Managing Stakeholders in PPP Projects: An ITTO based Framework for BOT Road Infrastructure Projects

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A thesis submitted in partial fulfilment of
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This is to certify that the

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THESIS ACCEPTANCE CERTIFICATE

Certified that final copy of MS/MPhil thesis written by Mr. Abdul Qadeer (Registration No. NUST201362149MSCEE15413F), of (School of Civil and Environmental Engineering/ National Institute of Transportation/ Construction Engineering and Management has been vetted by undersigned, found complete in all respects as per NUST Statutes / Regulations, is free of plagiarism, errors, and mistakes and is accepted as partial fulfilment for award of MS/MPhil degree. It is further certified that necessary amendments as pointed out by GEC members of the scholar have also been incorporated in the said thesis.

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This thesis is dedicated to my grandmother, family and respected teachers!

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ABSTRACT

Stakeholder are inherent part of any project. Whilst some stakeholders have limited ability to influence project and its outcomes, others could significantly influence them. It is indispensable to keep these stakeholders in fold. Recently, PPP projects have emerged as an alternative way of providing public infrastructure delivery. Despite their advantages, PPPs have faced many challenges. A major barrier undermining PPP project success is the difficulty to adequately identify stakeholders and their interests. In this research, PPP based stakeholder are identified and classified using a questionnaire survey. Further, an ITTO based conceptual framework is developed by involving six experts. Identified stakeholders and framework are validated using eight focus group interviews. Thirty-two identified stakeholder groups are classified into public sector (government, state/ federal/ regional development authorities, legal authorities), private sector (contractor, subcontractor, architect/designer), general public (general public, community representatives, customer) and third party (NGOs, press/ media, environmentalists). Proposed framework comprises of six processes; initiation, stakeholder needs and concerns, stakeholder analysis, stakeholder engagement, monitoring & control and project responsibilities. The major limitation of proposed framework is its empirical implementation.

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LIST OF ABBREVIATIONS

SHM	=	Stakeholder Management
SRI	=	Stanford Research Institute
SHT	=	Stakeholder Theory
PMI	=	Project Management Institute
PMBOK	=	Project Management Body of Knowledge
CSFs	=	Critical Success Factors
NGOs	=	Non-Government Organizations
PPP	=	Public Private Partnership
BOT	=	Build-Operate-Transfer
DBFM	=	Design-Build-Finance-Manage
ITTO	=	Input Tools and Techniques Output
CSFs	=	Critical Success Factors
R&D	=	Research and Development
SOW	=	Statement of Work
EEFs	=	Enterprise Environmental Factors
OPAs	=	Organisational Process Assets
CSR	=	Corporate Social Responsibility

Chapter 1

INTRODUCTION

1.1 General

Traditionally project success is measured in terms of time, cost, scope and quality. Researchers argue that these facets alone do not provide the holistic view of project success and there is more to it. Almost 70 factors have been identified which are imperative for project success (Hwang and Lim, 2012). Many of these factors can be linked to a single or multiple participant group. These participants, known as stakeholder, are also the root of uncertainty in the project (Cleland, 1986). Henceforth, it is indispensable to keep them in fold.

Stakeholder concept can be traced back in business to Smith (1759) and his philosophy *The Theory of Moral Sentiments*. In 1963 its application in management literature was introduced. The idea has gained well-known recognition since the mid-1980s, after Freeman (1984) book, *Strategic Management: A Stakeholder Approach.* In the field of project management, stakeholder and their management were introduced by Cleland (1986).

Stakeholder are defined as *"any group or individual who can affect or is affected by the achievement of the firm's objectives"(Freeman, 1984).* Every project has stakeholder which are either influenced by or can influence the project. Whilst a few stakeholder have a restricted competence to impact the project, others have substantial impact on the project and its anticipated outcomes (Freeman, 1984; Olander, 2007). Stakeholder have resources, knowledge, power and they are essential for successful project delivery (Mitchell et al., 1997; Lin et al., 2014;

Heravi et al., 2015; Park et al., 2017). Stakeholder management in a suitable way can mean the difference between project success and failure.

Infrastructure development, such as airports, pipelines, highways, bridges and railways, form the backbone of any modern, successful and competitive economy (Treasury, 2012), improve the standard of life and heighten the well-being of any modern society (Ng et al., 2013; Elmahroug et al., 2014). Increase population results in upsurge of infrastructure demand, which governments are not always able to cope with. PPPs are being considered and becoming the favoured technique for providing public infrastructure projects throughout the world (Gunnigan and Rajput, 2010). Over 40 countries have adopted PPPs (RICS, 2012). PPP is an instrument to bring forth the strengths of both public and private sectors with a view to improving the growth of a nation's infrastructure (Babatunde et al., 2016). In recent years, public private partnership (PPP) has emerged as an alternate way of public infrastructure delivery (De Schepper et al., 2014). While several PPP schemes have had success, others have encountered various difficulties. One of the major reported reason undermining the PPP project success is inadequate stakeholder identification and stakeholders' opposition (Amadi et al., 2014). Stakeholders' disagreement has been recognised as the major cause for PPP project failures (El-Gohary et al., 2006). Stakeholder opposition could result in an ineffective or even non-implementation of the project (Amadi et al., 2014).

1.2 Problem Statement

For any project to be successful the expectations of its stakeholder must be understood and incorporated in a systematic way throughout project lifecycle. Moreover, effective stakeholder engagement strategy is considered vital for

construction projects and their success (Eschenbach and Eschenbach, 1996; Ward and Chapman, 2008). Construction industry has a poor record of stakeholder management (SHM) during past years (Loosemore et al., 2006). One of reason is the inappropriate identification and management of stakeholder (El-Sawalhi and Hammad, 2015). Identifying stakeholder is a major issue in construction (Yang et al., 2009b). Identification of stakeholder is not always an easy task especially "invisible" stakeholder (Pouloudi and Whitley, 1997; Bourne and Walker, 2006; Loosemore et al., 2006; Rowlinson and Cheung, 2008). Failure to identify and engage stakeholder properly in early project stages lead to various problems (e.g. conflicts, cost and time overrun, etc.) (Cuppen et al., 2016; Amoatey et al., 2017).

A systematic framework for project SHM is still lacking and it needs to be established (Karlsen, 2002). Whilst several frameworks were developed in strategic management and business management literature, they have several limitations. A formal, systematic, consented and robust framework has yet to be fully developed for construction projects (Chinyio and Akintoye, 2008; Aladpoosh et al., 2012). Further, customized approaches based on project features and types are needed (Park, 2017).

Thus, a comprehensive, robust management framework covering all elements and entire project lifecycle is needed. While the framework will be general in nature the focus of this research will be on PPP build-operate-transfer (BOT) road infrastructure projects.

1.3 Research Objectives

i. To identify and classify major stakeholder groups in PPP road infrastructure projects.

ii. To identify significant stakeholder management processes/activities.

iii. To develop and validate conceptual framework for stakeholder management.

1.4 Significance of Study

This research will provide a systematic framework which would help project to effectively managing stakeholder. Moreover, with timely participation/engagement of stakeholder, conflicts/controversies and disputes would be averted, which often cause cost and time overrun amongst other problems. Effective SHM will result in stakeholder satisfaction ultimately leading to project success.

1.5 Thesis Overview

This thesis has been divided into five chapters. Chapter 1 includes introduction to the research, problem statement, and research objectives. Chapter 2 is 'Literature Review'. It examines the previous work concerning stakeholders, PPP projects and various SHM frameworks. Chapter 3 is 'Methodology' of research. It explains how the research was carried out to attain research objectives. Chapter 4 is 'Data Analysis and Framework'. It explains in detail various components of the framework. Chapter 5 'Conclusions and Recommendation' provides various conclusions, limitations of research and the way forward.

Chapter 2

LITERATURE REVIEW

The chapter spotlights stakeholder definitions, stakeholder theory, types of stakeholder, stakeholder classification, SHM and its necessity, PPP projects and their barriers, various SHM frameworks developed over the years and their limitations.

2.1 Introduction

Stakeholder are integral part of any project. They ensure the project progression right from conception to completion and operations to demolition. Several researchers adopt the perspective that project success relates to not only time, cost and quality, but also the stakeholder involved (Mallak et al., 1991; Bourne and Walker, 2004; Jepsen and Eskerod, 2009; Nguyen et al., 2009). Stakeholder and their management is indispensable for project success (Dainty et al., 2003; Chan and Chan, 2004; Wang and Huang, 2006). The management of project stakeholder is a fundamental part of project management (Olander and Landin, 2005).

After the introduction of stakeholder concept in construction industry, it has been the centre of research by many scholars. During the three decades, ample work concentrated on analysing characterizing and managing stakeholder and still loads to be accomplished. Numerous concepts, philosophies and facets have been perceived regarding stakeholder (Yang et al., 2009b). Owing its significance, PMI as of late has added project SHM as the 10^{th} knowledge area in the 5^{th} edition of PMBOK (PMI, 2013).

2.2 Definition

A project is a combination of unique, complex and linked activities. Construction projects do not transpire in vacuum. Several individuals, groups and organisations are influenced positively or negatively as a consequence of these activities and their execution. These individuals, groups and organisations are commonly known as Stakeholder.

The beginning of SHM in literature can be tracked back to 1963, when the word appeared in an international memorandum at the Stanford Research Institute (Freeman, 1984). They conceptualised stakeholder as *"those groups without whose support the organisation would cease to exist"* (Freeman and Reed, 1983). Freeman (1984) defined them as *"any group or individual who can affect or is affected by the achievement of the firm's objectives"*. Figure 2.1 presents a brief history of the stakeholder concept.

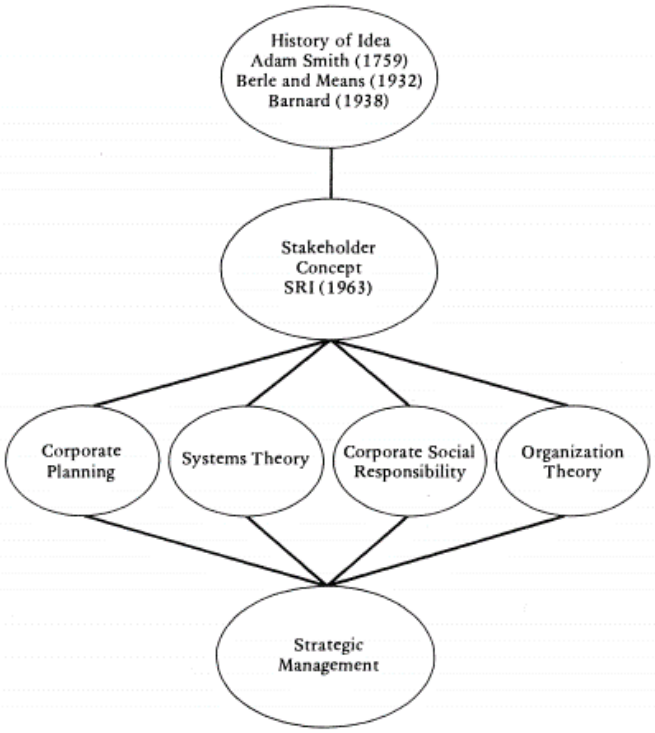

Figure 2.1: Stakeholder concept history (Freeman, 1984)

According to Clarkson (1995), stakeholder are the individuals who have set something at risk in an association with the firm. They are the ones who are influenced (positively or antagonistically) by the actions of the company, paying little attention to whether they are linked through explicit or implicit contracts. PMI stated project stakeholder as *"individuals and organisations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion"* (PMI, 1996). From Mitchell et al. (1997) perspective, they are individuals/groups possessing direct significance to the fundamental financial interest of corporations involved.

2.2.1 Discussion

As awareness in stakeholder expanded, so too has the number of perceptions on the matter. Over 30 strands of SHT exist (Friedman and Miles, 2002). There is no unique, definitive and commonly acknowledged definition of stakeholder. Various opinions have emerged regarding, how to theoretically define '*stakeholder'*. Almost 66 diverse conception of the expression can be found in the work of a few scholars (Mainardes et al., 2011). Thus, throughout the years various modifications have been made in an effort to make the definition more useful and applicable (Kivits, 2013). As per Molwus (2014), some project stakeholder definitions are evaluated for being too constricted (Smith et al., 2001; Smith and Love, 2004; Olander, 2007; Walker and Rowlinson, 2007), whilst others for too extensive (Freeman, 1984; Juliano, 1995; Awakul and Ogunlana, 2002; PMI, 2004; Takim, 2009; Winch, 2010).

Freeman (1984) definition gave every individual even remotely associated with the project, the authenticity to be viewed as stakeholder (Parent and Deephouse, 2007; Agle et al., 2008; Laplume et al., 2008; Van Huijstee and Glasbergen, 2008;

Molwus, 2014). This definition involves bi-directional influence between organisations and groups/individuals, hence taking into consideration a large sum of individuals and organisations that are directly or indirectly associated to the organisation (Nguyen et al., 2009). The definition does not specify the stake or relationship that stakeholder have with the firm, nor takes a stance on whether the claims of the stakeholder are legitimate or not (Aaltonen, 2010). Several authors have tailed this line of rational (Nguyen et al., 2009). This is commonly referred as broader concept.

The definitions presented by SRI and Mitchell et al. (1997) adopts an instrumental perspective which deals with corporation economics. Consequently, these definitions restrict stakeholder to those groups which are relevant to firm's economic interests, while abandoning social, cultural, legal and environmental aspects. Enduring stakeholder would be internal or traditional since they benefit the most (Donaldson and Preston, 1995; Jones, 1995; Aaltonen, 2010; Mainardes et al., 2011). This concept is commonly referred as narrower concept.

Several researchers presume the perspective that stakeholder should be delineated from interest standpoint. Stakeholder are populace/organisations involved and having an interest in project (McElroy and Mills, 2000; Bourne and Walker, 2008; Johnson et al., 2008). Other scholars utilised PMI's definition for their research (Nguyen et al., 2009). This study defines stakeholder as "*Project stakeholder are individuals, groups, or organisations who may affect, be affected by, or perceive themselves to be affected by a decision, activity, or outcome of a project"* (PMI, 2013).

2.3 Stakeholder Theory

2.3.1 Preamble

Stakeholder theory initially emerged in 1980s preceding consolidation during the 1990s, pertaining to the works of (Goodpaster, 1991; Clarkson, 1994; Clarkson, 1995; Donaldson and Preston, 1995; Mitchell et al., 1997; Rowley, 1997; Frooman, 1999), among others as per Mainardes et al. (2012). SHT derives from numerous other speculations, including: agency theory, theory of the firm, transaction cost theory, and the evolving theory of property (Kivits, 2013). Four social sciences: sociology, economics, politics and ethics are involved in making of this theory (Mainardes et al., 2012).

2.3.2 Philosophy

SHT is a managerial method, and prescribes the standpoint and procedure which collectively constitute a SHM rationality (Donaldson and Preston, 1995). It is more about business and system which developed from business administration and plans to portray, comprehend, break down and oversee stakeholder (Freeman, 1984). It additionally demonstrates a structure for investigating the behavioural angles in overseeing stakeholder (Aladpoosh et al., 2012).

SHT originates from the perception that, if a partner or gathering can be influenced by organisation; it needs to deal with them (Freeman, 1984). SHT is categorised by several scholars in numerous ways. Most renowned one is the categorisation by Donaldson and Preston (1995). SHT was divided into descriptive, instrumental and normative approach. Descriptive/empirical approach is utilised to portray and infrequently additionally to clarify particular corporate qualities and practices. Instrumental approach, distinguishes the associations between stakeholder

administration and an organisation's execution targets, for example, productivity and development (Berman et al., 1999; Ogden and Watson, 1999). Normative approach deals with moral or philosophical strategies for managing corporations and defines what managers ought to do when dealing with stakeholder (Aaltonen, 2010). In other words, this perspective focuses on the moral propriety of corporation's behaviour. Such aspects of SHT are equally supportive. Normative approach is the central core to SHT (Donaldson and Preston, 1995; Yang et al., 2009a; Aladpoosh et al., 2012).

2.4 Types of Stakeholder

Construction schemes attract a great number of population (including people, organisations and corporations) (Nguyen et al., 2009). Stakeholders related to such projects are complex as compared to other industries (Jergeas et al., 2000). According to Frooman (1999), the problem of "*who are stakeholder*?" should be solved first before categorising and managing stakeholder. Freeman (1984), considered two groups; groups we are used to dealing with and other/external group. First group included customers, suppliers, employees and their unions and stockholders. Second group was due to external environment (stakeholder) and included government, competitors, consumer advocates, environmentalists, special interest groups and media (Freeman, 1984; Mainardes et al., 2012).

Stakeholder in a construction project include clients, owners, end users, facility managers, project managers, designers, legal teams, shareholders, investors and lenders, banks, public, media etc. *(Newcombe, 2003; Smith and Love, 2004).* Recently, 15 major stakeholder groups relating to construction projects are identified (Yang and Shen, 2014). This typology of stakeholder is sometimes

referred to as stakeholder classification by roles. Figure 2.2 represents some of the major stakeholder groups involved in a project.

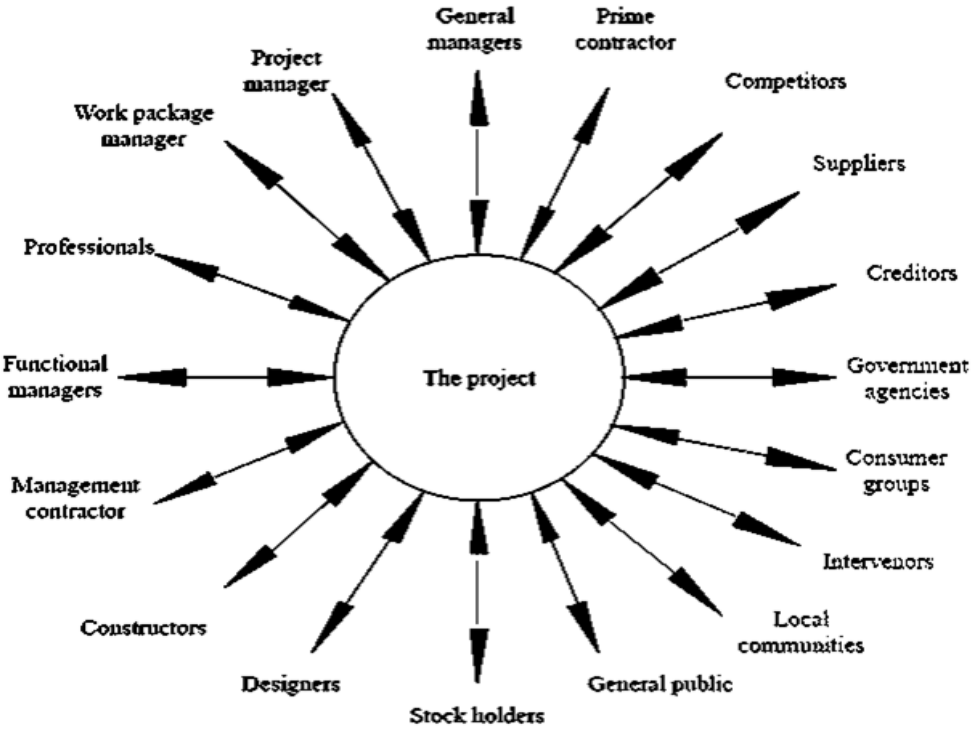

Figure 2.2: Project Stakeholder (Cleland, 1986)

As per PMI, stakeholder included people and organizations, for example, clients, supports, the performing association, and general society who are effectively required in the task, or whose benefits might be decidedly or wilfully effected by the implementation or finishing of the undertaking. They might have different positions in the association and may have distinctive power ranks, or might be outside to the performing association for the project (PMI, 2013). Stakeholder and their number will shift contingent upon type, size, and nature and procurement route adopted for the project.

2.5 Stakeholder Classification

Simultaneously dealing with all the stakeholder recognised by broader concept is simply not possible. A prioritisation is indispensable prerequisite (Fassin, 2008;

Mainardes et al., 2012). Classifying stakeholder based on different aspects and perspectives makes the relationships more constrictive, facilitate their involvement in the project, reduces managerial complexity and helps management in selecting appropriate strategy (Savage et al., 1991; Mitchell et al., 1997; Karlsen, 2008; Chinyio and Olomolaiye, 2010; Mainardes et al., 2011). Stakeholder have been grouped in several ways using numerous criteria (Fassin, 2009). There are numerous but somewhat similar categorizations of project stakeholder (Newcombe, 2003; Smith and Love, 2004; Winch, 2010).

Over the years many researchers have proposed different stakeholder classification including but not limited to Goodpaster (1991), Savage et al. (1991), Clarkson (1995), Mitchell et al. (1997), Scholes and Clutterbuck (1998), Kamann (2007), Fassin (2009) as cited by Mainardes et al. (2012). Of the aforementioned approaches, Mitchell et al. (1997) model has proven to be the most popular. Recently Mainardes et al. (2011), classified stakeholder into six types: regulatory stakeholder, controller stakeholder, partner stakeholder, passive stakeholder, dependent stakeholder and non-stakeholder, for public organisation. Some of the important and most commonly used classifications in stakeholder literature are discussed below.

2.5.1 Stakeholder attribute

Project stakeholder possess certain attributes and relationship which govern their capability to make claims and take major decision regarding the project and its scope. These attributes include power, legitimacy, urgency and proximity. (Mitchell et al., 1997; Bourne and Walker, 2008; Mainardes et al., 2011; Molwus, 2014). The utilisation of proximity rather than legitimacy could be more beneficial. Since proximity is easier to operationalise compared to legitimacy which is

imprecise and hard to explain (Yang et al., 2009a). Mitchell et al. (1997), characterised stakeholder into seven categories; dormant; discretionary; demanding; dominant; dangerous; dependent and definitive stakeholder.

2.5.2 Stakeholder attitude

Olander (2007), sought stakeholder to be either project proponents or opponents. Stakeholder can be supportive, neutral or opposing to the project (Aaltonen et al., 2008; Chinyio and Akintoye, 2008). Project management ought to be competent enough to sort stakeholder into neutral, opponents/anti to supportive stakeholder especially for decision making and resource allocation rationale (Molwus, 2014).

2.5.3 Vested interest-impact index (ViII)

Bourne and Walker (2005), categorised stakeholder on the basis of their vested interest-impact index. The classification bases by Mitchell et al. (1997) and Bourne and Walker (2005) were combined by Olander (2007). Stakeholder were classified with respect to their final position value into active opposition, passive opposition, not committed, passive support and active support.

2.5.4 Contractual relationship

There are two major classifications under this category. 1) Primary and secondary stakeholder, 2) External and internal stakeholder.

2.5.4.1 Primary and secondary stakeholder

Subject to the relationship amongst stakeholder and project, stakeholder can be categorised as primary or secondary stakeholder (Clarkson, 1995; McElroy and Mills, 2000). As per Clarkson (1995) primary stakeholder are those which have official contractual relations with corporation, such as clients, suppliers,

employees, shareholders, among others. While secondary stakeholders are the one without such contracts, such as government authorities or the public community.

2.5.4.2 Internal and external stakeholder

Several scholars have a common opinion that project stakeholder fall in two main categories: internal and external (Mitroff, 1983; Calvert, 1995; Turner, 1995; Pinto, 1996; Morris and Pinto, 2004). Figure 2.3 demonstrate internal/ external stakeholder classification.

Winch (2010) used the contractual structure between stakeholder and the client to differentiate between internal and external stakeholders. Internal stakeholders normally have legal contractual association with the client and are associated with demand and supply side. External stakeholder does not have any contractual relation with client, but have some privileges and shared interests in the project. They are further classified into private and public sides.

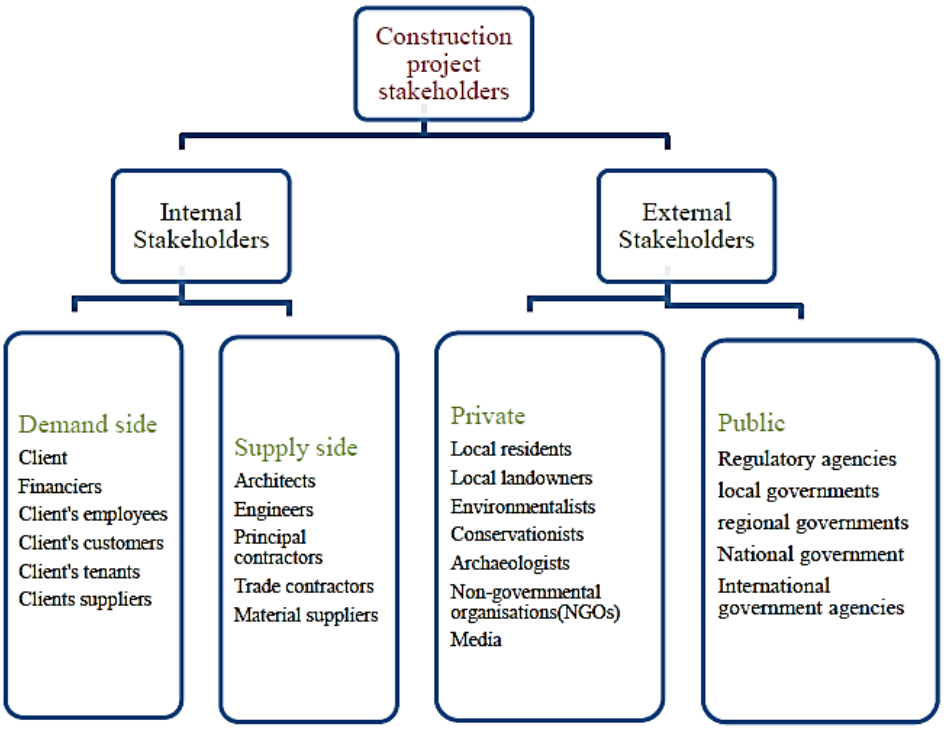

Figure 2.3: Internal and External Stakeholder (Winch, 2010)

2.6 Stakeholder Management Necessity

2.6.1 SHM importance

The importance of stakeholder has been addressed by several scholars over the years. Table 2.1 overviews some of the literature arguing stakeholder and their management importance. Owing its importance SHM has been added as 10th knowledge area by PMBOK (PMI, 2013). Table 2.1 demonstrates the importance of stakeholder and their management.

Table 2.1: Importance of stakeholder

Importance of managing stakeholder	References
Effective accountability towards primary stakeholder can result in lower explicit expenditure.	Alexander and Buchholz (1978)
The execution of organisations which adjusted the benefits of all their partner is superior to that of those which put their stakeholder first.	Kotter and Heskett (1992), Caulkin and Black (1994)
Organization's persistence and proceeding with achievement rely on the capacity of its administrators to create worth and stakeholder satisfaction.	Clarkson (1995)
Stakeholder standards and practices contribute to accomplish formal organisational performance objectives.	Donaldson and Preston (1995)
Stakeholder attributes must be evaluated by project management teams.	Mitchell et al. (1997)
Identifying significant stakeholder, their interests and reaction is fundamental for organisational survival.	Hill and Jones (1998)
Stakeholder should be identified and their interest ought to be measured in order to forecast their behaviour and impact on project and its teams.	Cleland (1999)
Positive stakeholder and project relationship is imperative for successful project delivery.	Jergeas et al. (2000), Hartmann (2002)
The actions or decisions of the stakeholder are sensitive for the project.	Karlsen (2002)
SHM is eminent for enhancing the probability of attaining marketplace success.	Mellahi and Wood (2003)
Active project SHM enhances the capability of individuals to work together and reduces executive interruptions.	PMI (2004)

Stakeholder have potential and resources to halt construction projects.	Lim et al. (2005)
The blunder of stakeholder dissident issues can bring about lost incomes, a decrease in share cost, vast lawful charges, and additionally squandered administration.	Preble (2005)
Stakeholder are backbone of project and without them project can never come into existence.	Bourne and Walker (2005)
Organization relies on its stakeholder.	Johnson et al. (2005)
SHM is beneficial for the economic performance of corporation.	Coombs and Gilley (2005)
SHM framework assists project managers to simultaneously manage multiple stakeholder interests.	Sutterfield et al. (2006)
SHM efficiency impacts corporation survival.	Pajunen (2006)
The aspects of people management are more crucial towards project success than technical aspects.	Abdullah et al. (2006), Pinto and Prescott (2007)
SHM is essential part of the strategic organisational management.	Cleland and Ireland (2007)
Managing stakeholder is a CSF for managing projects.	Nokes and Kelly (2007)
The impact of all stakeholder in connection to the task prerequisites must be overseen in a consistent procedure to ensure project success.	PMI (2008)
During project execution, stakeholder responsibilities and tasks ought to be acknowledged meet their needs. Inadequate SHM will result in cost and time overruns	Yang et al. (2009b)
Distinctive stakeholder intrigues must be perceived and consistently reviewed by a responsible administration structure.	Harris (2010)
Stakeholder are asset, providing knowledge, intuition, and support.	Bryson et al. (2011)
Stakeholder satisfaction ought to be overseen as a fundamental project objective.	PMI (2013)
Inadequate SHM in construction projects prompts to project failure.	Molwus (2014)
Stakeholder impact project in both positive and negative way. Failing to comprehend the most influential stakeholder might lead to project failure.	Nalewaik and Mills (2015)

2.6.2 Stakeholder and project success

The success of project is linked with the effective and continuous engagement/management of all the stakeholder involved (Cleland, 1999; Bourne and Walker, 2005; Olander, 2007; Aaltonen et al., 2008; Chinyio and Akintoye, 2008; Ward and Chapman, 2008). Similarly, construction project failures have been attributed to either lack of or inadequate SHM during the project (Black, 1996; Akintoye et al., 2003; Bourne and Walker, 2005; Olander and Landin, 2008).

2.6.3 Problems arising from inadequate SHM

Conflict between stakeholders is an unavoidable phenomenon as each stakeholder possess its own history, culture, character, standards, gender, principles, and activities which drive its actions and motivation (Randeree and El Faramawy, 2011). Inadequately managing stakeholder concerns usually results in clashes and disagreements about the implementation of a construction plan (Susskind and Cruikshank, 1987; Susskind and Field, 1996; Jergeas et al., 2000). Olander and Landin (2008) argued that in the absence of SHM project manager would wind up averting claims from different stakeholder. In case the SHM is not adequately performed, poor scope description, insufficient resources allocated to the project, changes orders and unforeseen regulatory issues, all of these may be the main basis of delays and cost overruns (Black, 1996; Karlsen, 2002). As per Molwus (2014) stakeholder related issues and concerns have been documented in construction management researches. They vary from delays in planning and construction of projects to cost overruns and disputes mounting to litigation and claims. Other problems such as reworks, disputes, poor communication, and failure of the supply chain also arise due to stakeholder conflicts during the construction phase (Barlow, 2000; Baharuddin et al., 2013).

2.7 Stakeholder Management

An increasing research trends has been observed toward identifying success factors for the project during last decade (Cleland and Ireland, 2002). Several researchers have identified SHM as an important and essential element of project management, which has a vital role in project's success (Jergeas et al., 2000; Olander and Landin, 2005). As per Cleland (1995), effective SHM is crucial throughout the project lifecycle.

SHM is a process consisting of problem solving, reducing project threats, and aiding projects towards successful and timely completion (Yang and Shen, 2014). The purpose of SHM is to take into account the different views of numerous members, improve communication between stakeholders, and clarify their requirements (Freeman, 1984; Mitchell et al., 1997). According to PMI (2013), SHM includes:

- Stakeholder identification.
- Understanding and analysing stakeholder expectations and impact.
- Developing appropriate management strategies for engagement.
- Continuous communication and managing conflicting interests.

2.8 PPP Projects

PPPs can be defined as *"a long term contract between a public entity and a private organization for various phases of project such as designing, construction, financing, and operation of public infrastructure by the private sector; with repayment over the life span of the PPP contract to the private sector for use of the facility, made either by the public sector organization or by the overall public as*

users of the facility; and with the ownership of the project in hands of public sector, or returning to public sector PPP contract end" (Yescombe, 2011).

Numerous PPP models exist, of these the most common contractual forms are:

i. BOT (Build-Operate-Transfer).

ii. BTO (Build Transfer-Operate).

iii. DBFO (Design-Build-Finance-Operate-Maintain

2.8.1 PPP and SHM

There are many stakeholders, with diverse and complex nature, involved in a large construction project (Li et al., 2016; Mok et al., 2017a; Xia et al., 2017). Such projects normally have a substantial influence on the way of life of a community, and their financial, ecological, sociological and political consequences could last for an extended amount of time (Koehn, 1993). Thus, the amount of external stakeholders disturbed due to a usual civil engineering infrastructure scheme can be huge, and subsequently present various interfaces that must be effectively managed (Chinyio and Akintoye, 2008; Elmahroug et al., 2014). When a public infrastructure project is to be delivered through PPP, the complications of the stakeholder environment surges (De Schepper et al., 2014).

The situation for stakeholders in PPP projects is more complex than of a typical construction project (Jayasuriya et al., 2016). One of the particular features of PPP projects is that they involve a large number of stakeholder as compared to normal projects (Tang et al., 2010; Tang and Shen, 2013). Public antagonism is one of the main political, and less foreseeable risk of infrastructure projects (Gentry, 1997; Zhang, 2005; Cuppen et al., 2016). A driver for the interest in external SHM is the increasing difficulty that governments and industry face in providing infrastructure projects (Cuppen et al., 2016). Hence, SHM has become an essential fragment of

infrastructure developments (El-Gohary et al., 2006). With the inherent complexities accompanying PPP arrangements stakeholder management has become a complex and more dynamic process to define responsibilities of each party (De Schepper et al., 2014). Numerous features of stakeholders, for example, the relation of public and private organizations, experiences of doing PPP projects, are supposed to be decisive for the success of PPP schemes because poor SHM would result in misunderstandings and conflicts between the parties involved (Aaltonen and Kujala, 2010; Li et al., 2013). However, most of the PPPs have faced issues during design and concession periods.

In the past, many PPP schemes have seen success while some others have faced issues and challenges (Amadi et al., 2014; Jayasuriya et al., 2016). When considering these issues SHM related issues can be considered as one of the main reasons for failure (Jayasuriya et al., 2016). The nature of PPP schemes is complex which involve several stakeholders and thus far, there is an absence of satisfactory and well-structured ways of handling these stakeholders and their diverse and conflicting benefits which has resulted in neglect of stakeholders (Amadi et al., 2014; Mok et al., 2017b). This has been characterized a major factor of project failure in Nigerian PPP schemes (Amadi et al., 2014). Table 2.2 summarises some of the stakeholder related barrier/challenges encounter in PPPs hindering its success.

Table 2.2: Stakeholder related barriers to PPP

Sr. No	Barriers to PPP
1.	Difficulty in identifying stakeholders throughout the PPP life cycle
2.	Lack of support
3.	Lack of stakeholder involvement
4.	Lack of trust
5.	Lack of transparency

6.	Expectation gap between different stakeholders
7.	Difficulty in identifying stakeholder interests
8.	Neglecting stakeholder Interest
9.	Capturing and addressing stakeholder concerns
10.	Neglected importance of reporting/communication processes
11.	Miss match between management cultures of organisations
12.	Responsibility and accountability issues
13.	Poor relationship management
14.	Lack of information dissemination to the public
15.	Interests of the general public are not addressed
16.	Lack of longer-term performance monitoring
17.	Lack of staff capability in the PPP project delivery
18.	Inadequate conflict management
19.	Lack of interaction and collaborations with the stakeholders
20.	Inadequate risk allocation
21.	Value of money evaluated only from financial perspective
22.	Potential conflicts of interests among the stakeholders
23.	Public sector inability to manage consultants
24.	Public opposition or Public resistance
25.	Societal dissatisfaction towards the private sector
26.	Public disliking towards tariff increases
27.	Land acquisition complications
28.	Lack of coordination between national and regional governments
29.	Lengthy delays in negotiation or delays due to lengthy bureaucratic procedures
30.	Politicisation of the concessions/Political interference in procurement process
31.	Lack of strong political commitment for PPPs
32.	Poor evaluation, monitoring and due diligence by stakeholders

Source: (Amadi et al., 2014; De Schepper et al., 2014; Babatunde et al., 2015; Jayasuriya et al., 2016)

Despite the literature has suggested a proper SHM is key to attain PPP project success, there is a lack in studies in this area. PPPs projects are expected be more complex and dynamic which make the SHM more difficult (Jayasuriya et al., 2016). Hence, managing stakeholder concerns and expectations, and putting suitable SHM techniques in place are critical for the success of PPPs, even in the early phase of project.

2.9 SHM Frameworks

Over the decades several frameworks have been developed by researchers for managing stakeholder. While some sort stakeholder classification e.g. Mitchell et al. (1997) to deal with stakeholder, others e.g. Yang et al. (2009c) have utilised CSF approach to deal with them. Many scholars proposed the SHM process in general, Yang et al. (2011) without any explicit connection with the project management system (Aladpoosh et al., 2012). Table 2.3 summarises few of the important frameworks developed for SHM, it does not include the stakeholder categorisation which has already been discussed in section 2.5.

Table 2.3: Various SHM frameworks

Scholars	SHM Process
Freeman (1984)	Identify stakeholders, Planning, Implementation, Evaluation.
Cleland (1999)	Stakeholder identification, Stakeholder classification, Formulating/ adopting stakeholder management strategy.
Scott and Lane (2000)	Identify stakeholder, Develop process for recognising needs and interests, Establish and build relationships whiling considering organisation objectives, Establish and build relationships whiling considering organisation objectives.
Karlsen (2002)	Stakeholder identification; Examining the characteristics of stakeholders; Communicating with stakeholders; Developing approaches, Following up.
Elias et al. (2002)	Mapping of stakeholders in a project; Making a list of particular stakeholders; Classifying the risks of stakeholders; Making a power versus stake grid; Conducting a process level stakeholder analysis; Conducting a transactional level stakeholder analysis; Determining the stakeholder management capability of the R&D projects; Analysing the dynamics of stakeholder connections.
Veil and Turner (2002)	Identifying, Assessing, Support and influence.
Young (2006)	Identification of stakeholders; Collecting data about stakeholders; Analysing the effect of stakeholders
Bourne and Walker (2006)	Identification of stakeholders; Ranking of stakeholders; Developing a stakeholder engagement policy.

Olander (2006)	Identifying stakeholders; Collecting data on stakeholders; Identifying stakeholder duty; Determining stakeholder strengths and weaknesses; Identifying stakeholder approach; Forecasting stakeholder behaviour; Implementing stakeholder management plan.
Sutterfield et al. (2006)	Identification of project mission, SWOT analysis, Identifying stakeholders, Identify criteria/strategy, Select project SHM strategy, Assign resources, Implement, Evaluate, and Feedback.
El-Gohary et al. (2006)	Five entities: Process, Product, Constraints, Actors and Resources.
Walker et al. (2008)	Identification of stakeholders; Ranking stakeholders; Engaging stakeholders; Monitoring effectiveness of communication.
PMI (2008)	Identify stakeholders, Collect needs, Manage stakeholder expectations
Jepsen and Eskerod (2009)	Identification of the significant stakeholders; characterization of the stakeholders indicating their (a) Needed contributions. (b) Expectations concerning rewards for contributions. (c) Power in relation to the project; decision about which strategy to use to influence each stakeholder.
Yang et al. (2009c); Yang et al. (2011)	Five CSF groups; Preconditioned, Information inputs, Stakeholder estimation, Decision making, Sustainable support.
Bourne (2008); Bourne and Weaver (2010)	Identifying stakeholders, Prioritising stakeholders, Visualising stakeholders, Engaging with stakeholders, Monitoring.
Manowong and Ogunlana (2010)	Strategic management chart comprising of four objectives: Formalised stakeholder analysis (SA), Strengthening stakeholder relationship (SR), Sustain stakeholder commitment (SC), Increase stakeholder satisfaction (SS).
Henjewele et al. (2013)	Four project phase approach encompassing five processes; Identify and review stakeholder, Prioritise/ Reprioritise stakeholder, Build relationship, Identify and manage concerns and conflict, Manage Communications.
Ng et al. (2013)	Eight stages containing; Engagement events, Processes, Decision and Loop back.
PMI (2013)	Identify stakeholder, Plan SHM, Manage stakeholder engagement, Control stakeholder engagement.
Yang and Shen (2014)	Six CSF groups; Precondition, Stakeholder identification, Stakeholder assessment, Decision making, Action and evaluation, Continuous support.

Erkul et al. (2016)	Stakeholder identification and interests, Analysing stakeholder relationship, Assessing stakeholder influence, Stakeholder engagement.
Molwus et al. (2017)	Identify stakeholder characteristics and project characteristics, Carry out stakeholder analysis, Understand stakeholder dynamism, Decide stakeholder engagement/empowerment techniques.
Park et al. (2017)	Five CSF groups; Responding to environmental change, Clear understanding of stakeholder, Effective communication, Clear definition of project, Social Cooperation.

After the seminal work of Freeman (1984) the framework developed initially were from an organization and strategic management perspective. Later classifying stakeholder was considered as an important step towards developing/managing engagement strategies. For instance, Savage et al. (1991) classified stakeholder into four groups; supportive, marginal, non-supportive and mixed blessing stakeholder based upon their potential of cooperation and threat (Park et al., 2017).Then four strategies namely; involve, monitor, defend, collaborate where utilized to engage with these stakeholder group. While internal/external stakeholder and primary/secondary stakeholder concept were utilized (as explained in section 2.5), another important development was put forth by Mitchell et al. (1997). Stakeholder were classified based upon their attributes. Cleland (1999) proposed a framework that contained all three elements of identification, classification and engagement. Karlsen (2002) presented a project stakeholder model with five important steps as mentioned above. But ignored the *"collecting data about stakeholders"*, which was considered important by Young (2006) (Yang et al., 2011). Elias et al. (2002), utilized three level of analysis; rational, process and transactional for R&D projects. While the last stage adopted from Mitchell et al. (1997) for analyzing the stakeholder dynamic. The major focus of the framework was on stakeholder

analysis whilst developing and implementing stakeholder engagement strategies were overlooked. Similarly Veil and Turner (2002) and Young (2006) framework had the same limitations.

Bourne and Walker (2006) suggested a three-step process for measuring and visualizing stakeholder influence on projects stakeholder using *"stakeholder circle"*. The attribute of legitimacy was replaced by proximity (Park et al., 2017). Here the prioritisation resulted in marginalisation of some important stakeholder since the attributes and stakeholder influence are dynamic in nature (Yang and Shen, 2014). Walker et al. (2008) & Bourne and Weaver (2010) improved this framework to include monitoring as a last step. Without any consideration to procurement route the whole responsibility was assigned to project manager which becomes problematic. By merging SHT and strategic management process Sutterfield et al. (2006) provided a comprehensive project SHM strategy framework. The conceptual framework was developed for assisting project leaders to accomplish the interests of several project stakeholders and lacked lifecycle perspective. Jepsen and Eskerod (2009) through an exploratory study provided some value guidelines, but were limited to stakeholder analysis.

Manowong and Ogunlana (2010) developed a strategic SHM chart. The chart indicated the strategy and tactics, which were directly linked to the critical success factors (CSF) for SHM in construction. Yang et al. (2009c); (2011) identified CSFs for SHM and proposed a conceptual framework. Since then many researchers have utilised CSF approach to either study SHM or develop SHM framework. Yang and Shen (2014) building on Yang et al. (2011) framework developed a detailed and comprehensive framework. "Action and evaluation" group was introduced into original framework. Further, the positioning and the processes were explained in a

more systematic manner. Park et al. (2017) have also utilised a similar CSF approach. Recently Molwus et al. (2017) used structure equation modelling for understanding the interrelationship between CSFs. A sequential framework consisting of four steps (as aforementioned) was proposed.

Construction projects typically focus on success criteria defined in the project conceptualization making CSFs stage specific. Stakeholder satisfaction is not fully achieved even when these criteria are met (Mbachu and Nkado, 2006). Stakeholders do not completely recognize their requirements at the project outset, making use of these CSF somewhat problematic (Thomson, 2011).

PMI recently added SHM as 10^{th} knowledge area (PMI, 2013). Previously a simplistic management framework was adopted encompassing three processes namely; identification of stakeholders, collection of their needs and manage stakeholder prospects. The various components (e.g. classifying/prioritise stakeholder, developing and implementing engagement strategies, effective communication e.tc.) were missing. The more recent input, tools and techniques, output (ITTO based framework contained four process groups. Yet relationship management, stakeholder dynamics and corporate social responsibility were not incorporated. Until now the discussed framework dealt with SHM in general. Next section discusses PPP specific SHM frameworks.

El-Gohary et al. (2006) established a semantic model for PPP infrastructure projects consisting of five main entities. This sematic model took into account the stakeholder inputs at the design stage only and not across other stages of a PPP scheme. Furthermore, the model seemed very difficult to apply in real life construction projects (Amadi et al., 2014; Molwus, 2014).

Ng et al. (2013) anticipated a systematic public private people partnership (P4) process framework for engaging project stakeholders during all project phases. However, the framework did not spell out a method to identify the respective stakeholders. Also, it was a conceptual framework and presumed that the public is involved after concept plans are prepared by the client (Amadi et al., 2014; Elmahroug et al., 2014).

Henjewele et al. (2013) suggested a multiple SHM model for PPP schemes. The model took into account all features of a characteristic PPP project from conception phase to its operation. It consisted of five unique processes. These processes are the same for all phases of a PPP project. However, the weaker or less powerful stakeholders are not given much importance after stakeholder prioritization. Furthermore, the model did not reflect the participation and engagement of these stakeholders at the operation and maintenance to be of much importance other than informing other stakeholders about tariffs and performance (Amadi et al., 2014).

The common elements/processes of the above frameworks are:

- Stakeholder identification.
- Gathering information about stakeholders
- Prioritisation of stakeholder.
- Stakeholder analysis.
- Stakeholder engagement.
- Communication.

In construction industry, SHM should be conducted from two levels: (1) organizational level; (2) project level (Lin et al., 2014). In literature, many SHM processes have focused on identifying stakeholders and studying their influence on the project objectives (Yang et al., 2009b). The processes for identifying

stakeholders in the frameworks are inadequate to reflect all stakeholders of a project (Amadi et al., 2014). There seems to be no agreement on the best model. Stakeholder management demands a formal structured method (Cleland and Ireland, 2002), but such a proper method has not yet been completely established (Chinyio and Akintoye, 2008).

Concluding above, there is no ambiguity about the fact that a formal stakeholder management process model needs to be formulated (Yang et al., 2011). There is a dire need of identifying stakeholder and developing a robust SHM system for PPPs (Amadi et al., 2014; Jayasuriya et al., 2016). Understanding that a PPP scheme covers diverging types of public–private relationships (Hodge and Greve, 2007; OECDO and . 2008; Kwak et al., 2009) research was focused on BOT road infrastructure projects.

Chapter 3

RESEARCH METHODOLOGY

In this chapter the research design, flowchart and tools and techniques adopted for achieving the research objectives are discussed.

3.1 Introduction

Research methodology demonstrates how research is to be conducted to accomplish research objectives (Saunders, 2011). It allows researchers to define and analyze methods and techniques, indicating their limits and resources, identifying their assumptions and consequences and linking their potentialities to research advances (Miller and Salkind, 2002). Appropriation between research model, data type and means of its collection has substantial implications upon the research discoveries. Multiple techniques were utilised for carrying out research, including a through literature review, questionnaire survey and focus group interviews.

3.2 Research Design

This research is divided into three phases. In first phase, after development of research proposal, a thorough literature review was carried out for developing a basic understanding of stakeholder concept, its various dimensions and components and PPP projects. Various stakeholder groups and classification were identified. Further, several frameworks developed over the years were examined. A detail investigation was carried out regarding their difference, similarities and limitations. A systematic literature review was carried out using "*Google Scholar"* and "*Science Direct"* as major search tools. Time and again "*Scopus"* was also

consulted. Research material was examined utilising keywords *"stakeholder", "project stakeholder", "construction project stakeholder", "project participants"*, and *"project environment*" and combination of the above as per Yang et al. (2011). Additionally, search was extended using *"public private partnership (PPP)", "partnership"* and *"co-ownership"* in combination to above to include PPP based stakeholder literature. The time period of the study was taken from 2005 till 2017 to capture recent trends and developments. Whilst some important literature prior to the time period was also consulted.

A combination of Olander (2006) and Yang et al. (2011) methodologies were adopted for literature searching. The publications were first selected based on available title, key word and abstract, and then paper contents were analysed. After search process, publications were selected for further study.

In second phase, an online preliminary survey was developed for stakeholder identification, and was floated to professionals. Data collected from survey was analyzed using MS Excel. Simultaneously, a conceptual framework was developed using ITTO (while involving experts). In third phase data form the survey was analysed its results along with framework were validated using structured interviews. Finally, conclusion and recommendations were formulated. Figure 3.1 represents the flow chart of the methodology used in this research.

3.3 Preliminary Survey

Initially stakeholders were identified from literature review. A questionnaire survey was developed regarding these stakeholders. The survey consisted of two sections. Section one "*personnel information"* dealt with collecting respondent's information contained six questions. Respondents were asked about their

experience, field of work, institute type, designation, academic qualification and geographical location (country). Second section consisted a combination of closed and open-ended questions.

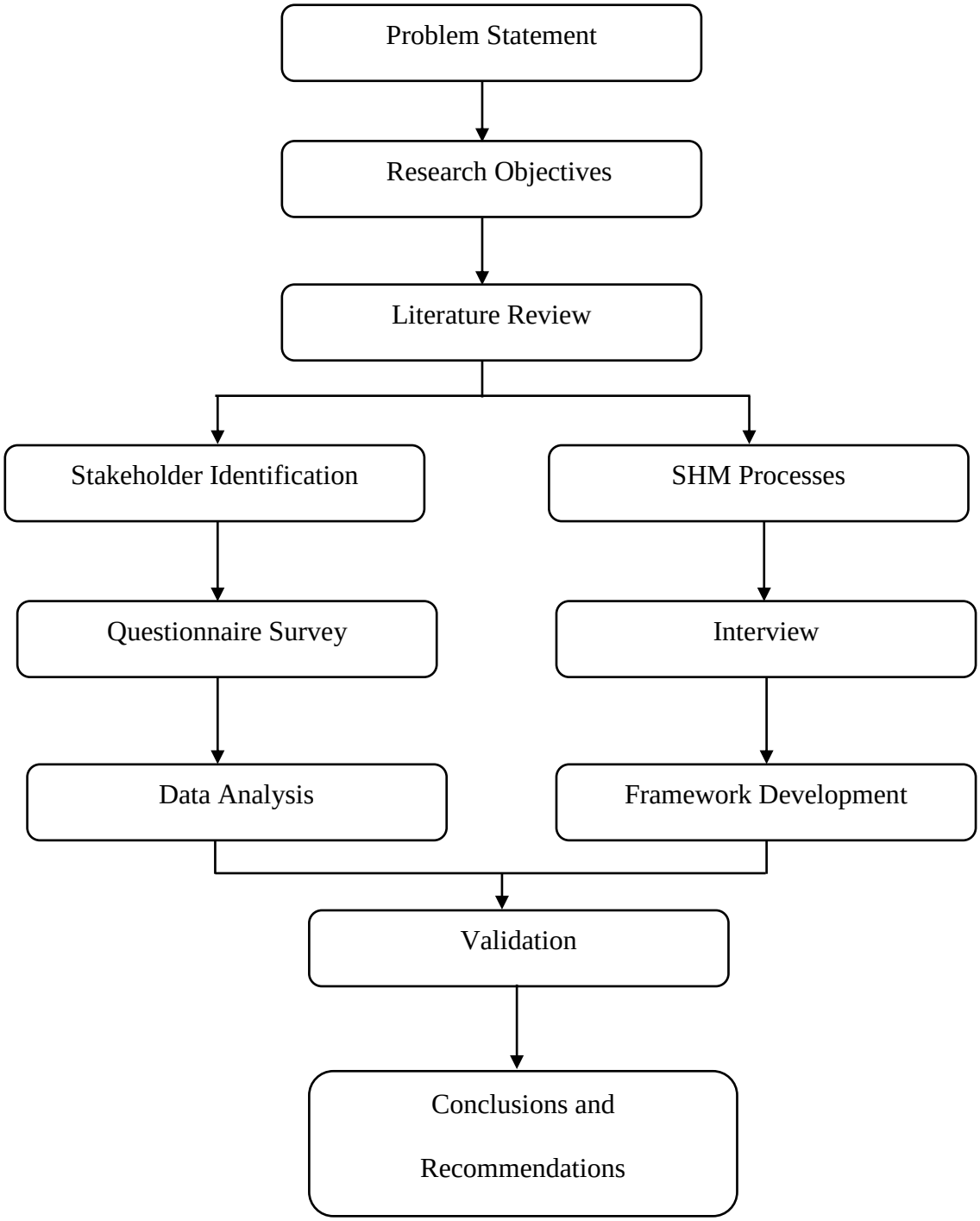

Figure 3.1: Research methodology flow chart

A total of four questions were asked regarding stakeholder being a part of PPP project or not and classification of these stakeholder. First question used a scale of 0 to 5 (where 0 = not a part of PPP projects, 1: very low, 2: low, 3: medium, 4: high, 5: very high). Second and third question were aimed at classification of stakeholder into *internal/external* stakeholder and their grouping into four major groups namely; *public sector*, *private sector*, *general public* and *3rd party*. Questionnaire survey is attached in Appendix I.

3.4 Data Analysis

Statistical tests that included Cronbach's alpha to check reliability of data, Anderson Darling to check normality, and Spearman's Rho to find correlation between stakeholder perception and classification were utilized.

3.4.1 Cronbach's alpha coefficient method

For the checking of reliability of the data collected on Likert scale Cronbach's Alpha method was used. If this value is greater than 0.7, the data is reliable. Further, if the value is greater than 0.9, the data is highly consistent for use (Gliem and Gliem, 2003).

3.4.2 Shapiro-Wilk test

Before using other test first normality of data was checked. It is important to check the normality of the data because if the data is not normal then further tests are different for non-parametric data. As the sample size was less than 2000 Shapiro-Wilk test was conducted to check the normality of the data. After the data analysis, it was found that the data non-parametric.

3.5 Framework Development

Various previous frameworks were examined for their strengths, weaknesses and limitations (discussed in detail in section 2.9). An ITTO based methodology was adopted from PMBOK for developing SHM framework. A panel of six experts were involved in framework development.

3.5.1 ITTO

Project management utilizes project management processes to fulfill the project objectives. There are five process groups each characterized by its input, tools and techniques and output. The five process groups are:

1. Initiation.
2. Planning.
3. Execution.
4. Monitoring and control.
5. Closing.

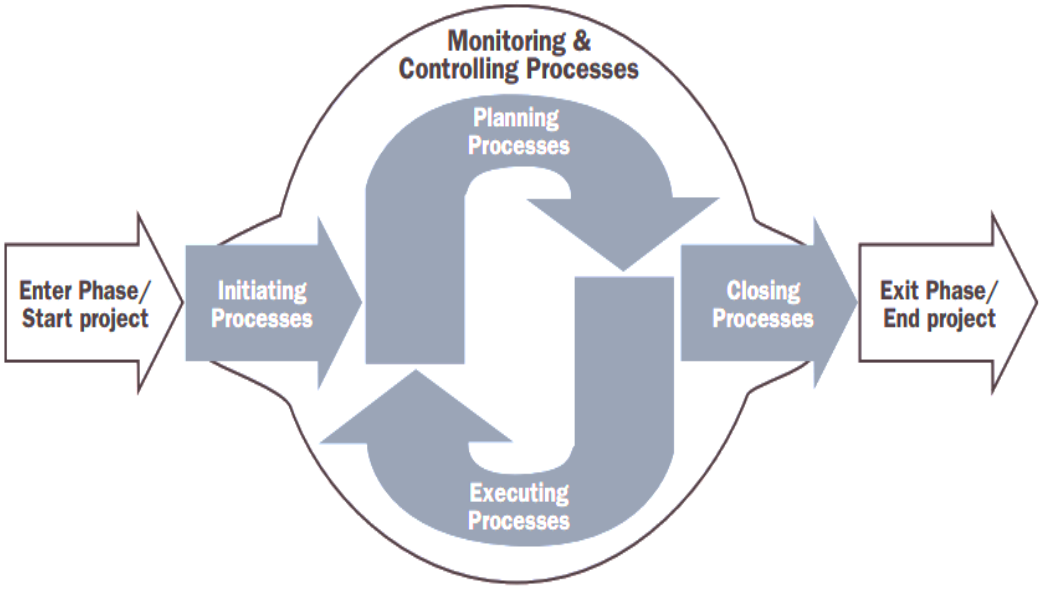

Figure 3.2 Project management process groups

Some of the distinct features of project management process groups are as follows:

- Processes are interconnected by particular inputs and outputs.
- Outcome of one process is used as an input of another process but not essentially in the same process group.
- Process groups could overlap.
- Process groups are not project life cycle phases.
- They are iterative in nature and could be repeated within a phase and for each phase or subcomponent.
- A process group not required could be skipped.

Guidelines provided for ITTO at the end of PMBOK were also consulted.

3.6 Interviews

For framework and questionnaire survey results an interview based validation techniques was utilized. Eight PPP specialists were engaged for detailed interviews where they were asked a mix of open and closed ended questions regarding survey I and developed framework. One to one interviews were conducted which lasted for about an hour. Personnel information about the respondents were also collected. Which included their years of professional experience, their role and designation in respective organization and academic qualification.

Chapter 4

DATA ANALYSIS AND FRAMEWORK

4.1 Introduction

This chapter contains analysis & results of the collected data and a detail description of the developed framework.

4.2 Stakeholder Identification

4.2.1 Questionnaire survey

Questionnaire survey was dispatched online to industry professionals and experts. In total 108 responses were received. After inspection, five incomplete responses were discarded. Statistical tests including Cronbach's alpha to check reliability of data, Shapiro-Wilk test to check normality. Personnel information of the respondents (including their experience, field of work, institute type, job title, academic qualification and geographic distribution) is presented below.

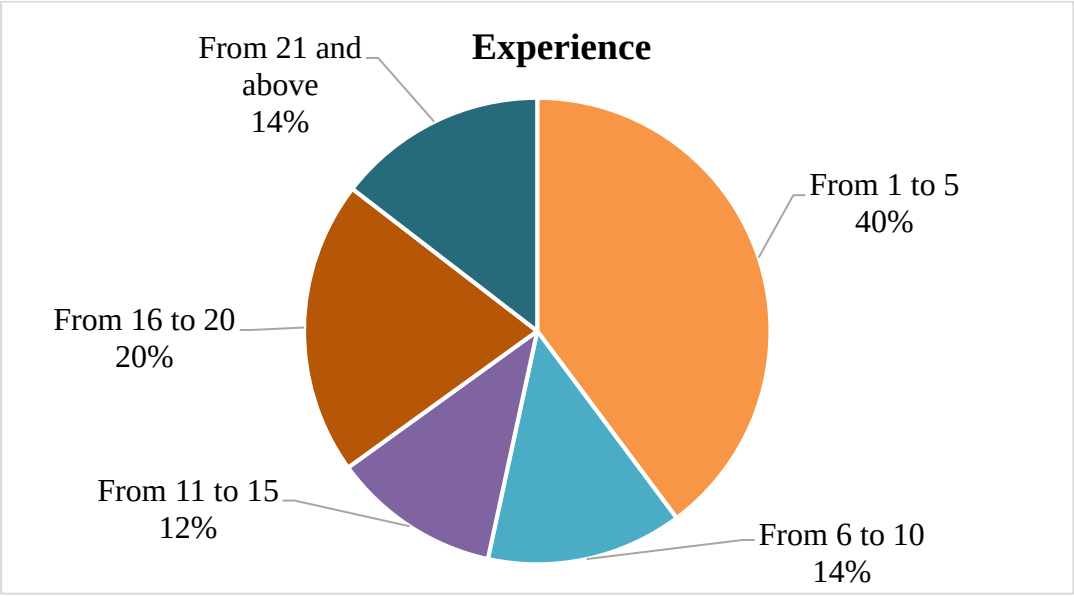

Figure 4.1: Professional experience of respondents

As per Figure 4.1 respondents had varying degree of professional experience. 41 respondents (40%) had an experience of one to five years. While 21 respondents (20%) had sixteen to twenty years' experience. 15 respondents (14%) had an experience of twenty years or more. 14 respondents (14%) had an experience range between six to ten years. Only 12 respondents (12%) belonged to eleven to fifteen years' experience range.

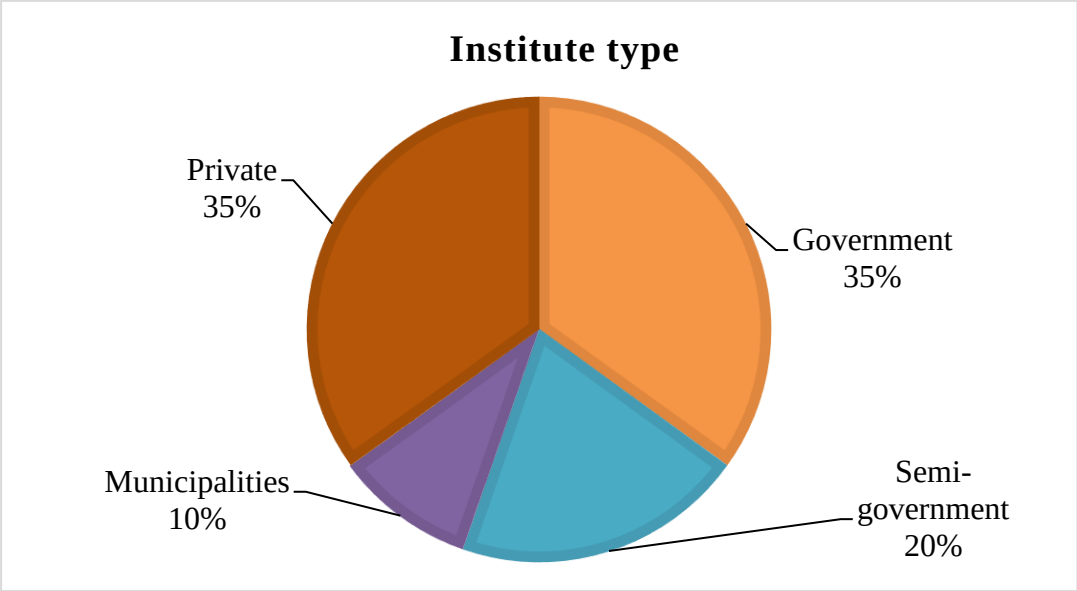

Figure 4.2: Respondent's institute type

Figure 4.2 shows that 36 (35%) respondents were working in government institutes, while equal number of response from private sector were received. 21 (20%) of the responses were received from semi government institution. While 10 (10%) of the responses came from municipalities. The qualification and field of work of respondents is shown in Figure 4.3 and Figure 4.4.

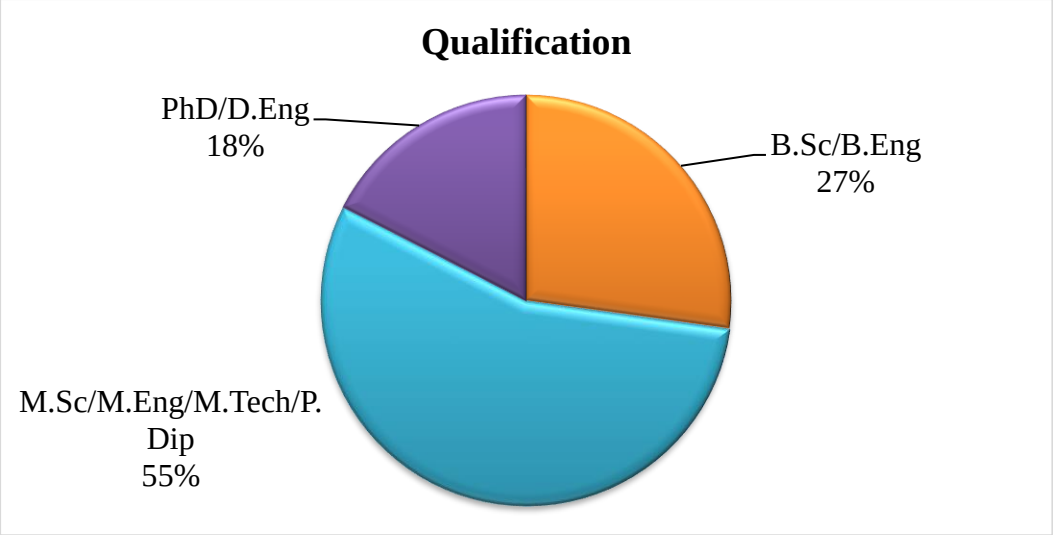

Figure 4.3: Academic qualification of respondents

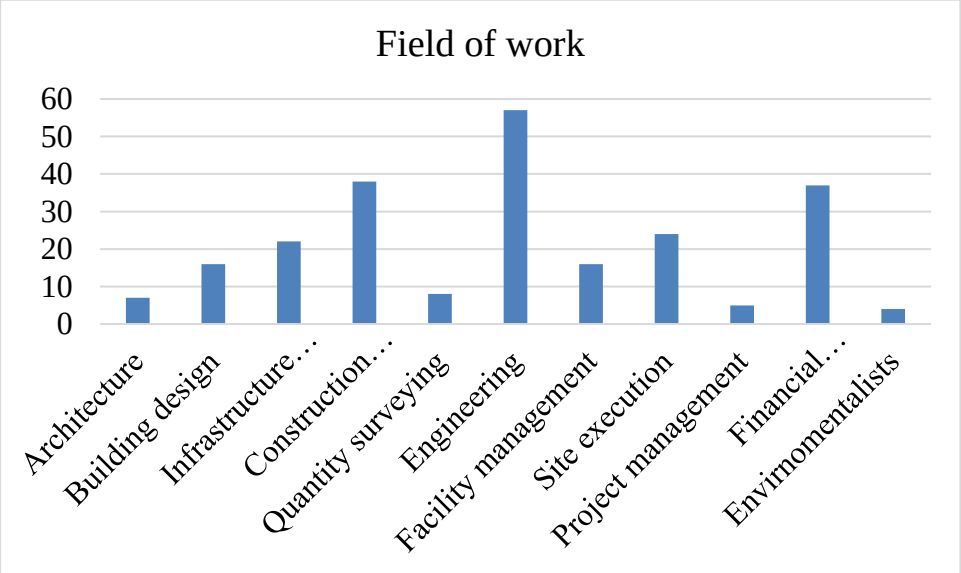

Figure 4.4: Respondents field of work

A total of 103 responses were received from 35 countries. Table 4.1 below represents some of the major respondent distributions across glob.

Table 4.1: Geographical location of respondents

Countries	Responses
Pakistan	39
United Arab Emirates	9
China	7
United States	5

United Kingdom	4
Australia	4
Hong Kong	4
Slovenia	3
Belarus	2
Others	26

4.2.2 Statistical tests results

Statistical tests were utilized to check the reliability and normality of the data. The value of Cronbach's alpha was 0.8 suggesting that data is reliable. Further, Shapiro-Wilk values were zero showing a non-normal distribution so non-parametric testing was utilized.

4.2.3 Stakeholder in PPP

A total of twenty-five stakeholder groups were identified for PPP projects. The following Table 4.2 lists the outcomes of the survey.

Table 4.2: Stakeholders in PPP projects

Stakeholder	Mode	Average
Client	5	4.2
Customers/ End User	2	2.77
Architect/ Designers	5	3.61
Employees	4	3.49
Process and service providers	4	3.62
Contractor	5	4.2
Subcontractors	4	3.65
Shareholders	5	4.07
Suppliers/Vendors	4	3.32
Project managers	5	4.03
Facilities managers	5	3.78
Pressure groups	3	2.89
Competitors	3	2.62
Banks/DFIs (Development Finance Institutes)	3	3.41
Insurance provider	3	3.18
Community representatives	3	2.75
Neighbours/ Land owners	2	2.73

General public	2	2.41
Civic institutions	3	2.59
Government establishments	5	3.56
Legal authorities	3	3.22
Regional development agencies	4	3.34
Environmentalist	2	2.5
Press/Media	2	2.53
NGOs	2	2.2

For PPP projects, the results show that client and contractor (public and private authority) are the major stakeholder, while NGOs are considered as minor/ least important stakeholder. Results of classification of these stakeholder groups into internal and external stakeholder are given in the Table 4.3.

Table 4.3: Internal/ external stakeholders in PPP projects

Internal	Client, architect/ designer, employee, process & service provider, contractor, subcontractor, shareholders, project manager, facility manager, government establishment.
External	Customer/ end user, supplier/ vendors, pressure groups, competitors, banks, insurance provider, community representatives, neighbors/ land owner, general public, civic institutions, legal authorities, regional development authorities, environmentalists, press/media, NGOs.

While a general consensus was observed regarding grouping of these stakeholder groups except bank/DFIs, insurance provider and regional development agencies. In case of these stakeholder groups an uncertainty (close grouping pattern) was

observed was observed. Banks/ DFIs, insurance provider and regional development agencies all were considered as external stakeholder.

Stakeholder were classified into four categories namely; public sector, private sector, general public and 3rd party (Yuan et al., 2009). Table 4.4 demonstrates results of this classification.

Table 4.4: Stakeholder classification in PPP projects

Group	Stakeholders
Public sector	Client, government establishment, legal authorities, regional development agencies.
Private sector	Architect/ designer, employees, process and service provider, contractor, subcontractor, shareholder, supplier/ vendor, project manager, facilities manager, Bank/ DFIs, insurance provider.
General public	Customer/ end user, pressure groups, general public, community representatives, neighbors/ landowners.
3rd party	Competitors, civic institutions, environmentalists, press/ media, NGOs.

Additional stakeholder groups (i.e. line ministries, PPP cell/ unit, advisors, policy makers, researchers & professional Institutions, municipalities, politicians) were also identified for PPP road infrastructure projects. While some stakeholder groups

were modified (e.g. regional development agencies to federal/ state/ regional/competent authority).

4.3 Framework Overview

As discussed above ITTO methodology was used for the development of the framework. Six experts were also consulted for framework development. An eight-step composite framework was developed. The components of the framework are;

i. Initiation.
ii. Stakeholder needs and concerns.
iii. Stakeholder characteristics analysis.
iv. Stakeholder relationship analysis.
v. Stakeholder engagement.
vi. Stakeholder communication.
vii. Monitoring and Controlling.
viii. Project responsibilities.

4.4 Initiation

Initiation refers to project or phase start. It comprises of processes performed to define a new project or a new phase of an existing project. Initial scope and resources to be used are defined. While the stakeholder identification and engagement has been advocated to be initiated as early as possible in the literature. Initiation incorporates this concept and states that the identification process should be started right form the project selection (inception, feasibility) or beginning of new phase. Figure 4.5 depicts the inputs, tools & techniques and outputs for the initiation.

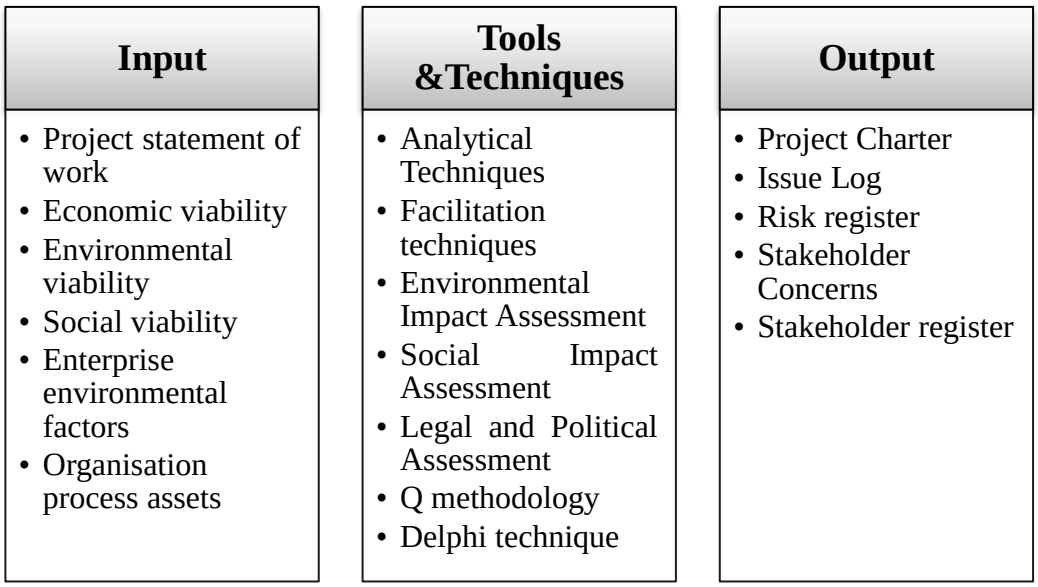

Figure 4.5: Initiation ITTO

4.4.1 Initiation: inputs

4.4.1.1 Project statement of work

Most of the PPP infrastructure projects are driven by stakeholder (public) needs and providing benefits or service to the community. So, identifying the need and goals of the project is essential. Based upon 1) stakeholder/public needs, benefits or service and 2) infrastructure need/ goal, 3) strategic plans, statement of work (SOW) is developed. Which provides narrative description of outcome (i.e. product, service or results to be achieved by project).

4.4.1.2 Economic viability

Projects should be economically viable and able to secure funding. Project must be sustainable, economically feasible and innovative enough for investing resources. Although the process is essentially part of every business case the situation in PPP projects is more complex. Rate of return, profitability, revenues and tariff setting are some of the important components to consider.

4.4.1.3 Environmental and social viability

In recent years infrastructure projects have faced more public pressure due to the negative impact they could have on society and environment. PPP road infrastructure are usually mega projects and involving a large number of stakeholders and have greater impact on these stakeholder's life and environment.

4.4.1.4 Enterprise Environmental Factors

Enterprise environmental factors (EEFs) are the conditions of the project which are, not in control of project team. EEFs, may enhance or constrain project management options, and may have a positive or negative effect on the project.

EEFs vary widely in nature they may include, but not limited to:

- Organizational culture, structure, and governance.
- Geographic distribution of facilities and resources.
- Government or industry standards.
- Existing infrastructure and human resources.
- Project management information system (e.g., software tools, a configuration management system, an information collection and distribution system, or web interfaces).

4.4.1.5 Organizational process assets

Organizational process assets are the plans, processes, policies, procedures, and knowledge bases specific to and used by the performing organization. They consist of artefacts, practices, or information from any or all of the organizations associated with the project that can useful for the project. Project team members can update or add to the organizational process assets if needed. OPAs may be grouped into two categories: (1) processes and procedures, and (2) corporate knowledge base.

4.4.2 Initiation: tools & techniques

4.4.2.1 Analytical Techniques

Analytical techniques are useful in project management to predict possible results based on likely variations of project or environmental variables and their relationships with other variables. Some of these techniques are listed below:

- Regression analysis
- Grouping methods
- Causal analysis
- Root cause analysis
- Fault tree analysis (FTA)
- Trend analysis
- Earned value management

4.4.2.2 Facilitation techniques

Facilitation techniques have wide range of application within project management processes. Some of the key techniques used for facilitation are:

- Brainstorming
- Conflict resolution.
- Problem solving.
- Meeting management.

4.4.2.3 Environment and social assessment

PPP project cause a significant change in environmental and social values. Hence a thorough, fair and transparent environmental and social assessment must be carried out before proceeding further.

4.4.2.4 Legal and political assessment

When a project is realised through PPP arrangements, government becomes a primary/internal stakeholder. As discussed earlier (in section 2.8) political opposition could lead to ineffective or non-implementation of projects. Similarly, the dual role of legal departments adds to complexity. Olander and Landin (2005); (2008) & Aaltonen et al. (2008) through case studies highlighted the importance of these stakeholder. Further, these stakeholder group could result in considerable time delays. Hence legal and political assessment is indispensable for PPP projects.

4.4.2.5 Q methodology

Originally situated in psychology, Q methodology is used to uncover/ understand people perceptions. In stakeholder literature Reed et al. (2009) and Cuppen et al. (2016) have suggested use of this methodology to capture stakeholder's interests. The methodology uses a bell shape distribution as shown in Figure 4.6.

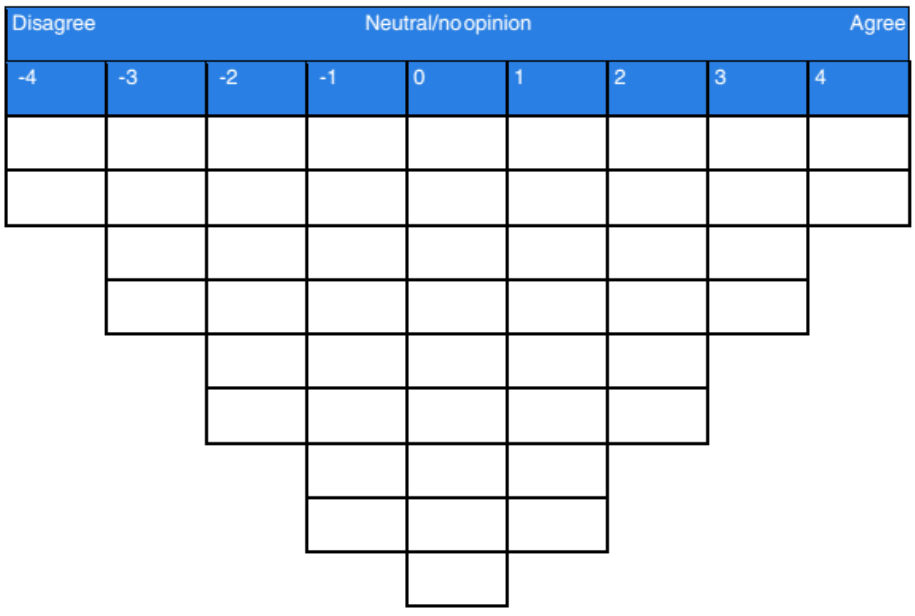

Figure 4.6: Bell shaped distribution used for Q methodology

4.4.2.6 Delphi technique

It is systematic technique usually employed usually to reach consensus between selected panel of experts. Experts are involved in rounds of questionnaires and after each round, responses are analysed. After analysis if necessary a new questionnaire is developed at dispatched to experts. Figure 4.7 demonstrates the Delphi technique.

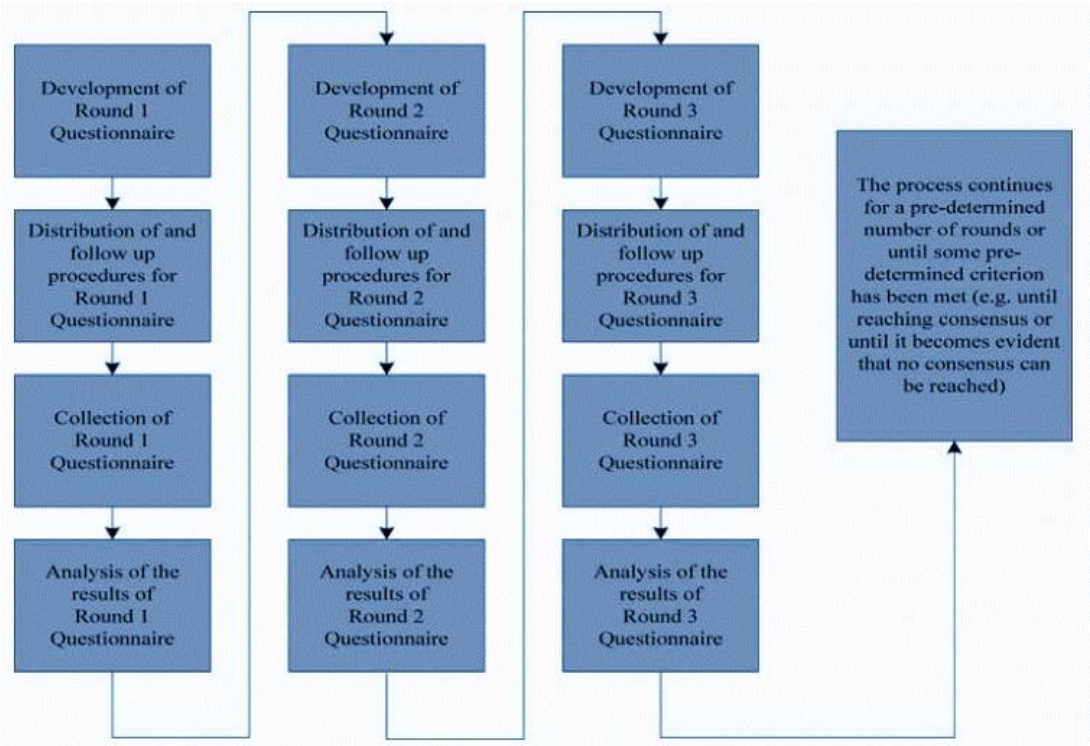

Figure 4.7: Delphi process

4.4.3 Initiation: outputs

4.4.3.1 Project Charter

Project charter formally authorises a project's existence. It provides project manager to utilise organisational resources for project.

4.4.3.2 Stakeholder Register

Project register refers to project document 4which includes:

- Identification of stakeholder.

- Stakeholder assessment.
- Classification of stakeholder.

The identification of stakeholder is an important output of this process. One of the major reason of stakeholder management failure is the inadequate identification of stakeholder.

4.4.3.3 Issue Log

In the course of the projects various issues of varying nature arise. Issue log is utilised to document and monitor the responsibility of resolving issues.

4.4.3.4 Stakeholder concerns documentation

Stakeholders have certain consideration (concerns), needs and expectations from the project. These must be incorporated for the successful completion of the project. A failure to meet them will ultimately lead to project failure. Various stakeholder concerns regarding project must be documented and monitored.

4.4.3.5 Project management plan updates

Project charter and stakeholder register are major input for developing project management plan. Beside project management plan these are inputs to other subsidiary plans which may contain the following:

- Stakeholder management plan
- Scope management plan
- Requirement management plan

4.4.3.6 Risk register

Risk register is a document containing information about risk. It includes risk analysis and their mitigation measures. Risk register is updated throughout the project.

4.5 Stakeholder Needs and Concerns

Meeting stakeholder needs and concerns is principal purpose of the project. Many research have argued that project success is meaningless without satisfying stakeholder needs and demands (Takim, 2009; Li et al., 2016). PMI has addressed stakeholder satisfaction is an essential project objective (PMI, 2013). Figure 4.8 demonstrates the inputs, tools & techniques and outputs of this process.

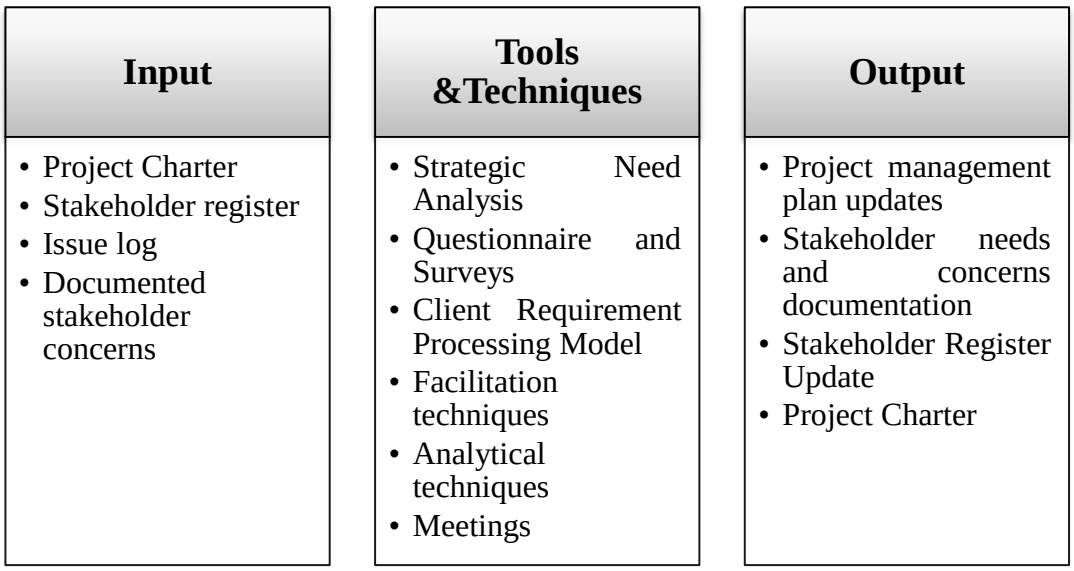

Figure 4.8: Stakeholder needs and concerns ITTO

4.5.1 Stakeholder needs and concerns: inputs

4.5.1.1 Project charter

As discussed above in section 4.4.3.1 project charter can provides information about project and internal and external stakeholder.

4.5.1.2 Stakeholder register

Stakeholder register as explained earlier in section 4.4.3.2 provides information about identification and classification of stakeholders.

4.5.1.3 Issue log

As stated above in section 4.4.3.3 issue log here becomes an input to stakeholder needs and concern. It contains information about the issues and the personnel responsible for resolving them.

4.5.1.4 Documented stakeholder concerns

It contains information regarding probable concerns of various stakeholder groups. Brief description given in section 4.4.3.4.

4.5.2 Stakeholder needs and concerns: tools & techniques

4.5.2.1 Strategic Need Analysis

Smith and Love (2004) developed a technique for capturing stakeholder needs in the briefing stage of project. Figure 4.9 describes the technique in detail.

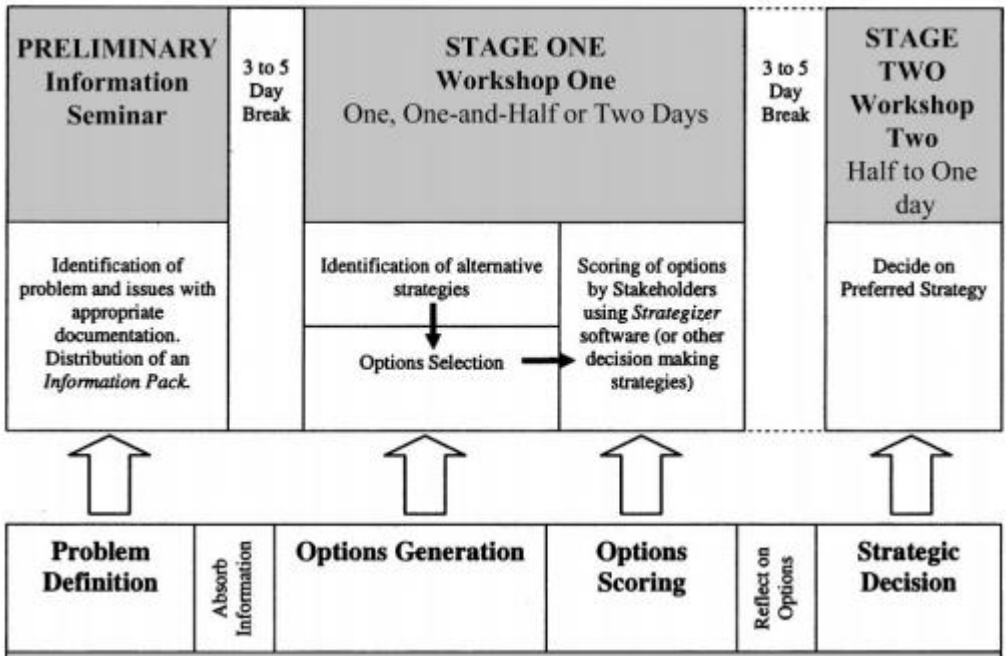

Figure 4.9: Strategic need analysis

The technique utilises seminars and workshops to capture the stakeholder needs and concerns.

4.5.2.2 Questionnaire & Surveys

Questionnaires and survey are also sometimes utilised for stakeholder needs and concerns assessment. Information from a large group of respondents can be obtained quickly by developing a set a question and taking their opinions.

4.5.2.3 Client Requirement Processing Model

Recent developments in literature have focused around developing client and customer requirements processing models. The focus on these two stakeholder groups could be due to the fact that they are the key stakeholder in any project with PPP projects being no exception.

4.5.2.4 Facilitation techniques

As discussed above in section 4.4.2.2 facilitation techniques contain a broad range of approaches which could be utilised in capturing stakeholder true needs and demands.

4.5.2.5 Analytical techniques

Explained in detail in section 4.4.2.1 analytic techniques contain a group of methods which could be useful in the processing of needs and concerns.

4.5.2.6 Meetings

Another useful method for determining stakeholder requirements, agendas, concerns and issues is meetings. They may vary in composition (stakeholder groups involved), timing, agendas etc. It might be difficult sometimes to bring all the parties on the same tables. Separate meeting could be called in such scenarios. Representatives could be invited on the major stakeholder behalf if they have availability issues.

4.5.3 Stakeholder needs and concerns: outputs

4.5.3.1 Project management plan updates

Since stakeholder register and project charter serve as a major input to project management plan development so project management plan would be updated. The subsidiary plans would also be updated including but not limited to:

- Stakeholder management plan.
- Requirement management plan.
- Scope management plan.
- Resource management plan.

4.5.3.2 Stakeholder needs and concerns documentation

The major output of this process would be a refined and composite stakeholder needs and concerns which would serve as a major output to various processes including but not limited to:

- Project requirement.
- Scope refinement.
- Conflict management.

4.5.3.3 Stakeholder register update

A detail understanding of the stakeholder needs would result in identification of new and potential stakeholder. Different classification method to be adopted or current methodology to be updated, ultimately updating stakeholder register.

4.5.3.4 Project charter update

In light of these stakeholder needs the project charter would be updated to incorporate them. A detailed project brief would be developed.

4.6 Stakeholder Characteristics Analysis

Stakeholder analysis refers to systematically gathering and analysing quantitative and qualitative information to determine whose interests should be considered throughout the project. Here analysis is divided to two parts:

1. Stakeholder characteristics analysis.
2. Stakeholder relationship analysis.

Stakeholder characteristics analysis includes an assessment of stakeholder attributes, attitude and influence/impact. Figure 4.10 demonstrates inputs, tools and techniques and outputs of the process.

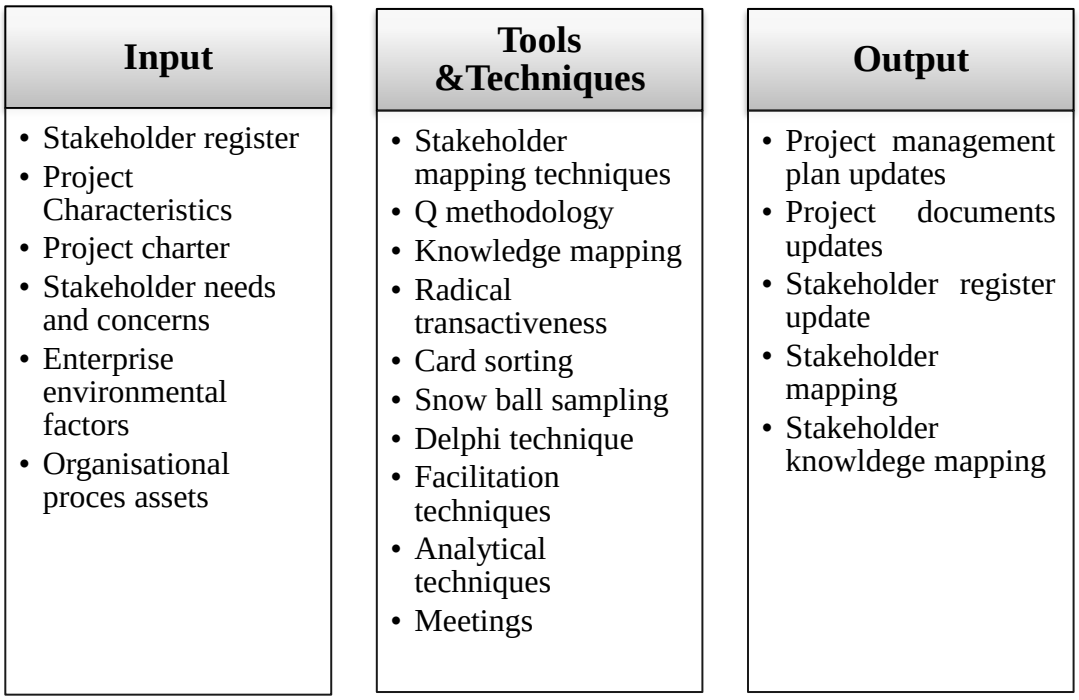

Figure 4.10: Stakeholder characteristics analysis ITTO

4.6.1 Stakeholder characteristics analysis: inputs

4.6.1.1 Stakeholder register

As discussed earlier stakeholder contains information regarding stakeholder identification and classification. In this process stakeholder register is a major input. The characteristics of stakeholder would be further explored.

4.6.1.2 Project characteristics

Project characteristics like type, size, spatial dynamics, procurement etc. effect stakeholder. Further, researcher have addressed favourable procurement method as a CSF for SHM (Atkin and Skitmore, 2008; Molwus et al., 2017). Hence project characteristics should be considered as an important input while performing stakeholder analysis.

4.6.1.3 Project charter

Updated project charter becomes an input of this process. A brief description regarding project charter provided in section 4.4.3.1.

4.6.1.4 Stakeholder needs and concerns

Stakeholder needs and concerns which were output of the previous process become an input to this process. Since by refining requirements potential stakeholder could be identified.

4.6.1.5 Enterprise environmental factors

As described in section 4.4.1.4 EEFs are not under the control of the project team. Here they emerge as an important input because stakeholder analysis and SHM is significantly affected by organisational culture and governance. Other EEFs may also be considered.

OPAs have already been discussed in section 4.4.1.5.

4.6.2 Stakeholder characteristics analysis: tools & techniques

4.6.2.1 Stakeholder mapping techniques

Stakeholder mapping utilise influence matrix an approach adopted form risk management. Many researchers including Olander (2007) and Nguyen et al. (2009) have utilised and improved this technique. Stakeholder attributes and attitude are analysed and based upon the results the results stakeholders are mapped on an interest influence matrix. A brief discerption of the concepts of attributes and attitude has already been discussed in section 2.5. Figure 4.11 below shows an interest influence matrix.

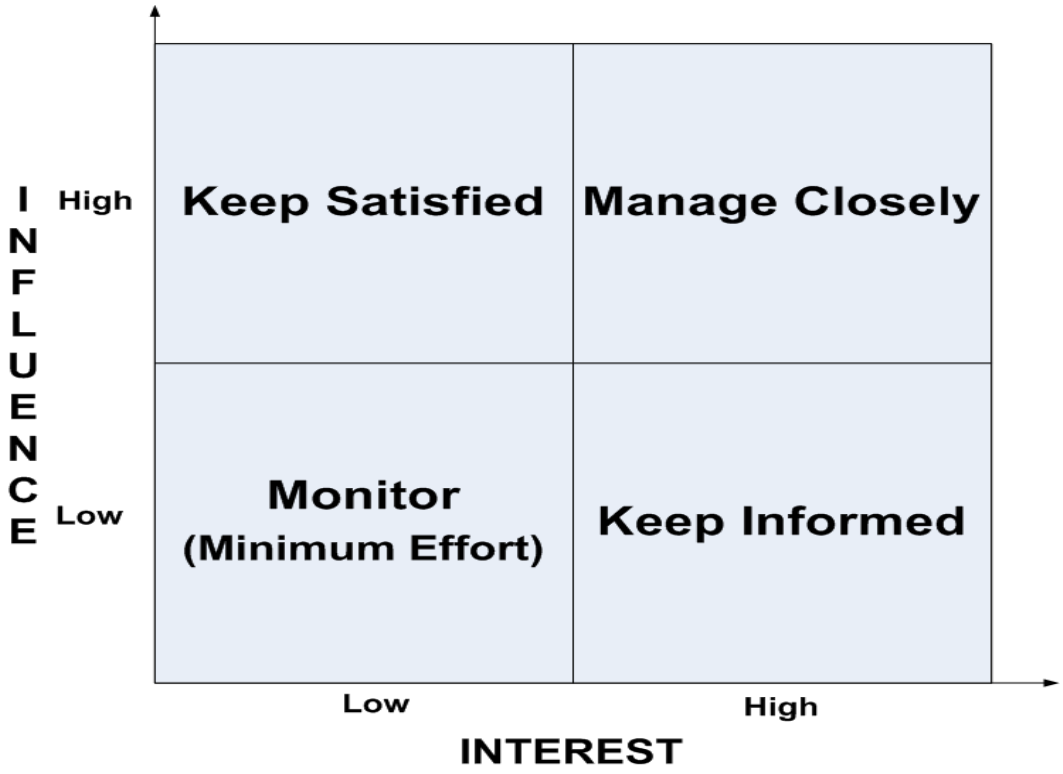

Figure 4.11: Interest-influence matrix

4.6.2.2 Q methodology

Q methodology as discussed above in section 4.4.2.5 helps in finding stakeholder interests.

4.6.2.3 Knowledge mapping

Knowledge mapping gives information about stakeholder interaction and knowledge. It utilises semi structured interviews and identifies stakeholder groups that would work well together.

4.6.2.4 Radical transactiveness

This technique focuses on a two-way dialogue to systematically identify, explore, and integrate the views of fringe stakeholders (Hart and Sharma, 2004; Reed et al., 2009). Fringe include weak, poor and isolated stakeholder. This technique is in opposition to other techniques in a sense that it focusses on weak stakeholder groups rather than concentrating on powerful stakeholder.

4.6.2.5 Card sorting

Card sorting is used for recognising patterns while involving a group of experts and handing them cards with information on it. Experts then categorise the information logically. At the end of the test the results are analysed and patterns are drawn.

4.6.2.6 Snow ball sampling

Snow ball sampling is used to identify and categories new stakeholder groups. The individuals/ stakeholders identified in the above processes (recorded in stakeholder register) are interviewed about potential stakeholder and their classification. As a result, new stakeholder groups could be identified and categorised.

Delphi technique, facilitation techniques, analytical techniques and meetings are already being discussed in sections 4.4.2.6, 4.4.2.2, 4.4.2.1,4.5.2.6 respectively.

4.6.3 Stakeholder characteristics analysis: outputs

4.6.3.1 Project management plan updates

Project management plan and other subsidiary plans would be updated in light of these new stakeholders and their mapping. This may include but not limited to:

- Stakeholder management plan.
- Communication management plan.
- Scope management plan.
- Risk management plan.

4.6.3.2 Project documents updates

Project documents including but not limited to project charter, stakeholder needs and concerns and stakeholder register.

4.6.3.3 Stakeholder register update

The major output of this process is updating of the stakeholder register. Since new stakeholder groups would be identified and classified hence stakeholder register must be modified to incorporate these changes.

4.6.3.4 Stakeholder mapping

Another important output of this process is stakeholder mapping on interest/influence matrix or interest/ power matrix. This would provide valuable information and a major input for developing stakeholder engagement strategies.

4.6.3.5 Stakeholder knowledge mapping

Stakeholder knowledge mapping would give an idea about the current level of information & knowledge and possible futuristic demands. It is an important input for stakeholder engagement and communication management plan.

4.7 Stakeholder Relationship Analysis

Stakeholder relationship is part of stakeholder analysis. The focus of this process is to identify the formal and informal stakeholder networks of relationship. Figure 4.12 presents the inputs, tools & techniques and outputs of the process.

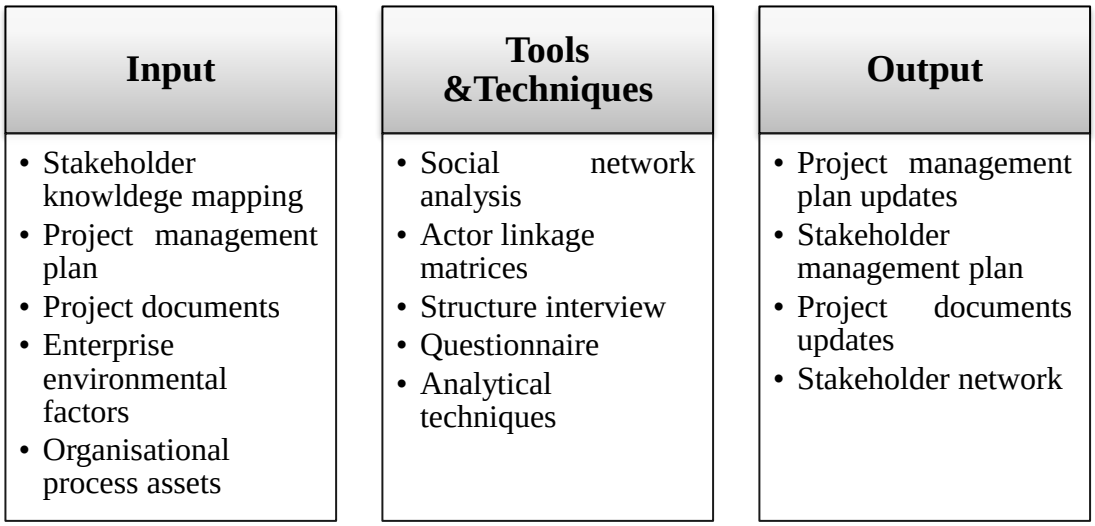

Figure 4.12: Stakeholder relationship analysis ITTO

4.7.1 Stakeholder relationship analysis: inputs

4.7.1.1 Stakeholder knowledge mapping

As discussed earlier in section 4.6.2.3 and 4.6.3.3 it gives information about the current knowledge and interactions of the stakeholder. These interactions would be useful in social network analysis.

4.7.1.2 Project management plan

The project management plan is the central document that defines the basis of all project work. Here it appears as an important process input.

4.7.1.3 Project documents

Project document will provide information about stakeholders and various other processes that might affect stakeholder. These includes but not limited to:

- Stakeholder register
- Project charter
- Procurement documents

EEFs and OPAs have already been discussed in sections 4.4.1.4, 4.4.1.5 respectively.

4.7.2 Stakeholder relationship analysis: tools & techniques

4.7.2.1 Social network analysis

Recently the use of social network analysis (SNA) to understand the whole network of stakeholder has been addressed and utilised by many researchers (Reed et al., 2009; Ackermann and Eden, 2011; Yang et al., 2014). The technique investigates social structure using networks and *graph theory*. Its outcome is in the form of a socio-gram. The two basic components are; density and centrality.

4.7.2.2 Actor linkage matrices

A two-dimensional stakeholder matrix in which stakeholder relationship are represented by codes. Focus groups settings or individual interviews could be utilised for this purpose.

4.7.2.3 Structured interviews

Questions regarding a specific area of interest are presented to respondents in the form a questionnaire in an interview. The targeted questions are specific to the subject area or topic. It could give an insight into stakeholder relationship and their possible informal networks.

Analytical techniques and questionnaire have already been discussed in sections 4.4.2.1, 4.5.2.2 respectively.

4.7.3 Stakeholder relationship analysis: outputs

4.7.3.1 Project management plan updates

Project management plan and other subsidiary plans would be updated as result of this process. These include, but not limited to:

- Stakeholder management plan.
- Communication management plan.
- Scope management plan.

4.7.3.2 Stakeholder management plan

One of the most important output of this process is the development of stakeholder management plan. It contains information and procedure engage stakeholders in decisions making and execution of the project.

4.7.3.3 Project documents update

A network perspective would result in identification of potential and peripheral stakeholder. Further, influential stakeholder would be recognised (owing to centrality and density of relationship). This would all feed to a clear and accurate stakeholder mapping. The documents updated would include but not limited to:

- Stakeholder register.
- Project charter.

4.7.3.4 Stakeholder network

Another important output of this process is the stakeholder network. It gives information regarding the formal & informal relationship and centrality of stakeholder. The central group would have a greater influence. This would result in a clear understanding of key stakeholder groups.

4.8 Stakeholder Engagement

Stakeholder management is meaningless without stakeholder engagement. Stakeholder engagement is about developing and sustaining relationships between stakeholder (Lerbinger, 2006). Figure 4.13 shows the inputs, tools & techniques and output of the process.

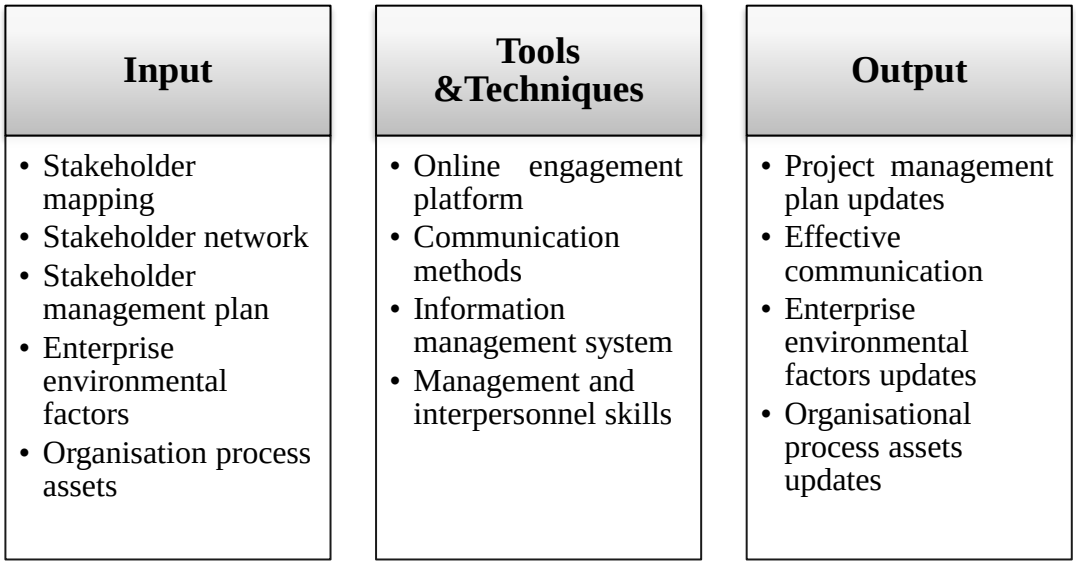

Figure 4.13: Stakeholder engagement ITTO

4.8.1 Stakeholder engagement: inputs

4.8.1.1 Stakeholder mapping

Information regarding interest/ powerful/ influential stakeholder is a necessary input for adequately engaging stakeholder. The level of engagement and strategies would vary based on this input.

4.8.1.2 Stakeholder network

Stakeholder network becomes an input in this process. It provides information regarding relationship between different stakeholder groups.

4.8.1.3 Stakeholder management plan

As described earlier in section 4.7.3.1 stakeholder management plan contains information regarding engagement techniques and procedures.

EEFs and OPAs have already been briefly explained in sections 4.4.1.4, 4.4.1.5 respectively. These would help decide the appropriate stakeholder strategy to be adopted for various stakeholder groups.

4.8.2 Stakeholder engagement: tools & techniques

4.8.2.1 Online engagement platform

One of the easiest way to engage stakeholder and provide information to a large number of stakeholder groups is online platform and websites. They would help dispatch information to stakeholder. Further feed backs mechanism could also be put be in place.

4.8.2.2 Communication methods

Many communication methods could be utilised including but not limited to media, survey, boards, meetings, seminars etc.

4.8.2.3 Information management system

It contains facilities, procedures, and strategies used to gather, store, and circulate data amongst stakeholders.

4.8.2.4 Management and interpersonal skills

Management and interpersonal skill are essential part of stakeholder engagement. Stakeholder have different and sometimes conflicting interest. Further, all stakeholder groups might not be satisfied/agree to a decision made. Hence, in these situations the role of management and interpersonal skills becomes central.

4.8.3 Stakeholder engagement: outputs

4.8.3.1 Project management plan updates

Project management plan and other subsidiary plans would be updated. Project management plan contains information about project work. The plans that could be updated include but not limited to:

- Stakeholder management plan.
- Communication management plan

4.8.3.2 Effective communication

A major reason of stakeholder discontent is lack of appropriate and timely information. This leads to conflicts and controversies and ultimately hinder successful project delivery. Effective communication refers to correct, timely and adequate reporting of project information. The communication media should also be appropriately selected since it can affect the quality of information as well.

EEFs and OPAs have already been briefly explained in sections 4.4.1.4, 4.4.1.5 respectively

4.9 Monitoring and Control

Monitoring and control deals with the overall SHM, any changes to strategies, process, spatial or otherwise dynamics. The key benefit of this process is the increased adequate SHM. Figure 4.14 presents the key inputs, tools & techniques and outputs of the process.

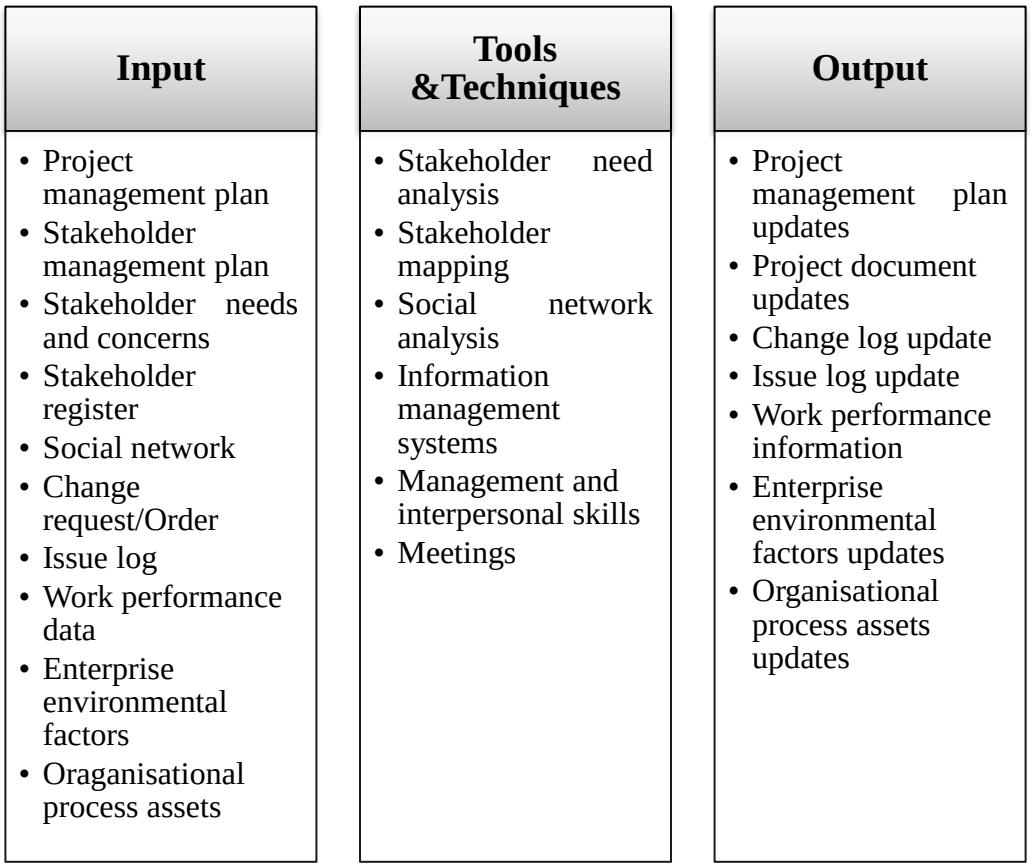

Figure 4.14: Monitoring and control ITTO

4.9.1 Monitoring and control: inputs

4.9.1.1 Project management plan

Project management plan is a major input in this process. It contains information regarding overall project work. Subsidiary plan like requirement management plan might also become an input to process.

4.9.1.2 Stakeholder management plan

Stakeholder management plan contains procedures and techniques regarding stakeholder management/ engagement.

4.9.1.3 Stakeholder needs and concerns

Stakeholder needs are concerns are not static, they can change over time. New requirements may emerge, previous may be modified. This results in change order or refinement in the objectives.

4.9.1.4 Stakeholder register

Stakeholder attributes and attitudes are dynamic in nature. These attribute like power, legitimacy, urgency, proximity, interests and knowledge change over time and some of them are socially constructed so there is a probability of change is always present. Stakeholder attitude could also change form positive to neutral or negative and vice versa. These are all part of stakeholder mapping and recorded in stakeholder register.

4.9.1.5 Stakeholder network

Stakeholder relationship evolve over time. Some peripheral stakeholder might become central (with the development of stronger ties with key stakeholder) and vice versa. Change in information, social and political and other reason could drive the relationship, either making them stronger or weaker than before.

4.9.1.6 Change request

As a consequence of emergent needs, attributes & attitude dynamics and relationship changes certain changes are proposed. These change requests are processed and either a corrective or preventive action is recommended.

4.9.1.7 Issue log

As discussed earlier in section 4.4.3.3 issue log documents various problems encountered throughout the course of project.

4.9.1.8 Work performance data

Primary observations and measurements identified during activities being performed to carry out the project work. Various measurements on project activities and deliverables are collected during various controlling processes. Examples of work performance data include but not limited to:

- Reported percentage of work completed
- Technical performance measures
- Start and finish dates of schedule activities.
- Number of change requests.
- Number of defects.
- Actual costs and duration.

4.9.2 Monitoring and control: tools & techniques

4.9.2.1 Stakeholder need analysis

As discussed above in section 4.5.2.1 this technique utilises seminars and workshops to capture the stakeholder needs and concerns. Here it would be utilised to capture any emergent needs or any change I previous needs.

4.9.2.2 Stakeholder mapping

Stakeholder mapping is a visual display of the stakeholder characteristics analysis. It helps in identifying the appropriate stakeholder strategy and level of stakeholder engagement.

4.9.2.3 Social network analysis

SNA provides information regarding the network of stakeholders. Stakeholders interact with each other in project environment. These interactions or relationships could be formal or informal.

4.9.2.4 Information management systems

It contains facilities, procedures, and strategies used to gather, store, and circulate data amongst stakeholders.

Management & interpersonal skills and meetings have already been discussed in section 4.8.2.4, 4.5.2.6 respectively.

4.9.3 Monitoring and control: outputs

4.9.3.1 Project management plan updates

Project management and other subsidiary plans would be updated as a consequence of this process. These include but not limited to:

- Requirement management plan
- Stakeholder management plan
- Scope management plan
- Communication management plan

4.9.3.2 Project document updates

Project documents like stakeholder register, project charter, stakeholder needs and concerns documentation would be updated.

4.9.3.3 Change log update

Change log documents any change that may arise during the course of the project.

4.9.3.4 Issue log update

Issue log documents any issues that may arise during project.

4.9.3.5 Work performance information

It contains the performance data collected from various controlling processes, analysed in context, and integrated based on relationships across areas. Work

performance information is circulated through communication processes. Examples of performance information are:

- Status of deliverables.
- Implementation status for change requests.
- Forecasted estimates to complete.

EEFs and OPAs would also be updated as an output of this process.

4.10 Project Responsibility

PPP projects are usually mega projects and cause major changes in environment. PPP projects should have a responsibility towards this change. The concept of corporate social responsibility has been addressed by many researcher in the context of SHM (Yang et al. (2011); Yang and Shen (2014) and Park et al. (2017). Figure 4.15 represents the inputs, tools & techniques and outputs of the process.

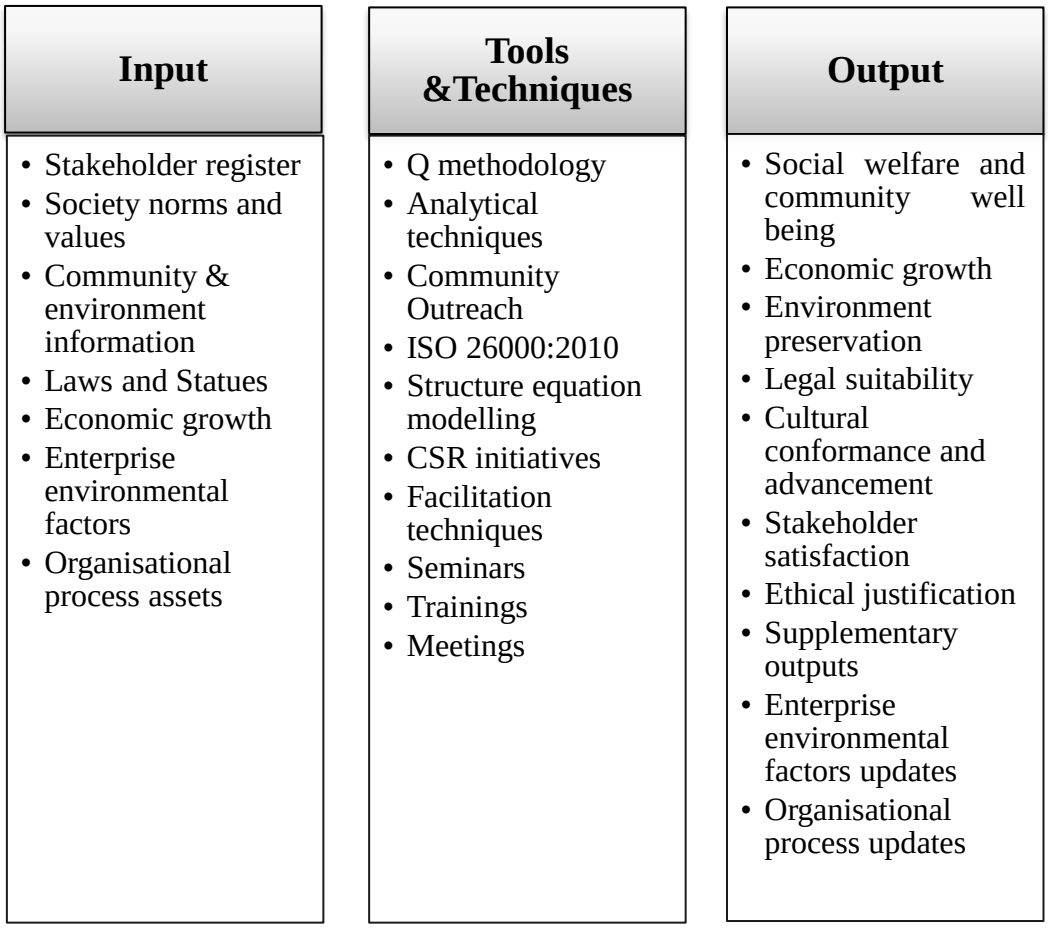

Figure 4.15: Project responsibility ITTO

4.10.1 Project responsibility: inputs

4.10.1.1 Stakeholder register

Stakeholder register will provide information regarding internal and external stakeholders. Stakeholder mapping would contain stakeholder attributes information (power, legitimacy, urgency, proximity etc.) which will an input in this process.

4.10.1.2 Society norms and values

Existing society norms and values and their possible change as a consequence of project should be considered

4.10.1.3 Community & environment information

Information regarding community and environment that would be effected by project information should be collected. The project should improve the above in the longer run.

4.10.1.4 Laws and Statues

The project must abide by the statues and laws (federal/ state/ regional). Here they appear as an important input. Some laws and statues provide guidance/enforcement regarding CSR activities.

4.10.1.5 Economic growth

Economic growth is an important variable that must be considered in every project and especially in PPP projects. This growth should not focus only on internal stakeholders.

EEFs and OPAs would also be an important input in this process. These would decide about which stakeholder activities to pursue. Further they provide information about code of ethics, organisational climate and leadership role.

4.10.2 Project responsibility: tools & techniques

4.10.2.1 Q methodology

Predicting stakeholder interests is not always easy. Further, stakeholder interest dynamics and network in PPP project produce a complex environment. Q methodology uses a bell shaped methodology as explained above in section 4.4.2.5 to understand stakeholder interest.

4.10.2.2 Analytical techniques

Analytical techniques connected in extend administration to estimate potential results in light of conceivable varieties of venture or natural factors and their associations with different factors.

4.10.2.3 Community Outreach

Community outreach programmes could be a useful tool for achieving project responsibility and sustainability.

4.10.2.4 ISO 26000:2010

ISO 26000:2010 provides guidelines regarding social sustainability which could be utilise in this process.

4.10.2.5 Structure equation modelling

Structure equation modelling uses various analytical techniques to model/understand various social elements e.g. (satisfaction, happiness etc.).

4.10.2.6 CSR initiatives

CSR initiatives could be performed on two fronts i.e. organisation CSR initiatives, community CSR initiatives. Collectively they would result in an enhanced project responsiveness.

4.10.2.7 Facilitation techniques

Project facilitation techniques like brain storming, problem solving and expert judgment could help in recognising CSR activities and its implementation.

Seminars, trainings and meetings could be other efficient tools which can be utilised by project team.

4.10.3 Project responsibility: outputs

4.10.3.1 Social welfare and community well being

The output of this process would result in an overall upbringing of society and community. A responsible PPP project would add to social and community wellbeing and growth.

4.10.3.2 Economic growth

PPP road infrastructure would provide economic benefits not just to sponsors but to customer and general public as well. In project responsibility, the economic growth concept goes a step further by employing local labour, reasonable tariffs and other initiatives and service that would bring business to region.

4.10.3.3 Environment preservation

In addition to minimum negative effect on the environment in PPP project once the construction is completed should try to contribute to environment preservation and improvement.

4.10.3.4 Legal suitability

The project should abide by legal laws and regulations especially one concerning CSR. Organisation governance also provide guideline which should be fulfilled.

4.10.3.5 Cultural conformance and advancement

PPP projects due to their nature, complexity and size involve numerous stakeholders. These stakeholders could come from different culture (especially in global project scenarios). So, project take account of this dimension should try to enhance cultural harmony.

4.10.3.6 Stakeholder satisfaction

Stakeholder satisfaction is the focal purpose of the project. Despite on time and cost completion, if a project fails to be socially responsible the project will be considered a failure. Project should be socially sustainable and responsible.

4.10.3.7 Ethical justification

The decisions made and actions taken should be ethically and morally justifiable. Business usually are concentrate on financial view point. These businesses are not sustainable in long run. Construction business would not be able to prosper or sustain its self without satisfying its ethical and moral duties.

4.10.3.8 Supplementary outputs

Other supplementary outputs of this process include but not limited to

- Ecological wellbeing
- Employee loyalty
- Investors' trust
- Customer commitment
- Profitability and performance
- Long term relationship
- Reputation and image building

EEFs and OPAs would be updated as the results of this process.

4.11 Framework Validation

Framework was validated using interviews with experts. While a general consensus was observed on various components of the framework, some recommendations were given regarding positioning and naming of components. These recommendations were incorporated in this final framework.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

The chapter encompasses various findings, recommendations and limitations of the research.

5.1 Identified stakeholder

Stakeholder are inherent part of any construction project with PPP projects being no exception. In PPP projects, fairly large number of stakeholder are involved to various extent and at various levels. The final list of identified stakeholders is presented below.

- Public Authority
- Legal authorities
- Civic institutions
- State/Federal/Regional development agencies /Competent Authority
- Line Department/ Ministries
- PPP Units/ Cell
- Municipalities
- Policy Makers
- Insurance companies
- Financier/Banks/DFIs (Development Finance Institutes)
- Shareholders
- Advisor
- Private Authority
- Designers /Architect
- Project Team/Employee

- Project manager
- Facilities manager
- Contractor
- Subcontractors
- Suppliers/Vendors
- Competitors
- Customers/End User
- General public
- Community representatives
- Unions
- Neighbours/Land owners
- Politicians
- Activist/Pressure groups /Special interest groups
- Environmentalist or cultural groups
- Press/Media
- NGOs
- Researchers & professional institutions

The list is not inclusive of all stakeholders since stakeholder would also vary with spatial dynamics, project financing model & PPP arrangement selected etc. But it does represent the major stakeholder groups involved and other groups could be an extension of these groups.

5.2 Framework limitations

Proposed framework incorporates all the elements essential for SHM identified from a thorough literature review. It also proposes some new processes like project responsibility and incorporates stakeholder management/engagement right from

project selection (initiation). Since PPP road infrastructure project cause major environmental changes so they must also be social and environmentally responsible. The proposed framework help project manager to effectively manage stakeholder. Which would result in minimizing/mitigating stakeholder's negative impact (time & cost overruns, conflicts, controversies etc.) and enhancing their positive impact through proper and timely stakeholder engagement.

Despite these advantages framework has certain limitations. Firstly, framework is missing empirical validation due to shortage of time and a large PPP phase and project duration. Implementation of the framework would not only provide information regarding validation but would also provide valuable feedback for improving framework. Secondly certain tools and techniques have limitations and require fair amount of knowledge for their implementation. Also, few techniques e.g. Q methodology are new for construction practitioners, here training session could be useful to familiarizes them with new techniques. Thirdly the efficiency of the process may be constrained by the competence and cognitive abilities of the project manager and management team.

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APPENDIX I

Questionnaire Survey

IDENTIFAYING AND CLASSIFYING STAKEHOLDER IN PPP PROJECTS

This survey is being conducted as part of MS research titled "**Stakeholder management in PPP: A strategic framework**" with the aim to develop a strategic framework to carry out stakeholder management in PPP projects. This elementary survey is meant for **identifying** stakeholder in PPP projects and classifying them in **internal/external** categories. Further stakeholders are to be grouped in **four** sectors (i. e public sector, private sector, general public and 3rd Party).

Your participation in this questionnaire will be a valuable contribution to this research. Please click next to get started and don't forget to click submit at the end.

Personal Information

1. Please indicate your years of professional experience in construction.

   Please choose **only one** of the following:

   From 1 to 5

   From 6 to 10

   From 11 to 15

   From 16 to 20

   From 21 and above

2. Please indicate your profession (field of work)

   Please choose **all** that apply:

   Architecture

   Building design

Infrastructure management

Construction management

Quantity surveying

Engineering

Facility management

Site execution

Project management

Financial consultancy

Other

3. Please indicate your institute type

Please choose **only one** of the following:

Government

Semi-government

Municipalities

Private

UN agencies

Non-Government Organisation’s

Others

4. Please indicate your Job title.

Please choose **only one** of the following:

Project director

Project manager

Construction manager

Contract administrator

Assistant manager

Site manager

Project engineer

Architect/Designer

University teacher/professor

Consultant

Other

5. Please indicate your highest academic qualification

   Please choose **only one** of the following:

   B.Tech

   B.Sc/B.Eng

   M.Sc/M.Eng/M.Tech/P.Dip

   PhD/D.Eng

   Other

   Q# 1. To what extent the following stakeholder are a part of PPP projects.

   0: Not a part of PPP Projects

   1: Very low extent

   2: Low extent

   3: Medium Extent

   4: High extent

   5: Very high extent

   1. Client
   2. Customers/End User
   3. Designers
   4. Employees
   5. Process and service providers

6. Contractor
7. Subcontractors
8. Shareholders
9. Suppliers/Vendors
10. Project managers
11. Facilities managers
12. Pressure groups
13. Competitors
14. Banks/DFIs (Development Finance Institutes)
15. Insurance companies
16. Community representatives
17. Neighbours/Land owners
18. General public
19. Civic institutions
20. Government establishments
21. Legal authorities
22. Regional development agencies
23. Environmentalist
24. Press/Media
25. NGOs

Q#2. In which category do you think the following stakeholder will fall in Internal/External

1. Client
2. Customers/End User
3. Designers

4. Employees
5. Process and service providers
6. Contractor
7. Subcontractors
8. Shareholders
9. Suppliers/Vendors
10. Project managers
11. Facilities managers
12. Pressure groups
13. Competitors
14. Banks/DFIs (Development Finance Institutes)
15. Insurance companies
16. Community representatives
17. Neighbours/Land owners
18. General public
19. Civic institutions
20. Government establishments
21. Legal authorities
22. Regional development agencies
23. Environmentalist
24. Press/Media
25. NGOs

Q#3. In which of these groups do you think the following stakeholder will fall in, in case of PPP projects:

i. **Public Sector** (the group of stakeholders who are important for decision making in the PPP projects).

ii. **Private Sector** (the group of stakeholders who are major implementer in the PPP projects having concession agreement or having common interest in PPP)

iii. **General Public** (the group of stakeholders affected by the project and influence project success)

iv. **3rd Party** (the group of stakeholders which observer and provides suggestions related to the PPP projects).

1. Client
2. Customers/End User
3. Designers
4. Employees
5. Process and service providers
6. Contractor
7. Subcontractors
8. Shareholders
9. Suppliers/Vendors
10. Project managers
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13. Competitors
14. Banks/DFIs (Development Finance Institutes)
15. Insurance companies
16. Community representatives
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18. General public

19. Civic institutions

20. Government establishments

21. Legal authorities

22. Regional development agencies

23. Environmentalist

24. Press/Media

25. NGOs

Q#4. Are there any other stakeholder group, which are a part of PPP project? Please mention their name, in which category they fall in (internal/external) and also in which of the four stakeholder group they are a part of.