

THE IMPLEMENTATION OF RESPONSIBLE CARE IN THE CHEMICAL INDUSTRY: THE CASE OF MALAYSIAN CHEMICAL INDUSTRIES

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ABSTRACT

The importance of chemical industries in the daily life of human beings cannot be ignored; it is accountable for the hazardous materials production and destruction to the environment. The implementation of Responsible Care programme in Malaysian chemical industries aims for the betterment of sound chemicals management since 1994. However, to date, there are only 132 companies have signed the pledge to implement Responsible Care programme. Such a small number representing 535 chemical companies in Malaysia have raised the question on the credibility of the programme. Thus, this paper aims to explore the importance and value adds of Responsible Care programme in improving environmental, health and safety performances. At the same time, this paper also examines the barriers and challenges faced by Malaysian chemical industries, causing to the low participation in Responsible Care programme. The questionnaire was sent via email to 132 Responsible Care signatory companies and there were only 23% of the total number of companies responded. Majority of the respondents agree that these programmes have improved their performances in environmental, health and safety by promoting learning and information sharing. However, companies face barrier in implementing product stewardship code and they also face challenges in getting employee commitment from all levels.

Keywords: Chemical industries; environment; health; responsible care; safety.

INTRODUCTION

The rapid development of chemical industries has become one of the public concerns especially on the security and safety aspects. Each year, chemicals-related incidents were reported and caused fear to the community. In September 2016, an explosion occurred at a chemical factory in Ipoh producing chlor-alkali products has resulted injury to four workers and some of the residents nearby suffered for itchy throat and severe cough due to burning sensation in their throats [1]. There are many other chemical incidents reported on significant toxic releases [2, 3], these incidents can be disastrous therefore chemical industries should be more responsible to prevent any adverse effect to the environment, health and safety.

There are some programmes developed by governments to protect the community from the risky business. Programme such as EPA 33/50 programme is a voluntary pollution prevention plan which is designed to reduce release and transfer of high-priority toxic chemicals. It highlights on waste prevention rather than waste treatment, encouraging firms to develop less toxic substitutes, reformulate their products and design in order to reduce pollution [4]. This voluntary programme has received good response from the chemical companies as the participation in this programme is very encouraging. Besides the initiative by the government, some of the chemical associations have established some standards and management systems to help their member companies to reduce impacts on the environment. Responsible Care was first developed in 1985 by Canada as a result from the controversial chemical incident in Bhopal, India in 1984. The main goal of this programme is to improve the chemical industries' image as well as regain the public trust [5-7]. Responsible Care has been adopted globally and organized by chemical association of each country. This programme contains six codes of management practices which are essential to address the environmental, health and safety issues in the manufacturing processes including transportation and distribution, preventing pollution, reducing risk to the employees, practicing high quality of product stewardship. In addition, the codes also involve in raising awareness of the local community especially in emergency response [8].

Chemical Industries Council of Malaysia (CICM) is an association for chemical industries promoting sound chemicals management in Malaysia, under the aegis of the Federation of Malaysian Manufacturers (FMM) [9]. They have been promoting Responsible Care programme since 1994 by offering assistance and guidance to encourage responsible management of chemicals along the product chain. Responsible Care programme also represents the chemical industries' commitment to minimize adverse impacts to the environment and society by building trust to the chemical industries [10]. However, after two decades of adoption and implementation, Responsible Care programme has received low number of participation. To date, only 132 chemical companies have signed the pledge to implement Responsible Care compared to 535 chemical companies registered with FMM [11]. Due to the less encouraging participation of the chemical companies in Responsible Care are, its credibility has been questioned in terms of the importance and effectiveness. Therefore, this paper aims to explore the importance of Responsible Care programme as well as its value add in improving environmental, health and safety performances. Besides that, this paper also attempts to examine the barriers and challenges faced by the chemical industries in implementing Responsible Care programme in Malaysia. The first section provides an overview of current literatures that are relevant to the adoption and implementation of Responsible Care programme; the second section describes the case study on Malaysian chemical industries where it depicts the methods used, the sample selected and the results of the case study; the last section discusses and concludes the case of this study.

METHODS

This paper consists of two objectives. The first objective is to explore the importance and value add of Responsible Care programme while the second objective is to examine the barriers and challenges faced by the chemical industries in implementing Responsible Care programme. In order to achieve these objectives, this paper uses questionnaire to survey 132 Responsible Care signatory companies. All the 132 signatories are those member companies that are either producing or handling chemical products. The questionnaire was sent via email and they were given a week to complete the questionnaire and return to the researchers. The questionnaire was developed by referring to the codes of management practices established by CICM, consisting of three parts which are Sections A, B and C. The questions in Section A consists of companies' general information including company's name, address, telephone number, type of ownership structure, number of employees, country of company headquarters, and also the information of person responsible in answering questionnaire. Section B consists of five questions related to the implementation of Responsible Care programme whereby three of them refer to the importance and effectiveness of the Responsible Care programme. Section B also encompasses the barriers and challenges faced by the company while implementing Responsible Care programme. Section C takes into account of the processes of the company including stakeholders engagement and continual improvement of the operation and management of the company.

RESULT

The Importance of Responsible Care Programme

The questionnaire was distributed to 132 Responsible Care signatory companies and they were given a week to complete the questionnaire. There were only 31 companies responded out of 132 Responsible care signatory companies. The completed questionnaires representing approximately 23% of the total number of companies which have implemented Responsible Care programme. Although the number of responses received was small, the researchers have used the obtained data wisely. This kind of low response rate in survey also happened in a study of French chemical firms by Grolleau, Mzoughi [12] in which out of 720 firms surveyed, only 86 responded representing 12% of the total sample size. They also stated that low response rate indicates the level of sensitiveness of environmental issues in the chemicals sector.

Table 1 shows the result of section A in the questionnaire which involves general information of the companies. An important note for the companies was the majority of the companies were owned by multinational companies with 55% and followed by local companies and small medium enterprises (SMEs) with 23%, respectively. This may be due to the multinational companies have better technology and more resources to implement Responsible Care compared to local companies and SMEs [13]. It is also clear that majority of these companies (55%) have more than 201 workers. The responded Responsible Care signatory companies involves petrochemicals, oleochemicals, fertilizers, coating resins, industrial gases, services and industrial chemicals. And, most of the responded companies are from petrochemicals sector (26%) because Malaysia is one of the major petrochemical products exporters in the world [14].

Table 1. General characteristics for the sample companies

Sample characteristics	No.	(%)	
Ownership status	MNC	17	55
	Local	7	23
	SME	7	23
Number of employees	0-50	3	10
	51-200	11	35
	>201	17	55
Type of activities	Petrochemicals	8	26
	Oleochemicals	7	23
	Fertilizers	1	3
	Coating resins	3	10
	Industrial gases	3	10
	Services	5	16
Industrial Chemicals	4	13	

Figure 1 provides the required data for meeting the first objective as outlined in the previous section. Specifically, it illustrates the importance of Responsible Care programme to the signatory companies. Majority of the Responsible Care signatory companies (94%) agree that these programme have improved their performances in environmental, health and safety. The signatory companies also state the benefits that they received from implementing Responsible Care programme in their company in Table 2. About 38% of them agree that Responsible Care programme promotes learning and information sharing. Besides that, they also agree that Responsible Care programme helps to improve their performances in environmental, health and safety, encouraging companies to involve in Corporate Social Responsibility (CSR) activities, promoting more interaction with the communities, and promoting cooperation between companies and their stakeholders.

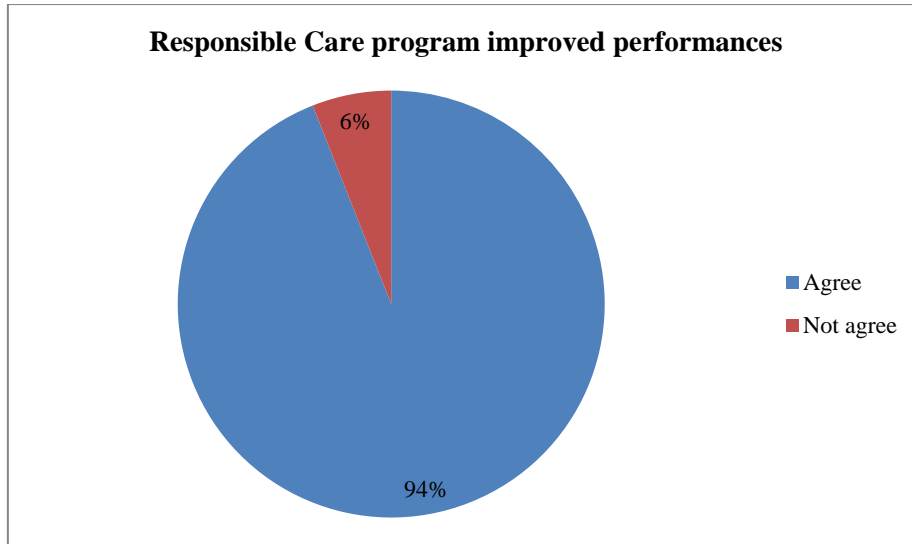


Figure 1. The percentage of companies agreed that Responsible Care programme improved their performances.

Table 2. The benefits received by signatory companies in implementing Responsible Care programme

Benefits of RCP	(%)	Ranking
Promote learning and information sharing	38	1
Helps to improve performance in EHS	25	2
Encourage companies to involve in CSR	13	3
More interaction with community	13	3
Promote cooperation between company and stakeholders.	13	3

The Barriers in Implementing RCP

Figure 2 shows that only 35% of the responded companies face barriers in implementing Responsible Care programme. From the 35% of the responded companies, product stewardship code is the most difficult code to be implemented (38%) as shown in Table 3. Most of them claim that the implementation procedures are ambiguous and not clear enough. Distribution code is ranked second place whereby the responded companies claim that the requirements to be adopted are too huge and it is out of their company's scope. CAER and employee safety and health are also claimed to be ambiguous in the implementation procedures and the requirements to be adopted are also too huge.

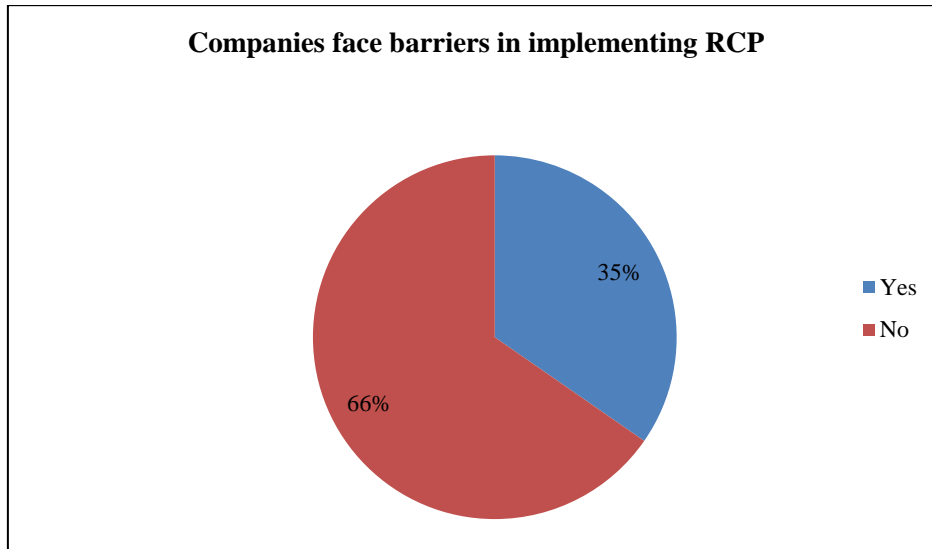


Figure 2. The percentage of companies who face barriers in implementing Responsible Care programme

Table 3. The barriers for signatory companies to implement Responsible Care programme

RCP codes of management practice	(%)	Ranking	Challenges
Product Stewardship	38	1	Ambiguous procedure in code implementation
Distribution	31	2	Out of company scope
CAER	23	3	Requirements to adopt are too huge
Employee Safety and Health	8	4	Ambiguous procedure in code implementation
			Requirements to adopt are too huge

The signatory companies also face challenges in implementing Responsible Care in their companies. According to Table 4, the biggest challenge faced by signatory companies is to get employees' commitment from all levels in the company. Lack of manpower to operate and for those newly adopting Responsible Care signatory and still in the process of adapting to the programme.

Table 4. The challenges faced by signatory companies in adopting Responsible Care programme

Challenges to implement RCP	(%)	Ranking
Employee commitment from all levels	36	1
Lack of manpower	18	2
Recently adopt	9	3

DISCUSSION

This study attempts to meet two objectives. First, it explores the importance of Responsible Care programme to companies who are adopting and implementing the programme. As shown above, Responsible Care has improved the signatory companies' performances in terms of environmental, health and safety. Previous study by [15] found that firms implementing Responsible Care do reduce the accident or lower the likelihood of accident and Responsible Care also can serve as a tool to improve safety. Responsible Care needs involvement from the top management in reporting the safety records to member companies, causing them to be more aware in improving their safety performances. Besides that, according to the survey result, majority of the signatory companies experienced benefits from implementing Responsible Care such as promoting learning and information sharing. The US chemical industries have concluded that Responsible Care encourages the companies to share pollution abatement information among members and American Chemical Council (ACC) also has developed a database for them to identify which firms are willing to share their expertise in implementing the Responsible Care codes [8].

The second objective of this study is to examine the barriers and challenges faced by the Responsible Care signatory companies in implementing Responsible Care programme. The most difficult codes to be implemented are product stewardship and distribution whereby the result is supported by the recent study on Malaysian chemical industries showing that the product stewardship code has the lowest compliance rate as compared to other Responsible Care codes [16]. The responded companies also state that they faced barriers, namely product stewardship code is vague causing it difficult to be implemented. Product stewardship encompass the management of a chemical product throughout its lifecycle and focuses on the implication of a product on the environmental, health and safety along the product chain [8]. Therefore, to ensure the product safety along the chain, signatory companies have to share the responsibility with stakeholders namely employees, suppliers, contract manufacturers, distributors and customers. A conceptual framework on product stewardship incorporating the principles of product stewardship into management practices [16] should be adopted and implemented to improve the performance of this code.

The major challenges faced by the signatory companies are to get employee commitment from all levels. Recent study on Malaysian chemical industries have found that less participation from SME's companies due to lack of commitment and manpower, lack of proper infrastructure and skills, reliance on foreign worker and also lack of awareness to adopt environmental, health and safety best practices are the barriers faced by the CICM [13, 17]. Responsible Care programme was created to increase awareness and responsibility of the chemical companies in environmental, health and safety. Therefore, employees from all levels including the top and the middle management should play a crucial role in implementing Responsible Care programme. The most disturbing aspect in Responsible Care programme implementation is when majority of chemical industry employees including managers either never heard of the programme or scarcely alert of its implications [7, 18]. Instead of just focusing on the improvement of environmental aspect, the awareness and roles of the staff handling Responsible Care activities should be paid attention, product managers, designers and marketing staff should also put concern in these aspects. In some cases, Responsible Care was used in the performance evaluation for some employees because the company consider Responsible Care as in every person's job description so it is supposed to come up in performance evaluation [19]. Therefore, the signatory companies need to include Responsible Care in performance evaluation as a solution to cater these barriers.

CONCLUSION

There are a lot of previous studies discussing about the risks and impacts of the chemicals to the environment. Many incidents from the chemical industries have caused fatal to human and destroy to the environment. Because of that, chemical industries need to strengthen their chemicals management in a more responsible manner. Chemical industries have to put more efforts to improve the quality, safety, health and environment as well as the socio-economic issues instead of emphasizing on the firm's profit. The implementation of Responsible Care programme in chemical industries has improved their performances in safety, health and environment. The signatory companies receive benefits from implementing Responsible Care programme that helps them to achieve the ultimate programme goals. The codes of management practices ensure the signatory companies in line with sustainable development agenda. However, the signatory companies face challenges in adopting and implementing Responsible Care programme. In order to ensure the success of Responsible Care programme adoption and implementation in Malaysia, few elements and procedures of the programme need to be revised and innovated to help the signatory companies to continuously improve their performances and encouraging more participation of in Responsible Care programme.

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