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An investigation of stakeholder analysis in urban development projects: Empirical or rationalistic perspectives

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Abstract

The increasing research interest in multi-stakeholder analysis in urban planning reflects a growing recognition that stakeholders can and should influence the decision-making of urban development projects. Methods for identifying and prioritising stakeholders and their interests are explored in this study, and two perspectives (empiricism and rationalism) for stakeholder analysis are proposed. Two case studies, one regional renewal project and the other an infrastructure project, are presented to verify the usefulness of these two analysis perspectives. The results from the case studies show that no one method for stakeholder analysis is perfect; the selection of analytical perspective is an art with extensive considerations of 'when, what, and how' to choose methods to achieve the project objectives. Applying both empirical and rationalistic perspectives and comparing the analysis results when necessary are proposed as the best way to analyse stakeholders.

Keywords: Stakeholder analysis; Urban development projects; Empiricism; Rationalism

1. Introduction

In the field of urban development, studies usually refer to stakeholders as communities (Lawson and Kearns, 2010; Mahjabeen et al., 2008; Taylor, 2007), public (Innes and Booher, 2004; Oakely, 2007; Shan and Yai, 2011), and civics (Cuthill, 2004; Docherty et al., 2001; McLoughlin, 1969). However, no matter what terminology is used, the core concepts of those studies are to identify and analyse the interests of the organisations and individuals who have a stake in, or can influence, urban development projects, try to accommodate the conflicts among them and focus on the key issues in regional development.

In 1969 Arnstein proposed his 'ladder of participation': An eight-rung ladder of methods of engagement with the public, rising from 'non-participation' or public 'manipulation', right up to 'total-engagement' or 'citizen control' where the public holds the majority or all of the managerial power within the project (Arnstein, 1969). Thereafter, a number of studies in urban development analysed the eight ladders, and selected and tailored their methods to an appropriate engagement level (Larson et al., 2010; Mahjabeen et al., 2008). Various methods, including interviews, forums, focus groups, surveys, and workshops, were proposed and compared for stakeholder engagement in practice (Forester, 1993; Larson et al., 2010). However, as Taylor (2007) stated, although an increasing emphasis is placed on policies on community (stakeholder) participation, many communities, especially the disadvantaged ones, are still on the margins in decision-making processes.

The unbalanced stakeholder engagement reflects the fact that democracy in urban development projects is more often rhetoric than realistic in practice. Furthermore, with the complex situation of rapid population growth, large net migration, irresistible climate change, energy and resource limitations in the nation, and the influences of the global economy (Major Cities Unit, 2010), policy makers are confronting significant challenges to address diverse interests, values and objectives, inherent among stakeholders. Therefore, which stakeholders' voices should have 'a place at the table' in urban development process is a dilemma for

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Table 1
Definitions of stakeholder analysis.

Scholars	Definitions
Gupta (1995)	[…] to identify and specify the stakeholders and their interests, domain and specificity; identify and describe the power relationships between the stakeholders and the firm, and among the stakeholders; incorporate the concepts of action and time.
Schmeer (1999)	[…] a process of systematically gathering and analysing qualitative information to determine whose interests should be taken into account when developing and/or implementing a policy or programme.
Varvasovazky and Brugha (2000)	[…] an approach, a tool or set of tools for generating knowledge about actors so as to understand their behaviour, intentions, interrelations and interests; and for assessing the influence and resources they bring to bear on decision-making or implementation processes.
Allen and Kilvington (2002)	[…] the identification of a project's key stakeholders, an assessment of their interests, and the ways in which those interests affect project riskiness and viability.
Mushove and Vogel (2005)	[…] a range of tools or an approach for understanding a system by identifying the key actors or stakeholders on the basis of their attributes, interrelationships and assessing their respective interests related to the system, issue or resource.
Weible (2006)	[…] to address a set of questions: who are the stakeholders to include in the analysis; what are the stakeholders' interests and beliefs; who controls critical resources; with whom do stakeholders form coalitions; and what strategies and venues do stakeholders use to achieve their objectives.
Jepsen and Eskerod (2008)	[…] identification of stakeholders; characterization of the stakeholders; decision about which strategy to use to influence each stakeholder.
Reed (2008)	[…] a process that: defines aspects of a social and natural system […], identifies stakeholders, and prioritises stakeholders for involvement in the decision-making process.
World Health Organisation (2009)	[…] to identify stakeholders that will influence your project; anticipate the kind of influence, positive or negative, these groups will have on your project; develop strategies to get the most effective support possible for your project and reduce any obstacles to successful implementation.

decision-makers and project teams. In order to efficiently obtain a full picture of stakeholders' concerns, and effectively manage antagonism, prejudice and conflicts between stakeholders (Robinson, 2005), it is important to consolidate and propose useful stakeholder analysis methods which can be applied practically in the area of urban development.

The aims of this paper are to identify stakeholder analysis methods, classify them according to their characteristics, and suggest best practice in stakeholder analysis of urban development projects. This paper is organised in the following manner: Section 2 provides the definition of stakeholder analysis; Section 3 proposes two perspectives for stakeholder analysis, namely, empiricism and rationalism, and emphasises two methods (Stakeholder Circle methodology and Social Network Analysis) from each stakeholder analysis perspective; and Section 4 presents two case studies to illustrate the practical application of the stakeholder analysis perspectives in practice, and discusses the outcomes of the findings in case studies, followed with a conclusion in Section 5.

2. Justification for stakeholder analysis

As shown in Table 1, previous studies proposed many definitions for stakeholder analysis. Scholars considered stakeholder analysis either as a process or as an approach to support decision making and strategy formulation. Almost all definitions cover the issues of identifying stakeholders and their interests, analysing stakeholders' impact, and thereby developing strategies. As Jones (2003: p581) stated, it is vitally important in urban development projects to "stress exactly who the participants (stakeholders) are". Furthermore, only if stakeholders' real interests are identified, can they be empowered sufficiently in urban development decision-making (Lawson and Kearns, 2010).

This paper proposes stakeholder analysis in urban development projects as a process with two key steps, namely, stakeholder identification and stakeholder prioritisation. Herein, stakeholder identification refers to development of a list of stakeholders and identifying their interests regarding urban development; stakeholder prioritisation refers to analysing stakeholders' influence on urban development, and decisions about which stakeholders' interests should be addressed preferentially.

3. Perspectives for stakeholder analysis

3.1. Classification of stakeholder analysis methods

Various methods potentially useful in stakeholder analysis, as proposed in the literature, are listed in Table 2. Although these scholars do not represent a complete picture of practical methods for stakeholder analysis, these methods facilitate the process of stakeholder analysis, and can be classified into two analytical perspectives, i.e. empiricism and rationalism, according to their characteristics. Table 3 shows the analytical perspectives of these methods.

Empiricism states that knowledge is a *posteriori*, and can only be gained, if at all, by experience (Markie, 2004). Hereby, it means that stakeholder analysis is conducted based on a stakeholder's, or a small group of stakeholders' (core stakeholders'), experiences. Freeman (1984) presented what has now become the empirical perspective of stakeholder analysis, in which the core stakeholders occupy a central position and have direct connections to all stakeholders. This model assumes that the core stakeholders have exhaustive information about stakeholder expectations and the decision-makers are then able to take optimal decisions. Stakeholders are usually identified by core stakeholders according to pre-defined categories, such as external/internal (Aaltonen and Sivonen, 2009), private sector/public sector/community/

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Table 2
Practical methods for stakeholder analysis used in previous studies.

Approaches	Description	Steps		Scholars
		Stakeholder identification	Stakeholder prioritisation	
Focus groups	A small group brainstorm stakeholders, their interests, influence and other attributes, and categorise them.	√	√	Reed et al. (2009), Lawson and Kearns (2010), Larson et al. (2010)
Interviews	Interviews with stakeholders to identify their interests.	√		Mushove and Vogel (2005), Oakely (2007)
Power/interest matrix (power/interest matrix; power/predictability matrix; stakeholder interest intensity index; the stakeholder impact index)	Despite various transformations, basically, stakeholders are categorised according to the levels of their power and interests.		√	De Lopez (2001), Winch and Bonke (2002), Young (2006), Olander and Landin (2008), Chinyio and Akintoye (2008), Walker et al. (2008), Reed et al. (2009)
Snow-ball sampling	Based on identified stakeholders, a series of interviews and questionnaire surveys are conducted to identify more stakeholders.	√		Prell et al. (2009), Reed et al. (2009)
Social Network Analysis	Through the use of structured interview/ questionnaire surveys, stakeholders' interrelationships are mapped, and stakeholders' influence are analysed.	√	√	Rowley (1997), Prell et al. (2009)
Stakeholder Circle methodology	An integrated process for classifying stakeholders, prioritising stakeholders, visualising stakeholders; and developing strategies.	√	√	Bourne (2005), Walker et al. (2008)
Surveys	Relatively large numbers of stakeholders are asked to express their opinions.	√		Timur and Getz (2008), Prell et al. (2009)
Workshops	Stakeholder representatives discuss specific issues and provide feedback.	√		Department of Planning (2005); Amado et al. (2009)

independent (McQueen et al., 2008), and upwards/downwards/outwards/sidewards (Bourne, 2005). To aid the prioritisation of stakeholders, stakeholders' impacts are analysed through core stakeholders' subjective assessments on stakeholders' attributes. According to Mitchell et al. (1997), which is considered a notable work in stakeholder theory, stakeholder salience is positively related to a cumulative number of three attributes, i.e. power, legitimacy and urgency. The power of stakeholders refers to their ability to mobilize social and political forces as well as their ability to withdraw resources from the organisation (Forester, 1989; Post et al., 2002). Legitimacy is defined as "a generalised perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs and definitions" (Suchman, 1995: p580). Urgency is defined as "the degree to which stakeholder claims call for immediate attention" (Mitchell et al., 1997: p861). Both methods of 'Power/Interest matrix' and 'Stakeholder Circle methodology' in Table 2 were developed from the root of Mitchell et al.'s study. Core stakeholders assess the levels of the others' attributes, although scholars proposed slightly different stakeholders' attributes for analysis, based on their experiences, and cumulate the attribute levels to indicate stakeholders' priorities.

The advantages of this empirical stakeholder analysis perspective are: (1) as long as core stakeholders meet, decisions can be made in a relatively short time; (2) for most conventional projects, core stakeholders can make wise decisions based on their experiences. However, this perspective of stakeholder analysis was also challenged by previous scholars. Crane and Livesey (2003) stated that stakeholders surrounding the focal core stakeholders do not exist in a vacuum, but are influenced by their own independent set of stakeholders. Coalitions of stakeholders and intermediaries acting on behalf of stakeholders are ignored in this hub-and-spokes representation. Although the core stakeholders may have rich experience in urban development projects, in many cases, it is still difficult to draw the whole set of boundaries during the process of stakeholder identification simply according to these descriptions and experiences (Vos and Achterkamp, 2006). Thereby, despite the identified stakeholders reflecting their real interests via interviews, surveys, and workshops, the basis of stakeholder analysis is not solid with an incomplete boundary. This empirical perspective cannot overcome the cognitive limitations of the core stakeholders. There is no departure from the traditional dyadic analysis (Pryke, 2006), and the accuracy of the results is likely to decrease as the complexity of the project increases. Crane and

Table 3
Analysis perspectives of the practical methods.

Steps	Analysis perspectives	
	Empiricism	Rationalism
Stakeholder identification	Focus groups, interviews, stakeholder circle methodology, surveys, workshops	Snow-ball sampling, Social Network Analysis
Stakeholder prioritisation	Focus groups, power/interest matrix, stakeholder circle methodology	Social Network Analysis

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Livesey (2003) also argue that realistic stakeholder analysis can only be achieved by adopting a perspective which reflects the mutually influential nature of the communication process. Thus, a 'rationalistic' perspective for stakeholder analysis is emerging.

In comparison to the empirical perspective, rationalism is a form of rational insight. The knowledge of rationalism is a priori, which is to say knowledge gained independently of experience (Markie, 2004). This perspective justifies the results by engaging almost all stakeholders, instead of only the 'core stakeholders', and decisions can reflect the real relationship situations among stakeholders. Regarding stakeholder identification, Krebs et al. (2006) state that there are three types of stakeholders in a project environment, which can be explained by three in-line circles in the graphic theory. The first circle are stakeholders' project teams know well; the second circle are stakeholders' project teams know but not well, but who the first circle stakeholders know; the third circle are stakeholders' project teams do not know, but who are known by stakeholders in the first and second circles. This concept can be used to identify stakeholders as thoroughly as possible, and is termed snowball sampling and social network theory (Rowley, 1997), as seen in the schematic model (Fig. 1). As long as a complete picture of stakeholders' interrelationship is obtained, analysis can be conducted on which stakeholders or categories of stakeholders play more central roles and which are more peripheral by dissecting the structure of the relationship network. This rationalistic perspective arises from social network theory, and is a powerful way to identify 'hidden/invisible' stakeholders, who may have little apparent influence, but could cause major disruption to urban development projects through unseen power and influential links (Bourne and Walker, 2006). Maginn (2004) supported this perspective, as he considered that stakeholders' power (influence) can flow through systems, and activate changes of others' attitudes. In this sense, stakeholder engagement and empowerment are not "wholly within the control or influence of policy-makers" (Lawson and Kearns, 2010). Although this perspective for stakeholder analysis can help the core stakeholders to break their cognitive limitations and make a relatively objective decision, it has weaknesses because: (1) while the network map (Sociogram) is important for a robust analysis, the information collection process is quite time consuming; or (2) practical and ethical challenges usually arise during the data collection process. For example, some stakeholders may be reluctant to provide data because they have concerns regarding the anonymity of the data collected.

To illustrate the analysis processes of the empirical and rationalistic perspectives, two important, but entirely different methods, i.e. Stakeholder Circle methodology and Social Network Analysis, will be explained in detail in the following sections. These methods were chosen as: (1) they are relatively systematic with a combination of several general analysis methods (interviews, surveys, workshops or focus groups); and (2) the emphasis of Stakeholder Circle methodology is an assessment of stakeholders' attributes (power, proximity and urgency), while Social Network Analysis focuses on analysis of stakeholders' relationships; this difference can help the core stakeholders compare the outcomes and make appropriate decisions accordingly.

3.2. Stakeholder Circle methodology

The Stakeholder Circle methodology developed by Bourne (2005) provides a means for the project team to identify and prioritise a project's key stakeholders, and to then develop an appropriate engagement strategy and communications plan to ensure that the needs and expectations of these key stakeholders are understood and managed, with five steps (identify, prioritise, visualise, engage, and monitor) that allow the team to measure the effectiveness of the communication. To identify stakeholders and their interests, a workshop or focus group is recommended. Project teams and core stakeholders (usually including the financer) using their professional knowledge and previous experiences, develop a list of stakeholders and their potential stakes, interests and constraints on the project. To prioritise

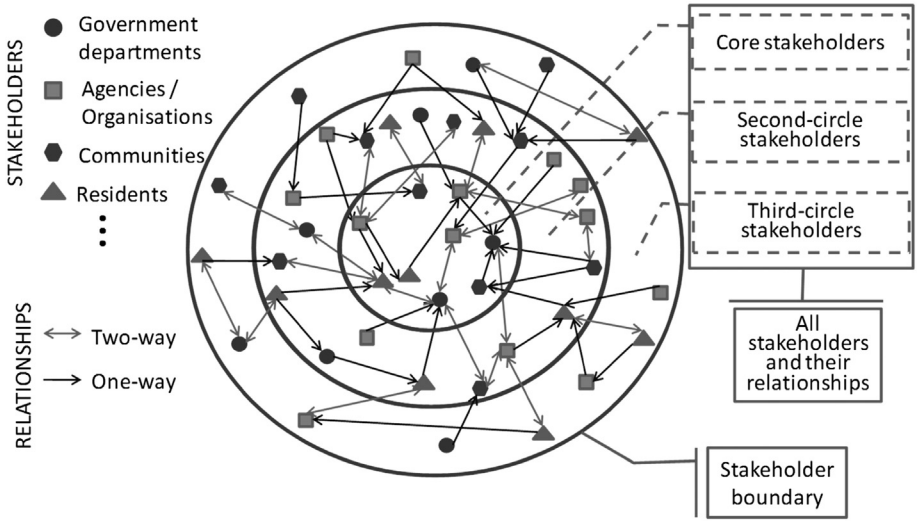

Fig. 1. A schematic model of snowball sampling and social network theory.

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stakeholders, Bourne (2005) further developed the stakeholder science (power/legitimacy/urgency) model (Mitchell et al., 1997), and proposed three attributes which should be assessed to highlight stakeholder's relative importance:

- Power: is their power to influence the work or the outcomes of the project significant or relatively limited?
- Proximity: are they closely associated or relatively remote from the work of the project?
- Urgency: are they prepared to go to any length to achieve their outcomes?

Bourne did not include 'legitimacy' in her methodology; according to Beetham (1991), 'legitimacy' can be explained by 'power' if a stakeholder is capable of establishing conformity rules, justifying the rules by reference to shared beliefs, and obtaining the consent of subordinates. Empirical studies also showed that practitioners thought that the attribute of legitimacy was imprecise and difficult to operationalise, and they preferred using the attribute 'proximity', which was easier to explain and therefore put into practice (Yang et al., 2011). The levels of each stakeholder's attributes are analysed and mapped in a Stakeholder Circle diagram, and the three attributes are additionally weighted by the project team (Bourne, 2009). The calculation of stakeholders' influence is based on the relative difference between the weightings and levels of the three attributes, considering a damping effect built in to reduce the effect of extreme settings, and an allowance for the number of issues attached to a stakeholder.

3.3. Social Network Analysis

Social Network Theory is an interdisciplinary endeavour. It evolved from sociology (Simmel, 1950) and anthropology (Mitchell, 1969) and attracts attention in the use of social and behavioural analysis (Wasserman and Faust, 1994). Wasserman and Faust (1994) considered the concept of a network to emphasize the fact that each individual had ties to other individuals, each of whom in turn was tied to a few, some, or many others, and so on (as shown in Fig. 1). In contrast to the Stakeholder Circle Methodology and other traditional social sciences focusing on the attributes of stakeholders, the information used in Social Network Analysis focuses on the relationships between pairs of stakeholders in a network. Mitchell (1969: p34) defines the social network as "a specific set of linkages among a defined set of persons, with the additional property that the characteristics of these linkages as a whole may be used to interpret the social behaviour of the persons involved". That is, the phrase 'social network' refers to the set of actors and the ties among them.

The concept of Social Network Analysis developed out of Social Network Theory and its application incorporates mathematical, statistical, and computing methodologies. The process of conducting a Social Network Analysis mainly involves the following steps (Cross and Parker, 2004; Timur and Getz, 2008; Wasserman and Faust, 1994):

(1) Identifying the boundary of the network, i.e. stakeholders in the network: To identify a complete list of stakeholders, a snowball rolling method should be used with a series of interviews or questionnaire surveys.
(2) Assessing meaningful and actionable relationships: This step can be conducted in parallel to the first step. During the interviews or questionnaire surveys, information can be collected to map the relationships. According to Cross and Parker (2004), four types of relationships can be analysed: those that reveal collaboration in a network (e.g. communication, information exchange, problem solving, and innovation), those revealing the information-sharing potential of a network (e.g. knowledge awareness, access, engagement, and safety), those revealing rigidity in a network (e.g. decision making, communicate more, task flow, and power or influence), and those that reveal well-being and supportiveness in a network (e.g. linking, friendship, career support, personal support, energy, and trust). In practice, communication, decision making and influence networks are frequently analysed (Prell et al., 2009).
(3) Visualising the network: Various software packages can be used to visualise the relationship network, including UCINET, NetMiner, NetDraw, Pajek, etc. A comparison of these tools can be found in Huisman and van Duijn (2005).
(4) Analysing the network data: quantitative analysis is important for network analysis (Cross and Parker, 2004). Table 4 gives a brief overview of the network measures found useful by previous scholars as useful. Density and cohesion are two main methods for measuring network, while centrality and brokerage are usually used for individual measures.
(5) Presenting the analysis results.

As stated above, although the methods of Stakeholder Circle Methodology and Social Network Analysis have similar purposes, namely, identifying and prioritising stakeholders, the processes and analysis perspectives are totally different.

4. Two case studies

To verify the usefulness of the empirical and rationalistic methods, two urban development projects are described and analysed. Case study analysis is the preferred technique when 'how' and 'why' questions are considered, when the investigator has little control over events, and when the focus is on a contemporary phenomenon in a real-life context (Bourne, 2005; Yin, 2009). This research addresses a 'how' type of question in order to understand how stakeholder analysis is actually conducted. The case selection was not random but based on theoretical sampling. These two cases are chosen because they both have high project complexities, which make stakeholder analysis more meaningful, due to the relatively complex stakeholder interests and relationships in these projects, and project managers normally have difficulties managing them. Meanwhile, these cases represent two different project types, i.e.

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Table 4
An overview of the network measures.

Measures		Descriptions	Scholars
Network measures	Density	A measure of "the relative number of ties in the network that link actors together". It is calculated as a ratio of the number of relationships that exist in the network, compared with the total number of maximum possible ties.	Rowley (1997), Cross and Parker (2004), Vandekerckhove and Dentchev (2005), Parise (2007), Chinowsky (2008)
	Cohesion	It measures "the distance, or the number of links, to reach nodes in a network", and it is based on the shortest path.	Rowley (1997), Cross and Parker (2004), Parise (2007)
Individual measures	Centrality	A key measure that reflects the distribution of relationships through the network. There are several types of centralities with different focuses: • In-degree centrality • Out-degree centrality • Betweenness centrality • Closeness centrality • Status centrality	Rowley (1997), Brass et al. (1998), Cross and Parker (2004), Pryke (2006), Prell et al. (2006b), Chin and Chignell (2007)
	Brokerage	Stakeholders are classified based on four measures: Coordinators — who broker connections within the same group; Representatives and gatekeepers — who broker connections between their own group and another; Liaisons — who broker connections between two different groups.	Cross and Parker (2004), Prell et al. (2006a)

a regional redevelopment project and an infrastructure project, which are highly influential on urban liveability and sustainability.

4.1. Project 1 — a regional renewal project

Project 1 is a regional renewal project in a district of M city with a contract price of AU$1 billion in new investments. The district was located 8 km north of the city CBD and was a vibrant and diverse community with a busy central retail hub. The study area for Project 1 was approximately 35 ha, of which Council 1 controlled 12 ha. The project evolved from a government development plan, itself the product of five years' consultation with associated communities, traders, landowners, state government agencies and other stakeholders. The project focuses on new connectivity between people and their places of work, culture, sport and leisure. The main goal of this project was the reinvigoration and renewal of the region. Work began on the project in 2006, and at the time of this case study was at the end of the design stage. Data of this case were collected by the authors through archive analysis, and a series of interviews and workshops with the project team.

The identification of stakeholders in this project was conducted through a combination of empiricism and rationalism, additionally a web-based software package, Darzin, was used to record project communications among all stakeholders. Darzin is a data analysis software solution, created specifically for stakeholder engagement and community consultation. It was used to record project communications, stakeholder contact details and issues, and analyse this information qualitatively and quantitatively. The 'centralised' nature of the database ensures that the project team can work from a range of locations to enter information about specific engagement activities and stakeholders. This software also has an automated reporting function to map issues throughout the project, ensuring that all information is managed consistently and can be shared across the entire project team.

The interviews with the project team indicated that at the beginning of this project, core stakeholders were identified based on the project team's experiences (empiricism); however, as more communication records (especially those communications initiated by the core stakeholders to exchange ideas with unidentified stakeholders) were added in Darzin, more stakeholders (second circle and third circle stakeholders) were identified. This process can be considered rationalism. Based on the communication records in Darzin, more than 300 stakeholders have been engaged in the project. Their interests were analysed with a context analysis method according to the communication records, and about 80 stakeholder interests (Fig. 2) were classified by the project team. The main categories of stakeholders' interests regarding the regional redevelopment include, but were not limited to, car parking, environmentally sustainable development, health and wellbeing, heritage, housing and accommodation, leisure and recreation, public realm, transport and movement, etc.

As there were different, more often than not, conflicting interests in this project, the project team wanted to have a synopsis of which stakeholders are more important than others. Thereby, both perspectives of stakeholder analysis were introduced to the project team in a workshop, and the empirical perspective was chosen due to the limited time available. The Stakeholder Circle Methodology was used to aid the analysis process. Then, the project team selected 29 out of 300 stakeholders for analysis as the team believed these stakeholders either posed the main problems at that time, or communicated more frequently according to the records in Darzin. Stakeholders' power, proximity, and the urgency of their requests, as well as their attitudes towards this project, were assessed during a project management team workshop.

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Fig. 2. Stakeholders interest tree in Project 1.

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The assessment of stakeholders' attributes (power, proximity and urgency) was based on the project team's experiences coupled with the aid of the Stakeholder Circle methodology. The attitudes of stakeholders were obtained through content analysis of the communication records. The stakeholders are listed, in order of priority, in Table 5. Stakeholders with opposing attitudes and also highly ranked should have priority handling in the following works. The project director and manager thought that the analysis process contributed effectively to stakeholder engagement by enhancing the project team's knowledge regarding immediate priorities.

4.2. Project 2 — an infrastructure project

Project 2 is an AU$650 million essential infrastructure project involving the construction of approximately 12.5 km of new sewer pipes in the north of the M city. The project will increase the sewerage system capacity for the city's growing northern suburbs and help to protect the two creeks from the damaging impact of sewage overflows that can occur after heavy rain. Project 2, which was in the construction stage at the time of writing this paper, comprised two approximately concurrent stages: Stage 1 to be delivered for Client 1 and Stage 2 to be delivered for Client 2. H Construction, one of the leading and most diversified contracting, engineering and service providers, was responsible for both stages of the project. Three community relations managers, from Client 1, Client 2, and the H Construction company were appointed at the early stage of the project.

The relations managers indicated that at the design stage of this project, core stakeholders were initially identified based on the project team's experience. A series of interviews and workshops was then conducted to ask the core stakeholders to express their interests and identify additional stakeholders. Different stakeholder engagement methods, such as newsletters, a project website, hotline, and community forums, were also established and promoted via social media in order to collect additional stakeholder information. A total of 43 stakeholder groups were identified, which were classified into nine categories: government, directly impacted groups, general community groups, environmental groups, open space users, regulatory authorities, culturally and linguistically diverse community, media, and the wider community. At the beginning of the construction stage, a broad questionnaire survey with the identified 43 stakeholders was conducted to ask for clarification of their interests, attitudes, and their preferred information obtaining/exchanging methods. There was 100% response rate.

Based on the results of the questionnaire survey, the stakeholders' interests were identified (in Table 6), which include issues about mitigation, project management, environment, traffic management, and community/social. Stakeholders' attitudes regarding this project were analysed based on the interest statements in their returned questionnaire. Similar to Project 1, both empirical and rationalistic perspectives of stakeholder analysis were introduced to the relations managers in a workshop. The managers were interested in

Table 5
The priority and attitudes of selected stakeholders in Case Project 1.

Priority	Stakeholders	Attitude
1	Director of Vic Roads	Neutral
2	Director of Vic Track	Neutral
3	Councillors	Supportive
4	Internal management executive group	Supportive
5	Chief Executive Officer (Local community health service)	Supportive
6	CEO of Tram company	Neutral
7	Director of Public Transport Department — Bus	Neutral
8	President of Local traders' association	Supportive
9	Financiers	Opposed
10	CEO of Affordable housing association	Supportive
11	CEO of Local energy foundation	Supportive
12	CEO of a major retail store	Supportive
13	Local activist (Coach of Under 16 football club)	Supportive
14	President of Primary School Council	Opposed
15	Convenor (Save the Olympic Outdoor Pool Group)	Opposed
16	Coordinator (Local child care centre)	Neutral
17	Convenor of Disability Advisory Group	Supportive
18	Hudson Street residents	Opposed
19	President of Local residents' association	Supportive
20	Chairman of Library advisory committee	Supportive
21	Small business owners in local mall	Supportive
22	CEO of Cinema group	Supportive
23	Convenor (Local bicycle users group)	Supportive
24	President of Uniting Church Council	Opposed
25	President of Local historical society	Opposed
26	Residents of Local retirement village	Supportive
27	Director of Small local investment group	Supportive
28	Convenor of Youth Advisory Group	Opposed
29	Lebanese women's group	Supportive

Table 6
Stakeholders' interests in Case Project 2.

Interest categories	Main issues
Mitigation	Mitigation works
	Property purchase
	Rate reimbursement
	Relocation
	Rental guarantee
Project	Occupational health and safety
	Cost
	Quality
	Progress of construction works
Environment	Flora/fauna
	Visual/landscape amenity
	Noise and/or vibration
	Emission of odour
	Water quality
	Dust
Traffic management	Changes to Traffic conditions
	Traffic movement within and accessing site
	Parking restrictions and amendments
	Mud and dirt on roads
	Truck driver behaviour
Community/Social	Safety of residents and users of the site
	Property damage by vibration
	Restrictions to sports and recreation areas
	Pedestrian and cyclist access
Others	Job opportunity
	Capacity of the sewerage system
	Protection to the creeks

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analysing stakeholders' influence by using both of the perspectives. Stakeholders' attributes were assessed by the three relations managers in a focus group meeting with the aid of Stakeholder Circle Methodology. As the information exchange data were obtained through the questionnaire survey, the Social Network Analysis method was useful for data analysis. NetMiner (Cyram, 2009) was chosen as a tool for Social Network Analysis. Fig. 3 is the map of the information exchange network in the project. Three network measures were used for analysis: density, cohesion, and betweenness centrality (Parise, 2007; Wasserman and Faust, 1994).

Density in the information network is defined as the ratio of existing information ties in a network to the maximum number of ties possible if everyone in the group shared information with everyone else (Parise, 2007; Wasserman and Faust, 1994). Network density ranges between 0 and 1. The higher the density, the more frequent the network information shares. The mean network density in Fig. 3 is 0.763, which indicates a high frequency of information exchange in the project (Parise, 2007). Cohesion measures "the distance, or the number of links, to reach nodes in a network" (Parise, 2007). For an information network, the lower the cohesion number, the better the information return time, because there is a shorter path for information to be disseminated in the network. Cross and Parker (2004) consider an average cohesion number of around 2 to be acceptable for an information network. The average cohesion in the information exchange network of this project is 2.016, which indicates that the average distance for sharing information from one stakeholder to the others is between 2 and 3.

According to Cross and Parker (2004: p89), betweenness centrality reflects "the extent to which a particular stakeholder lies between the various other stakeholders in the network"; and stakeholders with high betweenness are likely to influence others' opinion. Lists of the top 20 stakeholders, prioritised through empirical perspective (Stakeholder Circle methodology) and rationalistic perspective (Social Network Analysis), are shown in Table 7. The relations managers found that although most of the stakeholders are comparable, some significant differences do exist. A most important finding is that based on the results of Social Network Analysis, the Department of Planning Community and Development seemed to still have major influences on the others in the construction stage of this project, as many communities continued to frequently exchange

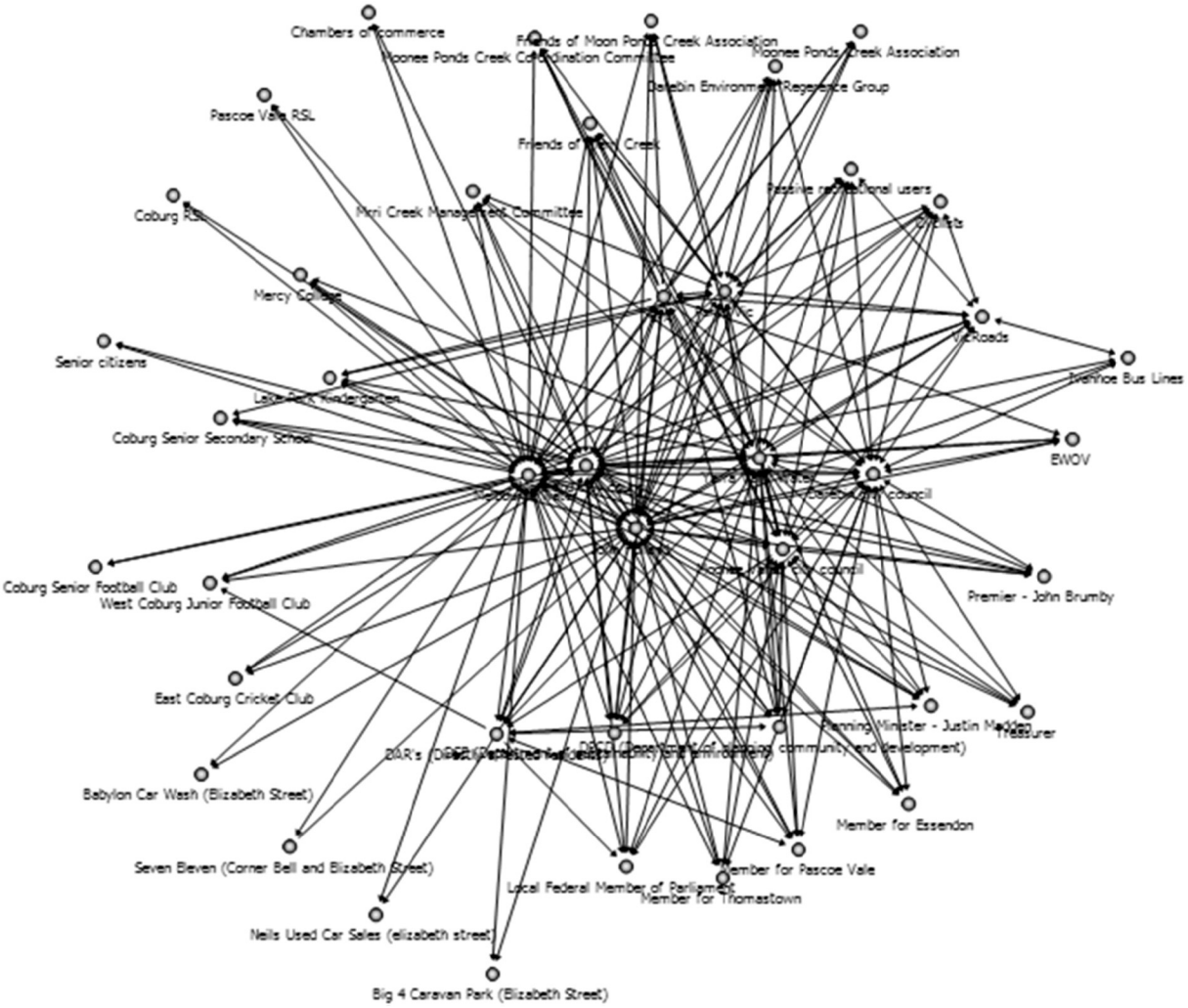

Fig. 3. The map of the information exchange network in Project 2.

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Table 7
Stakeholders' priorities from two perspectives.

Priority	Empirical perspective	Rationalistic perspective
1	Client 1	Client 1
2	Client 2	Moreland City Council
3	H construction	H construction
4	Directly affected residents	Client 2
5	Environmental Protection Agency	Darebin City Council
6	Vic Roads	Moonee Valley City Council
7	Ivanhoe Bus Lines	Parks Vic
8	Parks Vic	Environmental Protection Agency
9	Moreland City Council	Vic Roads
10	Moonee Valley City Council	Directly affected residents
11	Darebin City Council	Department of Planning Community and Development
12	Merri Creek Management Committee	Department of sustainability and environment
13	Moonee Ponds Creek Co-ordination Committee	Merri Creek Management Committee
14	Friends of Merri Creek	Friends of Merri Creek
15	Friends of Moon Ponds Creek Association	Darebin Environment Reference Group
16	Darebin Environment Reference Group	Friends of Moon Ponds Creek Association
17	Moonee Ponds Creek Association	Moonee Ponds Creek Association
18	Energy and Water Ombudsman	Moonee Ponds Creek Co-ordination Committee
19	Department of sustainability and environment	Lake Park Kindergarten
20	Local Federal Member of Parliament	Coburg Senior Secondary School

information with this department. This was contrary to the relations managers' expectations, as their experience suggested that this department played a decisive role in the initiative and design stages, but not in the construction stage. The managers examined the network map, and indicated that this analytical perspective helped them largely recognise the structure of information exchange flows, and identify those 'liaisons' without whose transfer the information network can become segmented. The relations managers did not synthesise the two lists as they preferred to keep both of them for reference. Although the relations managers were satisfied with the current network collaborations (Network density was 0.763, and Cohesion was 2.016), they still wanted to engage more with those stakeholders with opposed attitudes and high priorities.

4.3. Discussion

Analysis of the two case studies suggests that in practice project teams have unconsciously applied the empirical perspective and rationalistic perspective for stakeholder identification, although they may not know the theoretical background. In Case Project 1, stakeholders were identified based on the project team's experiences, as well as information in the communication practice. This is a process of combining empiricism and rationalism. In Case Project 2 a number of engagement methods, such as interviews, workshops, newsletters, project website, hotline and community forums, were applied to identify stakeholders, which make the data collection process more objective.

In terms of stakeholder prioritisation the empirical method (Stakeholder Circle Methodology) was chosen by both project teams, while the rationalistic method (Social Network Analysis) was only used in Case Project 2 as the relationship information among stakeholders in that project was available. This indicates, on the one hand, that the selection of approaches should be suitable for a particular situation and depend on resources and the nature of the project. Case Project 1 includes a number of sub-projects, and involves substantial stakeholders, requiring a very long time to collect data for Social Network Analysis. In addition, most of the stakeholders were external stakeholders, and the respondent rate, if a survey was conducted, could not be guaranteed. However, in Case Project 2, with around 40 stakeholder groups, data of stakeholders' relationships is relatively quick to collect. On the other hand, the selection of analysis perspectives for stakeholder prioritisation reflects the difficulties to put theory into practice. Although the project team's considerations were undoubtedly reasonable, the researchers consider that in all probability the project team hesitated to use surveys for Social Network Analysis in the project because this approach is in its infancy (Pryke, 2006) in the field of urban development, and many practitioners, as yet, do not fully understand its significance.

Although Projects 1 and 2 are different in nature, both of them have validated the practical use of the empirical and rationalistic perspectives. Project teams in both projects were satisfied with their stakeholder lists, which were identified by a combination of empirical and rationalistic methods. The process of stakeholder prioritisation helped project teams identify which stakeholders or groups of stakeholders should be engaged more. Particularly, in Case Project 2, although the relations managers surveyed the information exchange among stakeholders with only one aim of identifying effective information dissemination methods, with the aid of rationalistic analysis technology, i.e. Stakeholder Network Analysis, they not only had a clearer idea about the structure of information flow among the stakeholders, but also identified those 'liaisons' without whose transfer the information network can be segmented. Moreover, by comparing the priority results from the empirical and rationalistic perspectives, the managers in Project 2 recognised their cognitive limitations and considered the methods of both perspectives should be used to complement each other practice.

Therefore, no one single method for stakeholder analysis is perfect. Each method has strengths and limitations. The selection of analysis perspectives is an art with extensive consideration of resources and the nature of projects necessary. Applying both empirical and rationalistic perspectives and comparing the analysis results when necessary are the best way for analysing stakeholders.

5. Conclusions

Stakeholders in urban development are individuals or organisations who can affect or be affected by the achievement of a project. Analysing stakeholders is an indispensable process for

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urban development. Although various methods have been used in theory and practice for stakeholder analysis, the main aims are to identify stakeholders and their interests, prioritise these stakeholders, and subsequently, make appropriate decisions. Two perspectives for stakeholder analysis were proposed in this study: empiricism, which, to a large degree, relies on project team's or core stakeholders' experiences; and rationalism, which justifies analysis results by engaging most of the stakeholders, and structuring the real relationship situations among stakeholders. The case studies explored reflect the usefulness of the two perspectives in practice, and indicate that there is no single, most effective method. Empirical and rationalistic perspectives should be applied taking into consideration resources and the nature of the projects, and compared in order to analyse stakeholders in urban development projects. The research findings will be further distributed to practitioners to help them understand the different features of the two approaches in terms of managerial implications, managerial behaviours, so allowing for a more concrete perception of the two perspectives and their difference, since the first introduction of the distinction between them.

References

Aaltonen, K., Sivonen, R., 2009. Response strategies to stakeholder pressures in global projects. Int. J. Proj. Manag. 27, 131–141.

Allen, W., Kilvington, M., 2002. Learning and working together for the environment: applying the integrated systems for knowledge management approach. Dev. Bull. 58, 106–111.

Amado, M.P., Santos, C.V., Moura, E.B., Silva, V.G., 2009. Public participation sustainable urban planning. World Acad. Sci. Eng. Technol. 53, 597–603.

Arnstein, S.R., 1969. A ladder of citizen participation. 1995 In: Stein, J.M. (Ed.), Classic Reading in Urban Planning: An Introduction. McGraw-Hill Inc., New York.

Beetham, D., 1991. The Legitimation of Power. Macmillan, Basingstoke.

Bourne, L., 2005. Project Relationship Management and the Stakeholder Circle ™. (PhD Thesis) RMIT University, AU.

Bourne, L., 2009. Stakeholder Relationship Management: A Maturity Model for Organisational Implementation. MPG Books Ltd., Cornwall.

Bourne, L., Walker, D.H.T., 2006. Visualizing stakeholder influence — two Australian examples. Proj. Manag. J. 37 (1), 5–22.

Brass, D.J., Butterfield, K.D., Skaggs, B.C., 1998. Relationships and unethical behaviour: a social network perspective. Acad. Manage. Rev. 23 (1), 14–31.

Chin, A., Chignell, M., 2007. Identifying communities in blogs: roles for social network analysis and survey instruments. Int. J. Web Based Communities 3 (3), 346–363.

Chinowsky, P.S., 2008. Social network model of construction. J. Constr. Eng. Manag. 134 (10), 804–812.

Chinyio, E.A., Akintoye, A., 2008. Practical approaches for engaging stakeholders: findings from the UK. Constr. Manag. Econ. 26 (6), 591–599.

Crane, A., Livesey, S., 2003. Are you talking to me? Stakeholder communication and the risks and rewards of dialogue. Unfolding Stakeholder Thinking 2, 39–52.

Cross, R., Parker, A., 2004. The Hidden Power of Social Networks: Understanding How Work Really Gets Done in Organizations. Harvard Business School Press, Boston.

Cuthill, M., 2004. Communicative visioning: facilitating informed citizen participation in local area planning on the Gold Coast. Urban Policy Res. 22 (4), 427–445.

Cyram, 2009. NetMiner 3.4.0. Cyram Co. Ltd., Seoul.

De Lopez, T.T., 2001. Stakeholder management for conservation projects: a case study of Ream National Park, Cambodia. Environ. Manag. 28 (1), 47–60.

Department of Planning, 2005. City of Cities: A Plan for Sydney's Future. Department of Planning, Sydney.

Docherty, I., Goodlad, R., Paddison, R., 2001. Civic culture, community and citizen participation in contrasting neighbourhoods. Urban Stud. 38 (12), 2225–2250.

Forester, J., 1989. Planning in the Face of Power. University of California Press, Berkeley, CA.

Forester, J., 1993. Critical Theory, Public Policy and Planning Practice. State University of New York, Albany.

Freeman, R.E., 1984. Strategic Management: A Stakeholder Approach. Pitman Inc., Boston.

Gupta, A., 1995. A stakeholder analysis approach for inter-organizational systems. Ind. Manag. Data Syst. 95 (6), 3–7.

Huisman, M., van Duijn, M.A.J., 2005. Software for social network analysis. In: Carrington, P., Scott, J., Wasserman, S. (Eds.), Models and Methods in Social Network Analysis. Cambridge.

Innes, J.E., Booher, D., 2004. Reframing public participation: strategies for the 21st century. Plann. Theory Pract. 5 (4), 419–436.

Jepsen, A.L., Eskerod, P., 2008. Stakeholder analysis in projects: challenges in using current guidelines in the real world. Int. J. Proj. Manag. 4 (2), 1–9.

Jones, P.S., 2003. Urban regeneration's poisoned chalice: is there an impasse in (community) participation-based policy? Urban Stud. 40 (3), 581–601.

Krebs, V., Ricchiuto, J., Holley, J., 2006. Net weaving. Website: http://www.networkweaving.com/blog (accessed on 16/10/2007).

Larson, S., Measham, T.G., Williams, L.J., 2010. Remotely engaged? Towards a framework for monitoring the success of stakeholder engagement in remote regions. J. Environ. Plann. Manage. 53 (7), 827–845.

Lawson, L., Kearns, A., 2010. 'Community empowerment' in the context of the Glasgow housing stock transfer. Urban Stud. 47 (7), 1459–1478.

Maginn, P., 2004. Urban Regeneration, Community Power and the Significance of 'Race'. Ashgate, London.

Mahjabeen, Z., Shrestha, K.K., Dee, J.A., 2008. Rethinking community participation in urban planning: the role of disadvantaged groups in Sydney metropolitan strategy. Proceedings of 32nd ANZRSAI Conference, 30th Nov–3rd Dec, 2008, Adelaide, Australia, pp. 167–185.

Major Cities Unit, 2010. State of Australian Cities, 2010, Canberra: Infrastructure Australia. http://www.infrastructureaustralia.gov.au/files/MCU_SOAC.pdf.

Markie, P., 2004. Rationalism vs. Empiricism. In: Zalta, Edward D. (Ed.), Stanford Encyclopedia of Philosophy (http://plato.stanford.edu/entries/rationalism-empiricism/, Accessed in 10 May 2011).

McLoughlin, J.B., 1969. Urban and Regional Planning: A System Approach. Faber and Faber, London.

McQueen, M., Elkadi, H., Millar, J., Geoghegan, P., 2008. Your Space or Mine? A Co-influence Approach to Shared Future Urban Environments in Interface Communities. (www.yourspaceormine.org.uk, accessed at Dec. 2010).

Mitchell, J.C., 1969. The concept and use of social networks. In: Mithcell, J.C. (Ed.), Social Networks in Urban Situations. Manchester University Press.

Mitchell, R.K., Agle, B.R., Wood, D.J., 1997. Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts. Acad. Manage. Rev. 22 (4), 853–887.

Mushove, P., Vogel, C., 2005. Heads or tails? Stakeholder analysis as a tool for conservation area management. Global Environ. Change 15, 184–198.

Oakely, S., 2007. Public consultation and place-marketing in the revitalisation of the port Adelaide waterfront. Urban Policy Res. 35 (1), 113–128.

Olander, S., Landin, A., 2008. A comparative study of factors affecting the external stakeholder management process. Constr. Manag. Econ. 26 (6), 553–561.

Parise, S., 2007. Knowledge management and human resource development: an application in social network analysis methods. Adv. Dev. Hum. Resour. 9 (3), 359–383.

Post, J.E., Preston, L.E., Sauter-Sachs, S., 2002. Redefining The Corporation: Stakeholder Management and Organizational Wealth. Stanford University Press, CA.

Prell, C., Hubacek, K., Reed, M., 2006a. Using stakeholder and social network analysis to support participatory processes. Int. J. Biodivers. Sci. Manag. 2, 1–4.

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Prell, C., Hubacek, K., Reed, M., 2006b. Social learning and social network analysis: a case study in the Peak District National Park. The Rural Citizen: Governance, Culture and Wellbeing in the 21st Century Compilation. University of Plymouth, UK, p. 4.

Prell, C., Hubacek, K., Reed, M., 2009. Stakeholder analysis and social network analysis in natural resource management. Soc. Nat. Res. 22 (6), 501–518.

Pryke, S.D., 2006. Projects as networks of relationships. In: Pryke, S., Smyth, H. (Eds.), The Management of Complex Projects: A Relationship Approach. Blackwell, UK, pp. 213–235.

Reed, M.S., 2008. Stakeholder participation for environmental management: a literature review. Biol. Conserv. 141, 2417–2431.

Reed, M.S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J., Prell, C., Quinn, C.H., Stringer, L.C., 2009. Who's in and why? A typology of stakeholder analysis methods for natural resource management. J. Environ. Manage. 90, 1933–1949.

Robinson, D., 2005. The search for community cohesion: key themes and dominant concepts of the public policy agenda. Urban Stud. 42 (8), 1411–1427.

Rowley, T.J., 1997. Moving beyond dyadic ties: a network theory of stakeholder influences. Acad. Manage. Rev. 22 (4), 887–910.

Schmeer, K., 1999. Guidelines for Conducting a Stakeholder Analysis. November 1999. Partnerships for Health Reform, Abt Associates Inc., Bethesda, MD.

Shan, C., Yai, T., 2011. Public involvement requirements for infrastructure planning in China. Habitat Int. 35, 158–166.

Simmel, G., 1950. The Sociology of George Simmel K Wolff (Trans). The Free Press, New York.

Suchman, M.C., 1995. Managing legitimacy: strategic and institutional approached. Acad. Manage. Rev. 20, 571–610.

Taylor, M., 2007. Community participation in the real world: opportunities and pitfalls in new governance spaces. Urban Stud. 44 (2), 297–317.

Timur, S., Getz, D., 2008. A network perspective on managing stakeholders for sustainable urban tourism. Int. J. Contemp. Hosp. Manag. 20 (4), 445–461.

Vandekerckhove, W., Dentchev, N.A., 2005. A network perspective on stakeholder management: facilitating entrepreneurs in the discovery of opportunities. J. Bus. Ethics 60, 221–232.

Varvasovazky, Z., Brugha, R., 2000. A stakeholder analysis. Health Policy Plan. 15 (3), 338–345.

Vos, J.F.J., Achterkamp, M.C., 2006. Stakeholder identification in innovation projects. Eur. J. Innov. Manag. 9 (2), 161–178.

Walker, D.H.T., Bourne, L.M., Rowlinson, S., 2008. Stakeholder and the supply chain. In: Walker, D.H.T., Rowlinson, S. (Eds.), Procurement Systems: A Cross-industry Project Management Perspective. Taylor & Francis, UK, pp. 70–100.

Wasserman, S., Faust, K., 1994. Social Network Analysis: Methods and Applications. Cambridge University Press, New York.

Weible, C.M., 2006. An advocacy coalition framework approach to stakeholder analysis: understanding the political context of California marine protected area policy. J. Public Adm. Res. Theory 17, 95–117.

Winch, G., Bonke, S., 2002. Project stakeholder mapping: analysing the interests of project stakeholders. In: Project Management Institute (PMI) (Eds), The Frontiers of Project Management Research. Pennsylvania, pp: 385–402.

World Health Organization, 2009. www.who.int/hac/techguidance/…/stakeholder%20analysis%20ppt.pdf (accessed at 03 Aug 2009).

Yang, J., Shen, Q.P., Bourne, L., Ho, M.F., Xue, X.L., 2011. A typology of operational approaches for stakeholder analysis and engagement: findings from Hong Kong and Australia. Constr. Manag. Econ. 29 (2), 145–162.

Yin, R.K., 2009. Case study research: Design and methods. Vol. 5, Vol. 5. Sage.

Young, T.L., 2006. Successful Project Management, Second edition. Kogan Page, UK.

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