



THE EFFECT OF STAKEHOLDER PRESSURE ON
SUSTAINABLE PERFORMANCE MEDIATED BY ECO-
INNOVATION PRACTICES

SALMAH BINTI OMAR

DOCTOR OF PHILOSOPHY

2018



Faculty of Technology Management & Technopreneurship

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**A thesis submitted
in fulfillment of the requirements for the degree of Doctor of Philosophy**

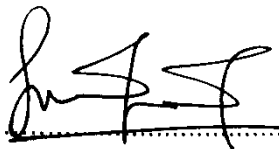
Faculty of Technology Management & Technopreneurship

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2018

DECLARATION

I declare that this thesis entitled “The Effect of Stakeholder Pressure on Sustainable Performance Mediated by Eco-Innovation Practices” is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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Date : 30 / 10 / 2018

APPROVAL

I hereby declare that I have read this thesis and in my opinion this thesis is sufficient in terms of scope and quality for the award of Doctor of Philosophy.



Signature :

Supervisor Name : Assoc. Prof. Dr. Norfaridatul Akmaliah Othman

Date : 30 / 10 / 2018

DEDICATION

To my late father, beloved mother, husband and children

ABSTRACT

Increasing awareness and global concerns on sustainability issues are striving the firms to improve their sustainability performance in order to satisfy multiple stakeholders. Firms are facing growing pressure to become “greener” and more environmentally friendly. This pressure is increasingly felt by high polluting industry, such as chemical industry. In Malaysia, the chemical industry is one of the main contributors to the country’s pollution index. Stakeholder pressures (SHP) are believed will affect the firm’s activities that will in turns affect their business performance. Therefore, firms have had to review their production processes as a result of pressures from the multiple stakeholders. Eco-innovation is a promising approach that decreases environmental impact and helps firms to sustain their business and the environment. Eco-innovation plays an important role in the implementation of sustainable development. The overall objective of eco-innovation is to reduce impact on the environment, as well as to create new market opportunities, products, services or processes aimed at improving environmental performance. However, eco-innovation practices (EIP) are still less implemented by chemical firms in Malaysia since many are still not aware of its essential to improve their sustainable performance (SP). Thus, this study was conducted among chemical firms in Malaysia with the aims to investigate the extent of stakeholder pressure and the implementation of eco-innovation practices which believed will affect the sustainable performance of the firms. This study also sought to treat the eco-innovation practices as a mediating factor on the relationship between stakeholder pressure and sustainable performance. To meet these objectives, a series of research hypotheses underpinned by theoretical basis of Stakeholder Theory, Legitimacy Theory and Natural-Resources-Based View Theory (NRBV) were proposed to be tested. A mail survey was used for data collection and responses from 73 chemical companies have been used for data analysis using SmartPLS 3.0. The result reveals that SHP and EIP significantly and positively affected all the component of sustainable performance (SP). While EIP has partially mediated the relationship between SHP and SP. This study also revealed the level of SHP and EIP among chemical firms in Malaysia is moderate to a considerable extent. The result also demonstrated that social benefit has the highest score on embracing the EIP compared to financial and other factors. This study provides some implication in terms of theory advancements and practical applications that can help practitioners to better understand the issues and contextual elements related to stakeholder pressure, eco-innovation practices and sustainable performance of the firms which will enhance their competitive advantage.

ABSTRAK

Peningkatan kesedaran dan kebimbangan global mengenai isu-isu kelestarian menyebabkan firma-firma berusaha untuk meningkatkan prestasi kelestarian untuk memenuhi kehendak pelbagai pihak yang berkepentingan. Firma menghadapi tekanan yang semakin tinggi untuk menjadi lebih "hijau" dan mesra alam. Tekanan ini semakin dirasai oleh industri pencemaran tinggi, seperti industri kimia. Di Malaysia, industri kimia merupakan salah satu penyumbang utama kepada indeks pencemaran negara. Tekanan daripada pemegang berkepentingan (SHP) dipercayai akan mempengaruhi aktiviti firma yang seterusnya akan membawa kepada prestasi perniagaan mereka. Oleh itu, firma-firma perlu mengkaji semula proses pengeluaran disebabkan tekanan daripada pelbagai pihak berkepentingan. Eko-inovasi adalah pendekatan yang menjanjikan pengurangan impak ke atas alam sekitar dan dapat membantu firma-firma untuk mengekalkan perniagaan dan alam sekitar. Eko-inovasi memainkan peranan penting dalam pelaksanaan pembangunan yang lestari. Objektif utama eko-inovasi adalah untuk mengurangkan kesan terhadap alam sekitar, serta mewujudkan peluang pasaran, produk, perkhidmatan atau proses baharu yang bertujuan untuk meningkatkan prestasi dan memelihara alam sekitar. Walau bagaimanapun, amalan eko-inovasi (EIP) masih kurang dilaksanakan oleh firma kimia di Malaysia kerana ramai yang masih tidak menyedari betapa pentingnya untuk meningkatkan kelestarian prestasi mereka (SP). Oleh itu, kajian ini dijalankan di kalangan firma kimia di Malaysia dengan matlamat untuk mengkaji sejauh mana tekanan pihak berkepentingan dan pelaksanaan amalan eko-inovasi menjejaskan kelestarian prestasi firma. Kajian ini juga menjadikan amalan-amalan eko-inovasi sebagai faktor pengantara di antara hubungan tekanan pihak berkepentingan dan kelestarian prestasi. Untuk mencapai matlamat ini, satu siri hipotesis penyelidikan yang disokong oleh "Teori Pemangku Kepentingan", "Teori Legitimasi" dan "Teori Pandangan Berasaskan Sumber Asli" (NRBV) dicadangkan untuk diuji. Soal selidik melalui mel digunakan untuk pengumpulan data dan maklumbalas daripada 73 syarikat kimia telah digunakan untuk analisis data menggunakan SmartPLS 3.0. Keputusan daripada analisis data menunjukkan bahawa SHP dan EIP mempengaruhi semua komponen kelestarian prestasi (SP) secara signifikan dan positif. Sementara EIP sebahagiannya telah mengantara hubungan antara SHP dan SP. Kajian ini juga menunjukkan tahap tekanan SHP dan pelaksanaan EIP di kalangan firma kimia di Malaysia berada pada tahap yang sederhana. Hasil kajian juga menunjukkan bahawa manfaat sosial mempunyai skor tertinggi melalui pelaksanaan EIP berbanding faktor kewangan dan faktor-faktor lain. Kajian ini menghasilkan beberapa implikasi dari segi kemajuan teori dan aplikasi praktikal yang dapat membantu pengamal memahami isu dan elemen kontekstual yang berkaitan dengan tekanan pihak berkepentingan, amalan eko-inovasi dan kelestarian prestasi firma-firma yang seterusnya akan meningkatkan kelebihan daya saing mereka.

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LIST OF ABBREVIATIONS

AVE	-	Average Variance Extracted
BSC	-	Balanced Scorecard
CICM	-	Chemical Industries Council of Malaysia
CMB	-	Common Method Bias
CMV	-	Common Method Variance
CR	-	Composite Reliability
CSR	-	Corporate Social Responsibility
EIP	-	Eco-Innovation Practices
EMAS	-	Environmental Measurement and Auditing System
EMS	-	Environmental Management System
FMM	-	Federation of Malaysian Manufacturers
GDP	-	Gross Domestic Products
HSE	-	Health, safety and environment
JV	-	Joint Ventures
LT	-	Legitimacy Theory
MIDA	-	Malaysian Industrial Development Authority
MNC	-	Multinational Corporations
NGO	-	Non-governmental Organization

NRVB	-	Natural-Resources-Based-View
OECD	-	Organisation for Economic Co-operation and Development
OSHA	-	Occupational Safety and Health Act
PLS	-	Partial Least Square
RBV	-	Resources-Based-View
RCCP	-	Responsible Care Code of Practices
RCP	-	Responsible Care Program
SBSC	-	Sustainable Balance Scorecard
SEM	-	Structural Equation Modelling
SHP	-	Stakeholder Pressures
SME	-	Small Medium Enterprise
SOCSO	-	Social Security Organization
SP	-	Sustainable Performance
SPSS	-	Statistical Package for the Social Sciences
ST	-	Stakeholder Theory
TBL	-	Triple Bottom Line
VIF	-	Variance Inflation Factors
WCED	-	World Commission on Environment and Development

LIST OF PUBLICATIONS

Omar, S., Othman, N.A. & Mustafar, M., 2018. Sustainable Distribution Practices Among Chemical Firms In Malaysia. In Proceedings of the 2nd Conference on Technology & Operations Management (2ndCTOM) Universiti Utara Malaysia, Kedah, Malaysia, February 26-27, 2018. pp. 142–149.

Omar, S., Othman, N.A. & Jabar, J., 2017. Effect of Eco-Innovation Practices on Sustainable Business Performance. *Pertanika J. Sci. & Technol*, 25, pp.123 – 128.

Omar, S. & Othman, N.A., 2016. The Effects of Stakeholder Pressure on Eco- Innovation Practices in Malaysian Chemical Industry. *Australian Journal of Basic and Applied Sciences*, 10(7), pp.34–40.

CHAPTER 1

INTRODUCTION

This chapter outlines the context to this thesis through background of the research. Secondly, it describes the problem area and subsequent research focus. From there, the main objective as well as research questions are defined. Then the significant of the research and research scope are also included in this chapter.

1.1 Research background

Since the future of our environment and society obstructs in a frail balance, sustainability have become a dominant issue towards stakeholder value creation and the management of both international and local organizations. Firms, governments, and various cross-national bodies have directed their attention towards the question of how we can make the world a better place for living. Sustainability is a term that can encompass environmental, economic, and societal issues. In other words, sustainability is conservation, utilization, and reuse of resources in responsible ways.

Classically, environmental issues have been reflected as liability to industry, as something that is related with costs and constraints and which weakens companies' competitiveness. The first twenty years after the introduction of the environmental agenda (during the 1970s and 1980s), firms generally have purely reactive strategies towards environmental issues, for some firms even implementing disruptive strategies. However, in

the early 1990s the environmental agenda was well merged in the wealthier economies and the emergence of proactive environmental strategies begin to be seen. The increasing pressure from stakeholders such as environmental regulations, and growing consumer and community concern over environmental protection has demonstrated the importance of environmental management in manufacturing process (Dangelico & Pujari 2010). As a result, the stakeholder pressure has been recognized as the main reason that motivates the implementation of environmental innovation and strategies upon which firms are enabled to create sustainability in their manufacturing activities by minimizing environmental impact and enhancing ecological efficiency (Henriques & Sadorsky 1999; Krajnc & Glavič 2005)

In reality, organizations normally function over the usage of resources and cause the emission of toxic waste and other pollution into the environment during their product manufacturing operation. As in chemical industry, the whole life of a chemical product (from “cradle to grave”) there is potential harmful effect on human and the environment. Firstly, chemical firms as a user of raw materials such as natural gas, coal and coke, minerals, fuel oil, liquefied petroleum gas as a source for energy and feedstocks, the chemicals industry will influence the supply of nonrenewable resources. Next, as these materials are in common based on hydrocarbons, their usage can lead to emissions of carbon dioxide (CO₂) which is a greenhouse gas and instable organic compounds (VOCs), equally as nitrogen oxides (NO_x) which lead to the formation of tropospheric ozone or “smog”. Handling the raw materials and feedstocks can lead to the release of hazardous pollutants to the environment as their actual use, either by other industries or consumers (e.g. benzene in petrol emitted during fueling of automobiles). Finally, hazardous waste can be generated by the chemicals industry as a derivative of manufacturing and from products which goes through the process along the supply chain and are finally disposed of after final use (OECD 2002).

As a consequence, one of the proactive environmental strategies which are eco-innovation practices has emerged. The term eco-innovation first appeared in Fussler and James's book "Driving Eco-Innovation: A Breakthrough Discipline for Innovation and Sustainability" in 1996 (Fussler & James 1996). The authors define eco-innovations as "new products and processes creating value for enterprises and clients and reducing (negative) environmental effects". In a subsequent article, Peter James defines eco-innovation as "new products and processes which provide customer and business value but significantly decrease environmental impacts" (James 1997).

The adoption of eco-innovation practices has been recognized and it goes beyond consumerism by minimizing the harm towards environment. It is allied with the general requirement for companies to sustain a good image concerning their stakeholders. A series of studies arguments point to various inducements companies in relation to environmental, social and wider ethical work (Andersen 2006). The term environmental innovation or eco-innovation referred to innovations aiming at a reduced negative impact of innovations on the livings and natural environment. Eco-innovation in the current literature is known by different synonyms, namely 'green', 'environmental' and 'sustainable', as stated in Schiederig et al. (2011). It is a novel concept of countless meaning to organizations and policy makers, including numerous innovations of environmental advantage.

Nowadays, eco-innovation practices are gradually perceived as a potential basis of competitive advantage, they offer bases of quality, an amount of savings, and an extent of the social bond with society essential for the sustainability of the company (Andersen 2006). Malaysia also recognized that in coping with an economic improvement and the emphasis on exports, spending on eco-innovation initiatives becomes progressively important. It is one

of the ways Malaysia can increase the competitiveness globally while maintaining a green image.

Malaysian government also stresses on environmental issues in the Eleventh Malaysia Plan (11th MP, 2016-2020). In relation to this, green growth will be a fundamental shift in how Malaysia sees the role of natural resources and the environment in its socio-economic development, protecting both development gains and biodiversity simultaneously. To achieve these, the government will focus on four key areas in pursuing green growth for sustainability and resilience: i) Strengthening the enabling environment for green growth, ii) Adopting the sustainable consumption and production concept, iii) Conserving natural resources for present and future generations, and iv) Strengthening resilience against climate change and natural disasters (EPU Malaysia, 2015). The National Transport and National Energy Policy are also set to fight for the reduction of gas emissions from motor-powered vehicles and various industries. Similarly, various enticements like pioneer status for investments, import duty exemption and sale tax relating to energy preservation, energy efficiency, renewal, recycling, and reduction of greenhouse gas emissions have been provided for organizations working on green. Several years ago, Malaysia has become a member of the United Nations Conference on Environment and Development (UNCED) and other organizations related to environmental preservations. Malaysia also involve in the North-South-dialogue to promote reduction of environmental harms and introduce environmentally sound technologies. Moreover, special environmental programs in schools also upsurge the public awareness with regards to environmental issues (EPU Malaysia, 2015). . To support this issue, the whole manufacturing sectors especially chemical industry are urged to implement and develop satisfactory products and technologies through innovation especially eco-innovation.

In relation to this, firms can individually play their role in facilitating sustainable performance by innovating and implementing eco-innovation practices and concurrently improve their green corporate image. Unfortunately, the problems regarding environmental harmful such as air and water pollutions still unsolved. Industrial revolution and fast development are accountable for major environmental complications; among them disposal of hazardous and communal waste, pollution of air, water and traffic pollutants which are air contaminants generated by cars and trucks particularly by the chemical industry (Mohammad 2011).

The chemicals industry is a major contributor to the Malaysian economy, with petrochemicals and oleo chemicals the primary products of this sector. The country's exports and imports are dominated by fuels (22% of exports and 16% of imports), chemicals (5% and 7%), plastics and rubber (7% and 5%), and vegetable byproducts, primarily palm oil (8% and 3%) (Foo & Eng 2015). However, chemical industry gives great negative impact towards the sustainability of the environmental issues. Thus, the adoption of eco-innovation in this sector is very significant and the industry must accept the actions and presented comprehensive climate change policies to respond this evolution. Furthermore, the industry experiences an endlessly increasing pressure from its stakeholders and there is still a long way to go towards a sustainable chemical sector.

Firms are really associated to unlimited number of unified individual and communities, called stakeholders (Freeman et al. 2010; Donaldson et al. 1995; Perrini & Tencati 2006). These connections affect the administration methods of a company and, in turn, are affected by the company's actions. Stakeholder theory proposes that the management of a company is expected to engage in activities that benefit particular stakeholders who can influence and who are influenced by the accomplishment of a