in the stakeholder management process in order to proactively manage the potential impact that they may have.

Further, stakeholder dynamism is seen to have a bigger impact on the project management. Findings from several authors (Jepsen & Eskerod, 2009; Missonier & Loufrani-Fedida, 2014) supported the argument that stakeholder's attributes might change during the lifetime of a project. Their change of attributes brings along the different level of impacts. Positions and impacts of stakeholders in the project are also changing over time (Pouloudi & Whitley, 1997). Hence, the dynamism of stakeholder changes itself has its own impact.

However, key stakeholders' who leads to conflicts in a project aren't necessarily the ones with the highest power. In this research, the change of stakeholders' attribute triggers conflicts. It is, at a given period of time, to be dealt with. Proactive monitoring and management is recommended keep hold to stakeholder changes. As mentioned by Olander (2007), the limitation of a stakeholder impact analysis is its qualitative nature. It depends on how the manager, or the people who are assessing, perceive a certain situation. Conflicts and impacts in the case studies caused by the dynamics of stakeholders are defined directly by the interviewees since it is based on how they perceive them.

2.5.3   Stakeholder Management Strategy

Turner (2008) analyze stakeholder based on three main question: (1) Are they for or against the project? (2) Can they influence the outcome? (3) Are they knowledgeable or ignorant about the project? The outcome of these questions will determine how to manage each stakeholder. He also developed a stakeholder management process (Figure 7) towards a successful project. Following his stakeholder management process can help this research in developing an approach towards dynamic stakeholder management. For this research, Turner's model is split into two main section: (1) identification of initial parameters and stakeholder analysis and (2) stakeholder management development. The first section is to be conducted for earlier events. This includes early analysis such as identification of resource requirements, success criteria, stakeholders & their interests, and conducting early stakeholder analysis. Whereas the second section is to be conducted for current and future events. It has a loop in managing stakeholders by developing strategy for each stakeholder, monitor internal & external changes, and monitor stakeholder satisfaction. Following the cycle of this loop corrects and revise current stakeholder management approach towards a new one to handle changes from the stakeholders. The first strategies developed for each stakeholder are done in the contract phase when a deal between stakeholders is being made. As the project continues and changes arise, strategies for each stakeholder is being developed based on the analysis of internal & external changes and stakeholder's satisfaction. In the event of a conflict, this loop is still being used since this is the core strategy in handling stakeholders. Hence, the dynamic attribute of stakeholders is taken care of in this loop. The output of Turner's model is a successful project following stakeholder's satisfaction monitoring. Ideally, this is when all the stakeholders are satisfied with the project. For this research, this part is left out of consideration since the focus is in the dynamism.
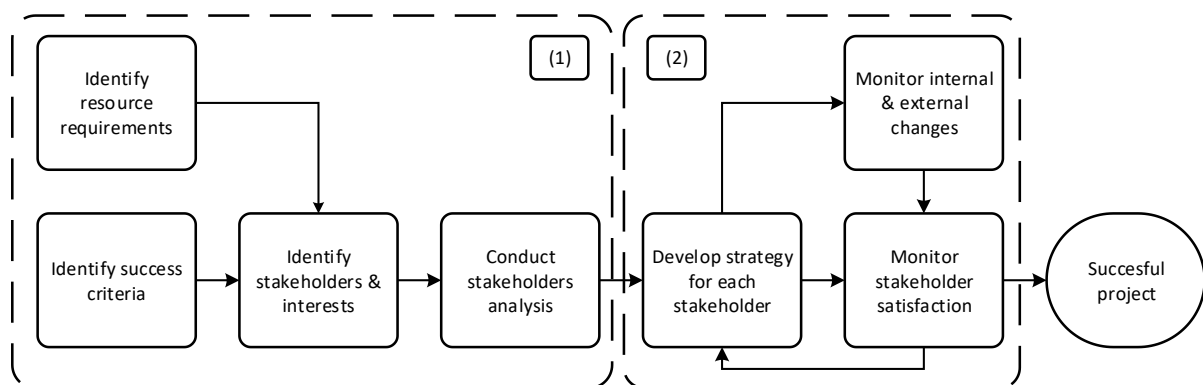
Figure 7 Stakeholder management process (Turner, 2008) grouped into two sections

The dynamism in the behavior of stakeholders has a limit. E. Cameron and Green (2012) implied that changes in an organization are still restricted by their position towards a goal and other stakeholders. R Edward Freeman, Harrison, Wicks, Parmar, and De Colle (2010) divide stakeholders based on two main groups: co-optation/ cooperation and collaboration. Cooperation is where an organization and its stakeholders plan together for the future of the organization. Corporation is viewed as a vehicle for individuals to pursue their own personal projects, and companies should be organized and run in ways that allow stakeholders to do precisely that, in cooperation with other stakeholders. Fair treatment and reasonable compensation of stakeholders helps to ensure their continued cooperation.

Collaboration is when a subset of stakeholders is planning for the future of themselves. For many entrepreneurial ventures, strong collaborational relationships are necessary to create sustainable organizations. In order to be able to promote mutual collaboration by all the organization's stakeholders with their diverse and specific assets (the employees with their knowledge and skills, the suppliers with their goods and services, the financiers with their capital, etc.), the contracts governing

stakeholder interactions need to be fair (Evan & Freeman, 1988). They argue that an effective corporate governance mechanism should be designed according to fair rules, otherwise it would not be effective in promoting the mutual collaboration by all the organization's stakeholders.

These models only focus on the stakeholders at the beginning of the project or when they are first encountered. Olander (2007) mentioned that further research is needed to examine and evaluate the application of the stakeholder impact in construction project management across different stages and levels of project execution with internal as well as external stakeholders.

2.6   Research Approach

The idea is to integrate stakeholder analysis with the 3C-Model™. As mentioned earlier, one of the dynamism dimension is the dimension of time. The impacts of the stakeholders will refer to the concept used in the stakeholder analysis by Varvasovszky and Brugha (2000). Their approach covers three main elements of time: past, present, future (see Figure 8).

TIME DIMENSIONS	PAST	PRESENT		FUTURE
Purpose[a]	Policy Analysis	Policy	implementation	Policy Development
	Project Evaluation	Project	implementation	Project Planning
		Management	objective	
		Management environment		Management environment
Focus	Retrospective	←	→	Prospective
Interest	Process	-------→	Objective --→	Goal
Scope	Broad	Narrow		Broad
Time frame	Long-term	Rapid	Short-term	Medium-term
Stage	Historical analysis	Pre-implementation	Planning	Development
		Post Implementation		

Figure 8 Time focus of a stakeholder analysis (past, present, future) by key dimensions to be considered in conducting the analysis (Varvasovszky & Brugha, 2000)

Dimensions used in this scheme depends on the time segment that the stakeholder analysis is in. There are three-time segments: past, present, future.

1. The purpose of a stakeholder analysis in the 'past' is focused more on policy analysis and past project evaluation. In the 'present', policy and project implementation are the main points of inspection. Whereas for the 'future' part, the stakeholders' influence on policy development and project planning are to be investigated.
2. Focus: retrospective (looking back on or dealing with past events) and prospective (expecting something in the future)

3. Interest: process, objective, and goal
4. Scope: broad at the past and future. Narrow at the present.
5. The time frame of the project lifecycle, including project deadlines and resource of limitations, frequently determines the scope of the analysis.
6. Stage segmentation from the past to the future: historical analysis, post-implementation, pre-implementation, planning, development.

The time focus stakeholder analysis is then put into perspective of the 3C-Model™. Since the all three stages (contact-contract-conflict) are in sequence and linked, the future part of the current stage is the present for the next stage. For every stage, a stakeholder analysis will be conducted, hence the combined diagram would be as follow:

Figure 9 3C-Model (Tijhuis, 1996) in combination with time focused stakeholder analysis (Varvasovszky & Brugha, 2000)

The past-present-future diagram is dynamic since it is based on the current view of the model or on the actual timeline of a project. As the 3C-Model is interconnected, past conflict of a previous cycle can be regarded as the preceding stage of the contact phase in the next cycle. The benchmark for viewing this model is based on the present time. If at the moment, the contact phase is on schedule, hence the future is the contract phase and past conflict is the past.

2.6.1 Combination of 3C-Model™ and Other Stakeholder Analyses

The phases in the 3C-Model™ will be used as guidelines for the research concept. Time focused stakeholder analysis is not fixed with the phases in the 3C-Model™ since it depends on the viewpoint of the 'present' phase as explained earlier. On the other hand, stakeholder identification, classification, and analysis are directly correlated with the time period. Hence, the different time frame could have different stakeholder management approach. For past events, stakeholder analysis is in the form of evaluation. For present events, stakeholder analysis is in the form of evaluation and stakeholder management is based on past performance. For future events, stakeholders will be managed based on the output of this research.

Stakeholder management process by Turner (2008), refer to Figure 5, is also added into the concept. As discussed earlier, for this research, his model is split into two sections. The first section includes identifying resource requirements, identifying success criteria, identifying stakeholders & interests, and conducting stakeholder analysis. This first half is being put into the contact phase as 'identification of initial parameters and analysis of stakeholders'. The second section of the model includes a loop of developing a strategy for each stakeholder, monitoring internal & external changes, and monitoring stakeholder satisfaction. This part is being put into the contract and conflict phases since it has a dynamic nature because of the loop. For this research, the output of Turner's model, successful project, is left out of the consideration. The general goal is, of course, a successful project which has

all the stakeholders satisfied, but the specific goal of the model is to have a general stakeholder management planning.

This research observes all the stages in a project but focuses on the contract phase with the hope to foresee future stakeholder conflict in the future. The moment of focus for this study is at and around the contract phase, where the contact phase is already finished and the conflict phase will be in the future so possible conflicts can be prevented. Information from the contact phase is used as an input to make decissions in the contract phase. The decissions made in the contract phase serves as an input of the conflict phase. This study will go from left to right and from top to bottom. Starting from the 3C-Model™ (Tijhuis, 1996) as a base, combined with the time focused stakeholder analysis (Varvasovszky & Brugha, 2000) and stakeholder management process (Turner, 2008), which lastly end with a dynamic stakeholder management. Case studies for this research will use this contract phase as a reference. Generally speaking, the path is the red thick arrow seen in Figure 10, starting from the contact phase and will lead towards an output of stakeholder management planning. The red thick arrow itself (Figure 10) can be viewed as a flow of change in stakeholder management which starts at the contact phase and ends with stakeholder management planning. The proposed diagram to carry out this model is represented in Figure 10.
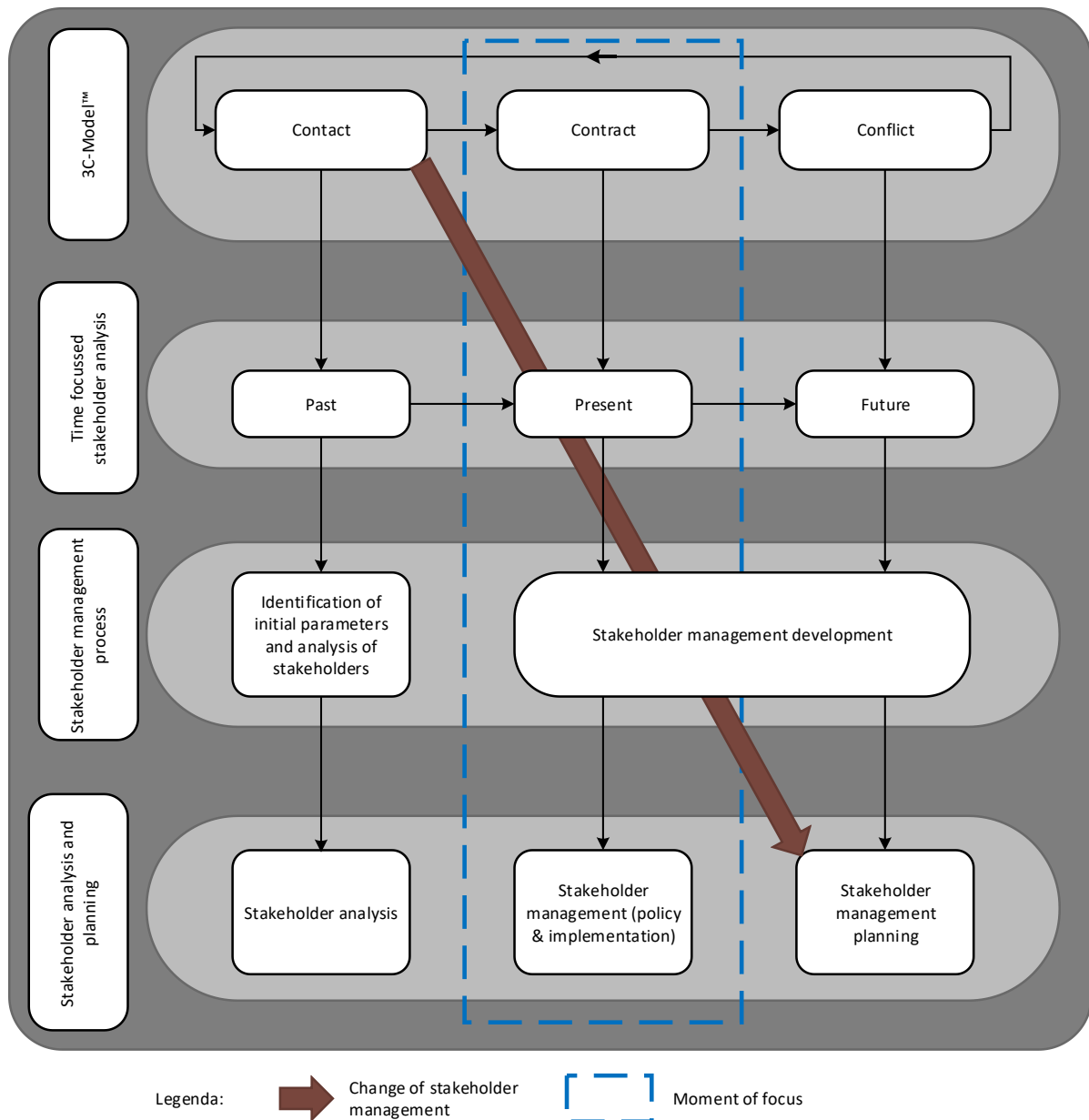
Figure 10 Research model diagram: change of stakeholder management in combination between the 3C-Model (Tijhuis, 1996), time focused stakeholder analysis (Varvasovszky & Brugha, 2000), and stakeholder management process (Turner, 2008)

The approach taken in this research follows the diagonal thick red arrow (Figure 10). To simplify, this research is developed from the 3C-Model™ as a framework, combined with the time focused stakeholder analysis and management process to have a stakeholder analysis and planning at the end. The development of the research approach is shown below in Figure 11.
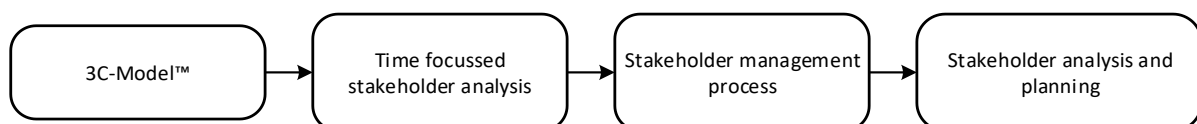
Figure 11 Development of research approach

2.6.2   Change of Management Behavior as Point of Interest

Cowan (2003) stated that organizations are full with opportunities for conflict. Stroh et al. (2001) suggested that conflicts occur in an organization when individuals' interests are incompatible with the interests of others in the organization or with the goals of the organization itself. It includes interactions in which one party opposes another party, or one party tries to prevent or block another party from reaching his goals (Champoux, 2011). In every process of a project, with many stakeholders, there are opportunities for conflict which the management has to deal with.

Based on Vibert (2004), conflict is resolved by constructing acceptable-level decision rules, sequential attention to goals and by having individual subunits deal with a limited set of problems and a limited set of goals. Meeting the needs of stakeholders (shareholders, customers, employees, unions, managers) is possible if managers make decisions to integrate and mediate the interests of shareholders, employees, and customers (Vibert, 2004). Since stakeholders are coming in and out of a project at any given moment, the interests of parties involved might also change over time. Management needs to adjust their behavior towards the stakeholders.

In this study, moments of change in management behavior will be considered at the shift between the 3C-stages since the change between those stages leads to exchange (level of influence, power, and participation) of stakeholders involved (Figure 12). Euwema and Van Emmerik (2007) suggested that there are two clearly different groups of respondents in a conflict situation. One group dealing with conflict primarily in a cooperative way, the other group responding primarily in a competitive way. Stakeholders of either group need to be managed differently. In order to fulfill the research objective, points of interest are focused on these changes of behavior which are expected to occur in conflict/ critical situations.

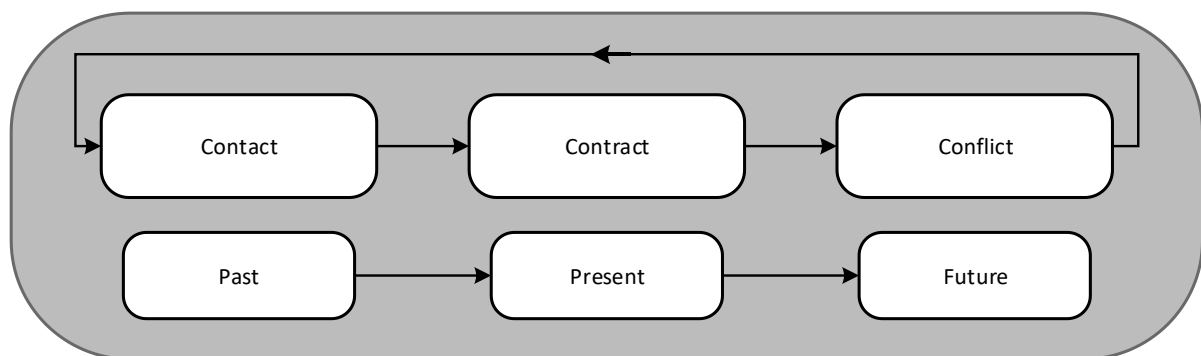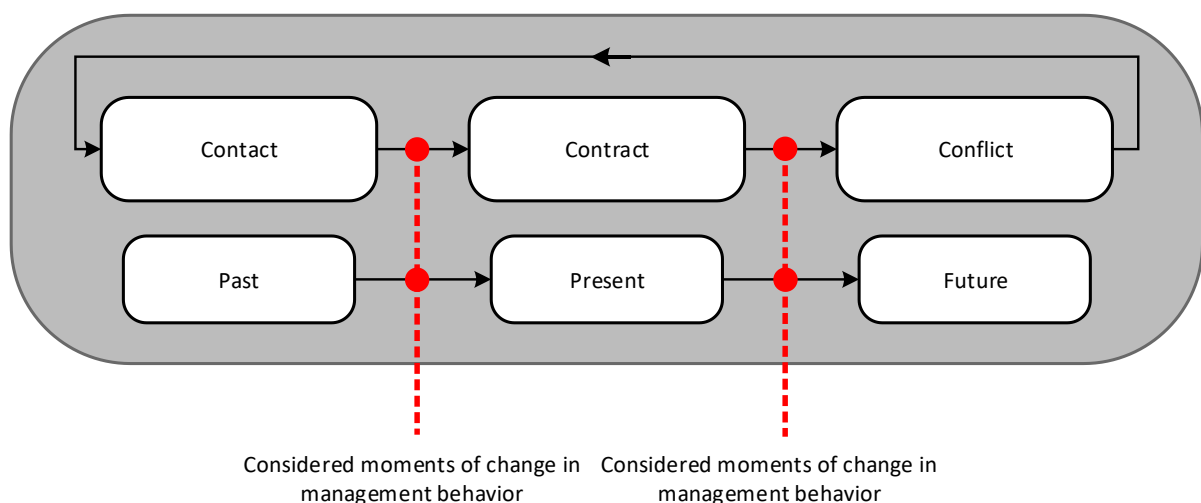*Figure 12 Considered moments of change in management behavior in the 3C-Model (Tijhuis, 1996) in combination with time focused stakeholder analysis (Varvasovszky & Brugha, 2000)*

Frame (2002) discussed in his book that change in a project is inevitable and something has to be done to face these new challenges, whether it is to embrace, accept, or challenge it. The idea is that reacting accordingly to changes in a project is to keep it as stable as possible in a dynamic environment. Rahim (2010) suggested that conflict occurred in a project should be managed, rather than resolved, to enhance individual, group, and systemwide effectiveness. Helms-Mills, Dye, and Mills (2008) also discussed that managers need to deal with issues of changing environment that may either threaten or enhance the survival and growth of the organization.

At the end, the goal of changing management behavior is to impact the project in a positive way, whether it is to minimize resistance, increase engagement, improve performance, or reduce cost. In order to efficiently meet the research objective, points of interest are focused on these conflict moments where changes in management are supposed to happen.

2.7   Resume

This study puts existing stakeholder theories (B. G. Cameron et al., 2011; R Edward Freeman et al., 2010; Mitchell et al., 1997; Turner, 2008) into a combined framework of the 3C-Model™ (Tijhuis, 1996) and time focused stakeholder analysis (Varvasovszky & Brugha, 2000) seen in Figure 13 below. A dynamic stakeholder management tool is then developed in chapter 3.
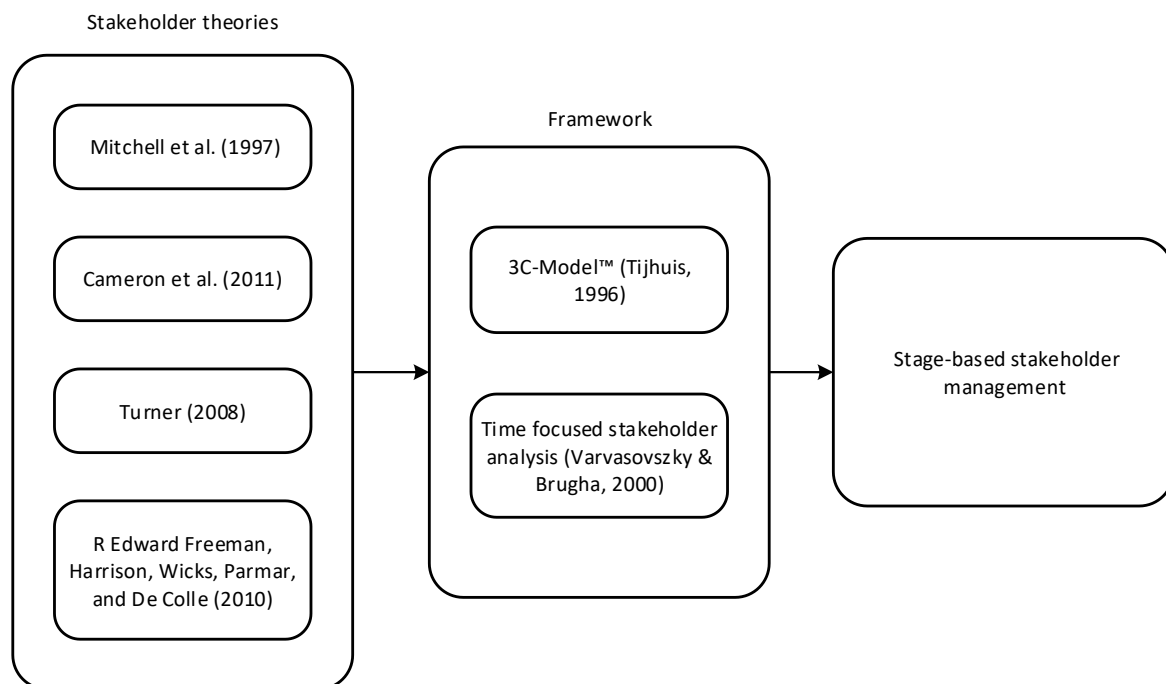
Figure 13 Research approach

Supporting topics will also be discussed, such as change in management behavior at critical moments and cooperation & collaboration of stakeholders. In chapter 3, the output will be a stage-based stakeholder management tool which serves as a hypothesis. This hypothesis will then be tested against actual projects by conducting observations and interviews in chapter 4. Based on the analysis, the research model will be developed to fit into the case studies. The output of this research will be a general model on managing dynamic stakeholders based on 3C-Model stages. At the very last, conclusion and recommendation will be discussed.

3 Research Model: 3C-stage-based Stakeholder Management

3.1 Introduction

As projects are dynamic, stakeholders are also dynamic. Their needs and power changes depending on the situation the project is in. Ashworth et al. (2011) stated that stakeholders' attitudes may change over the duration of the project and it is crucial to monitor these attitudes so as to best identify ways to effectively manage any obstacles. Because of this, stakeholder analysis should remain an ongoing process allowing for policy design to adjust (Schmeer, 2001). To do that, the 3C-Model™ can be used as a tool to map the behavioral attributes of stakeholders along the lifespan of a project (Tijhuis & Fellows, 2012), whether it is positive or negative towards a project. For each stage, stakeholders might or might not change their behavior in later stages. It depends on the dynamics of the project.

To answer the three research sub-questions, this chapter is to discuss about the 3C-Model™ as framework, dealing with stakeholder change, and systemic stakeholder classification. This research integrates the 3C-Model™ with stakeholder management tools: time focused (Varvasovszky & Brugha, 2000), occurrence (B. G. Cameron et al., 2011), and process (Turner, 2008) in combination with stakeholder classification (Mitchell et al., 1997).

3.2 3C-stage-based Framework

As mentioned before, Varvasovszky and Brugha (2000) separated stakeholder management into three-time frames: past, present, future. Each of these time frame has their own unique stakeholder management approach which will be discussed in combination with the stages of the 3C-Model™: contact, contract, conflict. The three combination stages are:

1. Past-Contact Stage
2. Present-Contract Stage
3. Future-Conflict Stage

In these stages, the attributes, lessons learned, and stakeholder theories are integrated and examined to form an integrated stage-based stakeholder management tool.

3.2.1 Past-Contact Stage

In this stage, policy analysis and project evaluation (Varvasovszky & Brugha, 2000) is the main concern. Policy analysis mentioned by (Varvasovszky & Brugha, 2000) will be considered here as project contract preparation, which the purpose is to have a mutually beneficial project to the stakeholders. Before doing this, based on Turner (2008), the first things to do is the identification of resource requirement, success criteria, and stakeholders' interests, and analysis of stakeholders. To identify stakeholders involved, he stated that a stakeholder can be defined as anybody who has an interest in the project, its work, outputs, outcomes, or ultimate goals. R. Edward Freeman (1984) described them as any group or individual who can affect or is affected by the achievement of the firm's objectives. Second is identifying success criteria from each stakeholder, Turner (2008) hinted that different stakeholders potentially have different views on project success. The third is to analyze the stakeholders by asking these three questions:

1. Are they for or against the project?
2. Can they influence the outcome?
3. Are they knowledgeable or ignorant about the project?

After all the potential stakeholders are detected and analyzed, project contract preparation and evaluation can be done by an extended communication with the stakeholders, it can be in a form of an interview or dialogue. This step is to gain the understanding of everybody's interest towards the

project. Lessons learned by Tijhuis and Fellows (2012) mentioned several points that are important to be considered in this stage:

- have good communication with the identified stakeholders
- understand everybody's 'hidden agendas'
- balance between trust and the ability to control parties
- match party's attitude, goals, and agenda, to keep a grip on the dynamics of the project
- be aware of other party's backgrounds to reduce the risks of unpredicted behavior
- maintain business relationships

3.2.2   Present-Contract Stage

Present stage, as the current view of this research, is when the project is being implemented. Besides project implementation, policy implementation mentioned by Varvasovszky and Brugha (2000) will be considered as contract implementation. Stakeholders' behaviors are bound to the contract. In this stage, the second half of stakeholder management process by Turner (2008), see Figure 7, comes into action. Stakeholders are to be maintained with a loop of developing a strategy for each stakeholder, monitoring internal & external changes, and monitoring stakeholder satisfaction. The selected stakeholder management strategy is to categorize them by the knowledge-support matrix and react to their attributes accordingly (Figure 14). In a way, this is an informal past performance analysis which has to be updated frequently. Knowledge and attitude of stakeholders might and expected to change as time goes by.

Figure 14 Stakeholder management strategy knowledge-support (Turner, 2008)

After the assessment will be to monitor internal and external changes of the stakeholders. Stakeholders may change their behavior during the project and may come and go. The response towards their behavior and existence in the project should then be adapted. Next is to monitor and respond to their satisfaction. Strong, Ringer, and Taylor (2001) found a pattern in which to keep stakeholders satisfied: empathy and concern for the equitable treatment of individuals, honesty, and integrity of information, and time-related factors.

Lessons learned for this stage by Tijhuis and Fellows (2012) includes:

- clear separation of the several roles within projects
- team members should be chosen based on legal, financial, experience, and 'culture'
- contract type should be based on involved stakeholders' characteristics
- be sensitive to weak signals during the contract negotiations
- clear contract procedures

- avoid unclear situation by adding legally signatures to mutual trust
- focus on long-term goals and keep reputation value of parties involved

3.2.3 Future-Conflict Stage

As the focus of this study is in the present/ contract stage, the approach to handling the future is by project planning and policy development (Varvasovszky & Brugha, 2000). At this future stage, where conflict will possibly occur, project planning is an important issue to reduce the risks of uncontrollable conflict. To cope with this, the second half of the stakeholder management process by Turner (2008) is still playing its role; developing strategies for stakeholders, monitor internal & external changes, and monitor stakeholders' satisfaction.

Lessons learned for this stage by Tijhuis and Fellows (2012) includes:

- hold an open and structural communication with the stakeholders
- prepare to accept juridical way of dealing with conflicts
- at conflict, focus on issues which connect parties
- focus on present situation and future results
- take conflict as an opportunity to get a better understanding of the underlaying problems and clarify the situation
- gather parties in focusing on solutions, not play the blame game

3.3 Dealing with Stakeholder Change

As mentioned before, one of the dynamism can be seen in the dimension of the stakeholder change; and their attributes. Mendelow (1981) suggested that dynamism of stakeholders hold a key factor of the success of a project. E. A. Chinyio and Akintoye (2008) stated that there is a need to monitor the stakeholders and their stakes and respond to their dynamism in order to avoid any negative effects. As the levels of power and interest of stakeholders change, their influences change likewise. The need for the continuous mapping of stakeholders is very critical as their ability to influence projects is fluid. Stakeholders might change during the lifetime of a project (Ashworth et al., 2011). Changes can be either change of player (e.g. contractor, consultant, owner, etc.) or their attributes (e.g. influence, power, etc.). E. A. Chinyio and Akintoye (2008) concluded that an organization may wish to adopt a proactive approach, endeavor to maintain existing relationships, support its stakeholder management practice fully, use systems and be responsive to stakeholder dynamism. Stakeholder changes are distinguished into three categories:

1. Change of stakeholder's attribute. This might be the most common occurrence. Past performance of stakeholders cannot guarantee the stability of their attributes in the project. If this happens, continue with the second loop by Turner (2008). Stakeholder attribute change might be one or more of the following:

    a. *Power*
    b. *Influence*
    c. *Legitimacy*
    d. *Urgency*
    e. *Knowledge*
    f. *Attitude*

2. Withdrawal of stakeholder. It is when a stakeholder withdraws itself from the project. It doesn't matter in which stage the project is in, an assessment of the other stakeholders' satisfaction should be made by looping the second half of Turner's stakeholder management

(Figure 7). Bear in mind that if the one that withdraws is the definitive stakeholder (Mitchell et al., 1997), the project naturally cannot resume until the position is filled again.

3. Change of player. It is when one or more stakeholder body changes or a new stakeholder is joining the system. In both cases, it means that a new stakeholder is met. If this happens, from the point of view of the 3C-Model™, it is a moment in the contact phase. New information is needed for the input of the contract phase.

3.4   Systematic Stakeholder Classification

The number of stakeholders affecting a project might be too many to count. A stakeholder classification is needed to filter the important stakeholders that have to be considered and taken care of. Different authors have tried to propose frameworks to classify stakeholders. A framework by Preiss and Wegmann (2001) classify stakeholders based on their stage of life-cycle which are system development and system operation stages. This method does not give any other attributes to consider other than the moment they are involved in a project. IFC (2014) maps stakeholders based on their influence and impact to a project. An extended treatment is needed to sort out the stakeholders that matter the most to the project. Other classification techniques such as the power and interest matrix by Ackermann and Eden (2011) and the opposition-support and power matrix by Anderson, Bryson, and Crosby (1999) produce broad outcomes. Stakeholder classification diagram by Mitchell et al. (1997) helps to narrow the range of 'who or what really counts' at any given moment in a project. Mitchell's model is selected due to its comprehensive classification and simplicity. In this research, it is used as a base to monitor stakeholder attribute and behavior changes. Since this research focuses on complex project, stakeholders involved in the case studies have two or more qualitative attributes (power, legitimacy, urgency). Hence, only 4 classes of Mitchell's stakeholders are weighed, those are:

1. *Dominant stakeholder*: having power and legitimacy
2. *Dependent stakeholder*: having urgency and legitimacy
3. *Dangerous stakeholder*: having urgency and power
4. *Definitive stakeholder*: having power, urgency, legitimacy

As mentioned earlier, definitive stakeholder holds the highest authority in a project, hence the withdrawal of their participation in a project will result in a stoppage. If this happens, the project stage has to start again from the beginning. Hence, it is not considered as part of the proposed research model.

3.5   Concept Integration

3C-stage-based framework, stakeholder change, and stakeholder classification are integrated into a connected model (Figure 15). Since the focus moment of this research model is the present-contract, the goal is to manage stakeholders in a fashion so that conflict can be reduced, mitigated, or even avoided. In each of the stages, stakeholder management strategies are integrated based on classification (Mitchell et al., 1997), research (B. G. Cameron et al., 2011; Turner, 2008; Varvasovszky & Brugha, 2000), and lessons learned (Tijhuis & Fellows, 2012). From this point forward, this proposed concept will now be addressed as the '3C-Tool'. The proposed 3C-Tool is to fulfill strategic stakeholder management in the 'conflict' stage, which can be forecasted by taking the strategies in the two previous stages into account.

The diagram is to be used in answering these following questions:

1. What to do in each stage?
2. What are the focus in each stage?
3. What is the general strategy in each stage?

Steps in reacting to stakeholder changes are essentially practicing the 3C-Tool from the beginning with fair adaptation, depending on the state of the change. Stakeholder change management is also put into the Figure 15. As mentioned earlier, only 4 stakeholder groups are taken care of since the others are considered not to have much influence. The principle of the first step, the 4 stakeholder groups by Mitchell et al. (1997), is to answer the question 'who and what really counts' (see #1, Figure 15). This is to identify which stakeholder has to be put first into the consideration. The strategy development, later in the contract and conflict phase, is also based on the classification of the stakeholders. However, these classifications can change over time. Examples discussed by Mitchell et al. (1997) showed how a stakeholder can grow their power by gathering a crowd of people to support their urgency. With the crowd in their hand, it is then also possible to acquire the legitimacy needed using legal administrative approaches. This example has already the dynamism in itself. Using the 3C-Tool, one should be able to map the impact of such stakeholders' dynamism.

Stakeholder analysis is done in the top half of the proposed 3C-Tool (see #1-#5, Figure 15). In this part, stakeholders are to be assessed based on their attribute. The assessment is suggested to be done by a proactive and continuous monitoring of internal and external changes (see #2, Figure 15) from the management. The bottom half of the proposed 3C-Tool (see #6-#8, Figure 15) is the management approach part. It is a result of integrating various stakeholder theories into the 3C-Model™ framework. It explains what needs to be done based on the conditions assessed in the stakeholder analysis.

First, expected to be the most common is the change of stakeholders' attribute (see #3, Figure 15). Managing it, would be to continue Turner's loop from 'develop a strategy of each stakeholder' (see #7, Figure 15). The specified stakeholders are the ones which have change their attribute. Followed by monitoring their changes and satisfaction after a strategy has been made in the contract phase. When the conflict phase starts, the same loop (see #8, Figure 15) is to be practiced again. Second, in case of a withdrawal of a non-definitive stakeholder (see #4, Figure 15), monitoring of existing stakeholders' satisfaction is to be done, following Turner's loop (see #7, Figure 15). Withdrawal of a definitive stakeholder is not put into consideration since it will halt the project entirely. When this happens, the whole project should be reorganized from the beginning. Third, to manage change of player (see #5, Figure 15), their position is to be considered as a new stakeholder joining the system. Hence, from the viewpoint of the proposed 3C-Tool, the new stakeholder is in the past/ contact phase. Identification of their resource requirements, success criteria, stakeholders and their interests are first to be done (see #6, Figure 15). Then, following the diagram accordingly with the next part of Turner's loop (see #7 and #8, Figure 15).
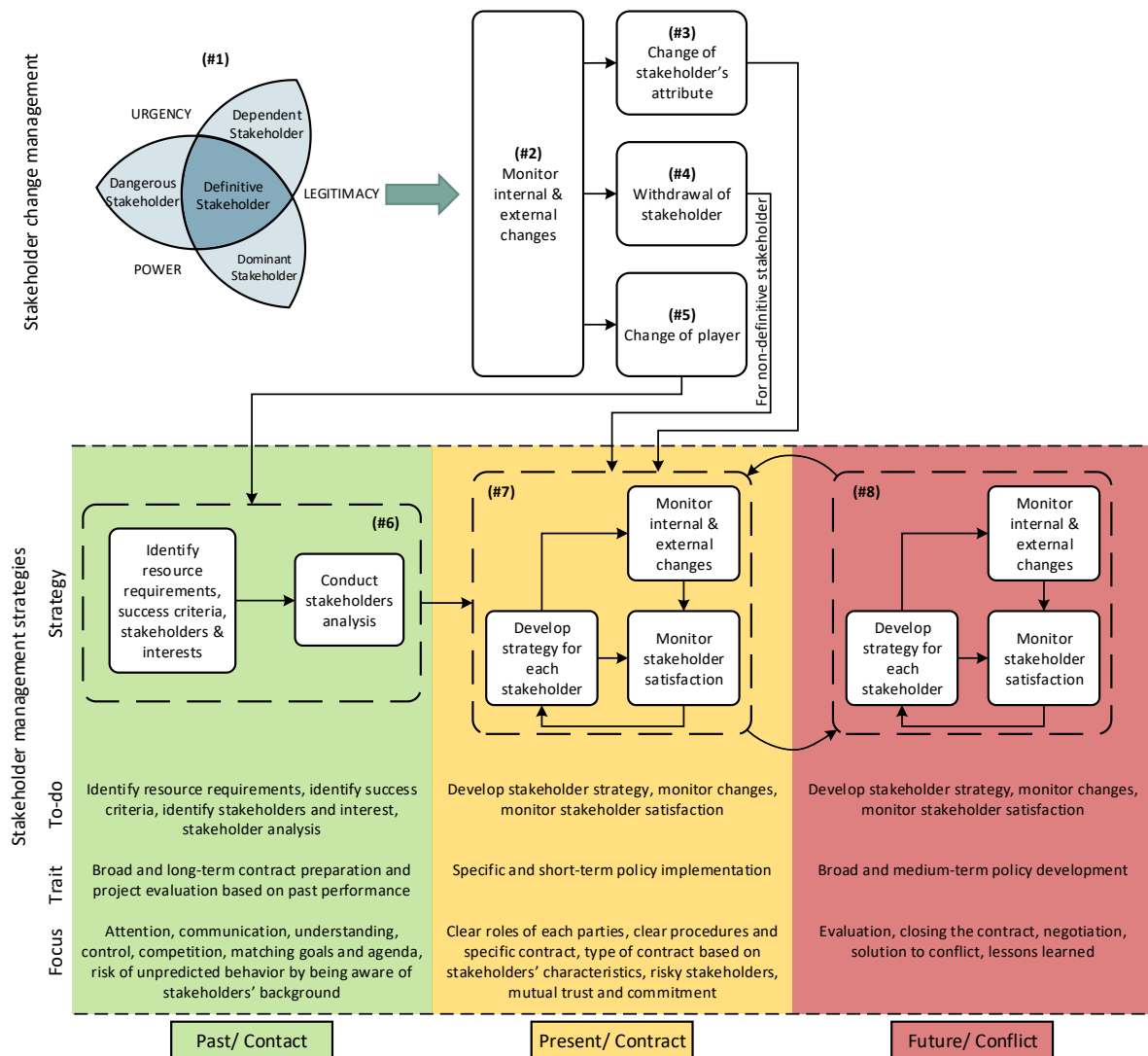
Figure 15 Proposed 3C-Tool, a stage-based dynamic-stakeholder management approach, integrated from several stakeholder theories into the 3C-Model™ framework (Tijhuis, 1996). This model serves as the hypothesis of this research.

Figure 16 below is made as a practical example. It only shows one cycle of the 3C-Model™ but more loops can be put into the diagram since there can be several loops of 3C stages in a project. The horizontal blue bars (Figure 16) represent stakeholders that occur during the project life cycle. The more and longer they occur in the project, the higher they are placed in the diagram. A higher position in the diagram means that the stakeholders are to be maintained more than the ones at a lower position. In the bars, stakeholder management strategies are placed based on the stages they are in. If a bar is overlapping other stages, the strategies of handling stakeholders are to be integrated. If a change of a stakeholder occurs during the project, change management strategy can be placed on the former bar, see the second row in Figure 16. For a more practical application, the horizontal axis can also serve as the time period in the project. 'Future/ conflict' would then be a future point which cannot be defined at the start of planning the project.
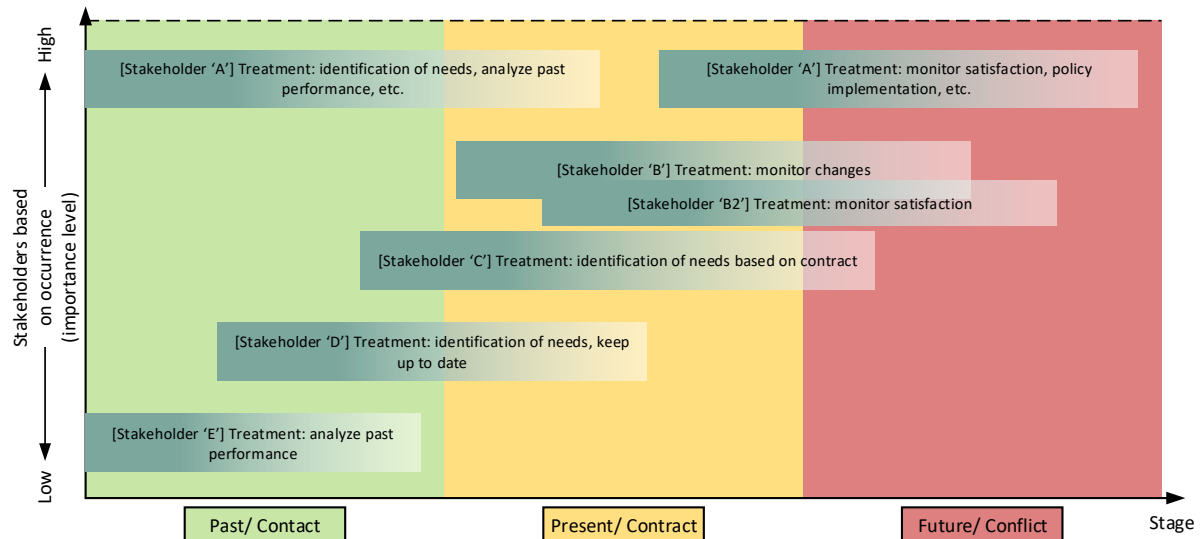
Figure 16 Practical example of the 3C-Tool in projects

The practical example in Figure 16 above will not be discussed further in this research. It only serves as an illustration. It can be adjusted accordingly for practical use.

3.6   Resume

In this chapter, the development of the proposed 3C-Tool has been discussed. The 3C-Model™ by Tijhuis (1996) serves as the basic framework and is combined with the time-based stakeholder analysis Varvasovszky and Brugha (2000). This framework features basic stages of a project, which serves as a guide in viewing the dynamism of it. Mitchell's stakeholder classification and Turner's stakeholder analysis, among other stakeholder theories, are then put into the framework, resulting in the proposed dynamic stakeholder management tool, the 3C-Tool.

At the beginning, stakeholders are to be identified to answer 'who and what really counts' based on Mitchell's stakeholder classification. The 3C-Tool presents three different possibilities of stakeholder changes, namely 'change of stakeholder's attribute', 'withdrawal of stakeholder', and 'change of player'. Based on the possibility of changes, actions are then to be done following the suggested steps, whether to step back to the past/ contact stage to identify initial properties, or continuing to present/ contract stage to develop further stakeholder management strategies.

The 3C-Tool serves as a hypothesis to this research. It will later be tested against actual case studies in chapter 4.

4 Testing the 3C-Tool using Case Studies

4.1 Introduction

In order to test how the 3C-Tool performs in real-life projects, five different case studies from Indonesia are conducted. Stakeholder management in Indonesian projects are still overlooked since the majority of handling stakeholder conflict is through bribery and other related means. In 1998, a study suggested that 78% of Indonesian polled were certain that bribery was still necessary in dealing with government offices, as cited by Robertson-Snape (1999). The level of fraud in handling stakeholders depends on the complexity of the project (Server, 1996). Baccarini (1996) proposed the definition of project complexity as 'consisting of many varied interrelated parts' and can be operationalized in terms of differentiation (the number of varied elements) and interdependency (the degree of interrelatedness between elements). The complexity of the projects used in this case study is differentiated based on their administrative scale: one national, three regionals, and one local. The influence of stakeholders of each project also differs according to the scale of the project. Industries in which the case study are focussed on are also diverse, to gain a broader view of this research. The selected case studies are shown below in Table 1.

Table 1 Case study

No	Case Study	Scale	Industry
1	Total E&P	Regional	Oil and Gas (Offshore)
2	Freeport Mining	Regional-National	Mining
3	DOISP II	National	Safety Improvent Service
4	Java-Bali Power Transmission Crossing	Regional	Construction- Electricity
5	Telecommunication Tower	Local	Construction- Telecommunication

4.2 Framework for Analyzing the Case Studies: 3C-Tool

As the case studies are to test how the 3C-Tool perform, it is also used as a base for analyzing the case studies. The following aspects are investigated:

1. Stakeholders' classification and attributes, discussed in paragraph 'Stakeholders Involved': list of stakeholders involved in the case study with their attributes and standing towards the project;
2. Change of stakeholders' behavior, discussed in paragraph 'Change of Behavior': represented in a narrative approach and by comparing different stages of the 3C-Model™;
3. Change of management to cope with the stakeholder dynamics, discussed in paragraph 'Stakeholder Approach': discuss the approach taken by the management/ interviewee in managing stakeholder changes;
4. The outcome of the management, discussed in paragraph 'Lessons Learned': analyze the decisions of the management towards the change of stakeholders' attribute;
5. The application of 3C-Tool and adjustment discussed in 'Application of 3C-Tool and Adjustment': discuss how the proposed 3C-Tool can be applied in the case study. Adjustments discussed in this section are only for the specific case studies. The development and integration of these adjustments will be discussed in chapter 6.

As discussed earlier in section 2.6.2, the point of interest in the case study is based on past conflict events. Not all the case studies are yet completed. Three of these projects are on-going: Freeport Mining, DOISP, Java-Bali Power Transmission Crossing. To confirm the findings, past conflicts are

selected from inside the case study which changes decisions in the stakeholder management. The aim of doing this case study is to understand how the management changes their behavior towards stakeholders on conflict incidents and how the outcome would be. Selected conflict events depend majorly on the interviewees own perspective and with the support of other documents or news report. These case studies experience different levels of complexity and therefore the stages in which they stand are different.

4.3   Case Study 1: Total E&P

Total E&P Indonésie (TEPI) has operated the Mahakam Block in East Kalimantan since 1968 (Total E&P Indonesie, 2017). This case study discusses an ongoing operation: maintenance of oil and gas wells in the area of Delta Mahakam, East Kalimantan. The work is done on a vessel, which moves from one well platform to another. The work assignment of the interviewee is bridging information between the main office on land with the contractors involved in the operation on site, as well as supervising aspects of safety, environment, and maintenance. As per every energy company goes, safety is the number one top priority. TEPI keeps a reputation of work safety around the area, which more or less affects submission of product sharing contract with other foreign companies. This case study focuses on a conflict based of a contractor not fulfilling the specification requirements of a certain pressure control equipment (PCE).

4.3.1   Stakeholders Involved

List of stakeholders involved in this case study:

1. Total E&P Indonésie (definitive stakeholder): plays a role as the owner of the project. TEPI also holds several projects around the Delta Mahakam swamp area.
2. Service Company (dependent stakeholder): a contractor working for the owner in operating oil and gas platform. The service company uses a vessel in operating projects requested.

The interviewee in this case study works on an operation vessel as a representative of TEPI. Only two stakeholders are involved in the focused conflict.

4.3.2   Change of Behavior

TEPI as an oil and gas company has a safety-related targets, for example zero lost time injury (lost time injury: work accidents of one or more people that cause the person cannot return to work for at least 1x24 hours). Besides natural disaster and human error, chain of events of an incident that can lead to work accidents involves many factors such as equipment conditions that do not meet the standard. All standards have been set in the documented contract between Total and the service company related. This incident of an equipment not meeting the standard can occur after the contract phase. In this case study, an equipment called pressure control equipment (PCE) used in the operation has fulfilled the requirements set by TEPI. The PCE unit has been accepted by the commission at the contract phase. However, after some time of operation, the PCE unit needs to be changed or maintained because of wear and tear. What was agreed upon in the contract was the use of a PCE unit with certain standards. Replacing with another PCE unit or replace some of the parts because of wear and tear does not directly violate the contract. However, the service company changed the parts of the PCE unit with a new one that meets the required work function but does not meet the standard stated in the contract.

The service company changed the spare parts for the PCE unit using spare parts from other service equipment which are interchangeable. The reason they do this is because it is cheaper and more time efficient since they already have the spare parts at hand. They don't have to order it first, which will take time. This practice is widely known as 'cannibalism' of equipment. This violation was discovered

when a weekly function test was performed to check the operational condition of the PCE. A component of the PCE broke at the test and an investigation was arranged. They found that parts of the PCE weren't from the original manufacturer. Usually, a PCE has an official technical certificate from the industry contains the specifications, serial number, and date of validation.

TEPI names such action as 'Anomaly', where a certain human-made event violates the contract, especially regarding safety issue. The second worst outcome of such violation, after an accident, is the shut down of a vessel. Shutting down a vessel means that it stops operating for a period of time until the problem is fixed properly. From an economic point of view, an inactive vessel means there is no work, which leads to not getting paid. This is regarded as a punishment by the TEPI of violating the standard in the agreed contract.

4.3.3 Stakeholder Approach

To control and monitor incidents like this, the interviewee's division has a system called BAL (barge action list). In this BAL, 'Anomaly' conditions serve as an input. The BAL system itself is monitored by TEPI's representatives on the vessel and TEPI in the office located in Balikpapan. Engineers and the head of asset are monitoring from the office. This incident is followed up by both the stakeholders on the vessel and at coresponding offices. When an 'Anomaly' incident happens, both the technical division on the vessel and the office will assess the possible impact to the operation. If the possible impact might threaten the work safety, the vessel will be shut down as a penalty.

Furthermore, there is another measure to mitigate incidents before a violation occurs called 'stop card'. 'Stop card' is performed by a representative of the owner or safety department on the vessel to remind workers about safety issues such as using a full set of personal protective equipment or to work properly. The workers are stopped, checked, evaluated, and continue to work. This activity is based on a guide book and the experience of the supervisor/ manager. However, based on the interviewee, 'stop card' is difficult to carry out on technical violations since most of them are discovered after an audit by TEPI.

In this case, the operation of the vessel was shut down for 3 days. It was the time necessary for the service company to replace the required spare parts to its standard manufacturer.

4.3.4 Lessons Learned

The conflict was led by a technical violation of the contract. The service company wanted to have a cheaper and more effective way to replace components but ended up breaking the unit at the weekly safety test. For these kind of conflict, technical violation measures usually have been developed and stated more or less in the contract. The strategy for handling the conflict was merely technical, which was a penalty of shutting down the operation. The result of the stoppage is that the service company won't get paid for the period of time. This is a form of a penalty for violating the contract.

> *Lesson 1.1: Technical conflicts that occur in a project usually have technical strategic measures to cope with it.*

> *Lesson 1.2: In these types of projects where safety is a very important issue, a monitoring system is usually present. In this case, the monitoring was done by a weekly equipment check.*

The conflict in this case study occurred after the present/ contract stage. Hence, consequences of violating the contract is also based on the contract itself. Since the violation was technical, the penalty of it was also technical.

4.3.5   Application of 3C-Tool and Adjustment

The strategy to handle changing stakeholder behavior in these types of technical cases can be regarded as already developed beforehand. Even though it had to go through a decision-making process, every stakeholder was already aware of the consequences. In the contract phase, where all the technical issues are agreed upon, penalties for violation have been made. The development of strategy is the part when TEPI's representatives on the vessel and office assess the damage of the violation and with that, a penalty was decided. Although it seems like the strategy does not consider the satisfaction level of the service company, they should already be aware of these consequences. Hence making their satisfaction level neutral. The application of 3C-Tool can be seen below in Figure 17.
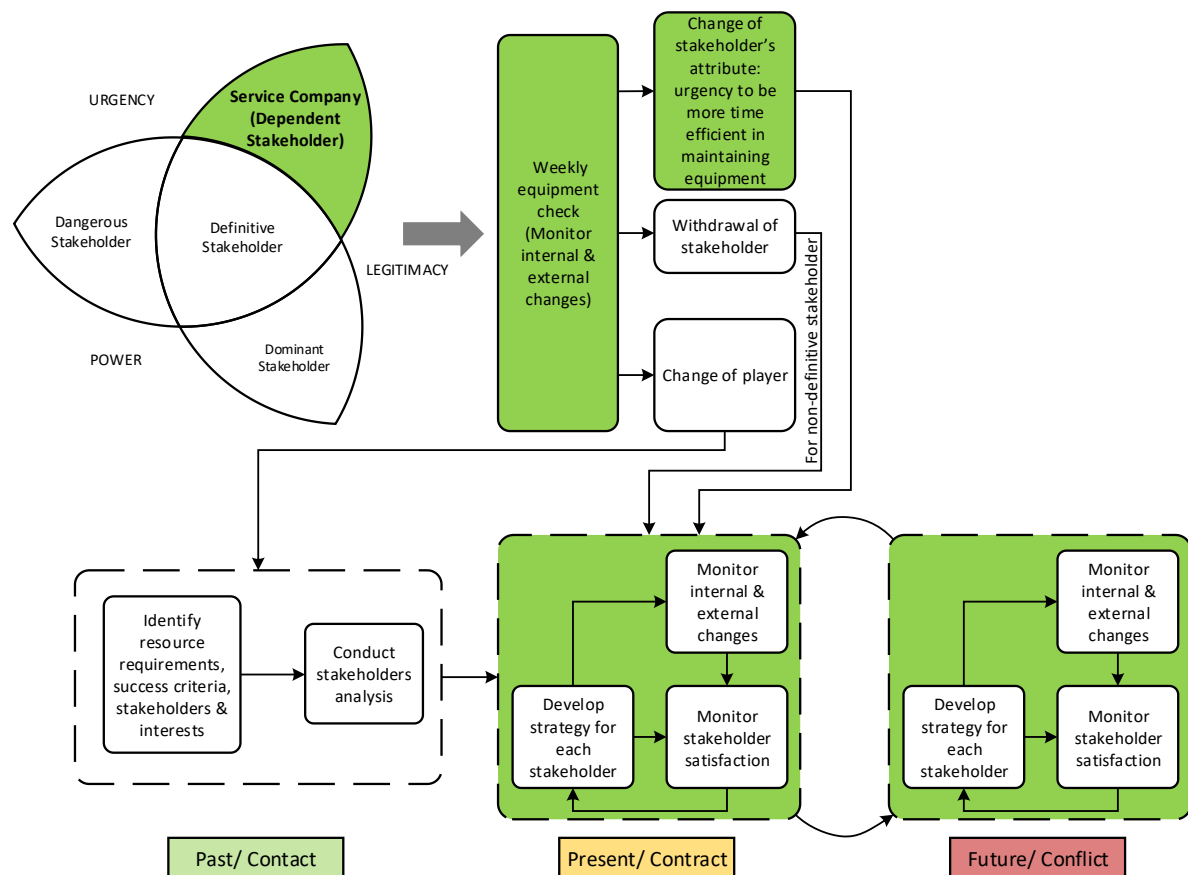
Figure 17 Application of 3C-Tool on case study 1: service company (highlighted in green)

The violation was discovered after a weekly equipment check. Based on the proposed 3C-Tool, this incident is considered as a change of stakeholder's attribute where the service company violates the contract to gain more benefit. Strategy development was rather technical since it is also a technical issue. The second half of Turner's strategy development and monitoring loop is interconnected across the contract and conflict phase. Since it is a continuous loop, the boundary between these phases fades. Therefore, the loop is considered as one entity across the contract and conflict phase.

4.4   Case Study 2: Freeport Mining

An ongoing mining company which faces new regulations on exploration. PT Freeport Indonesia (Ltd.) is affiliated with an American company, Freeport-McMoRan Copper & Gold Inc. As stated in their website (PT Freeport Indonesia, 2013a), Freeport Indonesia explores, mines, and processes copper, gold, and silver containing ores in the highlands of Mimika Regency, Papua Province, Indonesia. Another problem that the company also faces is new regulations and permits which oblige mining

companies to build a smelter if they want to export ore concentrates. In the beginning of 2017, Freeport also let go of 3000 employees because of the export ban (Tempo, 2017). Although their operation is based in the general region of Papua, their dynamism attracted national attention.

4.4.1 Stakeholders Involved

List of stakeholders involved in this case study:

1. Indonesian central government (Ministry of Energy and Mineral Resources, definitive stakeholder): holding the highest authority in the country regarding this area of business. They are responsible for making regulations concerning energy and mineral resources;
2. Local government of Papua (dominant stakeholder): the mining industry of PT Freeport Indonesia (Ltd.) is located in the province of Papua, hence the local government has a high influence to the industry;
3. Local government of Gresik (dominant stakeholder): an existing smelter owned by PT Freeport Indonesia (Ltd.) is located in Gresik, West Java;
4. PT Freeport Indonesia (Ltd.) (definitive stakeholder): faces new regulations from the Indonesian government and new chain of order from the investors;
5. Investors (dangerous stakeholder): they have the power and urgency to change the way PT Freeport Indonesia (Ltd.) does its business. However, since the operation contract is only between PT Freeport Indonesia (Ltd.) and the Indonesian government, investors don't have the legitimacy to interfere much.

The interviewee for this case study has worked in PT Freeport Indonesia (Ltd.) as a crew leader of performance management but his views in the conflict cover the overall situation based on his expertise.

4.4.2 Change of Behavior

PT Freeport Indonesia (Ltd.), to be addressed as PTFI, has been mining in Papua since 1967 and has been extending their work contract with the Indonesian government since then. In 2009, the Ministry of Energy and Mineral Resources made new regulations regarding the mining industry. One of the biggest highlights was the policy to process and refine raw material into more valuable goods in the country before exporting it. This policy requires mining business to have a smelter plant, or at least work together with existing smelter businesses. PTFI already has a smelter plant in Gresik, West Java. However, this asset is outdated (built in 1996), have a lot of technical problems, and can only serve 40% of the current mining production capacity. The policy was enacted effectively starting on January 2014. At that time, PTFI has not built a new smelter plant. However, they can still blame the Indonesian government since the policy wasn't detailed enough, such as the level of purification of raw materials and the consequences of not meeting the requirements. There was also no monitoring from the government regarding smelter planning and construction. Based on PTFI, building a new smelter is too expensive and will drop their stock value on the market (Panggabean, 2017). Besides, there is no real added value to PTFI since directly exporting raw material is already profitable.

The Indonesian government faced a dilemma and decided to give PTFI a leeway. PTFI was allowed to directly export their raw material but in the meantime, needs to build a new smelter plant, with a monitoring procedure of every 6 months. PTFI has given two choices of places for building their asset: Papua (close to the exploration site) and Gresik (close to the existing smelter). Both of the local governments wanted the opportunity and offered several services. However, the Papuan government was not technically ready to have a smelter plant on their land since it also needs a new power plant to support the smelter. Hence, Gresik was selected to be the location of the new smelter plant. The land was better prepared. However, this decision was later opposed by the parliament. Placing a

smelter close to the exploration site is most logical, besides Papua needs the economic development (Wijayanto, 2015).

In early 2017, The top management changed following a buyout of Freeport-McMoRan Inc, PTFI's mother company (Indonesia, 2017). This new management is more focused on the dynamics of profit made by PTFI. As a result, smelter plant construction is then more set aside. They questioned the government's right in forcing them the new policy.

There were several changes of stakeholders' attribute and behavior. Currently, this case is still on-going and there hasn't made any new deal between PTFI and the Indonesian government yet. As of this point, stakeholder's dynamics were as follow:

1. Indonesian central government (Ministry of Energy and Mineral Resources): changed their attribute by changing/ adding a new policy. Later in the case, the government also changes their attitude towards PTFI, which they were less strict since they were convinced on making a mistake of not monitor the smelter progress;
2. The local government of Papua (dominant stakeholder): their attributes and attitudes towards the smelter plant haven't changed. They still want to have the smelter plant on their administrative boundaries;
3. Local government of Gresik (dominant stakeholder): as for the time being, they don't have much power since decisions are made on a higher level;
4. PT Freeport Indonesia (Ltd.) (definitive stakeholder): the changing of management also changed their attitude towards the smelter case. At the beginning, PTFI were on board on the idea of making a new smelter. As the focus of the top management changes, their attitude towards the smelter changes to stalling;
5. Investors (dangerous stakeholder): change of the main investor shifted their urgency to gain more profit. They have the power to push PTFI to follow their direction of business.

4.4.3 Stakeholder Approach

There are 2 stakeholder changes: (1) change of regulations by the government; (2) change of urgency of the investors by changing PTFI's direction into a short-term profit goal. Although PTFI is located in Indonesia, they still possess the power in the internal jurisdiction. Same goes for the investors, they don't have much power in Indonesia but they do have the power to change PTFI's movements hence makes them a definitive stakeholder from a global perspective. Since there are 2 definitive stakeholders in the eyes of PTFI with 2 different desires, it makes PTFI difficult in making decisions.

The change of government's policy wasn't unexpected by the PTFI. They kept their relationship close to the government to update and negotiate policies. One of their approach in keeping the government satisfied was making the smelter in Gresik in 1996 even if it is not adequate anymore. Next strategy on keeping the government satisfied is by negotiation which led to a specific and short-term policy, the 6-month progress. For every 6 months PTFI doesn't meet a targeted progress in building the smelter, their export taxes increases.

Next, change of investors which pushed PTFI to not fulfill the government's request. PTFI couldn't proactively monitor the change of investors since their parent company (Freeport Mc-Moran) is traded openly on the stock exchange. Investors can come and go anytime as they desire. Since PTFI has to obey the investors, not much could be done. Eventually, while waiting for one of the definitive stakeholders does a move, PTFI can only stall. This is a short-term way out.

4.4.4 Lessons Learned

Conflict arose in this case study influenced other stakeholder changes. The start of the conflict was triggered by the change of policy made by the Indonesian government. The new policy itself is not flawless to begin with, hence there was room for negotiation and stalling. The change of behavior of the government wasn't anticipated and their satisfaction was also not maintained. A good intention of building a smelter, to keep the government satisfied, changed in the later time after the change of top management. This change of player played a major role in directing how the company acts towards this new policy. Knowing that the Indonesian government loosely holds the policy, the new management decided to stall the smelter plant project. However, this move angers the government.

Lesson 2.1: Additional requests from stakeholders are to be satisfied. Even if they emerge outside of a contract. A stakeholder approach that does not have the full intention in satisfying a stakeholder is most likely to dissatisfy them.

Before the change of management, PTFI keeps the government close and satisfied by maintaining communications and negotiating with their deals. After the change of management, stakeholders' interests differ. The investors as dangerous stakeholder don't want to satisfy government's request to build a smelter plant since it is not profitable for them. As PTFI resides in Indonesia, investors are only considered as a dangerous stakeholder since they don't have the legitimacy on dealing with the situation. For the time being, PTFI can only stall both the government as a definitive stakeholder and their investors as a dangerous stakeholder.

In this case study, stakeholders' attribute and attitude change over time. The definitive stakeholder increased their demands and the dangerous stakeholder changed their player along with their standing towards this new demand.

Lesson 2.2: Developing strategy for each stakeholder needs proactive monitoring of their change of behavior. Keeping them satisfied needs both of the parties to meet and negotiate with each other.

Although the work contract between PTFI and the Indonesian government is continuously renewed, the conflict is considered to have been occurred after the present/ contract stage.

4.4.5 Application of 3C-Tool and Adjustment

From PTFI's perspective, there are two stakeholders who changed their attributes: the central government and the investors. Changes are monitored by keeping informed about the stakeholders. Since the central government is a public administration, their moves are not secretive. The change of the central government is the addition of the refinement policy. Their influence and urgency towards the mining industry were monitored well enough. The impact of the policy is substantial to PTFI but PTFI didn't react fast enough since the consequence of the policy wasn't explicit enough. As time goes by, the government updated their penalty since they were not satisfied with PTFI moves.

The application of the 3C-Tool in this case study can be seen below in Figure 18. Strategy to satisfy the government wasn't done properly hence it makes the government change, in this case, update their policy with penalties. To satisfy the government, the next strategy then is, of course, to comply with the government's firm demands, which is to have a progress in building a smelter every 6 months.
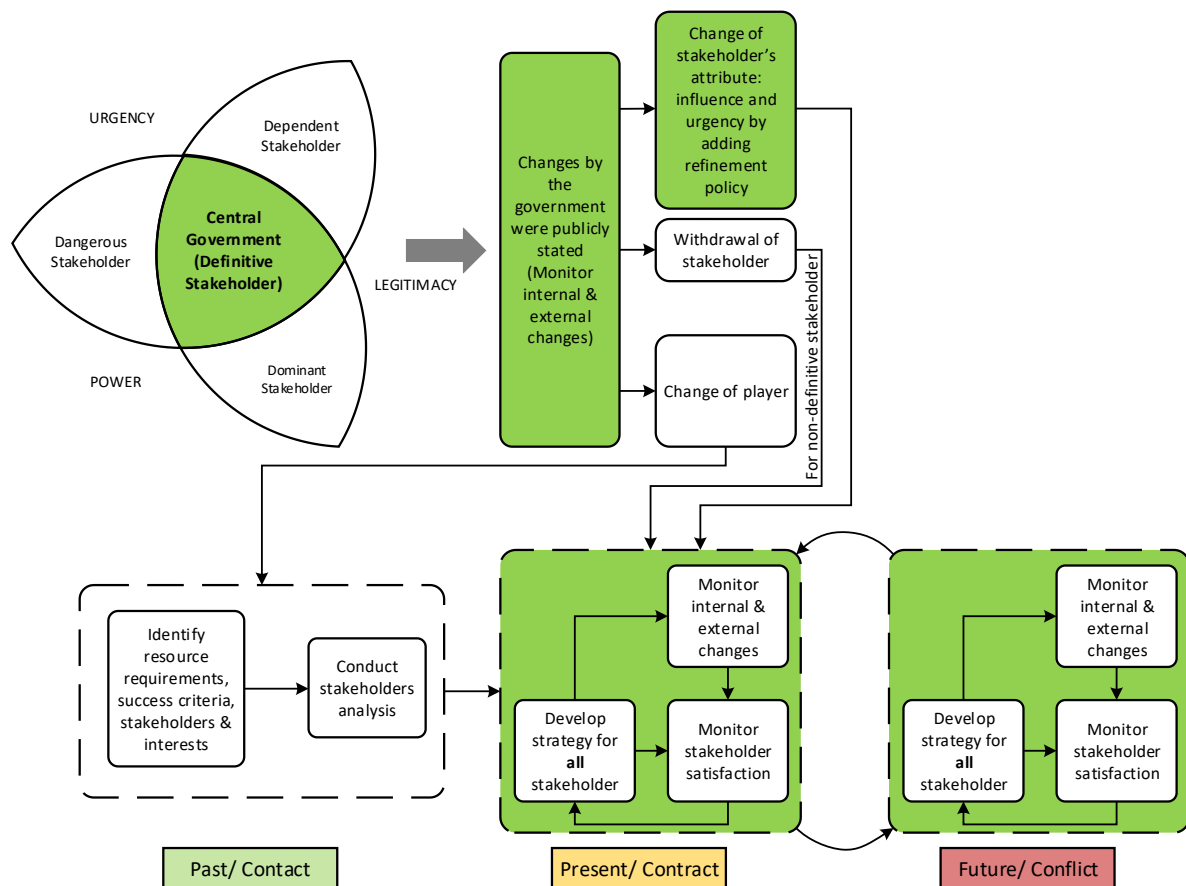
Figure 18 Application of 3C-Tool on case study 2: central government (highlighted in green)

Almost concurrently with the changes by the central government, the investors of PTFI's parent company changed the direction of business towards a more profitable industry in a shorter period of time. This change of urgency wasn't monitored well enough by PTFI since it happened outside their scope of attention. The impact of this change is the transformation of PTFI's top management. Since a new goal of making short time profit was declared, PTFI has to obey to the investors to satisfy them. The application of the 3C-Tool can be seen in Figure 19 below.
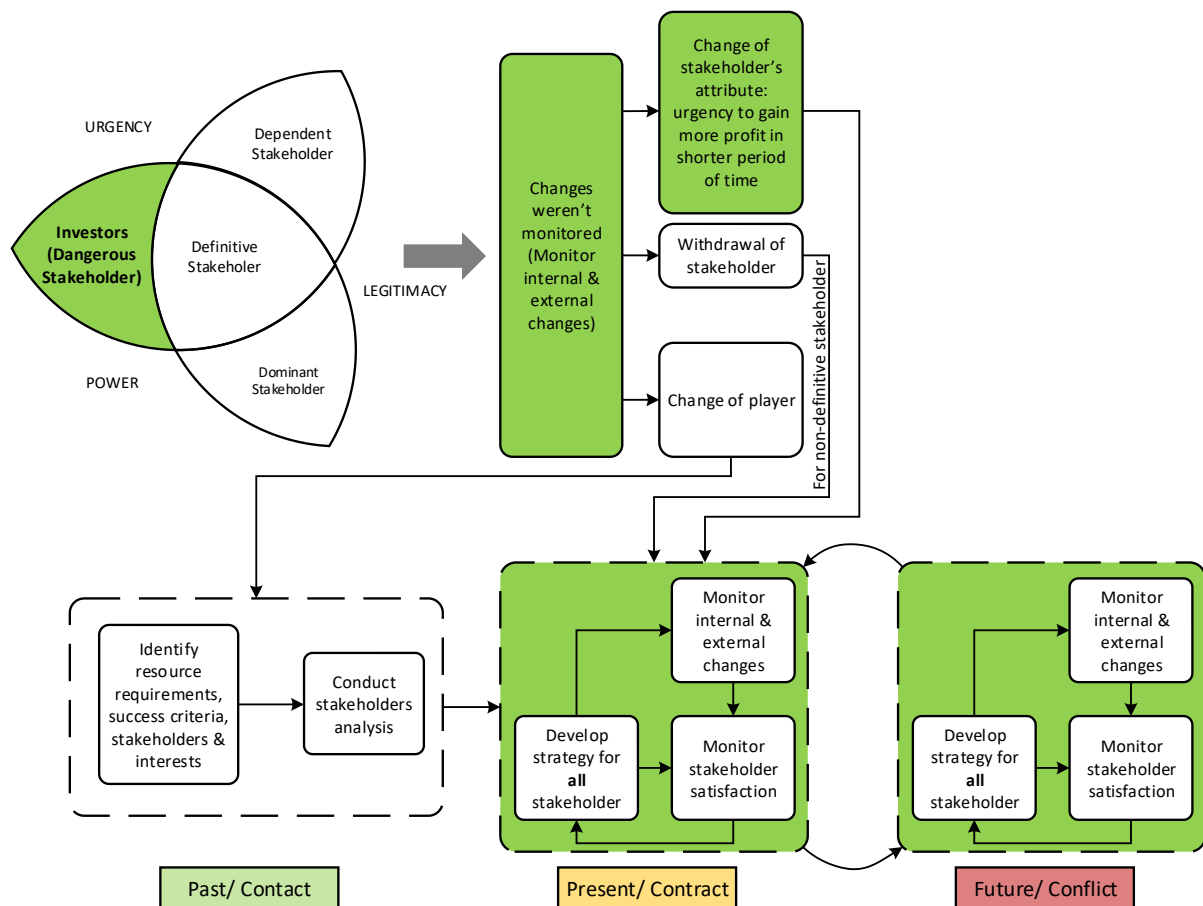
Figure 19 Application of 3C-Tool on case study 2: investors (highlighted in green)

Both changes of stakeholders' attribute indirectly affect one another since there is a conflict of interest. Developing strategy for stakeholders should consider the effect of the strategy to the other stakeholder present in a project. The effect of the strategy on certain stakeholder might then change their other stakeholders' behavior again.

Based on this case, the adjustment of the proposed 3C-Tool would be to change the strategy development from 'each' to 'all' the stakeholders. Turner's version was to develop a strategy for each individual stakeholder based on their attributes, disregarding other stakeholders' needs and interests. However, findings in this case study suggest that stakeholders are affecting each other directly or indirectly. A strategy that's developed for a certain stakeholder might affect another stakeholder as well. Hence the strategy should consider the outcome of all the affected stakeholder.

4.5 Case Study 3: Dam Operational Improvement and Safety Project II

The project objectives are to increase the safety and functionality of existing dams in selected locations around Indonesia and strengthen the operation and management capacity for dam safety. Direct beneficiaries of the project include those directly dependent on the water from the dams under the project as well as those populations in downstream areas that would be at risk in the case of dam failure. The first Dam Operational Improvement and Safety Project (DOISP I) has finished. DOISP II is a continuation project of DOISP I and has started in June 2017 and is targeted to finish in June 2023. The key focus will be on five major components namely:

- Dam Operational Improvement and Safety Works and Studies
- Operations and Maintenance Improvement and Capacity Building

- Reservoir Sedimentation Mitigation
- Dam Safety Institutional Improvement
- Project Management

The total project cost for the first DOISP project was US $ 70.43 million. This investment was shared with the World Bank and the Indonesian government, US $ 50.00 million and US $ 20.43 million respectively. For the second DOISP project, the total project cost is estimated to be US $ 300 million, which is shared to the World Bank (US $ 125 million), the Asian Infrastructure Investment Bank (US $ 125 million), and the Indonesian government (US $ 50 million).

4.5.1 Stakeholders Involved

There are a lot of stakeholders involved since it is a national scale project. Focusing on the conflict that the interviewee shared, the stakeholders are narrowed down as follows:

1. Central Project Management Unit (CPMU), Directorate General of Water Resources, Ministry of Public Works and Housing (definitive stakeholder): although the CPMU is a definitive stakeholder, they have to report their work to the state treasury service office and the investors. Their work is also being depended by the working units of provinces.
2. The state treasury service office, Ministry of Finance (definitive stakeholder): loan received from the investors are going through this service office. CPMU must file a request to withdraw money.
3. Working units of provinces (dependent stakeholder): holds responsible for technical service units of local dams.
4. World Bank (dangerous stakeholder): the only foreign investor of the first DOISP project. For this DOISP II, the World Bank shares half of the investment with the Asian Infrastructure Investment Bank.
5. Asian Infrastructure Investment Bank (dangerous stakeholder): shares half of the investment with the World Bank.

4.5.2 Change of Behavior

After the first DOISP project was finished, the Asian Infrastructure Investment Bank (AIIB) requested to join as an investor for the second DOISP project, which has a much higher cost than the first one. This second project is to be implemented from 2017-2022 and aimed at: (1) increase the safety of existing dams in selected locations, and (2) strengthen institutions for operational effectiveness of dam management. Investments are prioritized based on objective criteria for identification and assessment and include 23 major dams prioritized and prepared under DOISP, along with priority investments from the remaining 115 major dams (World Bank, 2017b). The foreign loan is shared between World Bank and AIIB with a 50-50 contribution. Every expenditure in this project should be reported to be financed by both banks with the same amount.

In Indonesia, all foreign loans have to go through the state treasure service office (STSO) under a direct supervision the Ministry of Finance. It looks like it is not that big of a problem, however, this additional bureaucracy chain is not as flexible as the request from the investors. There are two main problems: (1) For funds to be disbursement, it has to be in the national budget plan of this year. If an expenditure is not on the list of the national budget plan, it has to be proposed first to a later budget plan, which is the year after. (2) The system is still manual. The 50-50 share of investment concept is new to the STSO and hence it is difficult to calculate the spending. Each fund is dispensed individually, depending on the budget plan. The 50-50 share has to be done manually on the project. Complaints from the CPMU towards STSO to upgrade their system was not taken seriously since it will take time.

As of this point, the only stakeholder dynamic is the addition of investor, which leads to a new share of investment system. However, the system is not ready for that. From the investors perspective, they don't want to know how it works out as long as the 50-50 share is done, according to the contract. They want to know about the progress of the project. However, for a project to proceed, it needs money. The working units of the provinces don't really know the central bureaucracy problem. They work as long as the fund is given to them. The STSO won't change their system (behavior) in this short period of time which put the CPMU in a rather difficult situation.

For the time being, the only solution is to modify the financial distribution in such a way that it doesn't violate the contract. Funds are managed in such a way that the division looks the same even if in fact the different. Reports are also being made accordingly. However, even if this method isn't legally wrong, it exposes the CPMU to the financial law of the state. This short-term solution is made because of pressure from the investors, unpreparedness of the loaning system, and project needs the provinces.

4.5.3 Stakeholder Approach

The addition of investor can be considered as a change of player. The CPMU has identified resource requirements and stakeholders' interests of each stakeholder, including the STSO. Even if they knew that the STSO was not ready, they took the second DOISP project anyway since it is a continuation of the first DOISP. The investors as dangerous stakeholders don't want to be involved in such bureaucracy. The equal share system has to be met according to the contract. To keep all the stakeholders satisfied, the CPMU takes the risk in managing the fund on their own. This is hoped to be temporary until the STSO is ready with a new system.

4.5.4 Lessons learned

Conflict in this case study occurred because of change of player, while the system was not ready to handle the new request. Even with proactive monitoring of changes, there are aspects of capability that have been overlooked since it can't change in a short time. The bureaucracy system in Indonesia is still manual, slow, and complicated. Changes in the bureaucracy will happen eventually but will take a long time. When a dangerous stakeholder changes, but the definitive stakeholder does not, technical modifications are needed to satisfy both sides.

> *Lesson 3: Identifying requirements in the contact phase should lead to the identification of one's capability in handling the requirements before stepping further into the contract phase.*

The conflict has been just realized after the contract stage. It could have been avoided or managed in the past/ contact stage when the identification of stakeholders' requirements and capabilities happens.

4.5.5 Application of 3C-Tool and Adjustment

After the success of the first DOISP project, a new investor was interested in the second DOISP and wanted to join. A new stakeholder joining the system follows the 'change of player' path in the 3C-Tool (Figure 20). From the perspective of the CPMU, not only the AIIB as a new stakeholder has to be identified its requirements and interests, but also other stakeholders as well. In this case, the other stakeholder that needs to be reidentified is the state treasury service office. Do they have the resources to handle a new investment system? Unfortunately, the system wasn't ready and it forces

the CPMU to improvise to keep the investors satisfied while not getting the support from the state treasury service office.
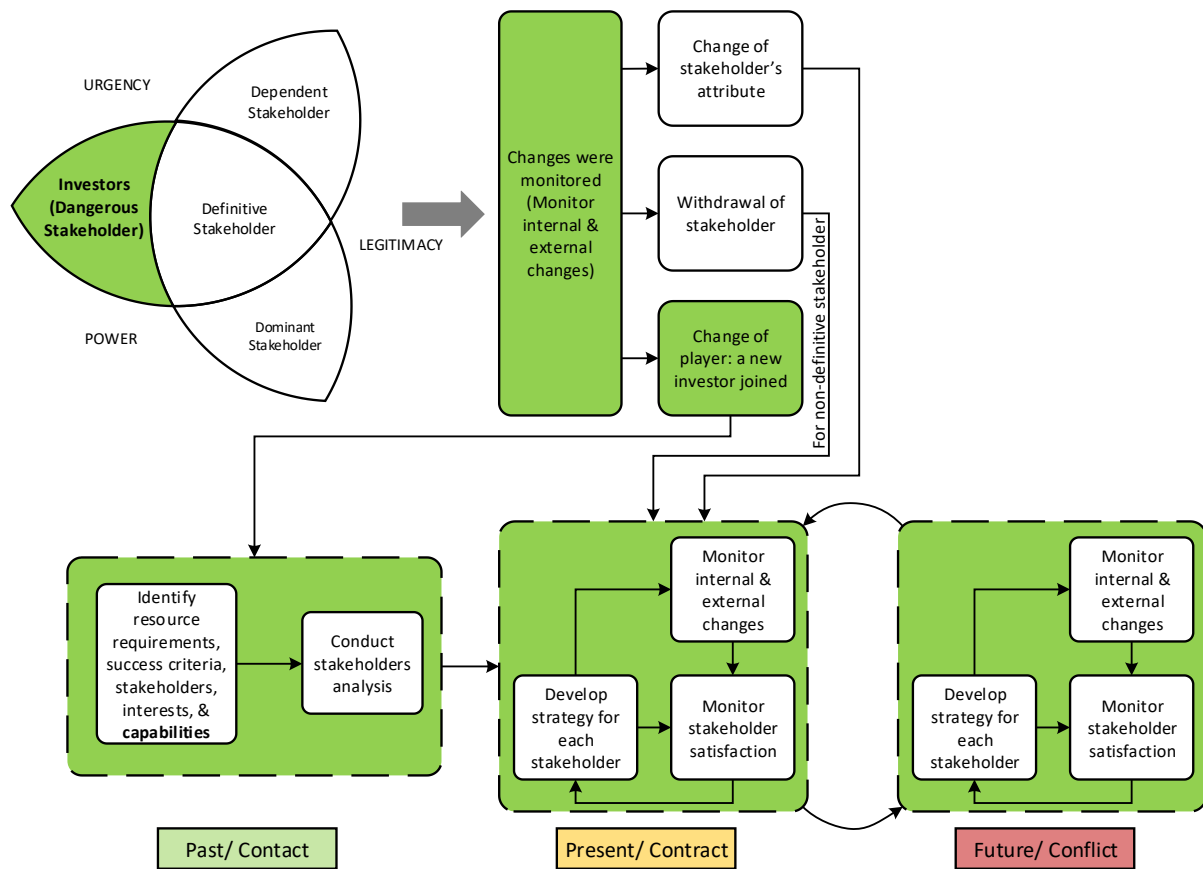
Figure 20 Application of 3C-Tool on case study 3: investors (highlighted in green)

Identifying requirements of a new stakeholder also require identifying other stakeholder's resources. In this case, the other influencing stakeholder cannot change their resource in the required time. Since the contract has already been set, there is only going forward, which is developing a strategy for the stakeholder. Using the 3C-Tool's perspective, CPMU's mistake is that they agreed to the contract of a new project without properly identify other influencing stakeholder's resources.

The adjustment for the proposed 3C-Tool is to add a factor of stakeholder's 'capabilities' to the equation of identification strategy. This is done in the contact phase where the stakeholders are identified based on their resource requirements, success criteria, and interests. Capabilities of each stakeholder are also needed to be assessed since it might have an influence towards the project or other stakeholders' requirements. Turner's version of identification of resource requirements suggests that it will be the management's duty to fulfill these requirements. However, it might not always be the case that the management is the one who can fulfill those. Findings in this case study reveal that the resource requirement of one stakeholder is to be fulfilled by another external stakeholder.

4.6   Case Study 4: Java-Bali 500-Kilovolt Power Transmission Crossing

An on-going project which will strengthen the Java-Bali power transmission grid by constructing 220 km of extra high voltage transmission lines with associated substations. The project forms part of the governments regional economic development master plan and its long-term power development plan. The project will benefit the population in Bali by meeting future demand growth in Bali Island,

thus ensuring long-term power supply security to support sustained socio-economic growth and government plan to achieve 90% electrification by 2020. It was expected to finish by the end of 2019 but current conflict with the Bali's provincial government suggests it will delay the project until a solution is made.

4.6.1 Stakeholders Involved

This megaproject involves a lot of stakeholders since the power transmission cable stretches over 9 different districts. To simplify the case study, Java's local governments, contractors, Java's local communities, and traditional leaders are left out of the discussion. They don't have much of a stake in the conflict. Below are the key stakeholders involved:

1. PT PLN Persero (ltd., state-owned electric company, definitive stakeholder): owner of the project.
2. Foreign investors (dangerous stakeholder): two foreign investors are involved in the project; Asian Development Bank (ADB) and ASEAN Infrastructure Fund Ltd. (AIF). ADB loans $224,000,000, whereas AIF loans a smaller part of $25,000,000 to the project.
3. Bali's local government (dangerous stakeholder): power transmission is to be directed from Java to Bali. Java's power production has a surplus and Bali is estimated to have a shortage of electricity in within the next 5 years.
4. The state treasury service office, Ministry of Finance (definitive stakeholder): loans received from the investors are going through this service office. CPMU must file a request to withdraw money.
5. The ministry of forestry (dominant stakeholder): issues the environmental impact assessment permit.

The interviewee's functional position is an environmental engineer working at the headquarters of PT PLN in Jakarta.

4.6.2 Change of Behavior

This case study, Java-Bali 500-Kilovolt Power Transmission Crossing, is a part of a bigger national strategic program of the central government in the field of energy infrastructure. The operation of this transmission line will strengthen the Java-Bali power supply. There is an electricity power surplus in East Java which can be used to support tourism in Bali (Agustinus, 2017). This power transmission project is targeted to start in early 2018 and finish in 2019 and begin operation shortly after (Frizal, 2017).

The formal start of the project preparation dates back to 2011. At the time, permissions on building the tower were taken care of. One of which is the Environmental Impact Assessment (EIA) document. Later, the EIA is approved and issued, by the Ministry of Environment, in April 2013 (PT Perusahaan Listrik Negara, 2013). It issued for the whole project, which passes through several districts in Java and Bali. To issue this EIA, one has to receive the consent of the regents and governors of the area called a principal permit, among other permits.

In 2012, the regent of Buleleng, a district in Bali that one of the two towers will be placed, changed along with the district government's administration. The turnover of the regent was after the principal permit was issued.

PLN's Regional Director of East Java and Bali stated that the last meeting he had with the Bali's governor in early May 2017 results in a progress of determination of location (Agustinus, 2017). The location mentioned is to place the tower of the other end in Bali.

However, in July 2017, the current regent of Buleleng, to PT PLN's surprise, stated to oppose the plan of constructing this extra high voltage air channel 500KV Java - Bali Crossing. Based on him it is not in accordance with the spatial plan and can cause social conflict and disturb Buleleng's tourism in the west (Mustofa, 2017). He even said that there was no room for bargaining. Buleleng's district government also stated that they have never held the principal permit in building the tower (NV, 2016).

By the end of September 2017, the project has acquired 13 out of 15 required permissions to build the project. Two permits that have not been obtained, one of which is the location determination permit which can only be issued by the regent of Buleleng, Bali (Aziliya, 2017).

4.6.3 Stakeholder Approach

Public consultation seminar was held in July 2017 to accommodate questions by many stakeholders. The seminar was open and many stakeholders were attending such as representatives of local community, representatives of the Ministry of Environment and Forestry, Ministry of Energy and Mineral Resources, National Development Planning Agency, Ministry of Finance, representatives of the Province of Bali, ADB, planning manager of PT PLN, the regent of Buleleng, and many other interested groups. In that event, the project was presented and questions from the audience were answered. The seminar was an approach to keep stakeholders informed about the current condition of the project. Furthermore, it was also to encourage the regent of Buleleng to agree with the location determination permit. However, the approach didn't change his mind. He even stated his standing towards the project in front of the other key stakeholders.

The implementation unit of PT PLN, as representative of PT PLN itself, also frequently attend meetings with Bali's local governments, make socialization to local communities, and organize capacity building to empower neighboring inhabitants. This is to keep a good relationship with the local stakeholders. Furthermore, it is an active approach in monitoring changes and even intervening attitudes around the area.

4.6.4 Lessons Learned

The current Buleleng's regent has been against the project from the beginning. PT PLN already has the principal permit for building the tower in Bali. The perception that Buleleng's regent is on board with the project is logical since the change of power should not change the contract. However, the conflict was just being realized after PT PLN needs to request a permission of the location for the tower to be built. This location permit can only be issued by Buleleng's regent, who has changed in 2012.

> *Lesson 4.1: The change of a management, in this case, Buleleng's regent and the administration, has a high possibility of also changing their attributes. In this case, the change was the attitude and standing towards the project.*

Monitoring of internal and external changes was present in a form of frequent meetings with related stakeholders. An approach to keep stakeholders informed also exists in a form of focus group discussions and seminars. However, these measures were only done effectively the past 2 years. The change of Buleleng's administration was not detected until then.

> *Lesson 4.2: Proactive monitoring should be done starting from the contact phase. If it hasn't been done from the beginning, a monitoring measure still needs to be done to the changing stakeholder. When a change of stakeholder or their attribute occurs, it is best to point the monitoring at them.*

From the management's perspective, the conflict arose after the present/ contract stage since the project is ongoing. However, since the new Buleleng's regent and his administration are first encountered, it puts the management to a situation of the past/ contact stage. The stakeholder needed to be re-identified.

4.6.5   Application of 3C-Tool and Adjustment

This case study represents a change of player which is Buleleng's regent and its administration. From the perspective of PT PLN, the stakeholder's body is considered the same as before, since it has the same attributes of power. However, the change within the stakeholder's body was overlooked since, legally, the 'contract' with the previous regent is still valid. Using the 3C-Tool (Figure 21), in this case study, the next step to do after a change of player is to identify the stakeholders and their interests which was not done since the change was overlooked. The proposed 3C-Tool explains the situation of the case study well enough, no adjustment is needed.
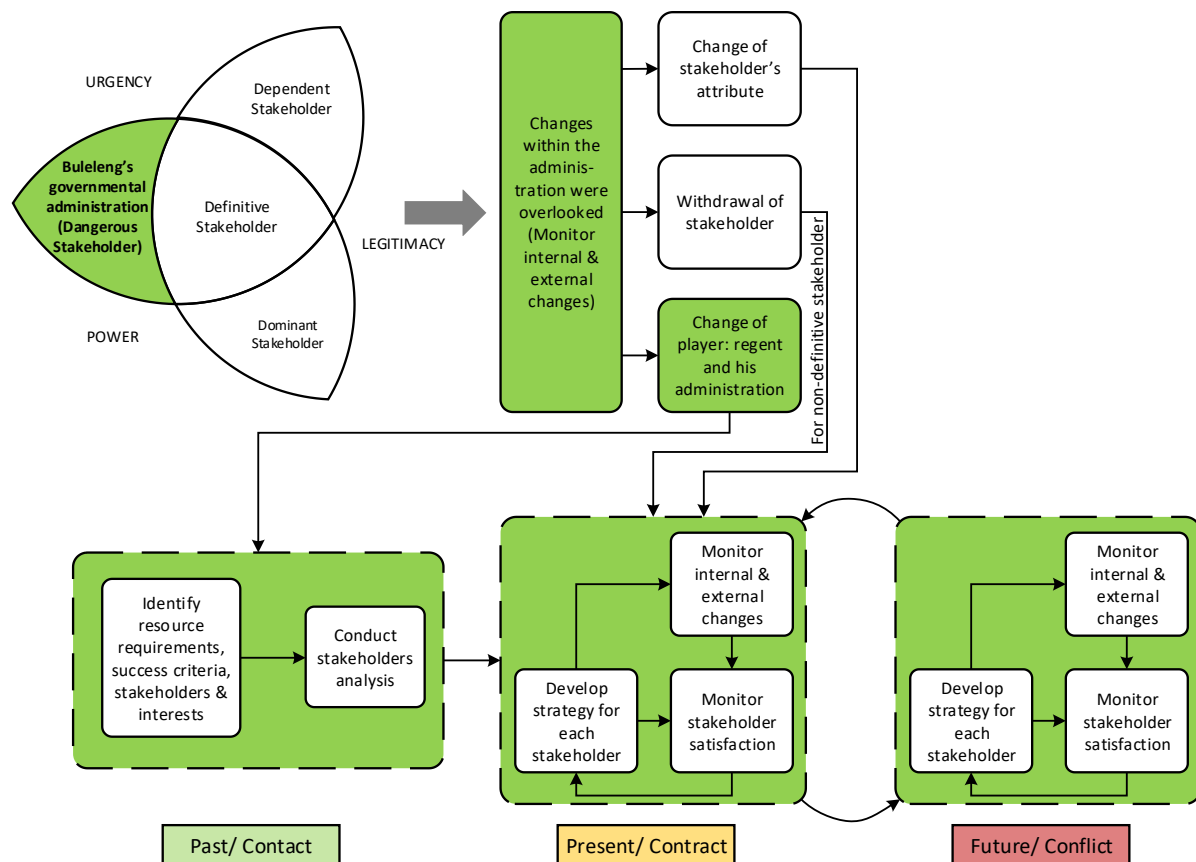
Figure 21 Application of 3C-Tool on case study 4: Buleleng's regent and its administration (highlighted in green)

4.7   Case Study 5: Base Transceiver Station (BTS) Tower Construction

A project which serves telecommunication network expansion in a remote area, in this case, West Kalimantan. The project was done in 2006 and includes site survey, negotiation with land owner, 360-degree view surroundings survey, socialization to nearby residence, land administration, and the tower construction. For the 'erection' of the tower itself, only 1 month is needed. However, technical and non-technical problems araised during the process. Conflict discussed in this research was with the local community which led to setbacks in the non-technical department.

4.7.1 Stakeholders Involved

Several stakeholders were involved in this project:

1. Owner (definitive stakeholder): a newly launched telecommunication provider which demand the project to be finished on time to launch its product;
2. Main contractor (definitive stakeholder): mainly focuses on design and engineering. Project management and administrative procedures were also handled;
3. Technical sub-contractor (dependent stakeholder): it includes CME, steel supplier, radio installer, shelter radio installer;
4. Non-technical sub-contractor (dominant stakeholder): site acquisition, a team specially developed to meet, negotiate, and handle non-technical problems with the local residents;
5. Land owner (dominant stakeholder): a private party who sold the land for the project;
6. Local residents and traditional leaders (dangerous stakeholder): private parties who were influenced by the project.

The interviewee for this case study worked for the main contractor as a CME (Civil, Mechanical, Electrical) engineer, hence the development is from his perspective. Land owner and local residents and traditional leaders are considered to have different qualitative classes of stakeholders since the location of the project can be moved anywhere in a certain area, 300 meters around the target point. Land owner can be 'replaced' if they don't want to corporate. However, in that radius, local residents and traditional leaders still have their power to influence the project.

4.7.2 Change of Behavior

As for this project goes, the owner selected the main contractor which then they selected several sub-contractors to provide more specialized services. The first technical procedure of this project was radio signal survey. They surveyed the location based on the owner's requirements. After a certain point is selected, the land needs to be purchased. Land acquisition was done by another sub-contractor. The site acquisition team were also responsible for socializing this project to the local residents, especially in the radius of the height of the tower (72 m). Socialization of projects like this usually takes a certain amount of money, which are regarded as compensation since the inhabitants have risks such as when the tower falls. Site acquisition team was also responsible for this compensation and also the negotiation which comes with it. In the meantime, soil test was done to provide data for designing the foundation. After all the surrounding neighbors were satisfied with the to-be-project and the design is finished, the technical aspects can start. As of at this point, all the stakeholders' stance and behavior were as all supportive towards the project and satisfied.

After the start of constructing the foundation, site engineers were approached by the locals. They demanded to be involved in the project. Some asked to do handy works such as transporting cement sacks from one point to the other. Others demanded a bigger role such as supplying those cement. As mentioned by the interviewee, this type of occasions regularly happens in local projects, especially in remote areas where the economy only develops by the presence of physical projects. This scene recurred almost on the entire time which obstructs the flow of the project. However, such behavior was not unexpected to the experienced sub-contractor. Site engineers contacted the site acquisition team to have a dialogue and negotiate with the locals. To keep the locals satisfied, some of their demands to work on site were granted. However, this event led to other problems: slowing down the project by several days and creating social jealousy among the locals since not all were 'recruited'. Social jealousy was coped again by the site acquisition team. They kept their relationship close with the traditional leaders. All of this was reported to the main contractor and the owner on a weekly basis.

In general, only the local inhabitants and traditional leaders changed their behavior towards the project. Although they weren't entirely against the project, they slowed it down. As of this point, stakeholder's dynamics were as follow:

1. The owner wasn't satisfied with the events occurred in the project. However, at the end they were satisfied since the project was still on time and has met the requirements;
2. The main contractor has the same idea as the owner, but the main contractor had more pressure since they were in between the owner and the sub-contractor;
3. Technical sub-contractor was always satisfied since they were paid based on the time they worked;
4. Although not unexpected, non-technical sub-contractor were unhappy because of the change of attitude of the locals;
5. The land owner was satisfied since his/ her land was paid reasonably;
6. The dissatisfaction of local residents and traditional leaders was because of their own change of attitude towards the project. In the end, it was managed by the site acquisition team.

4.7.3   Stakeholder Approach

There was no special approach used by the main-contractor in managing the change of stakeholder behavior. They rely on the work of the site acquisition team as sub-contractor which is part of their work. The site acquisition team were also chosen because of their expertise and experience in dealing with local people around the area. From their perspective, they were on standby towards the change of stakeholders involved. Even though they were not actively monitoring the dynamism on site, they were getting reports from the site engineers. From the reported cases, then they develop strategies to achieve stakeholder's satisfaction. For this case, short-term policy was introduced in recruiting local workers for a short period of time.

Stakeholder management approach like this is only valid if the stakeholder that is being handled is a dangerous stakeholder. They don't have the legitimacy in this project, so countermeasures are done informally. Furthermore, this is a small project which only needs 1 month (effectively) of construction to finish. Proactive stakeholder management would drain too many resources and won't be beneficial to the project.

4.7.4   Lessons Learned

Keeping stakeholders satisfied depends on their qualitative classes (Mitchell et al., 1997). In this case, which the conflict was local, the owner as a definitive stakeholder is satisfied with the time and technical aspects maintained. Technical sub-contractor as depending stakeholders rely on the power of the main contractor to work on the project. A delay because of the conflict situation forced them to stop their work and wait for further instructions. Site acquisition team as dominant stakeholder had a big role in this case study. They had little urgency besides doing their work but have a big role in the conflict. The main contractor depended on them to solve the problem that they were facing. Similarly, land owner was depended by the main contractor but had no urgency since the location could be moved anywhere else in the radius of 300m. The local residents and traditional leaders were the main conflict source.

> *Lesson 5.1: Dangerous stakeholders who change their attitudes unexpectedly are difficult to identify at the beginning of the project. Fortunately, the site acquisition team has already the experience in dealing with such situations.*

Stakeholder identification of their attributes at the beginning of the project might not always be correct. In the development of this project, their attributes changed drastically and without warning;

from being neutral to project to negative. Monitoring changes like this are crucial so that strategies can be developed before the conflict begins. In this case study, although changes of behavior of the locals were not unpredictable, it was not recognized as a threat and no special measures were done at the beginning.

> *Lesson 5.2: A more proactive monitoring of stakeholder changes should be done by keeping in touch with the locals, and most importantly the traditional leaders.*

Deals have been made between the site acquisition team and the local inhabitants. This puts the project into the present/ contract stage. The conflict occurred after the project has made some progress.

4.7.5   Application of 3C-Tool and Adjustment

Change of behavior of the local residents and traditional leaders weren't actively monitored. The site acquisition team's main job was mostly at the contact phase which they met the land owner and nearby residents. Change of behavior was reported by the site engineers to the site acquisition team. The problem was then handled by negotiation and giving local residents some of the works requested. This was the strategy to keep them satisfied. This change of behavior wasn't anticipated at the contact phase when the site acquisition team already met the local residents and traditional leaders. From the 3C-Tool's perspective (Figure 22), the mistake is that there was no active monitoring of changes. The change of attribute is their urgency and attitude towards the project. The strategy made to mitigate this problem was considerably late.
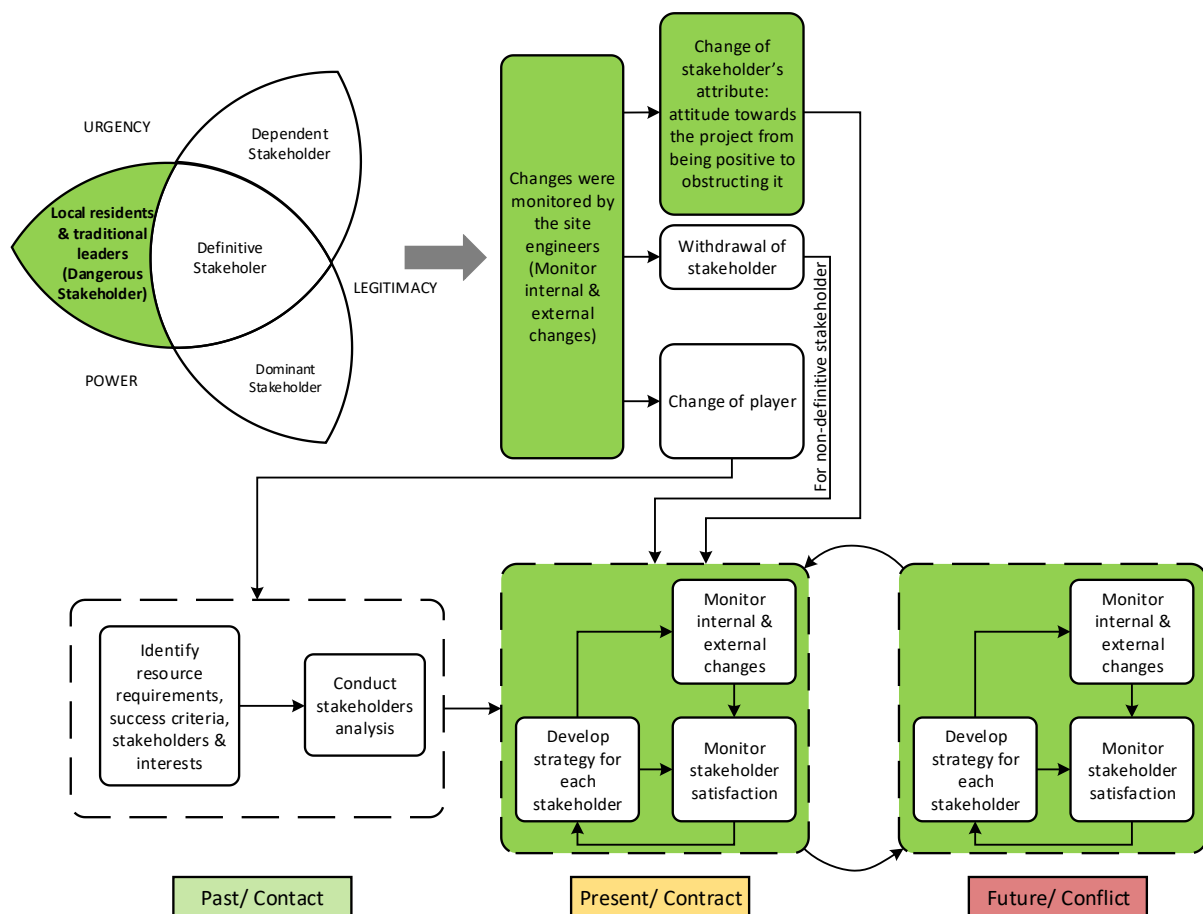

Figure 22 Application of 3C-Tool on case study 5: local residents and traditional leaders (highlighted in green)

The strategy to satisfy local residents by giving them the works the requested affected the scope of work of the site engineers. Fortunately, they were open to the idea and didn't oppose the addition of inexperienced extra work force. The proposed 3C-Tool explains the situation of the case study well enough, no adjustment is needed.

4.8   Resume

This chapter has analyzed five case studies with different level of administration using the approach of 3C-Tool. Conflicts discussed in the five case studies were selected by the interviewees and have different issue characteristics. Conflicts arose in the case studies are as follows:

1. The first case study has a technical conflict. The service company's urgency changed, hence it is considered as a change of stakeholder's attribute. Fortunately, a monitoring system and countermeasure were already available. These traits are in line with the monitoring and strategy development of the 3C-Tool.
2. The conflict in the second case study was in the scope of a higher management and power. PT Freeport Indonesia (Ltd.), as the research subject, faces two higher-power stakeholders with conflict of interests. Both the central government and PTFI's investor changed their attributes towards PT Freeport Indonesia (Ltd.). The central government changed the influence and the urgency towards the mining industry and the investors changed their urgency. It would be best for both of the stakeholders to sit together and discuss possible solutions. Developing stakeholder management strategy should also consider all of the stakeholders.
3. The third case study is about bureaucracy and administration. A new investor decided to join the project. It is considered as a change of player. The bureaucratic and administrative system wasn't ready to handle additional investor. The management should have identified the system's capability in handling this situation before stepping further to accepting the contract.
4. The fourth case study faced obstacles from certain stakeholders who changed their internal organizational body. It is considered as a change of player. A turnover of regent and his administration led to the conflict. They rejected the continuation of the project which was originally approved by the previous regent. Monitoring of such stakeholder and keeping them close should have been maintained.
5. The last case study faced additional requests to open employment for the local inhabitants. It is considered as a change of stakeholder's attribute. The project had been stalled for some time. Experienced sub-contractor handled the conflict by communication and negotiation. Proactive monitoring and keeping good relations with the inhabitants and traditional leaders should have been done.

Each of these five cases has their own form of stakeholder dynamism. Changes varies between change of stakeholder's attributes and change of player. No withdrawal of stakeholder has been found in the case studies.

The diversity of these case studies is meant to provide a wider refinement to the 3C-Tool. The dynamism of the case studies was delivered in a narrative explanation. Change of behavior and stakeholder approach for every case study discussed in this chapter was based on the interviewees' understanding and were backed up by other sources of material such as news report and project documents. Lessons learned are then derived from the case studies. The proposed 3C-Tool has been used to explain the dynamism of the case studies.

The application to the 3C-Tool need few adjustments to fit in more to the situations in the case studies. Adjustments to the proposed 3C-Tool have been done for every case study, see Table 2 below.

No	Case Study	Adjustment to the 3C-Tool
1	Total E&P	Turner's second half model is changed to lay across the present/ contract and the future/ conflict phase since it is a continuous loop of monitoring stakeholders and developing strategies in those stages.
2	Freeport Mining	The strategy development from 'each' stakeholder is adjusted to 'all' since stakeholders are affecting each other; directly or indirectly.
3	DOISP II	In the contact phase, a factor of stakeholder's 'capabilities' is added to the equation of identification strategy. Stakeholders might sometimes require to be satisfied by another stakeholder's capability.
4	Java-Bali Power Transmission Crossing	No adjustments to the 3C-Tool is needed.
5	Telecommunication Tower	No adjustments to the 3C-Tool is needed.

These adjustments are based on the discussions with the interviewees and findings in the case studies. Lessons learned from the case studies will be compiled in chapter 5 and the adjustments will be compiled integrated in chapter 6.

5 Lessons Learned & Analysis

5.1 Introduction

The case studies discussed in chapter 4 produce several lessons which are combined and analyzed in this chapter. Lessons are listed based on the suggested steps to be taken to conduct a stakeholder research by Ackermann and Eden (2011) and combined with the approach of the 3C-Tool, as mentioned earlier in chapter 1. The steps are as follows:

1. Identification of stakeholders
2. Identification of dynamism and its impact
3. Development of stakeholder strategy
4. Application of 3C-Tool

The second half of this chapter discusses the analysis based on the lessons learned in the case studies.

5.2 Lessons Learned

Lessons on identification of stakeholders, identification of dynamism and its impact, and development of stakeholder strategy are gathered based on case studies in chapter 4. Lesson on the application of the 3C-Tool are gathered from those lessons. The list is as follows:

Identification of stakeholders

1. Lesson 3: Identifying requirements in the contact phase should lead to the identification of one's capability in handling the requirements before deciding to step further into the contract phase. In the case study, the capability of delivering stakeholder's requirements was not assessed properly. This then led to a conflict.
2. Lesson 5.1: Dangerous stakeholders who change their attitudes unexpectedly are difficult to identify at the beginning of the project. Fortunately, experienced internal stakeholder handled the situation. Experienced teams have a higher possibility of identifying stakeholders' unexpected attributes or hidden agendas.

Identification of dynamism and its impact

1. Lesson 1.1: Technical projects where safety is a very important issue, a monitoring system is usually present. In this case, the monitoring was done by a weekly equipment check. The changes occurred in a technical case can be identified through technical measures.
2. Lesson 2.1: As time progress, stakeholders might add their requests. These additional requests from stakeholders are to be satisfied. Even if they emerge outside of a contract. A stakeholder approach that does not have the full intention of satisfying a stakeholder is most likely to dissatisfy them.
3. Lesson 4.1: The change of a management within a stakeholder's body has a high possibility of also changing their attributes. In this case, the change was the attitude and standing towards the project.
4. Lesson 4.2: Proactive monitoring should be done starting from the contact phase. If it hasn't been done from the beginning, a monitoring measure still needs to be done to the changing stakeholder. When a change of stakeholder or their attribute occurs, it is best to point the monitoring at them.
5. Lesson 5.2: A proactive monitoring of stakeholder changes should be done by keeping in touch with the key stakeholders in play. Proactive monitoring can be in form of various ways, one of which is to have frequent dialogue and meetings with the stakeholders.

Development of stakeholder strategy

1. Lesson 1.2: Technical conflicts that occur in a project usually have technical strategic measures to cope with it. These technical aspects are settled in the contract phase. When a conflict occurred, the strategies in approaching stakeholders are based on the agreed contract.
2. Lesson 2.2: Developing strategy for each stakeholder needs proactive monitoring of their change of behavior. When two or more key stakeholders have a conflict of interest, it is best for all the parties to meet and discuss about the possibilities. It is the best way in developing a strategy that is most satisfying for all.

Application of 3C-Tool

1. A systematic stakeholder monitoring and management need extra resources. Technical projects with high safety risks usually have their own measures to tackle problems. The 3C-Tool is applicable to all project sizes. However, since the application of the 3C-Tool also needs extra resources, it is more applicable to projects with extra attention to risks of stakeholder conflict. In the case studies discussed, only three cases involve big key stakeholders. The dynamics between the stakeholders and their attributes exposed the cases to risks in certain degrees such as project delays, management issues, and up to legal concerns. Proactive monitoring and the application of 3C-Tool should be practiced on such cases.
2. Based on the case studies, predicting and managing future conflict can be done in two ways:
   a. Recruiting experienced stakeholders in their specific field. In the case study, it was in a form of having a sub-contractor who has experiences and already has connection with the dangerous stakeholders.
   b. Proactive monitoring of stakeholder changes by keeping key stakeholders close. This was done through seminars and focus group discussions. Developing strategies could also be done at the same moment while interacting with the stakeholders. Hence, those types of procedure have another possible advantage: influencing the stakeholders.
3. If there is 2 or more change of definitive stakeholders, managing stakeholders' satisfaction becomes difficult. The only thing that can be done is to monitor internal and external changes and wait for an appropriate moment to take a decision. The application of 3C-Tool for all the conflicting stakeholders needs to be combined so strategies to satisfy all stakeholders can be developed.
4. Change of player might have a direct or an indirect influence on other stakeholders. The requirements of a new player might not be fulfilled with the current resources. There might also be a conflict of interest between an existing stakeholder and the new one. Hence, identification of resource requirements, stakeholder criteria, and stakeholder interests are to be done again for all of the stakeholders involved in the project after a change of player.
5. The classification of a stakeholder (Turner, 2008) in the first procedure of the 3C-Tool might change in a certain condition. When a conflict changes its administrative size, the legitimacy of one or more stakeholder changes. For example, local government will be less legitimate when the conflict starts to engage multinational companies. The administrative procedures are then becoming, at least, national wide.
6. Changes of stakeholder and their attributes discussed in the case studies were a product of the understanding of the interviewee and the writer. Different point of views might produce different results in analyzing these changes.

5.3   Analysis

There was no withdrawal of stakeholders in these 5 case studies. Withdrawal of stakeholders could rarely happen since if there is an empty seat of a stakeholder, it will be filled immediately by another party. Change of player and change of stakeholder's attribute is the most common to be encountered. The characteristics are mainly: (1) change of attitude from positive to negative and (2) change of urgency.

Based on the case studies, the application of the 3C-Tool can explain the dynamism of a project or case as follows:

1. The contact phase is when all the stakeholders' requirements, attributes, and success criteria are identified. It is also important to identify and judge one's capability in fulfilling others requirements before stepping further to the contract phase. Stakeholders' requirements should match the capability of other stakeholders as well.

2. In the contract phase when all the requirements are agreed upon, consequences of violating the contract should also be included in it. Experiences based on the case studies suggest that an ill-prepared contract ends up to a conflict which needs time to resolve. That period of time is mostly needed to develop a strategy for managing the stakeholders involved in the conflict. A well-prepared contract saves much time and resources in developing strategies to handle the conflicts occurred in the future.

3. Findings in the case studies support one of the conclusions made by Jawahar and McLaughlin (2001): organizations are likely to have different needs in different stages of the organizational lifecycle. When the internal of an organization changes, their urgency towards a certain matter will also change. Proactive monitoring of changes is needed to keep informed of such situations to be better prepared.

4. Proactive monitoring of changes is essential to the success of the 3C-Tool application. Developing a strategy to satisfy all stakeholders' requirements needs constant information of the changes of stakeholders that happen. Proactive monitoring can be done in various ways with different needs of resources.

5. Findings in the application of the proposed 3C-Tool in the case studies were also supporting a research conclusion by Dooms (2010): "Ex-ante stakeholder inclusion (estimation or forecast based result) is a time-consuming activity and requires substantial resources. Hence, there is a serious risk that this process would be fraught by delays." However, as Dooms also explained, the costs of having a systematic stakeholder management is far less compared to the delays and failures occurred in his case studies. However, it depends on the stakeholder risks involved in a project.

6. The loop of the second half of the stakeholder management process by Turner (2008) could be carried out more than once. The dynamism within a case might have several changes and strategies to satisfy the stakeholders.

7. There were positive and negative outcomes of the case studies. However, the magnitude of the outcomes of the case studies does not determine how the proposed 3C-Tool performs. Rather, the proposed 3C-Tool explains the dynamism of the cases and how the stakeholder management process leads to the outcome.

8. Using the case studies in this research, the proposed 3C-Tool does not predict conflicts that occurred because of change of stakeholders. However, analyzing changes of stakeholders' behavior using the 3C-Tool and applying its management strategies can lessen the impact of conflicts.

9. As Ackermann and Eden (2011) proposed, the essentials in managing stakeholders are identification, monitoring, and strategy development. These traits are also the core of the 3C-Tool.

10. Pouloudi and Whitley (1997) revealed that external stakeholders might interact and influence each other. This is in line with the findings in case 2 and 3 (PTFI/ Freeport Mining and DOISP project). Stakeholders of both cases were found to be affected by one another. However, their influences are only connected via the projects of the case studies. Supposing that there is no PTFI and DOISP project, the stakeholders won't have any link to each other.

5.4 Resume

The most common change of stakeholder is change of attitude, which mostly are asking for more than what was agreed at the contract phase. In the 5 case studies, conflicts were led by change of stakeholder's attribute and change of player. Lessons were gathered on how the cases turns out from the perspective of the 3C-Tool application. Lessons about the identification of stakeholders, identification of dynamism and its impact, development of stakeholder strategy, and the application of 3C-Tool have been found. Analysis of the 3C-Tool application based on the lessons learned have led to some adjustments which will be discussed and integrated in chapter 6.

These future risks could be mitigated by proactively monitor changes and develop strategies accordingly. Keeping close with definitive stakeholders to gain more information about possible changes within them is also important to get better prepared.

As it turns out, the proposed 3C-Tool can be applied in a wide range of applications that involves stakeholders. It does not bound the utilization to high risk or mega projects. The application of the 3C-Tool explains stakeholder dynamism for all sizes of projects. The outcome of the application is a stakeholder mapping and a measure to develop strategies for them. It is certainly beneficial for high risk projects since conflicts with stakeholders are to be minimalized as much as possible. However, for low risk and simple projects, stakeholders also do have influences to a project. Even if conflicts in simple projects are easier to handle, it is certainly a good idea to keep them more under control. The application of the 3C-Tool can also be used in different fields of expertise such as construction projects, governmental administration, technical application, etc.

6 Reflection, Development, and Revision

6.1 Introduction

Case studies have been done and lessons have been analyzed to gather the necessary information to test the performance of the proposed 3C-Tool. This chapter discusses the reflection, development, and revision of the proposed 3C-Tool based on the findings in the previous chapters.

6.2 Reflections

From the development of the case studies, lessons learned, and analysis, the 3C-Tool is found to have traits. SWOT analysis is used to reflect these traits of the 3C-Tool application. Using this analysis, strengths are to be built up, weaknesses are to be reduced, opportunities are to be work upon, and threats are to be minimized. The SWOT analysis of the proposed 3C-Tool is as follows:

Strength

1. The 3C-Tool explains stakeholder conflict caused by changes and dynamics in a systematic way. It includes steps of identification of stakeholders, identification of the dynamism and its impact, and development of stakeholder strategy. The 3C-Tool is found to be able to explain the conflicts occurred in the case studies. Case study 4 and 5, especially, didn't need any adjustments to the 3C-Tool to be able to explain the dynamics in those projects.
2. It has the measures to develop a stakeholder strategy. Utilizing the 3C-Tool from the beginning, there are steps to be taken that leads to the stakeholder strategy development. Found in case study 1 and 5, after monitoring the stakeholders who changes their attributes during the project, strategies were developed for them to resolve the conflict.

Weakness

1. It is estimated that the application of the 3C-Tool will need extra resources to apply this effectively in a case. Resources are in the form of man power and time, which then can be translated into money. As stated in chapter 5, the costs of having a systematic stakeholder management are less compared to failures in the case studies by Dooms (2010). The management of a project or other cases should decide whether the risks of stakeholder conflicts are high enough before investing in resources to apply the 3C-Tool.
2. The 3C-Tool does not predict conflicts. It only has the measures of developing strategies to handle the conflicts. Conflicts are hard to predict since it involves too many factors which are difficult to monitor. There was no certain way to measure this trait wince conflicts in the case studies have occurred before this research have been conducted. However, the 3C-Tool, as it is, has only reactive measure to the changes of stakeholders which are (proactively) monitored.

Opportunity

1. A proper application of the 3C-Tool might lessen the impact of conflicts produced by stakeholders. A strategy developed based on the systematic steps of the 3C-Tool has the necessary information taken into consideration such as the stakeholder's attributes, their changes, and the guidance in what to do in certain changes. Case study 1 shows this trait. The weekly monitoring system led to the strategy development. A bigger impact of the change of stakeholder's attribute was avoided. In case study 4, if the change of player was proactively monitored, strategies might have been developed in time to avoid the conflict that has been developed at the moment.

Threats

1. The use of the 3C-Tool depends on the point of view of the practitioner since it has qualitative measures. Different point of views will result in different approach in using the 3C-Tool. However, the goal remains the same for every perspective: to develop a stakeholder management strategy.
2. The classification of stakeholders (Mitchell et al., 1997) is open to changes. It depends on the consideration of the administrative size. A conflict might grow because of reasons such as the addition of a new stakeholder, change of urgency and other attributes. It can also shrink because of the opposite reasons. The classification of a stakeholder might change as the size of the conflict progress. Stakeholder strategies should then be redeveloped. Case study 4 has shown this trait. The change of player affects the stakeholder's urgency.
3. Stakeholder strategy development has to be carefully done since changing of management behavior towards a certain stakeholder might have an impact on other stakeholders as well. A chain of stakeholder change is to be avoided. In case study 2, when PT Freeport Indonesia (Ltd.) was about to satisfy the requests of the central government, the investors also changed their behavior towards the company. The 3C-Tool can be applied anytime but is more favorable from the beginning of a project. This is to avoid conflicts being too complex and end up in a long loop of monitoring and strategy development. A practical way to avoid a continues loop is to sit together with all the stakeholders to discuss possibilities in making all satisfied. However, this requires the cooperation of the relevant stakeholders and is not always possible. It might be more difficult when the situation is already in conflict.

6.3   Development of Research Model/ Optimization of 3C-Tool

Based on the 3C-Model™ framework and stakeholder theory literatures, the 3C-Tool was proposed. It contains the aspects of stakeholder theories, stakeholders' attributes, and stakeholder approaches. It is then tested against the dynamics on case studies. The test is to see how the 3C-Tool performs in the case studies. The outcome of the case studies is in a form of lessons learned where points of interests were discussed. The 3C-Tool explains how stakeholder conflicts are developed and how to manage them. The application of the proposed 3C-Tool is then reflected based on its SWOT (strength, weakness, opportunity, thread). From the case studies' outcome, several points of SWOT has been extracted. These points, among previous analysis, are used to redevelop the 3C-Tool. The 3C-Tool is then revised based on the findings and analysis. The development of the 3C-Tool procedure follows the suggested path in Figure 2 in chapter 1 and is shown again below in Figure 23.
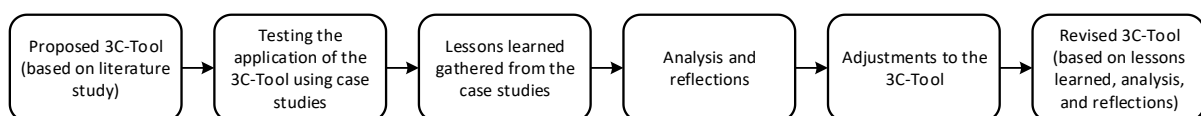
Figure 23 Development of the 3C-Tool in this research

Up to this point, almost all of the steps seen in Figure 23 above has been done. The last step is to revise the proposed 3C-Tool so it fits with all the lessons, analysis, and adjustments. Revision of the 3C-Tool is discussed below in subchapter 6.4.

6.4   Revised Model of 3C-Tool

Several revisions are to be made based on the adjustments from the case studies, lessons learned, analysis, reflection, and development. All the adjustments in the case studies are found to not have any conflict between each other. This means that when all the adjustments are overlapped and applied, the revised 3C-Tool can be re-exercised into the case studies resulting in the same outcomes

as the adjustment made for the specific case study. Points of adjustments of the application of the 3C-Tool from the case studies are integrated in this section.

The revision points are discussed below. Representation of the combination of adjustments from all the case studies can be seen in Figure 24. Corresponding revisions are marked with numbers and can be seen in the revised model in Figure 25. The revised aspects are as follows:

1. The second loop is used until a solution to the conflict is obtained and the stakeholders are satisfied. This adjustment is found in the first case study, see '(#1)' in Figure 24 and revision point '(*1)' in Figure 25.
2. The loop goes across the contract and conflict stage. It means that the development of strategy does not have to go back to the contact phase. Executing the loop can be in the same contract-conflict period. This adjustment is found in the first case study, see '(#1)' in Figure 24 and revision point '(*1)' in Figure 25.
3. The development of a stakeholder strategy is to be done for all of the stakeholders, especially the ones that share a common interest. This adjustment is found in the second case study, see '(#2a)' and '(#2b)' in Figure 24 and revision point '(*2)' in Figure 25.
4. As mentioned earlier stakeholder strategies to satisfy a certain stakeholder might affect other stakeholders. This means that developing a stakeholder strategy has to consider the effect of that strategy to the other stakeholders. This adjustment is found in the second case study, see '(#2a)' and '(#2b)' in Figure 24 and revision point '(*2)' in Figure 25.
5. Developing stakeholder strategy is best by meeting in one place with all the stakeholders. This is to avoid the second loop to continue for too long. This is a lesson learned found in the second case study, see '(#2a)' and '(#2b)' in Figure 24 and revision point '(*2)' in Figure 25.
6. At the contact stage, an aspect of identifying stakeholders' capabilities are to be taken into consideration among resource requirements, success criteria, stakeholders and their interests. Identification of stakeholders' capabilities has to be done before progressing to the contract phase to avoid conflicts occurred because of misjudgment. This adjustment is found in the third case study, see '(3)' in Figure 24 and revision point '(*3)' in Figure 25.
7. After the stakeholder strategy development, the classification of stakeholder needs to be checked whether or not it has changed along with the other attributes. It might not appear often but there is still the possibility. This adjustment is found in the fourth case study, see '(#4)' in Figure 24 and revision point '(*4)' in Figure 25.
8. The 3C-Tool is hoped to predict future conflict. However, as the result of this research, conflicts cannot be precisely predicted, or even at all. It is a product of a change of stakeholder's behavior which is hard to predict. As stated by Champoux (2011), many sources of pressure push changes in an organization. Monitoring changes of internal & external stakeholders and their attribute has to be proactively maintained. See revision point '(*5)' in Figure 25.
9. The strengths (SWOT analysis) are presented in the top half of the model. Identification of stakeholders and strategies to handle the dynamics are demonstrated in this part.
10. Risk assessment of stakeholders' conflict (weakness in SWOT analysis) is to be done before using the 3C-Tool to estimate the need for extra resources. The 3C-Tool is an instrument to serve the management an approach to managing stakeholders. The risk assessment procedure is a step outside the 3C-Tool.
11. Even though the 3C-Tool does not predict stakeholder conflicts (weakness in SWOT analysis), it can give the management an approach to cope with the conflict by following the steps, especially Turner's loop. The 3C-Tool might lessen the conflicts produced by the stakeholders (opportunity in SWOT analysis). See '(*1)' in Figure 25.

12. Stakeholder classification has to be updated regularly since stakeholders' attribute of power, urgency, and legitimacy might change over time (threat in SWOT analysis). This measure is put after the development of strategy. See '(*4)' in Figure 25.

13. Unintended impacts to other stakeholder caused by a strategy development for a certain stakeholder (threat in SWOT analysis) is to be avoided. To cope with this, strategy development should consider the impacts to all of the stakeholders. See '(*2)' in Figure 25.

14. The adjustments made in the application of the 3C-Tool in the case studies are integrated into the revised 3C-Tool (Figure 25). It is all put together and there was no conflict between all the adjustments.

These adjustments are compiled and integrated to the 3C-Tool. A representation of the layers of adjustments found in the case studies is shown below in Figure 24.
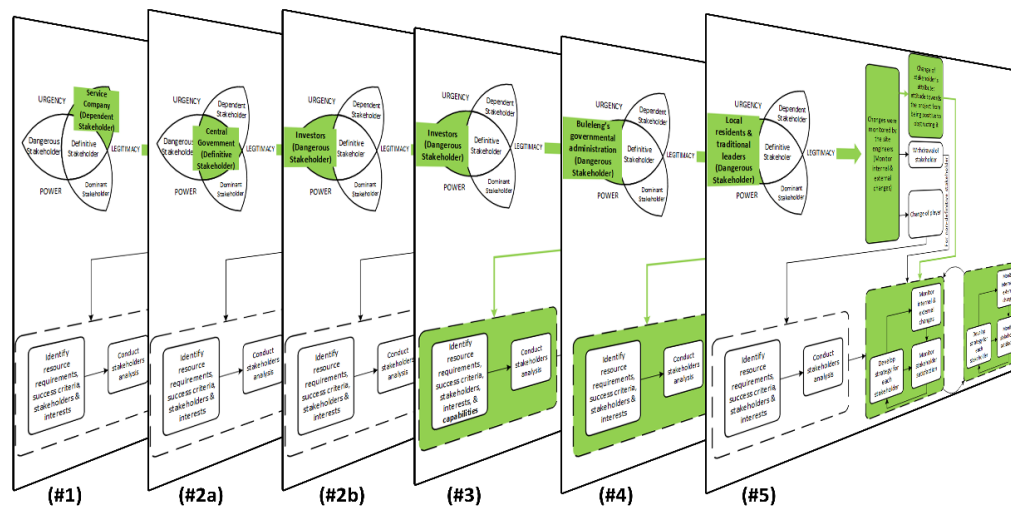

Figure 24 Representation of layers of the adjustments found in the case studies

Based on the lessons learned and analysis, there was no need for adjustment found in the fifth case study. Considering all the above revision points and adjustments, the 3C-Tool is revised model shown below in Figure 25.
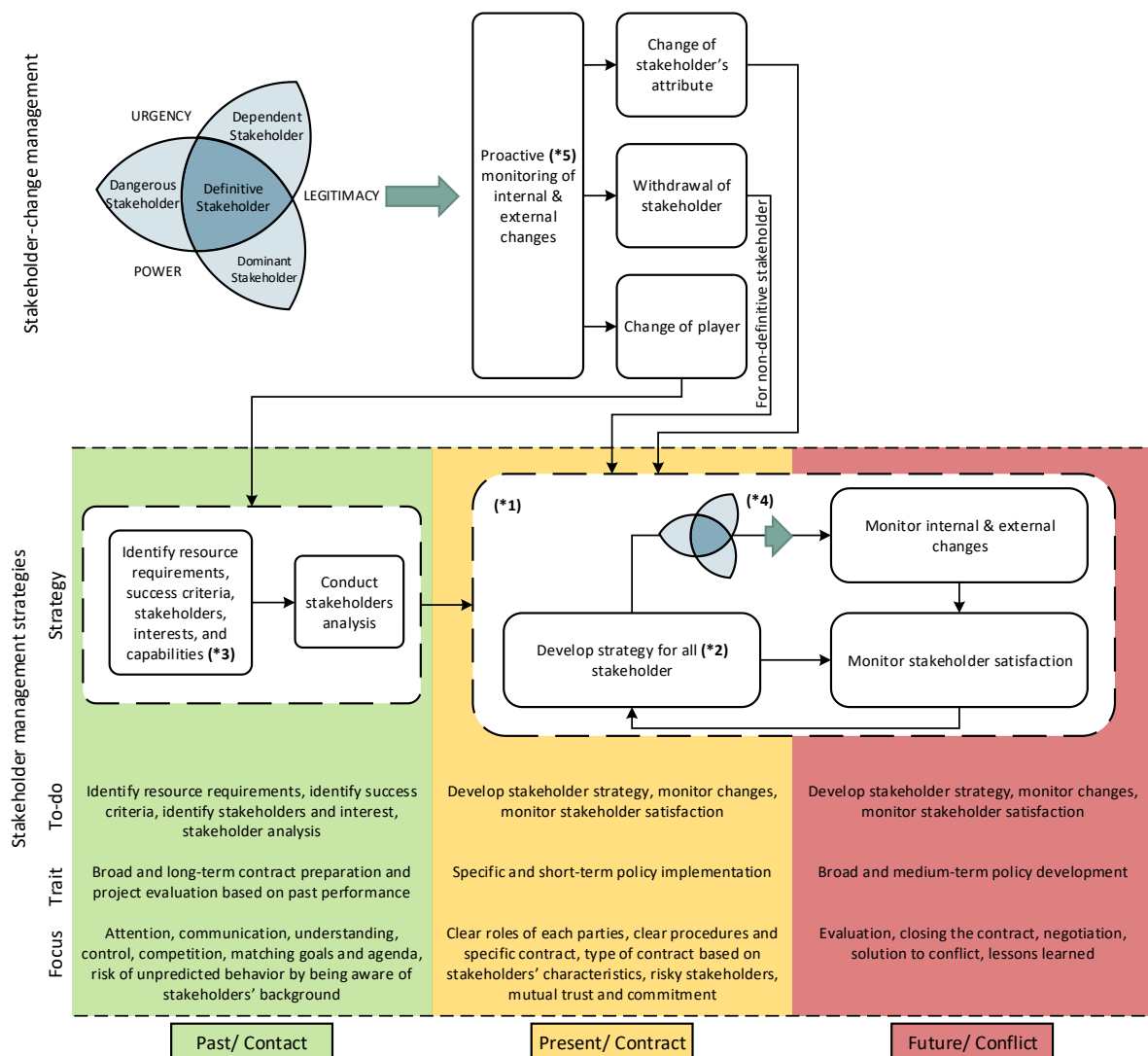
Figure 25 Revised 3C-Tool, a dynamic-stakeholder management model

The overall structure of the 3C-Tool hasn't changed. The steps towards dynamic stakeholder management are still based on the proposed 3C-Tool. Only 5 adjustments points have been made.

6.5 Resume

Several points of revision have been made to the proposed 3C-Tool. The revisions are based on the findings in case studies, lessons learned, analysis, reflections, and redevelopment. The revised 3C-Tool can be more generally used in other projects and cases to explain the dynamism of stakeholder change. The concept of the 3C-Tool does not change its general appearance after the revision. The revisions are mostly about specific factors inside the 3C-Tool itself such as the improvement of Turner's stakeholder management approach. Mitchell's stakeholder classification is also added into Turner's loop. It represents the development of stakeholder strategies based on the attributes of all the stakeholders involved. Capability aspect is also added to the identification procedures in the contact phase.

The revised 3C-Tool is useful in mapping the dynamics of stakeholders which then used to develop strategies to manage them. However, the revised model is limited to the revisions based on the outcome of the case studies and analysis. More adaptations based on other case studies might be helpful in making the 3C-Tool more applicable to a wider range of utilization and practice.

7 Conclusions, Limitations, and Recommendations

7.1 Conclusions

This research has combined several stakeholder theories into a framework based on the 3C-Model™ (Tijhuis, 1996) and time-focused stakeholder analysis (Varvasovszky & Brugha, 2000), resulting in a dynamic stakeholder management approach named the 3C-Tool. It is hoped to fill in the gap in the dynamic stakeholder researches and to be useful in a variety of industries. Stakeholder dynamism in this study includes several aspects namely change of stakeholder's attribute, withdrawal of stakeholder, and change of player. Attributes of stakeholders considered in this research are power, influence, legitimacy, urgency, knowledge, and attitude. Conclusions of this research are as follows:

1. The 3C-Tool developed in this research is to answer the need for a dynamic stakeholder management approach. It succeeded in mapping and explaining the dynamism of stakeholders and their attributes which led to conflicts in the case studies. A practical dynamic stakeholder management approach can be extracted from the application of the 3C-Tool. It is meant to lessen or even prevent future conflict that might occur because of the dynamics of the stakeholders.

2. The 3C-Tool does not predict future stakeholder conflict due to the vast unpredictable aspects generated by other stakeholders. To forecast such conflict, more samples of case studies are needed to see if there is a pattern that can be used to foresee possible conflicts.

3. An effective application of 3C-Tool needs extra resources from the management. Depending on the risks involved in a case, one might decide of the necessity of using the 3C-Tool as a dynamic stakeholder management approach.

4. The 3C-Tool can be practiced to a wide range of application. The case studies in this research are conflict within projects, technical work, and governmental administration with different level of complexity. The 3C-Tool can also be practiced in other cases to mitigate risks occurred from a conflict between stakeholders.

7.2 Limitations

The above conclusions are valid in the environment of this research. The validity of different outcomes at different study might be questioned. The limitations that form the environment of this study which leads to the above conclusions are as follows:

1. This research focuses on the implementation of the 3C-Tool, it considers all stakeholder to have equal level influential power, legitimacy, and urgency toward the projects. It has not considered the detailed differences in the hierarchy (high-low) and position (internal and external) of each stakeholder in the projects. Differences in the level of stakeholders' attributes might show the stakeholders who have the upper hand in a conflict. Further study is needed to gain more insight of that aspect.

2. This research used case studies only from projects in Indonesia. Although the 3C-Tool is designed to be a general dynamic stakeholder management tool, different culture environments might result in different outcomes.

3. The change of stakeholders studied in the case study were all external stakeholders from the perspective of the interviewee. The basis of this is because conflicts occurred from within an organization are not considered as a big threat. Conflicts arose from external stakeholders are more dynamic and unpredictable hence it holds bigger risks to the management.

7.3 Recommendations

The 3C-Tool is a new approach to managing dynamic stakeholder. There is much room to grow the concept. Limitations mentioned above might be expanded in future studies to provide more opportunity to research the 3C-Tool. Recommendations for future studies are as follows:

1. There is more room to grow the concept from other culture's perspective. Different culture environment might offer different outcomes on how the 3C-Tool performs. Other researches in developing this concept in other than areas of expertise such as businesses, governmental administrations, etc. are also encouraged.
2. Case studies with internal stakeholders might be helpful to gain more insight about other factors and outcome of the use of the 3C-Tool. Proactive monitoring should be easier when applied to internal stakeholders in an organization.
3. The 3C-Tool considers the contract stage as the 'present'. A further research can be done with contact or conflict stage as the 'present'. It might be used to predict the outcome of contacts or contracts phases in the next application of the 3C-Model™.

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9 Appendix

9.1 Interview Methodology

Before the interviews took place, the writer sends them the general idea of the interview, including what the topic is about and what they have to prepare such as a focus of conflict. Three interviews were held face to face, one over a video call, and one via email correspondence. The four real-time interviews were held for approximately one hour. During that time, most of the questions were answered. Unanswered questions are the ones that are highly technical, confidential, or needs other sources to confirm the information. One dialogue was held fully via email correspondence since the interviewee was working on a vessel and didn't have the necessary internet connection to conduct a video call. The total time spent on the email correspondences was one week. Interviewees also referred the writer to other sources of material to the topic such as news reports.

9.2 Interview Questions

The objective of the interview is to see how the 3C-Tool performs in projects and case studies. Interviews were held based on the approach in chapter 3 (Research Model). To conduct interviews to the case studies, a set of questions and topics were asked and discussed. However, it was not bond strictly be these questions. The interviews were held in a dialogic approach to better understand the interviewees' perspective to the conflict that they want to focus on. It is inevitable that the interviewees have their subjective point of view regarding a subject. It is believed that there might be different points of view from different sources. However, differences in opinion do not define the outcome of how the 3C-Tool performs. The 3C-Tool can be used for every point of view to a stakeholder conflict. Below are the basic questions and topics discussed in the interviews:

1. General case study description.
2. Who are the stakeholders involved?
3. How was their attitude at the beginning of the case study?
4. What was the conflict?
5. How was their attitude that leads to the conflict?
6. How do they behave after a conflict resolution?
7. Was there a certain stakeholder approach?

9.3 Validity of Case Studies and Consent of Interviewees

The data from the case studies of Total E&P and the telecommunication tower project was only gathered from the interviews. Technical data and reports weren't given due to confidentiality. Available news reports regarding the companies involved weren't relevant to the case studies.

The data from the case study of Freeport Mining was gathered from the interviews, news reports, governmental press release, and investment websites. Information from the news reports, press release, and investment websites are to support the claims of the interviewee.

The data from the case studies of DOISP and Java-Bali power transmission crossing project was gathered from the interviews, the investors' formal documents including contracts, permits, and technical specifications, and news reports. Information from the investors' formal documents and news reports are to support the claims of the interviewees.

All of the interviewees have read their own case studies written in chapter 4 and have given the writer their consent on publishing the case studies in this research.

9.4 Interviewee and Additional Information about the Case Studies

9.4.1 Total E&P

Interviewee's functional position: owner's representative on the vessel. His main work is to supervise the work done by the service company.

Background information on Total, retrieved from Total E&P Indonesie (2012):

"Total has been present in Indonesia since 1968, with operations primarily concentrated in the offshore Mahakam block (50%, operator) in East Kalimantan covering the Peciko and Tunu gas fields as well as the Bekapai and Handil oil fields. Total is also operating the Sisi-Nubi gas field with a 47.9% interest. In October 2012, Total signed two production sharing contracts for the Telen and Bengkulu I - Mentawai exploration blocks. The Group is the largest gas producing operator in Indonesia and currently contributes approximately 80% of the Bontang LNG Plant's gas supply. Total's production in Indonesia was 158,000 boe/d (barrel of oil equivalent/day) in 2011.

As part of its Corporate Social Responsibility in Indonesia, Total is intensely involved in community empowerment and capacity building actions in the areas of education and research, health and nutrition, local economic initiatives, environment and alternative energies. These endeavors are consistent with Total's commitment to answer the challenges of sustainable development.

Total's commitment in the country is further exemplified through its manpower program, with an extensive program to develop national manpower and high level national managers through training and international assignments, as well as career developments for new recruits. Total also continues to enlarge partnerships with national businesses and significantly enhances indirect employment, which is currently estimated at 22,000 full time jobs on its industrial sites."

At the time this study was done, the interviewee works at a vessel owned by the service company as a representative of Total E&P Indonesie. The vessel sails around the Mahakam block (see Figure 26 and Figure 27). It moves from one well to the other every 3 to 5 days, depending on the demand of the work. The main task of this vessel is to maintain oil and gas wells in the area. The interviewee supervises the work of the service company which is increasing and upholding oil and gas production for a certain period of time. Supervising includes overseeing safety, looking after environmental impacts, and maintaining the track on achieving the project goal. In this case study, 3 service companies are working on the vessel: marine unit, slickline unit, and electrine unit. The service companies work based on contracts with certain periods of time. For one oil and gas well, it takes generally 3 days (6 shifts).
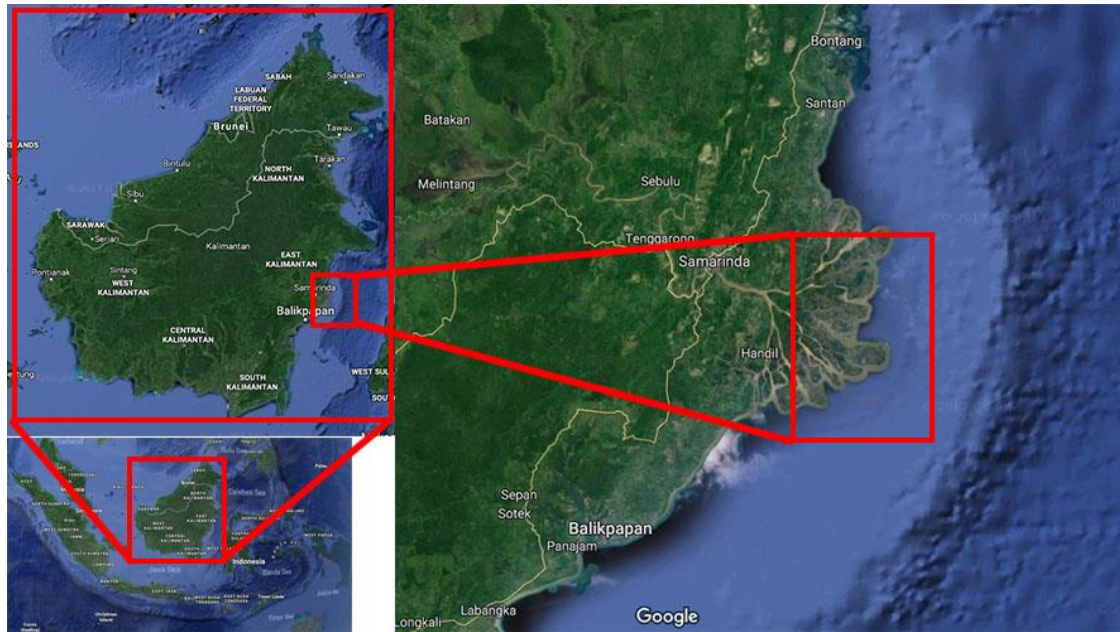
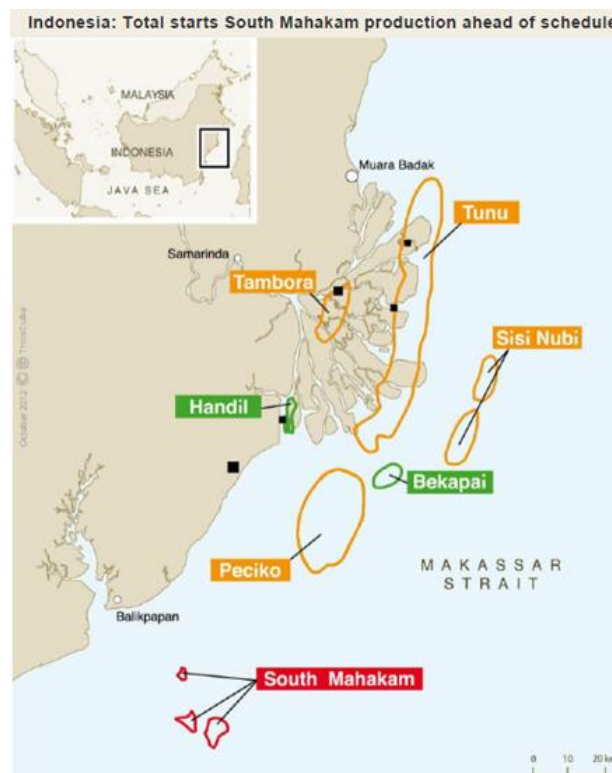*Figure 26 Location of the case study of Total E&P, source: Google Maps (2017a)*

Figure 27 Total E&P project locations (Total E&P Indonesie, 2012)

At the weekly function test, a pressure control equipment (PCE) was discovered to have a non-standard spare part. This test is to check how every equipment performs at critical conditions. The discovered parts were known as to be gathered from another interchangeable brand. However, this failed at the test. Incidents like this are hard to monitor outside the function test. Parts of the PCE has official certificate from their manufacturing company. This certificate of equipment is also stated in the technical specification of the contract. Figure 28 below is a representation of the pressure control equipment mentioned in the case study.
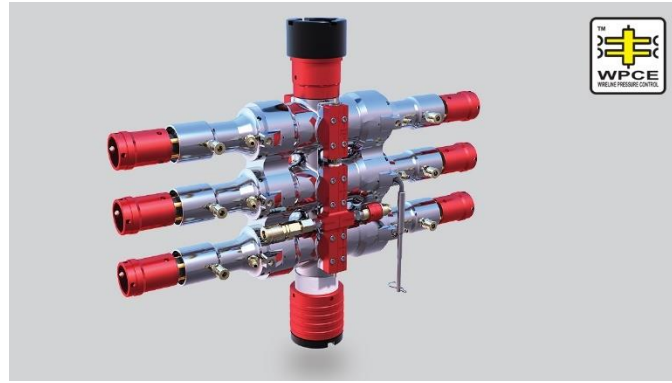
Figure 28 Lightweight wireline valve used in the PCE system, source: NOV (2017)

9.4.2   Freeport Mining

Interviewee's last functional position: crew leader of performance management. Worked at the management office in Jakarta. He was in charge of company-wide performance management program. He also had experiences working in the mining office in Papua before placed to the headquarters.

Figure 29 Operation area of PTFI, source: PT Freeport Indonesia (2013b)

Background information of PTFI, retrieved from PT Freeport Indonesia (2013c)

"Is an affiliate of Freeport-McMoRan. Freeport mining, processing and exploration for ore containing copper, gold and silver. Operating in highland areas Mimika Papua Province, Indonesia. We market concentrates containing copper, gold and silver all over the world.

Complex in the Grasberg mine ours is one of the single largest copper and gold in the world and contains copper reserves that can be taken of the largest in the world, besides single largest gold reserves in the world. Grasberg is located in the heart of a region which is very abundant mineral, where exploration activities are ongoing opportunities to continue to increase our reserves are long-lived.

Freeport-McMoRan (FCX) is a major international mining company with headquarters in Phoenix, Arizona, United States. FCX operates a variety of large long-lived assets that are geographically dispersed over four continents, with significant proven and probable reserves of copper, gold, and molybdenum. Ranging from equatorial mountains in Papua, Indonesia, to the deserts in the Southwest

United States, majestic volcanoes in Peru, a traditional area of copper producer in Chile and exciting new opportunities in the Democratic Republic of Congo, we are at the forefront of metal supply much needed in the world."

The Indonesian government has been giving work contract to PT Freeport Indonesia since 1967. Every renewal of the contract increases the amount of work done by PT Freeport Indonesia. In 2009, the government issued new regulations regarding the mining industry. One of the biggest highlights was to make sure that every mining products are to be processed to a certain level of purity before exporting it. However, the new requests weren't supported by an equally bold system. There was no real award-punishment approach.

In 2015, Carl Icahn, a billionaire investor, bought the majority of shares of Freeport McMoran, the parent company of PT Freeport Indonesia. He challenged the company's governance and financial management (Forbes, 2015). He reorganized Freeport McMoran's top management which then affects the organization of PT Freeport Indonesia. As an investor, his goal was to generate value to his investment in a short period of time. However, his goal wasn't in line with Indonesian's government requests of smelters for mining companies.

9.4.3   DOISP

Two interviewees were interviewed. The first interviewee works as technical staff and is in charge of reviewing water resources management. The second interviewee works at the sub-directorate of disaster management. Both of the interviewees work at the headquarters of the Ministry of Public Works and Housing, Directorate General of Water Resources.

Project objectives, retrieved from Asian Infrastructure Investment Bank (2017):

"The Project Objectives are to increase the safety and functionality of existing dams in selected locations and strengthen the operation and management capacity for dam safety. Direct beneficiaries of the project include those directly dependent on the water from the dams under the project as well as those populations in downstream areas that would be at risk in the case of dam failure. Other expected results include dams which are returned to full operation with reduced risk of failure and the preparation of emergency response plans including dam break analyses for project dams."

The first Dam Operational Improvement and Safety Project (DOISP) project started in 2009 and finished in early 2017. The only foreign loaner was The World Bank. The goal the investment was (i) simplification of the project development objective (PDO) and streamlining of indicators; (ii) the rehabilitation of an additional 20 dams that were identified at the time of appraisal for the parent project but not included due to lack of available financing; (iii) introduction of a framework approach for screening and prioritization of dams under the Ministry of Public Works and Housing to create a platform that will allow for potential rehabilitation of an estimated 120 additional dams during implementation; (iv) updating of the environmental and social management framework to provide a more comprehensive set of tools to support the portfolio approach, including triggering operational policies on indigenous peoples, involuntary resettlement, natural habitats, and pest management, which were not triggered under the original project; and (v) provisions for innovative measures to improve sediment management and land-care practices (World Bank, 2017a).

After the success of the first DOISP project, the second DOISP was initiated with an estimated budget of US $ 300 million. This investment is shared between The World Bank (US $ 125 million), Asian Infrastructure Investment Bank (US $ 125 million), and the Indonesian government (US $ 50 million). The goal of the project was also modified into: (i) dam operational improvement and safety works and studies, (ii) operations and maintenance improvement and capacity building, (iii) reservoir

sedimentation mitigation, (iv) dam safety institutional improvement, and (v) project management (Asian Infrastructure Investment Bank, 2017).

9.4.4 Java-Bali Power Transmission Crossing

Interviewee's functional position: environmental engineer. Works at the headquarters of PT PLN.

Background information about the investor's influence on the project and the relationship with the government, retrieved from Asian Development Bank (2011):

"ADB has a long relationship with the Government and PLN. ADB has financed over 30 power projects totaling about $3.4 billion and 36 technical assistance (TA) projects totaling about $14 million focusing on power generation and transmission sectors. In the transmission sector, ADB has provided strategic investments including a TA to study the West Kalimantan-Sarawak Interconnection. In addition to the proposed project, other transmission projects in the pipeline are the Grid Reinforcement in West Kalimantan project and the Melaka-Pekan Baru interconnections. There is an ongoing construction of high-voltage direct current (HVDC) 500 kV double-circuit undersea transmission line between Java and Sumatra financed by Japan International Corporation Agency (JICA) that will evacuate 3,000 MW by 2016. Hence the Project will strengthen the power transmission system by connecting Bali island at 500 kV to the transmission grid, thus facilitating efficient utilization of existing and planned power plants in Java. This would enable transmitting comparatively cheaper power to Bali from the large power plants in East Java with lower technical losses. It would contribute to the long-term energy security in Bali and ensures provision of adequate and reliable power supply which is vital for economic development activities identified in Bali under the recently developed "14-year master plan for accelerating economic development in Indonesia". In addition, ADB's involvement in the Project will ensure strict compliance of design and implementation of safeguards requirements in accordance with ADB safeguards policy and it is envisaged to assist the Government institutions in strengthening the institutional capacity to ensure smooth implementation of its projects."

The Java-Bali power transmission crossing was initiated based on several ideas: (i) national master plan of countrywide 35000 MW of electricity, (ii) the surplus of Java's electricity production, and (iii) the estimated deficiency of electricity in Bali. By September 2017, the project has obtained 15 out of 17 permits. The only 2 permits left are the use of forest area permit from the ministry of forestry and the location permit from Buleleng's local government (Shintia, 2017). One of the permits that have been acquired is the environmental impact assessment document. To be able to obtain this, a principal permit from the local regent and then a principal permit from the local governor are first to be taken care of. At the time, the principal permit from Buleleng's regent has been issued, which indicates the approval of the project. However, in 2007, the regent and the administration changed. Somehow the information of the approval was not delivered to the new regent.

9.4.5 Telecommunication Tower

Interviewee's functional position: CME (civil, mechanical, electrical) engineer. Worked for Huawei, owner of the project. The location of the project is in Sanggau, West Kalimantan, Indonesia (see Figure 30). Telecommunication tower projects are divided into two main tasks: (i) determination of tower location and (ii) tower construction. Below are the scopes of work for each task:

1. Determination of Base Transceiver Station (BTS) Tower location

Search and survey of candidate location in accordance with the point coordinates that have been determined by the provider. The distance of the radius of the land is usually max 100m from the point of coordinates. Two or three location points are determined at the survey to provide more

possibilities. does not come out from the radius of the coordinate point. Survey of candidate location is done by the site acquisition team. Broadly speaking, the tasks of the site acquisition team include:

- survey of land conditions
- negotiation with landowners
- LOSS (survey view surrounding focusing on obstacles such as buildings, trees, mountains etc.) is needed to determine the height of tower required. Usually, the height of tower used in Indonesia are: 32m, 42m, 52m, 62m, 72m, 100m, 120m
- socialization to the local citizens (and compensate residents around the tower plan)
- management of construction permits
- being responsible for non-technical / social risks

2. Tower construction

Once the location is fixed, the tower construction can begin. Stakeholders involved in the tower project are:

- owner
- main contractor
- subcontractor:
  o CME (Civil, Mechanical, Electricity)
  o steel supplier
  o radio installer
  o shelter radio installer
  o site acquisition

The sequence of a standard tower construction process:

1. Preparatory work
2. Tower foundation
3. Tower work
4. Base station indoor/outdoor work
5. Fence work
6. Access road & yard work
7. Mechanical & electrical work
8. Finishing work
9. Checking of pre-handover between main contractor and sub-contractor involved
10. Repair job on the pre-handover checklist if any
11. Project handover

The standard greenfield tower base project duration varies depending on the size of the land and the height of the proposed tower. The ideal time required for construction from start to finish is usually 1 to 1.5 months (outside the non-technical constraints).
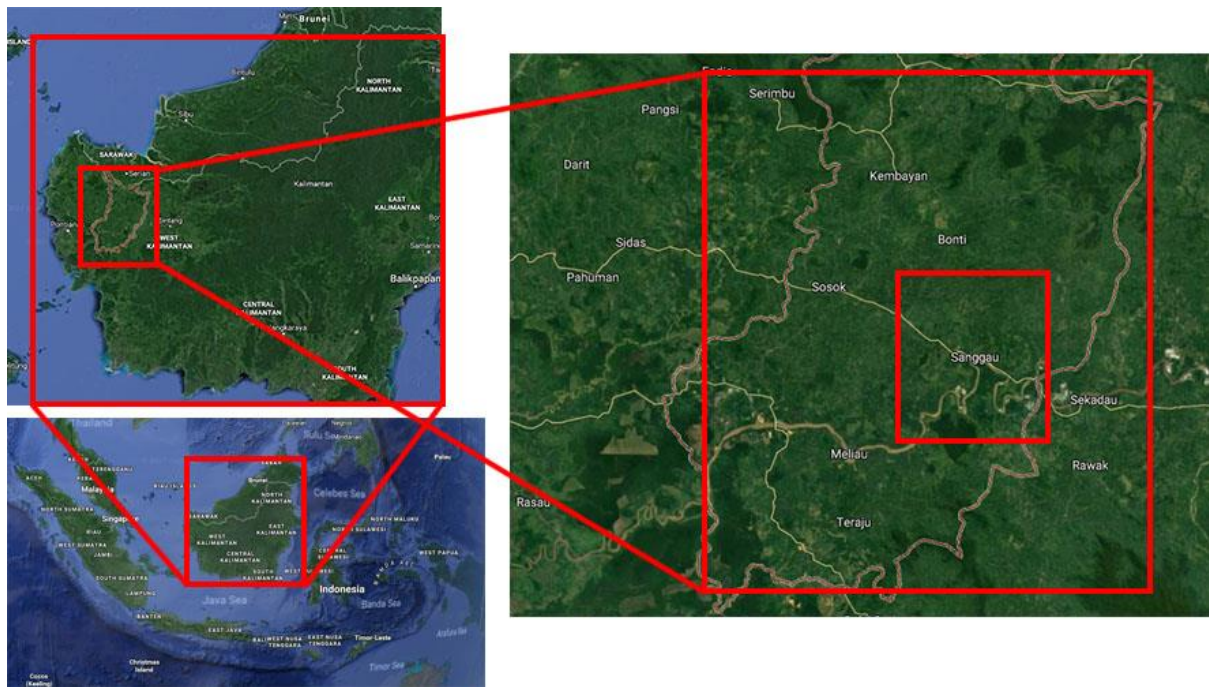
Figure 30 Location of the case study of tower telecommunication project, source: Google Maps (2017b)