

Chapter 5

Circularity of Wastes: Stakeholders Identity and Salience for Household Solid Waste Management in Cimahi City, West Java Province, Indonesia



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Abstract This paper presents the operationalisation of stakeholders identity and salience theory (Mitchell RK, Agle BR, Wood, DT, *Acad Manag Rev* 22(4):853–886, 1997) with the purpose to classify the stakeholders involved in the household solid waste management in Cimahi City, West Java Province, Indonesia. This classification will benefit circularity of solid waste management strategies that involve diverse actors needing to collaborate. Several studies have been conducted to identify the stakeholders in solid waste management, but none has been carried out yet to classify their salience in the systematic approach described by Mitchell's theory. Such classification aims to draw a line between the stakeholders who play a vital role in the household solid waste management process and those who have minor contributions towards the process. Hence, the research questions aligned to this aim are: (1) Who are the stakeholders of household solid waste management in Cimahi City? And (2) who are the most salient stakeholders of household solid waste management in Cimahi City? The research utilised a qualitative method approach. Data collection techniques contained in-depth interviews, non-participant observations and reading documentation. Triangulation was applied to validate the collected data. Even further, data was analysed by the Miles and Huberman model. The result of this research has identified stakeholders with important influence and impacts on

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the household solid waste management in Cimahi City. The identified stakeholders were classified into two categories: (1) formal sector (government, NGOs and private ones) and (2) informal sector (not officially registered waste collectors and recycling entities). The stakeholder salience for household solid waste management depends on their type of activities, which were reducing and handling. In the reducing activities, one of the “definitive” stakeholders affiliates to the Ministry of Environment and Forestry. Whilst for the handling activities, the “definitive” stakeholder comes from the municipality of Cimahi City. Understanding the identity and saliency of stakeholders will help develop household solid waste management strategies with circular economy principles.

Keywords Stakeholders analysis · Stakeholders salience · Household solid waste · Waste management

5.1 Introduction

Local governments are facing some serious challenges to solve solid waste management problems in both developed countries (Ehrlich and Ehrlich 1972) and developing countries (Guerrero et al. 2013; Marshall and Farahbakhsh 2013; Suttibak and Nitivattananon 2008). Those challenges come as a combination of the increase in waste volume, landfill space depletion and problems related to gain a new landfill (Suttibak and Nitivattananon 2008). Furthermore, governments have failed to provide adequate solid waste management services because of their lack of capacities to adopt intensive technologies from developed countries (Okumu and Nyenje 2011). In addition to that, financial, social and legislation problems represent some of the main solid waste management issues in the developing countries (Damanhuri 2010; Ernawati et al. 2012; Henry et al. 2006; Okumu and Nyenje 2011).

Indonesia, as most of the developing countries, presents a complex household solid waste management, particularly in big cities such as Jakarta, Bandung, Yogyakarta, Semarang, Surabaya and Medan (Damanhuri 2010 and Ernawati et al. 2012). The Indonesian government realises the importance of an adequate solid waste management for the environment and quality of life. For that reason, the government issued the Solid Waste Management Law No. 18/2008. This law was created after the Leuwigajah dumpsite disaster on the 21st of February 2005, which killed more than 143 people in that area. According to this law, solid waste management activities consist of reduction and handling. Reducing activities include those related to waste generation limitation, recycle and reuse, whereas handling activities consist of separation, collection, transportation, processing and final processing.

Despite the existing legislations, the solid waste management problems in Indonesia are still unresolved. The large dimension of solid wastes reflects those problems. In 2006, the total amount of solid waste reached 38.5 million tons (MoE 2008), and it increased to 178.85 million tons in 2012 (MoE 2013). Kastaman and

Kramadibrata (2007) stated that the main problem of solid waste management in urban areas of Indonesia was inadequate planning, utilisation and participation to handle and manage solid waste and the constraint of activities to enhance solid waste value economically.

On the one hand, Muthmainnah (2007) emphasised the low level of public awareness to participate in solid waste management as one of the failure causes of solid waste management in Indonesia. On the other hand, production and consumption patterns represent a second failure cause because they affect the volume and characteristics of wastes.

There were some studies to address issues of sustainable solid waste management in Indonesia by using various tactics such as the use of clean technologies (Sulistiyorini 2005; Kastaman and Kramadibrata 2007; Damanhuri 2010), social approaches (Muthmainnah 2007; Utami et al. 2008; Budiman, et al. 2013), economic methods (Aye and Widjaya 2005; Sejati 2009) and institutional and legal approaches (Ernawati et al. 2012). Other authors, such as Seadon (2006), stated that the success of solid waste management could be achieved if there were more *change agents* involved along the different phases of the waste management. The change agents come from a different perspective and have the ability to communicate efficiently among different stakeholders. As the result, the identification of crucial stakeholders is important in solid waste management (Seadon 2006). Heidrich et al. in 2009 proposed some of the advantages of including stakeholder analysis in solid waste management such as reduced pollution and disposal cost. These are the result of stakeholders' efforts to redefine priorities and redirect strategies whilst anticipating problems and issues. Stakeholder analysis can be successfully implemented to gain better understanding of stakeholder roles and actions, analysing the driving factors and coordination among stakeholders, as well as the identification of obstacles in communication that affect daily operational or planning strategy (Caniato et al. 2014).

Furthermore, stakeholder analysis provides a basic understanding of important stakeholders' inclination to engage actively in circular economy of waste management. This as part of the argumentation extensively found in literature in relation to the concept of circular economy which represents a convincing strategy to reduce input of raw materials and output of waste in economic and ecological circularity through recycling and reuse (Haas et al. 2015). The implementation of circular economy tenets requires the collaboration of diverse actors within the solid waste management system. Consequently, the involvement of stakeholders is crucial to prevent failure in waste management systems (Caniato et al. 2014). Therefore, it is important to understand the role of stakeholders in household solid waste management. This paper discusses stakeholder identity and saliency theory from Mitchell et al. (1997) to address different attributes of stakeholders and the most prominent stakeholders who have a large impact to solve household solid waste.

The first part of this paper will present the research background of household solid waste management problems in most of the developing countries including Indonesia and reasons to choose the stakeholder identity and saliency theory from Mitchell et al. (1997). Then, this theory will be elaborated in the second part of this

paper. Section 5.3 explains current household solid waste management in Cimahi City. The method of this research is described in Sect. 5.4. Results and discussions are presented in Sect. 5.5. Finally, Sect. 5.6 presents the conclusion of this research.

5.2 Stakeholder Identity and Salience Theory

Stakeholder theory attempts to identify the primary stakeholders that deserve or require managerial attention (Mitchell et al. 1997). There are many definitions of stakeholders, and they often have the same roots as it is stated by Freeman (1984), who defines stakeholders as “any group or individual that affects or is affected by the achievement of the organisation’s objectives”. Clarkson (1995) defines stakeholders as persons or groups that have or claim ownership, rights or interests in a corporation and its activities, past, present or future. Freeman’s definition of stakeholders was one of the broadest definitions in literature, meanwhile Clarkson’s definition was the narrowest one (Mitchell et al. 1997). In fact, there are many definitions of stakeholders, which all lay on the spectrum that exists between broadest and narrowest definitions, and these definitions have been used by Mitchell et al. (1997) to form core attributes of his stakeholder identification model. This model has been applied in this paper.

Stakeholder theory is usually used for corporation management purposes (Heidrich et al. 2009), but some studies used this theory for other fields such as project management (Aaltonen et al. 2008; Achtercamp and Vos 2008), social management (Crane and Ruebottom 2012), agriculture (Hoppe and Sanders 2014), natural environment (Reed et al. 2009) and waste management (Srivastava et al. 2005; Heidrich et al. 2009; Caniato et al. 2014). Although there are some studies about waste management using stakeholder theory, there is little evidence of research carried out to analyse all of the stakeholders engaged in the household solid waste management, particularly in Indonesia. Meanwhile, stakeholders play an important role for sustainable solid waste management (Joseph 2006; Heidrich et al. 2009; Zurbrügge et al. 2012). Hence, it is important to have knowledge of relevant stakeholders and how they might be managed appropriately in the waste management process (Heidrich et al. 2009). Even though it can be difficult to understand the composition and working of different types of stakeholder networks, and the ways their effectiveness can be maximised (Caniato et al. 2015).

Guerrero et al. (2013) described stakeholders as one of those factors which strongly influence the waste management system and are essential for the clear understanding of stakeholder’s responsibilities. By using the stakeholder identity and salience theory developed by Mitchell et al. (1997), three attributes (*power*, *legitimacy*, and *urgency*) which shape the stakeholder’s typology were applied to classify the stakeholders of the household solid waste management in Cimahi City. As indicated by Mitchell, “power” can be defined as the ability possessed by

stakeholders to impose their will on a certain relationship through normative¹, coercive² and utilitarian³ power (Etzioni 1964). The “legitimacy” term was described as the generalised perception or assumption that the actions of an entity are desirable, proper or appropriate within the context of the social system through individual, organisational and societal action. In the case of “urgency”, it is defined as the degree to which a stakeholder claims to have time sensitivity or criticality.

The stakeholder identity and salience theory produced a comprehensive typology of stakeholders and a dynamic model which asserts that stakeholder status is not fixed. It can be changed based on determination of decision-makers (Magness 2007). In accordance to Mitchell et al. (1997), there are eight types of stakeholders, out of which three types of stakeholders (dormant⁴, discretionary⁵, demanding⁶) have only one attribute, three of them (dominant⁷, dangerous⁸, dependent⁹) have two attributes and one of these stakeholders (definitive stakeholders¹⁰) has all **three attributes**. Stakeholders are said to be salient if they have power, legitimacy and urgency attributes at the same time. Stakeholder salience is defined as “the degree to which managers give priority to competing stakeholder claims” (Mitchell et al. 1997). In addition, those stakeholders who have a relationship with the company but do not possess power, legitimacy and urgency are referred as non-stakeholders (type 8).

Later on, Drisscoll and Starik (2004) were widening the categorisation of stakeholders from human to non-human. They added proximity as an attribute that was connected to the near-far, the short-long term and the actual-potential dimensions.

¹Control based on application of physical means is ascribed as *coercive power* (Etzioni 1964).

²The use of material means for controlling purpose constitutes *utilitarian power* (Etzioni 1964).

³The use of symbols for control purposes is referred to as *normative, normative-social* or social power (Etzioni 1964).

⁴Dormant stakeholders possess *power as attribute* to impose their will on the firm, but by not having a legitimate relationship or an urgent claim, their power remains unused (Mitchell et al. 1997).

⁵Discretionary stakeholders possess the *attribute of legitimacy*, but they have no power to influence the firm and urgent claims (Mitchell et al. 1997).

⁶Demanding stakeholders, those with urgent claims (*urgency attribute*) but having neither power nor legitimacy, are the “mosquitoes buzzing in the ears” of managers: irksome but not dangerous, bothersome but not warranting more than passing management attention, if any at all (Mitchell et al. 1997).

⁷Dominant stakeholders: in the situation where stakeholders are both *powerfull and legitimate*, their influence in the firm is assured, since by possessing power with legitimacy, they form the *dominant coalition* in the enterprise (Mitchell et al. 1997).

⁸Dangerous stakeholders: where *urgency and power* characterise a stakeholder who lacks legitimacy, that stakeholder will be coercive and possibly violent, making the stakeholder “dangerous”, literally, to the firm (Mitchell et al. 1997).

⁹Dependent stakeholders, who lack power but who have urgent legitimate claims as dependent (*Urgency and legitimate attributes*), because these stakeholders depend upon others (other stakeholders or the firm’s managers) for the power necessary to carry out their will (Mitchell et al. 1997)

¹⁰Definitive stakeholders: when dominant stakeholder’s claim is urgent, managers have a clear and immediate mandate to attend to and give priority to that stakeholder’s claim. The most common occurrence is likely to be the movement of dominant stakeholder into the “definitive” category (Mitchell et al. 1997).

The “proximity” attribute made the natural environment a primary and primordial stakeholder of corporation. They argued that the stakeholder theory from Mitchell et al. (1997) is still attached to a social paradigm that prioritises economic and political reasons. Therefore, it needed to be enlarged to admit connections between business organisations and ecological systems. Meanwhile, Heidrich et al. (2009) suggested that the term of salience refers to being important. In addition to this, Neville et al. (2011) tried to refine and redefine the stakeholder identification and salience theory with a new category which excluded the urgency attribute in identification of stakeholders. Nevertheless, all different approaches to Mitchell’s theory concluded that the moral legitimacy is the most important thing that applies to stakeholder salience. More importantly, they stated that the salience of a stakeholder would vary according to his/her level of attributes, as well as accuracy in stakeholder identification and stakeholder salience assessment (Neville et al. 2011). Consequently, for this paper, stakeholder identity and salience theory is used as it was developed and defined by Mitchell et al. (1997), in order to provide further understanding about authority and responsibility that should be taken by certain stakeholders in the household solid waste management.

Although Mitchell et al. (1997) had developed eight types of stakeholders. Parent and Deephouse (2007) stated that the most significant in their study were the dominant, dormant or definitive types. The other five types have rarely been used. The most influential attribute to salience was power, followed by urgency and legitimacy. Easley and Lenox (2006) stated that in order to maintain the power, stakeholders need access to resources that are referred by Etzioni (1964) as utilitarian power. Parent and Deephouse (2007) have proposed that there are only three types of stakeholders that are most commonly present in a household solid waste management system. However, this paper focuses more on the identification of roles and attributes of those stakeholders, which have been identified by Mitchell et al. (1997). We believe that the success of household solid waste management depends on stakeholder relationships. This theory can identify the salient stakeholders that have the most influence, to improve the household waste management system, looking in particular to the case in hand: Cimahi City, West Java Province, Indonesia.

5.3 Household Solid Waste Management in Cimahi City

Indonesia is the fourth most populous country in the world with 248,818,100 inhabitants in the year 2013 (BPS-Statistics Indonesia 2014). 57.5% of the population lives on the island of Java. West Java Province is the most populous province in Indonesia having 43,053,700 inhabitants, which correspond to 18.11% of the total population in Indonesia (BPS-Statistics Indonesia 2014). As one of the developing countries with a dense population, Indonesia has a complex solid waste management situation, particularly in big cities such as Jakarta, Bandung, Yogyakarta, Semarang, Surabaya and Medan (Damanhuri 2010 and Ernawati et al. 2012).

Cimahi is the only city in Indonesia that comprises three sub-districts and ranks second in West Java Province as the most densely populated city with 13,859 inhabitants/km² of urban density (BPS of West Java Province 2014). Cimahi is 40.25 hectares wide; 40% of the land in Cimahi belongs to the military and cannot be utilised by others institutions, communities or corporations. Cimahi has more than 600,000 inhabitants and 130 formal industries that have to share the 60% of the remaining land. Industrial activities are dominated by textile, foods and leather processing industries. Consequently, Cimahi is facing serious environmental problems including household solid waste generation, particularly after the Leuwigajah dumpsite disaster on 21 February 2005. This disaster occurred after a large slide of waste hit villages nearby and buried 71 houses and killed 143 people. It happened because of poor solid waste management. Since that disaster, Cimahi does not have a landfill to manage its own waste any more. To date, Cimahi has been delivering its waste to Sarimukti dumpsite, West Bandung Regency. The distance of the dumpsite is approximately 33 km from Cimahi, and this dumpsite can be used only temporarily. The land belongs to Perum Perhutani (a stated-owned company to manage Indonesian forestry). The contract with Perum Perhutani will end in 2017, and the main reason for this is the limited capacity of the Sarimukti dumpsite.

Therefore, the dumpsite area will move to Legok Nangka, Garut Regency, within approximately 45 km from Cimahi. As a result, the cost of waste management in Cimahi will increase because the provincial government of West Java has appointed the Legok Nangka dumpsite as regional landfill for four regencies and cities in West Java (Cimahi City, Bandung City, Bandung Regency and Bandung Barat Regency). In addition, the West Java government announced Legok Nangka as the last possible land to become dumpsite area. For that reason, the West Java Province coordinates with the local government in Bandung City, Bandung Regency, Bandung Barat Regency and Cimahi City for waste reduction and handling. As for the waste-reducing activities, the Cimahi government enforces a 3R approach (Reduce, Reuse and Recycle) which still has not shown significant results as can be observed from data of waste generation in Cimahi City. In 2007, the population in Cimahi was 536,743 inhabitants and the amount of waste was 1381.28 m³/day (SLHD 2008). In 2011, the population in Cimahi had risen to 612,168 inhabitants, whilst the amount of waste was 1407 m³/day (SLHD 2011). Meanwhile, in waste-handling activities, Cimahi is still using a “linear” collect-transport-dispose system, and it still relies on domestic waste transport fleets. This system is known as the conventional waste management system (Kastaman and Kramadibrata 2007). According to data from the environmental ministry (MoE 2013), more than 50% of solid waste came from household wastes, and it could not be handled properly. The solid waste volume in Indonesia was estimated to be 1 million cubic metre per day, but only 42% of it was transported and processed properly.

Figure 5.1 shows the household solid waste management system in almost all districts and cities in Indonesia, including Cimahi City. The household solid waste handling can be done in three different ways. The first way is that the household solid waste that has been collected is transported by open waggons to temporary dumpsites and transported by trucks to be dumped directly into the final dumpsite.

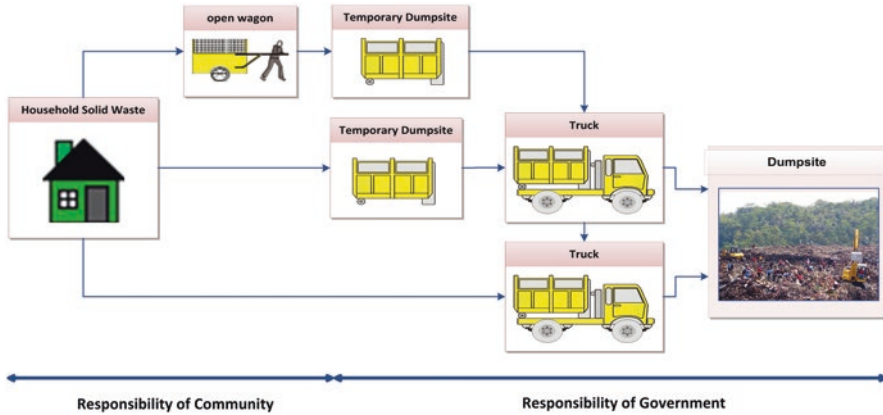


Fig. 5.1 Household solid waste management in most of Indonesian regencies/cities. (Adapted from Cimahi City Government report)

Secondly, the household solid waste is directly collected in the temporary dumpsites and transported by trucks into the final dumpsite area. The third way is that the household solid waste that has been collected is directly transported by trucks to be dumped into the final dumpsite without passing through temporary dumpsites. Transporting household solid waste from households to temporary dumpsites is the responsibility of communities, whilst transporting household solid waste from temporary dumpsites into the final dumpsite is the responsibility of the districts/cities. The procedure of household solid waste transport has been regulated by the Ministry of Interior No. 33/2010, on guidelines for solid waste management and regional regulation of Cimahi City No.16/2011 about waste management.

Prior to 2001, solid waste management responsibilities mostly were distributed among some departmental and central governments. After decentralisation, local government obtained a greater role and responsibility than the central government in household solid waste management. According to Bruce and Storey (2010), waste management in Indonesia as it has been decentralised provides an opportunity to resolve the problem locally. But, it also opens up the problem of limited capacity, resources and inability to perform coordination among districts/cities and other institutions. The Law No. 18/2008 on waste management has granted greater autonomy and scope to local and regional governments, private entities and communities to manage their own waste systems. Although to date, reviews on the division of responsibility emphasise more the confusion and conflict on the responsibilities and resources (Bruce and Storey 2010). The problem that usually arises in the relationship between the stakeholders includes issues about the division of authority between local, regional and national levels, government and society, government and business or the government and the informal sector (scavengers, waste dealers).

5.4 Methodology

This research utilised a qualitative method approach and a literature review. The qualitative method is used to explore and to gain good understanding of household solid waste management problems, as mentioned by Creswell (2002). Data collection was done by in-depth interviews, non-participant's observations and reading documentation. The informants were selected by a purposive sampling technique. The aim of this technique is to describe the heterogeneity of communities, in this case the stakeholders, resulting in more variation of possibilities in developing conclusions based on different settings or individual opinions. In addition, various informational sources, i.e. official documents, books and peer-reviewed journals, were consulted.

In order to facilitate the description of the household solid waste management stakeholders in Cimahi, two categories were created, those who belonged to the formal sector and those belonging to the informal sector. According to Bruce and Storey (2010), the formal sectors are the government and listed companies that usually serve as a regulator and official provider of waste management services. The informal sector usually is dominated and motivated by market-driven and economic factors for performing the necessary resource recovery and collection services. For the purpose of this research, stakeholders from the formal sector consist of governmental groups, NGOs and the private sector (corporation and recycling companies with permission from the government), whilst the informal sector of stakeholders corresponds to public and waste management small businesses that do not have official registration.

The stakeholder selection in previous studies usually depended on the choice of researchers. Therefore, to ensure that all stakeholders are identified, this study followed the method performed by Parent and Deephouse (2007) that allows managers to evaluate overall stakeholder issues. Parent and Deephouse (2007) found that the role and position of the interviewee in the organisational structure affect the identification of stakeholders. Top managers typically provided a wider range of stakeholders. Consequently, various stakeholders have been interviewed.

The data were analysed by using the Miles and Huberman model (1984). According to it, data analysis included (1) data reduction, (2) data display and (3) conclusion drawing/verification. Data reduction can be defined as the process of selecting, focusing, simplifying, abstracting and transforming the data into transcription or written field notes. As the data collection process proceeds, the data reduction continues as well. After the fieldwork, the data collection keeps proceeding until a final report is formed. Data display is referred as the organisation and compression of information, which allows the drawing of conclusions and possibly proposing some specific actions. The conclusions are verified as the analyst proceeds. In this study, data analysis began when the interviews were started and continued after they were done. During interviews, informants' answers were analysed and crosschecked. This process continued until there was no additional data included.

This research was conducted in Cimahi City, West Java Province, Indonesia. The location was chosen because of its complex environmental problems.

5.5 Relevant Findings and Discussion

The Law No. 18/2008 on waste management regulates roles, obligations and rights of each stakeholder related to waste management, namely, the central government, the provincial government, the local government, the private sector and communities. These stakeholders are enlisted in Tables 5.1 and 5.2. This law also states that the waste management activities consist of waste reducing and handling. Based on Law No. 33/2012 about regional authority, the solid waste problem affairs are governed by the environmental and public departments of all government levels (local, central and provincial). In fact, solid waste affairs are a matter of the joint collaboration among the Ministry of Interior, the Ministry of Trade and Industry, the Ministry of Environment and Forestry and the Ministry of Public Works at the central level. Each of the mentioned ministries issues regulation on household solid waste management, and those are expected to be implemented at provincial and local level. At the provincial level, there are the Regional Environmental Protection Board (BPLHD) and the Housing and Settlement Department (Diskimrum). At the local level, the involved stakeholders can be different depending on the district and the city itself. In Cimahi, the involved stakeholders are the Cleanliness and Landscape Department (DKP), the Planning Agency (Bappeda) and the Environmental Agency of Cimahi City (KLH). In addition, the private sectors, NGOs and informal sectors play an important role in household solid waste management.

The involvement of various stakeholders causes problems related to the division of authority among them. Therefore, it is important to identify the involved stakeholders in reducing and handling waste management activities in both the formal sectors and the informal sectors. Furthermore, this study is focused on salient stakeholders in order to seek the promoters and coordinating actors who can improve the household solid waste management problems in Cimahi. The early stage of this study indicated that the attributes of stakeholders of household solid waste management vary depending on the two main waste management activities stated in the Indonesian law: reducing and handling.

Table 5.1 shows the identity and salience of involved stakeholders in waste-reducing activities. The definitive stakeholder in this activity based on Law No.18/2008 should be the Ministry of Environment and Forestry, whilst other governmental institutions qualify as dominant stakeholders. Seadon (2006) proposed that the overall responsibility for solid waste management processes should lie on the government since they are the prime change enablers. However, in reality, most governments are (just) dominant stakeholders. This is because there are conflicts of responsibility among local, provincial and central governments. Based on interviews, each of the governmental institutions pointed to another institution as the one who has greater responsibilities! For instance, local government expected instructions and support (financial, technical and also material) from provincial government to start waste-reducing programmes. In contrary, the provincial government indicated that the central government (the Ministry of Environment and Forestry) is the most responsible stakeholder. But the central government mentioned

Table 5.1 Stakeholders identity and salience for reducing activities in household solid waste management (formal sectors)

No	Stakeholders	Roles	Power (dormant)		Legitimacy (discretionary)		Urgency (demanding)		Power + legitimacy (dominant)	Power + urgency (dangerous)	Legitimacy + urgency (dependent)	Power + legitimacy + urgency (definitive)
			C ^a	U ^b	N ^c	I ^d	O ^e	S ^f				
A. Formal sectors												
I. Government												
National government authority												
	1.1.	Determine national policies and strategies in solid waste management (Law No. 18/2008; Bruce and Storey 2010)										
	1.2.	Determine norms, standards, procedures and criteria in solid waste management (Law No. 18/2008; Bruce and Storey 2010)										
	1.3.	Facilitating and developing interregional cooperation, partnership and networking in solid waste management (Law No. 18/2008; Bruce and Storey 2010)										
	1.4.	Provide coordination, coaching and monitoring of local government performance in solid waste management (Law No. 18/2008; Bruce and Storey 2010)										
	1.5.	Determine policies for interregional disputes and solutions in solid waste management (Law No. 18/2008; Bruce and Storey 2010)										
	Ministry of Environment and Forestry	Officially										
		Point 1.1, 1.3, 1.4 and 1.5	√					√				√
		Practically										
		Point 1.1, 1.3, 1.4 and 1.5							√			
	Ministry of Public Works	Officially										
		Point 1.2 and 1.4	√						√			
		Practically										
		Point 1.2 and 1.4		√								
		Point 1.2 and 1.4	√						√			

(continued)

Table 5.1 (continued)

No	Stakeholders	Roles	Power (dormant)			Legitimacy (discretionary)			Urgency (demanding)		Power + legitimacy (dominant)	Power + urgency (dangerous)	Legitimacy + urgency (dependent)	Power + legitimacy + urgency (definitive)
			C ^a	U ^b	N ^c	I ^d	O ^e	S ^f	TS ^g	C ^h				
	Ministry of Trade and Industry	Officially												
		Point 1.2		√			√			√				
		Practically												
		Point 1.2		√			√			√				
	Provincial government authority													
	1.1. Determine provincial policies and strategies in line with national government policies (Law No. 18/2008; Bruce and Storey 2010)													
	1.2. Facilitate intra-provincial cooperation, partnership and networking (Law No. 18/2008; Bruce and Storey 2010)													
	1.3. Monitor and support local district and municipality governments in waste management (Law No. 18/2008; Bruce and Storey 2010)													
	1.4. Facilitate intra-provincial dispute solution (Law No. 18/2008; Bruce and Storey 2010)													
	Regional Environmental Protection Board of West Java Province	Officially												
		Point 1.1, 1.2, 1.3 and 1.4		√			√			√				
		Practically												
		Point 1.1, 1.2, 1.3 and 1.4		√			√			√				
	Housing and Settlement Department of West Java Province	Officially												
		Point 1.2, 1.3 and 1.4		√			√			√				
		Practically												
		Point 1.2, 1.3 and 1.4		√			√			√				

Table 5.1 (continued)

No	Stakeholders	Roles	Power (dormant)			Legitimacy (discretionary)		Urgency (demanding)		Power + legitimacy (dominant)	Power + urgency (dangerous)	Legitimacy + urgency (dependent)	Power + legitimacy + urgency (definitive)
			C ^a	U ^b	N ^c	I ^d	O ^e	S ^f	TS ^g				
3. Private sector													
	3.1. Producer required to manage the packaging and/or product which cannot or is difficult to decompose by natural processes (Law No. 18/2008)												
	3.2. Any person who carries on business in waste management are required to have a permit from the head of the region (Law No. 18/2008)												
	Corporation	Officially											
		Point 3.1				√		√				√	
		Practically											
		Point 3.1				√							
	Formal recycler industries	Officially											
		Point 3.2				√		√				√	
		Practically											
		Point 3.2				√				√			
4. Communities													
	4.1. Reduce and handle waste in environmentally friendly manner (Law No. 18/2008)												
		Officially											
		Point 4.1				√				√			
		Practically											
		Point 4.1								√			

^aCoersive
^bUtilitarian
^cNormative
^dIndividual
^eOrganisational
^fSocial
^gTime sensitivity
^hCritically

that provincial and local governments are the main stakeholders to carry out these activities. Even though, they admitted the obligation of the ministry to provide law and enforcement instruments for reducing waste generation from goods manufacturing companies, but they have limitations to enforce the law themselves due to political, financial, technological and social problems.

Furthermore, due to the DKP mandate, it should be a dominant stakeholder, but it is now becoming a dependent stakeholder due to its financial, technological and human resource constraints. DKP needs to rely on other stakeholders, such as the central government and the provinces. KLH is supposed to be a dominant stakeholder, as well, though at present this institution has become a discretionary stakeholder because it has legitimacy but lack of power and urgency. In addition, some of the KLH functions can be transferred to the Planning Agency (Bappeda). This happens because Bappeda has a utilitarian power (see Section 5.2) that according to Parent and Deephouse (2007) has a greater effect on the saliency.

The NGOs that are involved in waste-reducing activities are dominant stakeholders because they have power and legitimacy. Officially, NGOs have normative power, but practically, they have utilitarian power due to material support. Private sector companies are divided into corporations and formal recycling companies that should be a dependent stakeholder. This is because, and to some extent, they still require assistance from the government to implement the waste reduction methods. However, at present the corporations are discretionary stakeholders because they only have legitimacy. They do not use their power and exclude their urgency in waste management. The formal recycling companies are a dominant stakeholder because they have power to regulate and set the price of recycled goods which can be used for their companies. The community members, as established by the Law No. 18/2008, should be the dominant stakeholders in reduction of household solid waste management because they represent the major source of the waste. Their consumption patterns cause the solid waste generation (Muthmainnah 2007; Falasca-Zamponi 2011). Nevertheless, the community is categorised as a discretionary stakeholder because of the lack of participation and public awareness in the management of household waste (DKP, Cimahi 2014).

Whilst Table 5.1 showed the stakeholders in waste reduction, on the other hand, Table 5.2 displays the identity and saliency of involved stakeholders in waste-handling activities. The involved stakeholders in these activities are both formal and informal sectors. DKP should be considered as a definitive stakeholder, but now, DKP is a dependent stakeholder. It is because DKP still relies on other stakeholders including Bappeda, which has the authority to establish the work, to develop the programmes and to allocate budgets for DKP. Bappeda is categorised as a dominant stakeholder, but practically, it becomes a definitive stakeholder due to its authority to set development planning programmes for other departments. They have capacity to insert or remove the programmes that will be implemented. Mitchell et al. (1997) mentioned that a stakeholder exhibiting both power and legitimacy could be moved from the category of dominant stakeholder to definitive stakeholder when such stakeholder's claim is urgent. Managers have a clear and immediate mandate to attend to, and they give priority to that stakeholder's claims.

Table 5.2 Stakeholders identity and salience for handling activities in household solid waste management (formal and informal sectors)

No	Stakeholders	Roles	Power (Dormant)		Legitimacy (Discretionary)			Urgency (Demanding)		Power + Legitimacy (Dominant)	Power + Urgency (Dangerous)	Legitimacy + Urgency (Dependent)	Power + Legitimacy + Urgency (Definitive)
			C	U	N	I	Or	S	TS				
A. Formal Sectors													
1. Government													
National Government Authority													
1.1 Determine national policies and strategies in solid waste management (Law No. 18/2008; Bruce and Storey, 2010)													
1.2 Determine norms, standards, procedures and criteria in solid waste management (Law No. 18/2008; Bruce and Storey, 2010)													
1.3 Facilitating and developing inter-regional cooperation, partnership, and networking in solid waste management (Law No. 18/2008; Bruce and Storey, 2010)													
1.4 Provide coordination, coaching and monitoring of local government performance in solid waste management (Law No. 18/2008; Bruce and Storey, 2010)													
1.5 Determine policies for inter-regional disputes solutions in solid waste management (Law No. 18/2008; Bruce and Storey, 2010)													
Ministry of Environmental and Forestry	Officially												
	Point 1.1, 1.3, 1.4 and 1.5		√						√				
	Practically												
Ministry of Public Work	Point 1.1, 1.3, 1.4 and 1.5								√				
	Officially												
	Point 1.2 and 1.4		√						√				
Practically													
Point 1.2 and 1.4		√							√				
Provincial Government Authority													
1.1 Determine provincial policies and strategies in line with national government policies (Law No. 18/2008; Bruce and Storey, 2010)													
1.2 Facilitate intra-provincial cooperation, partnership and networking (Law No. 18/2008; Bruce and Storey, 2010)													
1.3 Monitor and support local district and municipality governments in waste management (Law No. 18/2008; Bruce and Storey, 2010)													
1.4 Facilitate intra-provincial dispute solution													

Table 5.2 (continued)

No	Stakeholders	Roles	Power (Dormant)			Legitimacy (Discretionary)			Urgency (Demanding)			Power + Legitimacy (Dominant)	Power + Urgency (Dangerous)	Legitimacy + Urgency (Dependent)	Power + Legitimacy + Urgency (Definitive)
			C	U	N	I	Or	S	TS	Cr					
2. Non-Governmental Organizations (NGOs)-Local Level															
2.1. Any person in household solid waste management shall reduce and handle waste in environmentally friendly manner (Law No. 18/2008)															
		Officially													
		Point 2.1			√		√					√			
		Practically													
		Point 2.1				√		√				√			
3. Communities															
3.1. Reduce and handle waste in environmentally friendly manner (Law No. 18/2008)															
		Officially													
		Point 4.1						√	√					√	
		Practically													
		Point 4.1							√						
B. Informal Sectors															
1. City's waste manager															
		Practically													
		Waste handling operators													
		Waste recyclable collectors											√		

Bappeda has used its authority to claim the urgency and has been categorised as a definitive stakeholder. The NGOs and the communities have both some attributes that help them to be involved in the reduction and handling of solid waste by advocating government policy and supporting government programmes to minimise waste generation.

The informal sector consists of a city's waste manager, informal waste collectors and informal recycling companies. The city's waste manager represents a demanding stakeholder because they only have the urgency attribute when they are unable or unwilling to acquire either the power or the legitimacy necessary to move their claim into a more salient status (Mitchell et al. 1997). They are assigned to collect solid waste from households, streets and shopping and trade centres which is then dumped to the temporary dumpsite. Before the disposal of household solid waste to the temporary dumpsite, the marketable goods are taken out which helps in the generation of additional income. This act is not considered as an illegal one in Indonesia since it is beneficial in a way that it helps in the reduction of the waste, which is then sent to the final dumpsite (Damanhuri 2009).

Informal waste collectors are also categorised as a demanding stakeholder because they do not have power and legitimacy, but their presence in the waste-handling activities is crucial. The informal recycling industry is assessed as dangerous stakeholder because it has a utilitarian power and urgency in most of the cases. They are a dangerous stakeholder because they can obstruct government programmes to reduce solid waste generation. For example, a restriction by government to use plastic bags will threaten the continuity of their company because it reduces input of recycled plastics that normally are used as raw material. As for the informal companies, they also have the ability to determine the price of incoming goods. These types of small companies are categorised as informal because they do not register to the Industrial Chamber and do not pay taxes. The owners of informal companies believe that becoming a part of the formal sector is not easy and it brings inconvenience. Some of the barriers to registration are the procedural difficulties, costs and requirements to fulfil the registration processes (Bruce and Storey 2010).

Based on the above discussion, it can be observed that stakeholders, who are involved in the household solid waste management in Cimahi, are different regarding the waste management activities: reduction and handling. This is because for the managing of solid waste, the government has created legislation that has divided the managerial authority among central, provincial and local governments. This has directly affected the government's performance in solid waste management, especially by lowering the priority in handling waste due to financial problems and by the occurrence of locality ego-centrism, which creates difficulties for local governments to operate landfills that are situated in the areas outside their jurisdiction, as it has mentioned by Damanhuri (2008). In addition to it, there are conflicts among stakeholders on using their authorities or as it was called by Bruce and Storey (2010) "implementation confusions" among stakeholders. Furthermore, there is still a huge gap between human resource competencies and requirement

competencies in Cimahi, which was a similar result compared to the study carried out by Herayani (2011).

Furthermore, the results of this study show that a majority of the stakeholders are dominant, dependent and definitive. This contradicts the findings of Parent and Deephouse (see Sect. 5.2). This is because stakeholder attributes are not fixed and they can be changed by particular entity or determination from decision-makers (compare Mitchell et al. 1997; Magness 2007). Besides that, the most influential factor to cause saliency in household solid waste management in Cimahi is utilitarian power. According to Etzioni (1964), stakeholders need access to resources in order to maintain their power. Therefore, NGOs and Bappeda represent those stakeholders that have used utilitarian power to claim their attributes. NGOs have material supports as utilitarian power, whilst Bappeda has utilitarian power to set goals in development planning programmes for other departments.

The determination of stakeholder's identity and salience is very important when there are multi-stakeholders' activities. This classification can shed light on those stakeholders who can have strong influence over the processes needed for the solution of a problem, the waste management in Cimahi, in this particular case. Even further, if the efforts of one of the stakeholders fail along the process, its impact might produce different damage levels (Clarkson 1995). After analysis of the current stakeholder's constellation of household waste management in Cimahi, some of the highlighted results imply that intervention of the Ministry of Environment and Forestry is very important to boost waste reduction activities. They should become a salient stakeholder who can be able to integrate all of stakeholders that are involved in household solid waste management, as well as to govern and define their roles to minimise conflicts among stakeholders. On the other hand, for the solid waste-handling activities, the intervention of DKP and community participation can improve the waste management system in Cimahi. DKP can provide an adequate technology to handle household solid waste generations, whilst the community can pay retribution as a passive participant to support government financially or by participating actively to reduce, reuse and recycle household solid waste.

However, household solid waste-handling cannot be seen apart from other economic activities. As long as production and consumption continue without closed cycles, solid wastes generation will still exist. Therefore, it is necessary to look for some ways to solve solid waste generation problem, one is by circulating the solid wastes before they are mixed up. Reducing and handling activities are part of material flows which after disposal are available to circulate (reuse or recycle) within the socioeconomic system (Haas et al. 2015). Scheepens et al. (2016) said that the introduction of the circularity in complex systems in a truly circular economy can take several years and that its promotion and coordination rely on the government role who needs to be a reliable stakeholder in the long term. Consequently, it is important to know stakeholders' identity and salience to boost household solid waste management.

5.6 Conclusions

The analysis of stakeholders' identity and saliency helps in pointing out the features of those stakeholders who can play an important role to solve household solid waste management problems in Indonesia, particularly in Cimahi City, West Java Province. The stakeholders of the waste management system in Cimahi are identified and divided based on two activities, reduction and handling. The reduction activities are carried out by stakeholders who belong to the formal sector, whilst in handling activities, the stakeholders come from both the formal and the informal sectors. This research was carried out under the assumption that conflicts in household solid waste management can be solved with the intervention of salient stakeholders. It can be concluded that in reducing activities, the involved stakeholders are representatives of governments, corporations, formal recycling industries, NGOs and communities. Even further, according to Mitchell's theory, the Ministry of Environment and Forestry can be qualified as the salient stakeholder. In handling activities, involved stakeholders correspond to formal sector groups, which are governments, NGOs and communities. Whilst for informal sector groups, the city's waste manager, informal waste collectors and informal recycling companies are identified as stakeholders who are involved in household solid waste management. The most salient stakeholder in this activity is DKP. The stakeholder's attributes are mostly dominant, dependent and definitive types, and utilitarian power is the most influential to saliency.

The stakeholder identity and saliency theory has potency to understand managerial-stakeholder relationships and the identification of most prominent stakeholders in household solid waste management. Since solid waste management has an additional economic value in material circularity, therefore describing stakeholder activities is required for the transition towards sustainable business models in circular economy, and the government should be a reliable stakeholder (Scheepens et al. 2016). Moreover, strong government policies to mainstream circular business are crucial to reap the benefits of circular economy. However, this paper only provides stakeholder identity and saliency that can be used to boost waste management in line with the circular economy principles. Hence, further research is foreseen to be carried out to elaborate more on the stakeholder identity and saliency under circular economy principles.

In Indonesia, the stakeholder identity and saliency for household solid waste management can be different in each city and district. This is because decentralisation legislation has allowed local governments to govern their own cities and districts. However, based on Law No. 33/2012 about regional authority, the affairs of the solid waste management problems are governed by the environmental and public works departments. Hence, the Ministry of Environment and Forestry should be a salient stakeholder to integrate all of stakeholders from local to national level, as well as to govern and define their roles. Consequently, conflicts of authority among stakeholders can be minimised, and household solid waste management in Indonesia can be improved.

References

- Aaltonen K, Jaakko K, Tuomas O (2008) Stakeholder salience in global project. *Int J Proj Manag* 26:509–516
- Achtercamp MC, Vos JFJ (2008) Investigating the use of the stakeholder notion in project management literature, a meta-analysis. *Int J Proj Manag* 26:749–757
- Aye L, Widjaya ER (2005) Environmental and economic analyses of waste disposal options for traditional markets in Indonesia. *Waste Manag J* 26(10):1180–1191
- BPS of West Java Province (2014) Jawa barat in figures 2014, Bandung, p 558
- BPS-Statistics Indonesia (2014) Statistical yearbook of Indonesia 2014, Jakarta, p 676
- Budiman AR, Saam Z, Thamrin (2013) Participation and perception of communities in attempt to maintain, manage environment and defend clean city award. *Journal of Ilmu Lingkungan* 7(2):103–113
- Bruce A, Storey D (2010) Networks of waste: informal economic systems and sustainability in Bali, *Indonesia*. *Local Economy Journal* 25(3):176–189
- Caniato M, Vaccari M, Visvanathan C, Zurbrügg C (2014) Using social network and stakeholder analysis to help evaluate infectious waste management: a step towards a holistic assessment. *Waste Management Journal* 34:938–951
- Caniato M, Tudor T, Vaccari M (2015) Understanding the perceptions, roles and interactions of stakeholder networks managing health-care waste: a case study of the Gaza strip. *Waste Management Journal* 35:255–264
- Clarkson MBE (1995) A stakeholder framework for analyzing and evaluating corporate social performance. *Acad Manag Rev* 20(1):92–117
- Crane A, Ruebottom (2012) Stakeholder theory and social identity: rethinking stakeholder identification. *Business Ethics Journal* 102:77–87
- Creswell JW (2002) *Research design: qualitative, quantitative and mixed method approaches*. Sage Publications, Thousand Oaks/London/New Delhi, p 246
- Damanhuri E (2008) A future prospect of municipal solid waste management in Indonesia. Keynote lecture to the 5th Asian-Pacific Landfill symposium in Sapporo, Japan, October 22(Wed)–24(Fri), 2008
- Damanhuri E (2009) Informal collectors of recyclable waste and used goods in Indonesia. in 3R policies for Southeast and East Asia. ERIA Research Project Report 2009, No. 10. p 318
- Damanhuri E (2010) Solid and hazardous waste management in Indonesia. A paper. Bandung DKP Cimahi City (2014) Waste management study of Cimahi City 2014. Cimahi
- Drisscoll C, Starik M (2004) The primordial stakeholder: advancing the conceptual consideration of stakeholder status for the natural environment. *J Bus Ethics* 49:55–73
- Ernawati D, Budiastuti S, Masykuri M (2012) Analisis komposisi, jumlah dan pengembangan strategi pengelolaan sampah di wilayah pemerintah Kota Semarang berbasis analisis SWOT. *Ekosains Journal* IV(2):13–22
- Ehrlich RP, Ehrlich AH (1972) *Population resources environment*. Issues in human ecology. W. H Freeman and Company, San Francisco, p 509
- Eesley C, Lenox MJ (2006) Firm responses to secondary stakeholder action. *Strateg Manag J* 27:765–781
- Etzioni A (1964) *Modern organizations*. Prentice-Hall, Inc, Englewood Cliffs, p 120
- Falasca-Zamponi S (2011) *Waste and consumption: capitalism, the environment, and the life of things*. Routledge, New York, p 65
- Freeman RE (1984) *Strategic management. A stakeholder approach*. Pitman Publishing Inc, Marshfield/London, p 276
- Guerrero LA, Maas G, Hogland W (2013) Solid waste management for cities in developing countries. *Journal of Waste Management* 33:220–232
- Haas W, Krausmann F, Wiedenhofer D, Heinz M (2015) How circular is the global economy?. An assessment of material flows, waste production, and recycling in the European Union and the world in 2005. *J Ind Ecol* 00(0):1–13

- Heidrich O, Harvey J, Tollin N (2009) Stakeholder analysis for industrial waste management systems. *Journal of waste management* 29:965–973
- Henry RK, Yongsheng Z, Jun D (2006) Municipal solid waste management challenges in developing countries-Kenyan case study. *Jurnal Waste Management* 26:92–100
- Herayani FA (2011) Competency based human resources development analysis Bidang Kebersihan Dinas kebersihan dan Pertamanan Kota Cimahi Thesis Sekolah Tinggi Ilmu Administrasi Negara-Lembaga Administrasi Negara Bandung, p 228
- Hoppe T, Sanders MPT (2014) Agricultural green gas demonstration projects. In the netherlands. A stakeholder analysis. *Environ Eng Manag J* 13(12):3083–3096
- Joseph K (2006) Stakeholder participation for sustainable waste management. *Habitat Int* 30:863–871
- Kastaman R dan Kramadibrata AM (2007) Integrated solid waste silarsatu reactor management system. LPM Universitas Padjadjaran, Bandung, p 167
- Magness V (2007) Who are the stakeholders now? An empirical examination of the Mitchell, Agle, and wood theory of stakeholder salience. *J Bus Ethics* 83:177–192
- Marshall RE, Farahbakhsh K (2013) Systems approaches to integrated solid waste management in developing countries. *Journal of Waste Management* 33:988–1003
- Ministry of Environment (MoE) (2008) Domestic solid waste statistic of Indonesia 2008. Jakarta, p 23
- Ministry of Environment (MoE) (2013) State of the environment report Indonesia 2012. Pillars of the environment of Indonesia. Jakarta, p 292
- Mitchell RK, Agle BR, Wood DT (1997) Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts. *Acad Manag Rev* 22(4):853–886
- Muthmainnah L (2007) Menggugah partisipasi dan membangun sinergi: upaya bergerak dari stagnasi ekologis pengelolaan sampah (evocative participation and build synergy: an attempt to move from ecological stagnation waste management). *Ilmu Sosial dan Ilmu Politik J* 11(2):153–286
- Neville BA, Bell SJ, Whitwell GJ (2011) Stakeholder salience revisited: refining, redefining, and refueling an underdeveloped conceptual tool. *J Bus Ethics* 102:357–378
- Okumu JO, Nyenje R (2011) Municipal solid waste management under decentralization in Uganda. *Jurnal Habitat International* 35:537–543
- Parent MM, Deephouse DL (2007) A case study of stakeholder identification and prioritization by managers. *J Bus Ethics* 75:1–23. <https://doi.org/10.1007/s10551-007-9533-y>
- Reed MS, Graves A, Dandy N, Posthumus H, Hubacek K, Morris J, Prell C, Quinn CH, Stringer LC (2009) Who's in and why? A typology of stakeholder analysis methods for natural resource management. *J Environ Manag* 90:1933–1949
- Scheepens AE, Vogtländer JG, Brezet JC (2016) Two Life Cycle Assessment (LCA) based methods to analyse and design complex (regional) circular economy systems. Case: making water tourism more sustainable. *J Clean Prod* 114:257–268
- Seadon JK (2006) Integrated waste management-looking beyond the solid waste horizon. *Waste Management Journal* 26(12):1327–1336
- Sejati K (2009) Integrated solid waste management using node, sub point, centre point system. Kanisius, Yogyakarta, p 88
- SLHD (2008) Status lingkungan hidup daerah Kota Cimahi tahun 2008 (Regional environmental status of Cimahi City 2008), Cimahi
- SLHD (2011) Status lingkungan hidup daerah Kota Cimahi Tahun 2011 (Regional environmental status of Cimahi City 2011), Cimahi
- Srivastava PK, Kulshreshtha K, Mohanty CS, Pushpangadan P, Singh A (2005) Stakeholder-based SWOT analysis for successful municipal solid waste management in Lucknow, India. *Waste Manag J* 25:531–537
- Sulistiyorini L (2005) Pengelolaan sampah dengan cara menjadikannya kompos (Waste management by making compost). *Kesehatan Lingkungan Journal* 2(1):77–84

- Suttibak, Samonporn dan Vilas Nitivattananom (2008) Assessment of factors influencing the performance of solid waste recycling programs. *J Resour Conserv Recycl* 53:45–56
- Utami BD, Indrasti NS, Dharmawan AH (2008) Household solid waste management based on community: example from two communities in Sleman and Jakarta Selatan. *J Trandisiplin Sosiologi, Komunikasi, dan Ekologi Manusia*:40–68
- Zurbrügg C, Gfrerer M, Ashadi H, Brenner W, Küper d D (2012) Determinants of sustainability in solid waste management – the gianyar waste recovery project in Indonesia. *Waste Manag* 32:2126–2133