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Waste Management and Corporate Sustainability Performance: The Mediating Role of Islamic Work Ethics

Salina Daud *, and Maryam Jamilah Asha'ari **

*Universiti Tenaga Nasional, 26700 Muadzam Shah **

*Universiti Tenaga Nasional, 43009, Kajang, Selangor***

Abstract: Manufacturing organizations face sustainability issue which leads manufacturers to realize the importance of achieving corporate sustainability performance. Waste management practices along with good Islamic work ethics provide guidelines for employees in sustaining the organization in a sustainable manner. The objective of this paper is to examine the effect of waste management on corporate sustainability performance with the mediating role of Islamic work ethics. Questionnaires have been distributed to the employees from middle to top level management in chemical manufacturing organization. The findings indicate that there is a positive effect of waste management on corporate sustainability performance. The findings also show that Islamic work ethics mediate the relationship between waste management and corporate sustainability performance. This study contributes to the body of knowledge on sustainable manufacturing by identifying the influence of Islamic work ethics as a mediator between waste management and corporate sustainability performance. This study also guides employees in achieving corporate sustainability performance by the implementation of waste management along with good Islamic work ethics in the workplace.

Keywords: *Waste management, Islamic work ethics, corporate sustainability performance, manufacturing organization.*

Introduction

Businesses not only give positive impact to the development of Malaysia but also give negative impact to the environment. Malaysia like other nations, is struggling with the need to balance the demand of growing population with natural environment that has many issues (Plan, 2015). Many developing countries are facing development problem due to the economic, social and ecological hazard from climate change, extreme weather, energy, food and water uncertainty (OECD, 2012). In the context of Malaysia, it is facing a dilemma between focusing on the growth of economy while preserving the environment like other developing countries (Plan, 2015; Yatim, Mamat, Mohamad-Zailani, & Ramlee, 2016). Accordingly, the Malaysian government has highlighted the importance of waste management in achieving corporate sustainability performance along with the practices of good ethics.

Sheopuri and Sheopuri (2015) stated that a powerful green sense of responsibility and social conscience have to be developed by the organizations that realized the importance of being green. The solution for global economic crisis lies in work ethics that must be instilled in organizational culture in order to achieve sustainable business performance (A. S. Abbasi, Rehman, & Bibi, 2011). In today's challenging world, success is no longer

measured by short-term profit maximization, and to be seen as sustainable, Islamic work ethics must be integrated into decision making and strategy in achieving sustainability (Abdelzaher, Kotb, & Helfaya, 2016; Abdul Aris et al., 2016). Thus, the objective of this study is to examine the effect of waste management on corporate sustainability performance with the mediating role of Islamic work ethics.

Literature Review

Waste Management

Any substance or product that has no value or further use for the organization or person that owns it, or that will be discarded can be defined as waste. However, waste excludes substances or products that are sold or reused by the organizations that own them (Commission, 2006). According to Statistics (1997), all those actions and activities that are required to manage waste from its inception to its final disposal is known as waste management. The term usually relates to all kinds of waste. Waste is generated during the processing of raw materials into final products, final products consumption, other human activities, or during the extraction of raw materials (Statistics, 1997).

Waste management is important to be practiced in all sectors in order to achieve corporate sustainability performance. Thus, there should be emphasis on strengthening government supervision and controlling illegal dumping, improving stakeholders' waste awareness and refining regulations (Ding, Yi, Tam, & Huang, 2016). High productivity indicates high income but excessive production of solid waste due to the increase in consumption has aggravated the waste management issues (Røpke, 1999). In Malaysia, waste productions are at an alarming rate, faster than the natural degradation process and resources used, exceeding the rate these materials are being replaced (Ramayah, Lee, & Mohamad, 2010).

Corporate Sustainability Performance

There is no common definition of corporate sustainability (Roca & Searcy, 2012; Seyhani & Durmaz, 2015). Corporate sustainability can refer to a dynamic state that arises when the organization develops continuous shareholders and stakeholders' value which maintains the well-being of the economy, environment and society for a long-term goal (Hassan, Abidin, Nordin, & Yusoff, 2016; Hassini, Surti, & Searcy, 2012). Corporate sustainability is also described as conducting operations in a manner that meets the existing needs without compromising the ability of future generations to meet their needs and has regard to the impacts that the business operations have on the life of the community in which it operates (Hart & Milstein, 2003).

According to Seyhani and Durmaz (2015), corporate sustainability is essential in achieving the organization's vision without losing competitive advantage while ensuring companywide economic growth, environmental stewardship, and providing social responsibilities without contradicting its mission and goals. The components of corporate sustainability performance are the triple bottom line which are: economic sustainability, environment sustainability, and social sustainability (Elkington, 1997). According to Janek, Riccerib, Sangiorgia, and Guthrie (2016), the term 'triple bottom line' which has gained popularity among sustainability agenda was introduced by Elkington (1994).

Islamic Work Ethics

The sayings and practices of the Prophet Muhammad (S.A.W) and Quran are the main sources of Islamic work ethics (Abdelzaher et al., 2016). According to Yesil, Sekkeli, and Dogan (2012), Al Quran is the central religious text of Islam, the book of Divine guidance and the direction of mankind which is the last revelation to prophet Muhammad (S.A.W).

Meanwhile, hadith is an oral tradition relating to the words and deeds of Prophet Muhammad (S.A.W) (Yesil et al., 2012). Both Al Quran and hadith are important sources of teaching in Islam (A. S. Abbasi et al., 2011). Ethics in the Islamic perspective are an indication of good value whether in feeling, behaviour, thinking or action (Al-Qudsy, 2007). Some of the Islamic values are perfectionism, fairness, promise-keeping, responsibility, accountability, trustworthiness, benevolence, competence, capability, honesty, transparency, cleanliness, piety, cooperation, timeliness, punctuality and consultation, and these values were also found to have been directly stated in the Prophet's traditions (Wahab & Rafiki, 2014). As stated by Abdul Aris et al. (2016), in doing business, acting ethically is essential in Islam, and this involves all the morally correct factors including production, business processes and an organization's behaviour with its customers and the communities in which it operates.

Waste Management and Corporate Sustainability Performance

A study done by Kulkarni, Rao, and Patil (2014) found that waste management has helped the industry to achieve sustainable business performance. In industry, devising innovative ways of manufacturing and replacing the hazardous chemicals with the green concepts can become resilient to the challenges of the environment (Kulkarni et al., 2014). Based on Chan (2013), the environment can be protected by demonstrating the commitment to the environmental protection by practicing waste management. Meanwhile, socially, the usage of advanced equipment in waste management provides better health protection to employees (Kirama & Mayo, 2016), and properly managed waste reduces the health and safety risk (Momodu, Dimuna, & Dimuna, 2011). Good waste management simplifies the collection activities and reduces the time of loading and off-loading wastes, thus improving the efficiency of the organization (Kirama & Mayo, 2016). Previous study found that waste management leads to environmental sustainability (Shah & Ward, 2007). Kirama and Mayo (2016) stated that disposal of wastes is essential to the public health and the environment protection. The present national and local policies on solid waste management seems adequate to push the implementation of waste management towards sustainability (Permana, Towolioe, Aziz, & Ho, 2015). Previous study by Schoenherr (2012) shows that environmental initiatives such as waste management is advantageous in terms of doing the right thing and also in terms of organizational performance. Therefore, it is a must for an organization to practice waste management into their daily operations in achieving sustainable business.

Mediating Role of Islamic Work Ethics on Waste Management and Corporate Sustainability Performance

According to Prillwitz and Barr (2011), individual attitudes towards environmental practice and sustainability for segmentation approaches can be a fruitful attempt to improve the effectiveness of sustainability. Better environmental practice is impacted by the organization's mind-set, culture and values along with the effective systems and technologies in attaining sustainability (Kulkarni et al., 2014). The factor of inner growth would predict significant correlations with pro environmental attitudes and sustainable lifestyles, as well as with life satisfaction and the desire to contribute to society (Hedlund-de Witt, De Boer, & Boersema, 2014). Barutçugil (2004) argued that ethical organizations could obtain numerous benefits like, efficiency in communication, employee accountability, competitive advantages, and efficiency.

Additionally, Mohamad, Idris, Baharuddin, Muhammad, and Sulaiman's (2012) findings

have shown that the potential role of religious communities in environmental practices has to go beyond the general idealism on the positive influence of religious values or ethics on environmental protection. Backing up the argument stated above, a good number of researchers assured that Islamic work ethics principles have high probability to increase the performance and quality of each individual and organization (Ahmad, 2011; Ali & Al-Owaihian, 2008; Husin, 2012; Jalil, Azam, & Rahman, 2010; Kumar & Che Rose, 2010).

Research Methodology

The chemical manufacturing industry has been chosen in this study due to the high sustainability issues occurred in this industry (Ta et al., 2016). Furthermore, employees from middle to top level management have been selected as the sample. Questionnaires were distributed to the employees in 130 chemical manufacturing organizations which were listed in the Federation of Malaysia Manufacturing. In order to guarantee the content validity of the measurement in this study, discussions have been done with the experts in the field and the employees from the chemical manufacturing industry. This study used multistage sampling technique and the data were analysed using partial least square (PLS) analysis. The proposed hypotheses are as below:

H1: There is a significant effect of waste management on corporate sustainability performance.

H2: There is a significant effect of waste management on Islamic work ethics.

H3: There is a significant effect of Islamic work ethics on corporate sustainability performance.

H4: Islamic work ethics mediate the relationship between waste management and corporate sustainability performance.

Results and Discussion

Organization Profile

This study analysed 130 chemical manufacturing organizations. The response rate is 43%. There are nine types of chemical manufacturing that have been classified by the Federation of Malaysian Manufacturing. Table 1 below shows the organization's demographic profile.

Table 1: Organization Profile

Demographic	Frequency	Percentage
Types of Chemical Manufacturing		
1) Basic chemicals, except fertilizers and nitrogen compounds	6	4.6
2) Fertilizers and nitrogen compounds	1	0.8
3) Plastics in primary forms and of synthetic rubber	4	3.1
4) Pesticides and other agro-chemical products	5	3.8
5) Paints, varnishes and similar coatings, printing ink and mastics	17	13.1
6) Pharmaceuticals, medicinal chemicals and botanical products	11	8.5
7) Soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	27	20.8
8) Other chemical products not elsewhere classified	34	26.2
9) Man-made fibres	0	0
10) Mix of types	25	19.2
Number of Workers (Size)		
74 and below (Small)	62	47.7
75-200 (Medium)	38	29.2
201 and above (Large)	30	23.1
Operational Period (Year)		

10 and below	6	4.6
21 to 30	13	10.0
31 to 40	1	0.8
41 and above	110	84.6

Reliability

Composite reliability is used to measure the internal consistency. According to Bagozzi and Yi (1988), composite reliability should be 0.7 or higher. In this regard, Table 2 shows that the value of composite reliability (CR) is higher than 0.7. Also, the table shows that all variables used in the study are reliable.

Convergent Validity

According to Amin, Thursamy, Aldakhil, and Kaswuri (2016), convergent validity is the degree to which multiple items to measure the same concept are in agreement. In order to assess the convergent validity, J. Hair, Black, Babin, Anderson, and Tatham (2010) suggested the use of factor loadings, composite validity and average variance extracted. The suggested loadings value for all items is 0.5 or higher (Henseler, Ringle, & Sinkovics, 2009). Therefore for this study, 5 items which are items WM2, EP1, EP7, SP1 and SP6 were deleted due to low loading. From Table 2, it is found that most of the constructs achieve convergent validity as all of the average variance extracted (AVE) values are greater than the acceptable threshold of 0.5 (Fornell & Larcker, 1981). However, the AVE of corporate sustainability performance which is 0.491 is acceptable as according to Fornell and Larcker (1981), even though the AVE is lower than 0.5, but if composite reliability (CR) is greater than 0.6, it is still acceptable.

Table 2: Convergent Validity

First-Order Construct	Second-Order Construct	Loadings				AVE	CR
Waste Management (WM)		WM1	0.638	WM7	0.669	0.50	0.902
		WM10	0.825	WM8	0.852		
		WM5	0.669	WM9	0.844		
		WM6	0.65	WM3	0.534		
		WM4	0.598				
Islamic Work Ethics (IWE)		IWE1	0.739	IWE2	0.794	0.505	0.953
		IWE10	0.772	IWE3	0.72		
		IWE13	0.706	IWE4	0.802		
		IWE14	0.658	IWE5	0.757		
		IWE15	0.676	IWE6	0.733		
		IWE16	0.674	IWE7	0.733		
		IWE17	0.719	IWE8	0.747		
		IWE18	0.699	IWE9	0.767		
		IWE19	0.723	IWE11	0.553		
Economic Sustainability Performance		EP10	0.751	EP6	0.819	0.605	0.924
		EP2	0.746	EP8	0.821		
		EP3	0.82				
		EP5	0.768				

				EP9 0.806 EP4 0.679		
Environment Sustainability Performance		EnvP10 0.751 EnvP2 0.777 EnvP3 0.707 EnvP4 0.783 EnvP5 0.714		EnvP6 0.762 EnvP7 0.816 EnvP8 0.7491 EnvP9 0.801 ENP1 0.745	0.567	0.929
Social sustainability performance		SP10 0.771 SP2 0.759 SP3 0.748 SP4 0.810		SP5 0.848 SP7 0.777 SP8 0.774 SP9 0.754	0.603	0.932
	Corporate Sustainability Performance (CSP)	Economic Sustainability Performance 0.924 Environment Sustainability performance 0.945		Social Sustainability Performance 0.875	0.482	0.962

Discriminant Validity

Discriminant validity is the degree to which items differentiate among constructs or measure distinct concepts (Amin et al., 2016). The discriminant validity is assessed through the Fornell-Larcker criterion which is shown in Table 3. It can be seen that the square root of the AVE for each construct is higher than its correlation with any other construct (Anderson & Gerbing, 1988). Based on this analysis, it could be interpreted that those constructs have discriminant validity and thus asserted as valid.

Table 3 Discriminant Validity

Variable	CSP	IWE	WM
Corporate Sustainability Performance (CSP)	0.689		
Islamic Work Ethics (IWE)	0.491	0.71	
Waste Management (WM)	0.564	0.324	0.706

Table 4 below shows the summary of the analysis of the hypotheses results. From the analysis, it is found that waste management ($\beta=0.453$, $p<0.01$) is positively related to corporate sustainability performance. Waste management ($\beta=0.324$, $p<0.01$) is positively related to Islamic work ethics. Islamic work ethics ($\beta=0.345$, $p<0.01$) is positively related to corporate sustainability performance. Bootstrapping procedure has been used in this study; this procedure has been suggested by the literature to test the indirect effect, and the results show that the indirect effect ($\beta=0.112$, $p<0.01$) is significant implying that there is a mediating effect. The variance accounted for (VAF) is calculated as suggested by Hair, Hult, and Ringle (2014). The VAF determines the size of the indirect effect in relation to the total effect (i.e. direct effect + indirect effect): $VAF = \text{indirect effect}/\text{total effect}$. The VAF value is calculated and the value is 0.20. According to Hair Jr, Hult, Ringle, and Sarstedt (2016), VAF less than 20% means that there is no mediation effect, VAF above 80% denotes a full mediation, while VAF larger than 20% but less than 80% can be characterized as representing partial mediation. Thus, in this study, the VAF is 20% and therefore, partial mediation can be assumed to exist. Figure 1 below shows the path diagram, while Table 5 below shows the summary of direct effect, indirect effect and total effect in this study.

Figure 1: Path Diagram

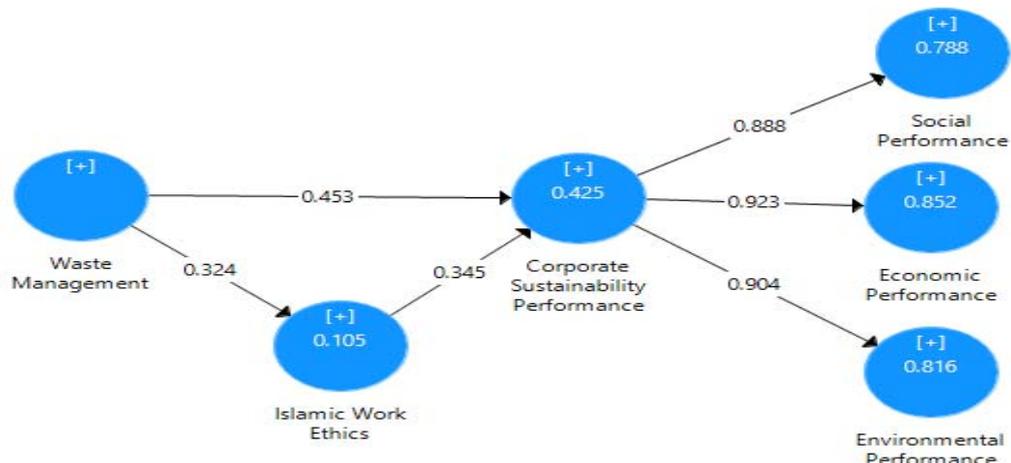


Table 4: Hypotheses Results

Hypotheses	Std. Beta	Std. Error	t-value	Decision
H1: WM -> CSP	0.453	0.46	6.492**	Supported
H2: WM -> IWE	0.324	0.074	4.358**	Supported
H3: IWE -> CSP	0.345	0.103	3.352**	Supported
H4: WM -> IWE -> CSP	0.112	0.038	2.95**	Supported

Notes: **p<0.01; *p<0.05

WM: Waste Management; CSP: Corporate Sustainability Performance; IWE: Islamic Work Ethics

Table 5: Direct Effect, Indirect Effect and Total Effect

Variables	Effects	Islamic work ethics		Corporate Sustainability Performance	
		Effect	t-value	Effect	t-value
WM	Direct effect	0.324	4.358	0.452	6.492
	Indirect effect	-	-	0.112	2.95
	Total effect	0.324	4.358	0.564	12.592
IWE	Direct effect	-	-	0.345	3.352
	Indirect effect	-	-	-	-
	Total effect	-	-	0.345	3.352

Conclusion

The result shows that waste management has positive effects on corporate sustainability performance. It is also found that Islamic work ethics partially mediate the relationship between waste management and corporate sustainability performance. As a result, this findings show that Islamic work ethics do affect waste management behaviour, and thus, affect corporate sustainability performance of the chemical manufacturing organization. Islam describes humans as caliphs with the obligation to manage and administer the environment, and thus, they have the ethical responsibility to address any harm that is committed on the environmental entities (Mamat, Mahamood, & Ismail, 2012). Furthermore, ethics and values must be inculcated in the culture of the organization in order to achieve sustainable business performance (A. Abbasi, Akhter, & Umar, 2011).

The findings of this study contribute to the body of knowledge of waste management, Islamic work ethics and corporate sustainability performance in a developing country, which may be different in developed countries. The conceptual framework developed in this study can be used as a guideline by manufacturers and policymakers who consider the importance of achieving corporate sustainability performance. However, this research mainly focuses on chemical manufacturing organization, and thus, the result may not be generalized to other types of manufacturing organization. Future research may adopt the proposed research model among different types of manufacturing organization. Lastly, future research may focus on the mediating effects of Islamic work ethics on other green practices besides waste management in achieving corporate sustainability performance.

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