# An Assessment of Employees' Perceptions on Green Environmental Dimensions: A Study at Johor Bahru Johor State of Malaysia

**ABSTRACT:**The aim of the study is to identify the employees perceptions in manufacturing and industrial companies on green environmental dimensions The respondents in this study are the employees' from various manufacturing companies in Johor Bahru city centre, Johor state of Malaysia. This study employed the survey method by using a questionnaire to the focused group that consists of 250 respondents at the managerial and operational level in manufacturing and industrial companies. The green environmental dimensions of that was determined in this study are sustainable transportation, sustainable procurement, eco-labeling and sustainable marketing.. Results showed that the highest total average score is 57 percent agreement on eco-labeling dimensions, followed by sustainable marketing dimension with 56 percent agreement. The results suggest that the manufacturing and industrial companies at Johor Bahru city centre, Johor state of Malaysia specifically did appropriate practices on green environmental dimensions to enhance the environmental sustainability and efficiency on their business operations.

**Keywords:**Sustainable transportation, sustainable procurement, eco –labeling, sustainable marketing.

## I.  INTRODUCTION

Environmental dimensions indicators allow a firm to make measurements related to its environmental performance. In practical terms, the environmental dimensions can be used to form a measuring, benchmarking and monitoring tool to track environmental performance for manufacturing and industrial companies. Environmental dimensions help to summarize extensive data pertaining to the operations of a company on their associated with the impact on green environmental management. Malaysia as a new industrial countries (NIC) has given a good attention  on green management practices that allows sustainable development be employed to encourage manufacturing and industrial companies to embrace green environmental management in the operations, technology used and the production processes. The study has focused on four green environmental management namely as sustainable transportation, sustainable procurement, environmental labelling and sustainable marketing that has believed to be used as part and parcel of measurement on green environmental management practices.

## II.  LITERATURE REVIEW

There is a growing interest in environmental management issues due to increasingly impact on economic, social welfare, human health and ecological integrity.  There is a number of measurement used on environmental management dimensions based on the researcher understanding to achieve the objective of the study. After researching and screening a number of dimensions used by researchers in the literature review, this study has focused on four dimensions that used to measure on perception of green environmental management namely as sustainable transportation, sustainable procurement, environmental labeling and sustainable marketing. According to Litman and Burwell (2006) Environmental labels provide an opportunity to inform consumers about product characteristics that may not be readily apparent. For example, it may be unsuitable to pour unused cleaning product down the drain, due to the product's potential aquatic toxicity. Additionally, labels allow consumers to make comparisons among products. Armed with this information, consumers have the ability to reduce the environmental impacts of their daily activities by purchasing environmentally preferable products and minimizing their consequences during use and disposal. Labels help consumers vote their preferences in the marketplace and therefore potentially shift the market toward products that minimize environmental impacts. Label information helps consumers to use safely and properly recycle or dispose of both products and packaging. Environmental labeling programs can also be characterized as positive, negative, or neutral. Positive labeling programs typically certify that labeled products possess one or more environmentally preferable attributes. Negative labeling warns consumers about the harmful or hazardous ingredients contained in the labeled products. Neutral labeling programs simply summarize environmental information about products that can be interpreted by consumers as part of their purchasing decisions.

Based on the literature review from the previous researchers on green management and exploratory study, the green environmental dimensions of this study were determined as follows:

| | Dimensions | Description | Authors |
|---|---|---|---|
| 1. | Sustainable Transportation | Is defined as a satisfying current transport and mobility needs without compromising the ability of future generations to meet these needs.<br>**Benefits of sustainable transport:**<br><ul><li>Improve community design to contain sprawl better, expand transit option</li><li>Accelerate technology developments and encourage public-private collaboration to move industrial sectors closer to economic, environmental and equity goals</li></ul>The goal of sustainable transportation is to ensure that environment, social and economic considerations are factored into decisions affecting transportation activity | Schiller, Brunn and Jeffrey (2010)<br><br>Chester and Horvath (2009)<br><br>MOST, 1999 |
| 2. | Sustainable Procurement | A process whereby organizations meet their needs for goods, services, works and utilities in a way that achieves value for money whilst minimizing damage to the environment<br>**Benefits of sustainable procurement:**<br><ul><li>Minimize business risks</li><li>Provide cost savings</li><li>Enhance corporate image in the marketplace</li><li>Create markets for new products and services</li></ul> | Brammer and Walker (2011)<br>Coggburn (2004) |
| 3. | Environmental Labeling | Environmental labeling is an effective way of informing customers about the environmental impacts of selected products, and the choices they can make<br>**Benefits of environmental labeling:**<br><ul><li>Informing consumer choice between products that are harmful to the environment and those more compatible with environmental objectives</li><li>Promoting economic efficiency</li><li>Stimulating environmental market development</li><li>Encouraging continuous improvement</li><li>Promoting environmental certification</li><li>Assisting in environmental monitoring</li></ul> | Horne (2009)<br>Jorgensen and Moen (2015) |
| 4. | Sustainable Marketing | Referred to as green marketing, where the company focuses social and environmental investments as a marketing strategy<br><br>**Benefits of sustainable marketing:**<br><ul><li>Sustainable consumption and competitive advantage in the market place</li><li>Consumer-environmental oriented marketing</li><li>Customer-environmental value marketing</li><li>Innovative environmental friendly marketing</li><li>Sense of mission environmental marketing</li><li>Societal marketing for societal benefits</li></ul> | Gordan, Cariggan and Hastings (2011)<br>Mourad and Ahmed (2012) |

## III. RESEARCH METHODOLOGY

### 3.1. Research Objective

The research objective of the study is to identify the employee perceptions at manufacturing and industrial companies in Johor Bahru, Johor State, Malaysia on green environmental dimensions.

### 3.2. Research Instrument and Reliability

The instrument and measurement of the questionnaire items use of "five-point Likert scale from 1 to 5 with 1 – Strongly Disagree to 5 – Strongly Agree". The research instrument items and the reliability of the instrument of this study were as follows:

| Green Environmental Dimensions | Number of Items | Alpha Cronbach Value |
|---|---|---|
| 1. Sustainable Transportation | 9 | 0.700 |
| 2. Sustainable Procurement | 10 | 0.655 |
| 3. Eco-Labeling | 14 | 0.750 |
| 4. Sustainable Marketing | 11 | 0.645 |

### 3.3. Data Collection

Data was collected at Johor Bahru city centre, Johor State, Malaysia from May 2016 to August 2016.

## IV. RESEARCH FINDINGS

The result findings were presented accordingly based on the following:

### 4.1. The Respondents

The respondents total up numbers from manufacturing and industrial companies with various job title as displayed in Table 1:

**Table1:Number of Respondents**

| Job Title | Number of Respondents |
|---|---|
| ▪ Transportation equipment employees | 45 |
| ▪ Automobiles Operational employees | 31 |
| ▪ Car and service employees | 39 |
| ▪ Metal factory worker employees | 40 |
| ▪ Sales and Manufacturing employees | 45 |
| ▪ Engineering and materials | 50 |
| **TOTAL** | 250 |

## 4.2. The Demographic Profile

The majority of the demographic profile of respondents were presented in Table 2. It shows that the majority of gender of the respondents were male with the total numbers of 57 male respondents. The Diploma/Degree qualification are the majority of education level with the total of 28 respondents.

**Table 2: The Demographic Profile of Respondents**

| Demographic Categories | Profile | Number of Respondents |
|---|---|---|
| ▪ Gender | Male | 57 |
| ▪ Citizen | Citizen | Malaysian |
| ▪ Age | 31- 45 Years | 25 |
| ▪ Race | Malay | 37 |
| ▪ Religion | Muslim | 35 |
| ▪ Education Level | Diploma /Degree | 28 |
| ▪ Work Experience | 5-15 years | 30 |
| ▪ Monthly Income | RM 1,001 – RM 5,000 | 27 |

## 4.3. The Findings of the Green Environmental Management Dimensions

The statistics used in analyzing the data are descriptive statistics. The findings on perceptions of Green Environmental Dimensions will based on the percentage of agreement with strongly agree and agree on Likert scale and the mean score interpretation. The interpretation for the mean scores were displayed below:

| Mean Score | Interpretation |
|---|---|
| 1.00– 1.80 | Strongly Disagree |
| 2.61 – 2.60 | Disagree |
| 2.61 – 3.40 | Moderately Agree |
| 3.41- 4.20 | Agree |
| 4.21– 5.00 | Strongly Agree |

The research findings were presented as follows:

Research Question 1: What is the perceptions of employees at manufacturing and industrial companies inSustainable Transportation dimensions?

Table 3 shows the status of employees' perceptions in the aspect of Sustainable Transportation: The average total score on sustainable transportation dimensions are only 26 percent agreement with a mean score of 3.57. The highest mean score is 3.80 on the perceptions of the company management encourages their employees to use energy saving transport like hybrid transport.

**Table 3: The Perceptions on Green Environmental Dimensions – Sustainable Transportation**

| Item Statement<br>The company that I worked for… | % of Agreement | Mean Score |
|---|---|---|
| 1. Encourages employees walking or cycling at the workplace | 58 | 3.47 (Agree) |
| 2. Provides incentives of financial incentives in encouraging employees use public transport to workplace | 20 | 3.50 (Agree) |
| 3. Provides car free zone | 10 | 3.60 (Agree) |
| 4. Uses environmentally friendly vehicle for organization vehicle | 15 | 3.58 (Agree) |
| 5. Enhances less commuting and travelling by using telecommunicating | 35 | 3.60 (Agree) |
| 6. Encourages car pool to work | 50 | 3.49 (Agree) |
| 7. Enhances the use of vehicles from renewable energy | 10 | 3.73 (Agree) |
| 8. Minimizes the transportations needs in business operation | 20 | 3.42 (Agree) |
| 9. Encourages energy saver transport like hybrid transport | 15 | 3.80 (Agree) |
| Average Total Score | 26 | 3.57 (Agree) |

Research Question 2: What is the perceptions of employees at manufacturing and industrial companies in Sustainable Procurement dimensions?

Table 4 shows the employees' perceptions in the aspect of Sustainable Procurement. The average total score of Sustainable Procurement dimensions are 34 percent agreement with a mean score of 3.82. The highest mean score is 4.55 on the perceptions on the use of specific analysis system for environmental friendliness evaluation.

**Table 4: The Perceptions on Green Environmental Dimensions – Sustainable Procurement**

| Item Statement<br>The company that I worked for… | % of Agreement | Mean Score |
|---|---|---|
| 1. Has cooperation with suppliers for environmental materials | 42 | 3.79 (Agree) |
| 2. Does environmental audit for suppliers' internal audit | 47 | 4.25 (StronglyAgree) |
| 3. Has quality certification in environmental suppliers | 58 | 3.56 ( Agree) |
| 4. Provides design specification to suppliers that include environmental requirements for purchase | 52 | 3.50 (Agree) |
| 5. Use specific analysis system to evaluate the environmental friendliness of product and packaging | 43 | 4.55 (Strongly Agree) |
| 6. Ensures the safety of incoming product to company without addendum to energy cost | 21 | 4.30 (Strongly Agree) |
| 7. Cooperate with suppliers to commit waste reduction costs | 20 | 3.56 (Agree) |
| 8. Ensures that suppliers participate in the waste product by recycling materials or Reuse | 23 | 3.65 (Agree) |
| 9. Participate to any programs or course of green procurement | 18 | 3.48 (Agree) |
| 10. Creates opportunities in managing environment through supply chain | 15 | 3.55 (Agree) |
| Average Total Score | 34 | 3.82 (Agree) |

*Research Question 3: What is the perceptions of employees at manufacturing and industrial companies in Eco-Labeling dimensions?*

Table 5 shows the employees' perceptions in the aspect of Eco-Labeling. The average total score of Eco-Labeling are 57 percent agreement with a mean score of 3.82. The highest mean score is 4.12 on the perceptions over the believe that eco label is credible.

**Table 5: The Perceptions on Green Environmental Dimensions – Eco-Labeling**

| Item Statement<br>In support to environmental in my daily life, I…. | % of Agreement | Mean Score |
|---|---|---|
| 1. am aware of Eco-label on food products when I shop. | 35 | 3.58 (Agree) |
| 2. realized that Malaysian government supports Eco-label. | 25 | 3.72 (Agree) |
| 3. know that Eco-label acts as an informative policy instrument with the purpose of guiding consumers about sustainable consumption. | 65 | 3.85 (Agree) |
| 4. always pay attention on protection of the environment is taken as the main concern when I buy food product | 58 | 3.56 (Agree) |
| 5. am willing to buy ecological food instead of conventional | 70 | 3.90 (Agree) |
| 6. will buy eco-labeling food even though I have to pay higher price/tax. | 10 | 3.85 (Agree) |
| 7. know people like me can contribute a lot to protect environment. | 75 | 3.75 (Agree) |
| 8. believed my purchase of eco-labeled food products can actually protect environment. | 80 | 3.68 (Agree) |
| 9. know Eco-label is one essential purchase criteria when I choose food products. | 50 | 3.90 (Agree) |
| 10. am convinced that food products with Eco-label are protective to the environment. | 80 | 4.00 (Agree) |
| 11. believed that Eco-label is very credible. | 60 | 4.12 (Agree) |
| 12. know that Eco-label is a label which identifies the overall environmental preference of a product based on lifecycle consideration (start from raw material extraction through production, distribution and disposal). | 70 | 4.05 (Agree) |
| 13. can easily find information about Eco-label from different media (TV, Newspaper, and Internet). | 45 | 3.95 (Agree) |
| 14. want additional text claim following Eco-label of food products to ensure about positive environmental effects. | 75 | 3.55 (Agree) |
| Average Total Score | 57 | 3.82 (Agree) |

Research Question 4: What is the perceptions of employees at manufacturing and industrial companies in Sustainable Marketing?

Table 6 shows the employees' perceptions in the aspect of Sustainable Marketing. The average total score of Sustainable Marketing dimensions are agreed with 56 percent a mean score of 3.60. The highest mean score is 3.89 on the perceptions over association on green marketing practices on product brand.

**Table 6: The Perceptions on Green Environmental Dimensions – Sustainable Marketing**

| Item Statement<br>In my opinion, manufacturing and industrial companies should…. | % of Agreement | Mean Score |
|---|---|---|
| 1. Ensure brand loyalty by manufacturing products through environmentally p efficiently | 25 | 3.49 (Agree) |
| 2. Advertises and promotes positive environmentalism through product packa; and labelling | 44 | 3.50 (Agree) |
| 3. Educates customers to use products in an environmental friendly manner | 68 | 3.55 (Agree) |
| 4. Continually reminds customers in advertisements of eco-friendly products a services | 70 | 3.40 (Agree) |
| 5. Develops a reputation for manufacturing and producing environmentally co products | 58 | 3.60 (Agree) |
| 6. Promotes products through eco-friendly modes of communication in marke | 65 | 3.50(Agree) |
| 7. Assess and minimise the environmental impact over the product lifetime | 54 | 3.45 (Agree) |
| 8. Uses green supply chain for procurement and distribution channel | 62 | 3.70 (Agree) |
| 9. Associate green marketing practices on product brands | 45 | 3.89 (Agree) |
| 10. Uses green initiatives to attract new market opportunities | 59 | 3.75 (Agree) |
| 11. Uses green marketing to make customers aware of environmentally friendly business | 62 | 3.66 (Agree) |
| Average Total Score | 56 | 3.60 (Agree) |

## V. RECOMMENDATIONS

Based on the research findings, the following recommendation can be applied if reliable to the manufacturing and industrial companies specifically companies that participated in the study and the other companies on how to apply green environmental at the workplace.

### 5.1. Sustainable Transportation

The average total score of agreement percentage of Sustainable Transportation dimensions are only 26 percent with a mean score of 3.57. The highest mean score is 3.80 on the perceptions of encourages energy saver transport like hybrid transport.

So, it is advisable to practice the improvement in sustainable transportation by delivering transportation solutions and infrastructure in a more sustainable manner, agencies and companies are considering each of the bottom line elements:

- Economy — Support economic vitality while developing infrastructure in a cost-efficient manner. The cost of infrastructure must be within a society's ability and willingness to pay. The user costs, including private costs, need to be within the ability of people and households to pay for success.
- Social — Meet social needs by making transportation accessible, safe, and secure; that includes provision of mobility choices for all Malaysian people. Malaysian government develop infrastructure that is an asset to communities. Malaysian can use more public transport like MRT, LRT as now many incentives given to public by using public transport than the personal transport.
- Environment — Create solutions that are compatible with - and that can be an enhancement to the natural environment, reduce emissions and pollution from the transportation system, and reduce the material resources required to support transportation.

### 5.2. Sustainable Procurement

The average total score of Sustainable Procurement dimensions are 34 percent agreement with a mean score of 3.82. The highest mean score is 4.55 on the perceptions on the use of specific analysis system for environmental friendliness evaluation. The highest mean score is 4.55 on the perceptions on the use of specific analysis system for environmental friendliness evaluation.To apply green environment with Sustainable Procurement, it should be able to:

- Manage the procurement that focused on environmental concern
- Communicate and encourage employees and suppliers to use green resources
- Provide program and activities of green management on the purchasing and procurement

### 5.3. Eco-Labeling

The average total score of Eco-Labeling are 57 percent agreement with a mean score of 3.82. The highest mean score is 4.12 on the perceptions over the believe that eco label is credible.To increase the usage of eco-labeling practices, the manufacturing and industrial companies need to:

- Increase the commitment and initiative of Eco-design packaging
- Provide information and communication effectively on eco-labeling product and their usage
- Design for packaging
- Design for disposability of product labeling
- Support the society activity on eco-design and labeling
- Design for energy saving and eco-green in the product labeling

### 5.4.Sustainable Marketing

The average total score of Sustainable Marketing dimensions are agreed with 56 percent a mean score of 3.60. The highest mean score is 3.89 on the perceptions over association on green marketing practices on product brand.So, it is advisable to practice the improvement in Sustainable marketing by delivering marketing program and infrastructure of marketing by:

- Promoting marketing program that focus on environmentally concern and caring
- Build a cooperation and connection on the companies that is seriously committed to environment
- Attract consumers on brand that use ingredients that is safe and without chemical and animal fat
- Educating society on the important of sustainable and environmentally friendly product and its usage

## VI. CONCLUSION

This research is just a starting point for the level of green environmental awareness and that can help on planning works on green environment. It is hoped that in the near future, by formulating the implementation mechanism for the execution of the green environmental planning, the green environmental dimensions can help to be part and partial of the execution of an environmental factors that need to be enhanced and well accepted in manufacturing and industrial sectors with the cooperation of government agencies to design an action plans of green environmental practices and operation successfully for better future in Malaysian atmospheric environments.

## ACKNOWLEDGEMENTS

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