CHAPTER 5

DATA ANALYSIS AND RESEARCH FINDINGS

INTRODUCTION

This chapter is devoted to the data analysis and also the findings of the research. The main purpose of this chapter is to present the specific methodological hypothesis employed in examining the theoretical part of the research and the hypotheses suggested in this study. This chapter consists of several parts. The first part deals with data analysis conducted in the survey. It consists of several subtopics – the research method, the scale development, the problems and difficulties, the reliability tests, the correlations, the multiple regressions and the hypothesis testing. In the first part, the discussion is centred on the data analysis part of the research including the demographic analysis and reliability. Also discussed in the first part is the correlation that was conducted on the independent variables, namely, the attitude, regulation, self-efficacy, ethical climate, financial aspect, personal moral obligation (PMO), stakeholder information and stakeholder pressure in order to test the hypotheses that would meet the objective of the study.

The second part deals with the research findings that contain the objectives of the research. Therefore, it is logical at this point to explore and analyse available data on the demographic side as well as in the theoretical part as it provides an understanding of the independent variable factors that influence the environmental ethical commitment (EEC) of the manufacturing companies.

5.1 THE DATA ANALYSIS

This sub chapter discusses the data analysis aspect, which includes research method, problems and difficulties in carrying out the study, the reliability test, the correlation, the multiple regression and the hypotheses testing.

5.1.1 RESEARCH METHOD

Manufacturing companies were designated as the unit of analysis and mailed questionnaires were employed to obtain the information required. During the month of October 2009, the researcher interviewed five manufacturing companies listed in FMM (Federation of Malaysian Manufacturers) Directory 2005, Malaysian Industries 36th Edition situated in the Klang Valley. Initially, the personal interviews were conducted to enable five companies to review the initial questionnaires. A total of 12 companies were approached for corresponding and interviewing purposes. However, seven manufacturing companies politely declined to participate in the survey for various reasons and the average spent on each interview was about two hours. Later the questionnaires were modified to accommodate the managers' comments and suggestions. The latest version of the questionnaire was then sent for pre-tests.

The pilot test was conducted in October 2009. The research completed three mailings of the survey and the survey reply was anonymous. The package mailed included a cover letter, a brief description of the purpose of the research, instructions emphasizing the confidentiality of the information, a postage-paid return envelope and the survey. Later the first sets of

questionnaires were sent out to the sample of 326 companies in January 2010 and 41 came back representing a 12.6 per cent return rate. The research attempted to use telephone calls, meetings and emails in an attempt to increase the response rate. The second attempt was made in March 2010 as the study was unable to correspond with the respondents on a daily basis. It was difficult to collect the data. The third attempt was made in June 2010. Initially, this study was assumed to have failed in collecting data but with numerous calls, meetings, emails, persuasion and explanations, the study managed to increase the response rate enabling the data to be analysed.

Although the use of mail in sending questionnaires to be completed by the respondents concerned was unlikely to succeed because of the low rate of return, with numerous calls, emails, faxes, appointments, meetings and persuasion, the study managed to gain a total of 150 respondents representing a 46 per cent return rate.

5.1.2 PROBLEMS AND DIFFICULTIES

The survey that was carried out was not without its problems. At the early stage of the preparation of conducting the survey there were problems obtaining the sample frame. This is because the research was trying to capture all types of businesses but because the literature reported that small companies were the major polluters (Lubis, 1998) and they were said not to have the capital to adopt any environmental procedures (Henriques and Sadorsky, 1996), the listed companies were hoped to give better return rate and accurate results. However, using the samples of manufacturing

companies listed in the Federation of Malaysian Manufacturers (FMM) faced the same kind of problems. The return rate was also low and slow. A number of appointments had to be made to see various Chief Executive Officers (CEO) or managers.

The names of the managers and their addresses were gained from the Directory of Public Companies in FMM, which offers a typical commercial credit report for more than 1,000 listed companies in Malaysia for free. The names and addresses were checked and compared with the individual companies' home page on the Internet and the FMM Directory 2005, Malaysian Industries, 36th Edition as well as the Stock Performance Guide, Malaysia 2005 Edition. The researcher had to explain and convince them as to the purpose of the survey. Moreover, most manufacturing companies in Malaysia did not have a specific environmental designation.

Although there were companies that did have a specific environmental designation the number was small (based on the result). Most companies in Malaysia did not have a specific environmental designation as they depend on individual departments to react to such environmental issues if there is a need to do so, such as reacting to the pressure of suppliers or demand from the customers. Some of the respondents were not very cooperative. The respondents were not likely to cooperate in such a study and would think that they would not gain anything tangible by giving information about the firms. Fortunately, after some persuasion, several phone calls and promises of not to reveal their companies they were willing to participate while in the

other cases it was not possible to make any appointment to see the managers as they were overseas. Some of them were not situated in the headquarters as they were on rotation from plant to plant and simply refused to participate due to laziness and time constraints.

Another difficulty was collecting the data in such a developing environment and most of the manufacturing companies interviewed were very conservative with the information they gave. In spite of these difficulties, the researcher managed to collect all the required data that will form the basis of the study. The initial stage in the process of analysing the metric data was to investigate the relationships between the variables being studied. This was done using simple cross-tabulation, contingency tables and the explore command. The cross-tabulation analysis was used to examine some of the characteristics of the socio-economic and demographic variables of the respondents. Frequency distributions merely explained the occurrence of each score value and were normally presented in tabular form. A summary of the description of the characteristics of the types of respondents is shown in table 5.01.

The majority of the respondents were from the manufacturing and food industry. Responses were also gained from many other sectors such as agriculture, electronics glass re-mastering, mechanical refined kaolin, metal industry, personal care products, greeting cards, cement, photographic solutions, detergents, footwear, automotive tyres, cosmetic products, plastic moulding, industrial lubricants, casting components, and heater and

thermocouples. Automation system integrators, industrial paints, mineral water, fashion garment, filters for industrial uses, remanufacturing cartridge fire fighting equipment, magnet wire, herb products, industrial and process automation, petroleum tankers, air conditioner, labelling products, technical compounds connectors and accessories and plastic products also responded.

Table 5.01

The Industry

No.	Type	Quantity	No.	Type	Quantity
1.	Food	20	35.	Technical Compounds	1
2.	Independent Power Producer	1	36.	Connectors and Accessories	1
3.	Agriculture	4	37.	Plastic Products	6
4.	Electronics	8	38.	Industrial Papers	1
5.	Glass Re-mastering	1	39.	Extruded Rubber Threads	1
6.	Mechanical	1	40.	Chemical Products	1
7.	Refined Kaolin	1	41.	Furniture Parts	1
8.	Metal Industry	1	42	Pharmaceutical Products	1
9.	Personal Care Products	1	43.	Printing	1
10.	Greeting Cards	1	44.	Electrical Components	1
11.	Cement	1	45.	Medical Supplies	1
12.	Photographic Solutions	1	46.	Skin Care Products	1
13.	Detergents	1	47.	Crusher Equipment	1
14.	Footwear	1	48.	Fine Chemicals	1
15.	Automotive Tyres	1	49.	Aluminium Products	1
16.	Cosmetic Products	1	50.	Manufacturing	33
17.	Plastic Moulding	5	51.	Latex Products	1
18.	Industrial Lubricants	2	52.	Leather Products	1
19.	Casting Components	1	53.	Lighting Products	1
20.	Sanitary Fittings	4	54.	Speaker Systems	1
21.	Heaters And Thermocouples	1	55.	Bearings	1
22.	Automation System Integrator	1	56.	Reservoir and Containers Metal	1
23.	Industrial Paint	5	57.	Ceramics Products	1
24.	Industrial and Process Automation	1	58.	Bodies For Motor Vehicles	1
25.	Fashion Garment	1	59.	Piping System	1
26.	Filters For Industrial Use	1	60.	Polymic Compounds	1
27.	Remanufacturing Cartridge	1	61.	Nursery products	3
28.	Fire Fighting Equipment	3	62.	Gold Bar	1
29.	Magnet Wire	1	63.	Palm Oil	1
30.	Herb Products	1	64.	Cryogenic Tanks	1
31.	Mineral Water	1	65.	Satellite Devices	1
32.	Petroleum Tankers	1	66.	High Explosive Industrial	1
33.	Air Conditioner	2	67.	Pesticides	1
34.	Labelling Products	1	**TOTAL**		**150**

The respondents were situated in several states of Malaysia – Melaka, Selangor, Johor, Perak, Pahang and the federal state of Kuala Lumpur. The majority of the respondents were from Selangor as Selangor has many manufacturing companies compared to other states in Malaysia, as shown in Table 5.02.

Table 5.02

Number of Respondents and Place

State/Place	**No of respondents**
Kuala Lumpur	17
Melaka	1
Selangor	122
Johor	3
Perak	4
Pahang	3
Total	**150**

Once the data had been gathered and categorized, several statistical tests were employed in this study to analyse the data. Since the questionnaires were pre-coded and designed during the pilot test stage, the process of coding the data into the computer was straightforward. Due to coding errors and the issue of not normalized data, the process of cleaning the data was carried out until all errors were eliminated and a more normally distributed set of scores were produced for further analysis. In this endeavour, and indeed for the purpose of all the analysis presented in this survey, SPSS 15.0 was used.

According to Field (2005), most parametric tests based on the normal distribution have four basic assumptions that must be met for the test to be accurate. The data have to be normally distributed data, have homogeneity of variance, measured as interval data and independence.

5.1.3 THE RELIABILITY TESTS

The reliability test ensured "consistency" in the measurement of the measuring construct (Field, 2005; Malhotra, 2004) a measure that indicates the extent to which it is without bias (error free) and helps to assess the "goodness" of a measure (Sekaran, 2003). According to Cooper and Schindler (2003), reliability deals with the issue of accuracy and precision of a measurement procedure. Reliability comes in many types but the most commonly used is the Cronbach's Alpha, which is based on the average correlation of the items within a test if the items are standardized and the reliability value ranges from 0 to 1 (Coakes and Steed, 2003). In order for the scale to be reliable and consistent, the association should be high (Malhotra, 2004).

Therefore, reliability is an indication of the stability and consistency with which the instrument measures the concepts and helps to assess the goodness of a measure. Cronbach's Alpha is a reliability coefficient that indicates how well the items in a set/construct are positively correlated to each other. The closer the reliability to the coefficient of 1 the better.

All reliability of the dependent and independent variables were assessed by using a coefficient alpha (Cronbach, 1960). The coefficient alpha for EEC with seven items was .86, the coefficient alpha for ecological concern with 16 items was .90, the coefficient alpha for regulation with seven items was .78, the coefficient alpha for self-efficacy with 8 items was .83, the coefficient alpha for ethical climate with eight items was .87, the coefficient alpha for financial cost with five items was .80.

The coefficient alpha for stakeholder information with nine items was .68, the coefficient alpha for stakeholder pressure with eight items was .86 and the coefficient alpha for personal moral obligation with six items was .84. The coefficient alpha for the dependent variable and all independent variables indicated high internal homogeneity in the items. The scales exhibited well over the .50 reliable level suggested by Nunally (1967) as a minimum level of acceptable reliability. Thus, the reliability of all the constructs as one dependent variable and eight independent variables were acceptable for the research being conducted.

Table 5.03

Summary of Reliability Analysis

Variable	**Number of items**	**Item(s) deleted**	**Cronbach's Alpha**
EEC as DV	7	-	.86
Attitude/Ecological Concern	16	-	.90
Subjective Norms/Regulation	7	-	.78
Ethical Climate	8	-	.87
Self-efficacy	8	-	.83
Financial Aspect	5	-	.80
Personal Moral Obligation	6	-	.84
Stakeholder Information	9	-	.68
Stakeholder Pressure	8	-	.86

Based on table 5.04, Cronbach's Alpha – The Comparison, the Cronbach's Alpha for ecological concern (ATT), subjective norms (REG), ethical climate (EC), self-efficacy (SE), financial aspect (FIN), personal moral obligation (PMO), stakeholder information (SI) and stakeholder pressure (SP) resulted in Cronbach's Alpha higher than the rest. However, self-efficacy reliability was slightly lower than the self-efficacy of Flannery and May (2000).

Table 5.04

Cronbach's Alpha – The Comparison

		Flannery and May (2000)	Randall and Gibson (1991)	Kurland (1995)	Jones (1986)	Victor and Cullen (1988)	Cordano and Frieze (2000)	Christmann (2000)	Gill et al. (1986)	Henriques and Sadorsky (1999)
EEC	**.86**									
ATT	**.90**	.73	.78	.93			.73		.86	
REG	**.78**	.60					.74			
EC	**.87**	.81				.79				
SE	**.83**	.89			.71					
FIN	**.80**	.64						.79		
PMO	**.84**	.85		.71						
SI	**.68**									NA
SP	**.86**									NA

5.1.4 THE DESCRIPTIVE STATISTICS ANALYSIS

To identify the items that represent the construct the most, descriptive statistics analysis was done. Descriptive information was needed showing the means and standard deviations for all variables in the study. It was also the first step needed in regression analysis in order to evaluate the data to see whether they meet the test assumptions. Descriptive statistics were calculated for each variable [including the measure of skewness] to identify any outliers (Bordens and Abbot, 2002). Table 5.05 represented the descriptive statistics for all the dependent variables as well the independent variables. (Please refer to Appendix Exhibit 11 for the Questionnaires).

Table 5.05

Descriptive Statistics for EEC

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
EEC	150	2.00	5.88	3.9317	.79580	-.046	.198
ATT	150	2.31	5.69	4.0550	.64591	.050	.198
REG	150	2.14	5.57	4.0457	.68847	-.115	.198
EC	150	2.13	5.75	4.1767	.73876	-.082	.198
SE	150	2.38	5.88	4.0592	.67892	.036	.198
FIN	150	2.20	5.80	4.0387	.73446	-.135	.198
PMO	150	2.00	6.00	4.3578	.60583	-.687	.198
SI	150	2.44	5.44	4.0970	.57314	-.019	.198
SP	150	1.88	5.88	3.9975	.68580	-.431	.198
Valid N (listwise)	150						

5.1.5 THE CORRELATIONS

The most widely used statistic is the product moment correlation, which summarizes the strength and association between two metrics [interval or ratio scaled] (Malhotra, 2004) and is a measure of the linear relationship between variables, say X and Y (Field, 2005). A correlation describes the relationship between two continuous variables (Coakes and Steed, 2003) and is represented in the form of a table to display coefficients for more than two variables (Cooper and Schindler, 2003).

According to Malhotra (2004), correlation was originally proposed by Karl Pearson and widely known as Pearson's correlation coefficient and also

referred to as the simple correlation, bivariate correlation or even the correlation coefficient.

All the proposed hypotheses were first tested by correlating EEC as the dependent variable with an index of eight independent variables. Referring to the hypothesis statement, Hypothesis one stated that manager's EEC will be influenced positively by their ecological concern towards the natural environment. Hypothesis two stated that manager's EEC will be influenced positively by their perception of regulations aspect imposed by the government. Hypothesis three stated that manager's EEC will be influenced positively by their levels of efficacy.

Hypothesis four stated that manager's EEC will be influenced positively in relation to their own organizational ethical climates. Hypothesis five stated that manager's EEC will be influenced positively in relation to their perceptions of financial aspect considerations. Hypothesis six stated that manager's EEC will be influenced positively by their PMO. Hypothesis seven stated that manager's EEC will be influenced positively by their stakeholders' information and Hypothesis eight stated that manager's EEC will be influenced positively by their stakeholders' pressure.

Table 5.06 represents the correlation for the factors under study. The table shows that the EEC of manufacturing companies in Malaysia is positively related to ecological concern, with a coefficient of r = .480, which is also significant at p< 0.01. The table also shows a positive relationship between

the EEC of manufacturing companies in Malaysia with the regulation aspect, with a coefficient of r = .540, which is significant at p< 0.01; with ethical climate, with a coefficient of r = .434, which is significant at p< 0.01; with self-efficacy, with a coefficient of r = .497, which is significant at p< 0.01; with financial aspect, with a coefficient of r = .525, which is significant at p< 0.01; with PMO, with a coefficient of r = .367, which is significant at p< 0.01; with stakeholder information, with a coefficient of r = .586, which is significant at p< 0.01. Finally, EEC also appears to be positively related to stakeholder pressure (r = .234, p<0.01).

However, the correlational method observed two variables to see any relationship and it limited itself from explaining the cause-and-effect of the relationship. It simply described the relationship (Gravetter and Wallnau, 2004) or explained if a relationship exists between two variables and the overall strength of the relationship (Hair et al., 2007). It is known that the two variables were associated with each other but did not identify which variable causes which (Sekaran and Bougie, 2010). Therefore, it was necessary to exert a much greater level of control over the variables being studied to establish a cause-and-effect relationship (Gravetter and Wallnau, 2004).

Table 5.06

The Correlations

	EEC	ATT	REG	EC	SE	FA	PMO	SP	SI
EEC									
Ecological Concern (Attitude)	**.480(**)**	1							
Regulation	**.540(**)**	.684(**)	1						
Ethical Climate	**.434(**)**	.576(**)	.619(**)	1					
Self Efficacy	**.497(**)**	.605(**)	.624(**)	.664(**)	1				
Financial Aspect	**.525(**)**	.486(**)	.563(**)	.563(**)	.711(**)	1			
Personal Moral Obligation	**.367(**)**	.291(**)	.370(**)	.454(**)	.527(**)	.591(**)	1		
Stakeholder Pressure	**.234(**)**	.368(**)	.273(**)	.291(**)	.457(**)	.415(**)	.325(**)	1	
Stakeholder Information	**.586(**)**	.596(**)	.636(**)	.665(**)	.638(**)	.639(**)	.572(**)	.322(**)	1

Note: Pearson Correlation
** Correlation is significant at the 0.01 level (1-tailed).
N = 150

5.1.6 THE MULTIPLE REGRESSIONS

Regression analysis is a powerful and flexible procedure (Malhotra, 2004) and an incredibly useful descriptive tool (Field, 2005) in order to examine a simultaneous effect of one or more metric independent variables on a metric dependent variable (Malhotra, 2004; Sekaran, 2003). Multiple regression is an extension of bivariate correlation and the result of regression analysis is an equation that represents the best prediction of a dependent variable from several independent variables (Coakes and Steed, 2003). Coakes and Steed

(2003) explained that the independent variables can be either continuous or categorical but the dependent variable must be measured on a continuous scale. They further explained that if the dependent variable is not continuous, then the discriminant function is appropriate.

Based on Cooper and Schindler (2003), multiple regression is used in three types of situation: First, to develop a self-weighting estimating equation by which to predict values for a criterion variable (dependent variable) from the values for several predictor variables (independent variables). Second, it calls for controlling for confounding variables to better evaluate the contribution of the variables, and, lastly, to test and explain causal theories.

Regression analysis is a simple and straightforward dependence technique that can provide both prediction and explanation to the researcher (Hair et al., 1998; 158). Regression techniques are widely used in many behavioural sciences (Zechmeister and Posavac, 2003) and perhaps the most widely applied data analysis technique for measuring linear relationships between two or more variables (Hair et al., 2007). Hair et al. (1998) explained that the fundamental purpose of multiple regressions is to predict the dependent variable (criterion) with a set of independent variables (predictors). The rationale is that if several of these measures are considered simultaneously, the study can make a more accurate prediction as compared to one predictor variable only (Jaccard and Becker, 1997) without running several separate bivariate regressions (Hair et al., 2007).

Thus, the role of regression analysis is to obtain an equation to permit making specific predictions of the values of a continuous variable based on values of another continuous variable (Zechmeister and Posavac, 2003). According to Hair et al. (1998) the selection of predictor variables should be based on the theoretical relationships to the dependent variable and then the analysis will provide a means of objectivity assessing the magnitude and direction (positive or negative) of each predictor's relationship.

In using regression analysis, several assumptions must be evaluated. The assumptions examined are the linearity of the phenomenon measured (Hair el al., 1998; Hair et al., 2007; and Field, 2005), the variance of the error term is constant (Malhotra, 2004; Hair et al., 1998 and Field, 2005), independence of the error terms and the normality of the error term distribution ((Malhotra, 2004; Field, 2005; Hair et al., 1998 and Hair et al., 2007). Other assumptions expected the variables to be measured using interval or ratio scales (Hair et al., 2007 and Field, 2005) and no perfect multicollinearity (Field, 2005). In this study all the assumptions were met. The study also evaluated multivariate outliers, normality and homoscedasticity. A scatter plot of residuals was used to evaluate normality and homoscedasticity (Bordens and Abbot, 2002) and the Durbin-Watson test was used to evaluate independent error (Field, 2005).

In order to assess the impact of independent variables on environmental ethical commitment (EEC), a multiple regression was performed with EEC as a dependent variable and eight independent variables, namely, the

ecological concern, regulation, ethical climate, self-efficacy, financial aspect, personal moral obligation (PMO), stakeholder pressure and stakeholder information. With the enter method; the results shown in Table 5.10 indicate the R Square, which is the measure of how much of the variability in the outcome is accounted for by the predictors. For the model, its value was .417 of the variance in EEC, which means that all the independent variables had managed to explain a moderate amount of the variation in EEC.

The correlation matrix (as shown in Table 5.07, page 257) was extremely useful for getting an approximate idea of the relationship between predictors and the outcome and for a preliminary look for multicollinearity. If there is no multicollinearity in the data then there should be no substantial correlation ($R > 0.9$) between the predictors. In the case of potential problems of multicollinearity, more precise tests than the rule of thumb to determine whether multicollinearity was high enough to cause problems were conducted. These were the tolerance and VIF (Variance Inflation Factor).

A common cut off threshold is a tolerance value of .10, which corresponds to a VIF value below 10 (Hair et al., 1998). However, Hair et al. (2008) indicated that multicollinearity problems do not have an impact on the size of R Square, or the ability to predict values of the dependent variable but they certainly can affect the statistical significance of the individual regression coefficient and the ability to be used to explain the relationships.

Table 5.07

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.646a	.417	.384	.62438

Model Summary b

Model	Change Statistics					Durbin-Watson
	R Square Change	F Change	df1	df2	Sig. F Change	
1	.417	12.631	8	141	.000	1.647

a. Predictors: (Constant), SI, SP, PMO, ATT, EC, FIN, REG, SE

b. Dependent Variable: EEC

Table 5.07 explains whether the model is successful in predicting EEC. It is the model summary and this table was produced by using the model fit option. In the column labelled R is the value of the multiple correlation coefficients between the predictors and outcome. The R value is the simple correlation between EEC and all the eight independent variables (0.646).

The next column explains the value of R Square, which is a measure of how much of the variability in the outcome is accounted for by the predictors. For the model its value is 0.417, which means that the independent variables accounted for 41.7% of the variation in the dependent variable (EEC). This means that 58.3% of the variation in EEC cannot be explained by the factors alone. Therefore, there must be other factors that have an influence; the study named it the “The Other Factors”.

The Durbin-Watson statistic was found in the last column of the table. This statistic informs whether the assumptions of independent errors are tenable. The closer to 2 that the value is, the better. The value was 1.647 which is close to 2 meaning that the assumption has almost certainly been met.

Table 5.08

ANOVA (b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.393	8	4.924	12.631	.000(a)
	Residual	54.969	141	.390		
	Total	94.362	149			

a Predictors: (Constant), SI, SP, PMO, ATT, EC, FIN, REG, SE
b Dependent Variable: EEC

Table 5.08 shows an analysis of variance (ANOVA) that tested whether the model was significantly better at predicting the outcome. The result indicates that the model *F*-ratio is 12.631, which is very unlikely to have happened by chance ($p<.001$). The result can be interpreted that the model significantly predicted the outcome variables. This is interpreted as meaning that the model significantly improved the ability to predict the outcome variable. In short, overall, the regression model predicted EEC significantly well.

Table 5.09

Coefficient (a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.207	.466		.443	.658	-.715	1.128
	ATT	.124	.120	.100	1.031	.304	-.113	.361
	REG	.232	.116	.200	1.988	.049	.001	.462
	EC	-.078	.105	-.072	-.747	.457	-.285	.129
	SE	.008	.132	.007	.064	.949	-.253	.269
	FIN	.227	.111	.209	2.049	.042	.008	.445
	PMO	-.005	.113	-.004	-.045	.964	-.229	.218
	SP	-.033	.087	-.028	-.382	.703	-.204	.138
	SI	.444	.148	.319	2.987	.003	.150	.737

a. Dependent Variable: EEC.

Coefficient (a)

Model		Correlations			Collinearity Statistics	
		Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)					
	ATT	.480	.087	.066	.436	2.295
	REG	.540	.165	.128	.407	2.457
	EC	.434	-.063	-0.48	.438	2.281
	SE	.497	.005	.004	.326	3.071
	FIN	.525	.170	.132	.396	2.523
	PMO	.367	-.004	-.003	.558	1.793
	SP	.234	-.032	-.025	.743	1.347
	SI	.586	.244	.192	.361	2.769

a. Dependent Variable: EEC.

From Table 5.09, the result can be interpreted as below,

Regulation Aspect (b = 0.232): This indicates that as the regulation aspect increased by one unit, the EEC increased by .232 units. This interpretation is only true if the effects of the other independent variables are held constant.

Financial Aspect (b = 0.227): This indicates that as Financial Aspect increased by one unit, EEC increased by .227 units. This interpretation is only true if the effects of the other independent variables are held constant.

Stakeholder Information (b = 0.444): This indicates that as Stakeholder Information increased by one unit, EEC increased by .444 units. This interpretation is only true if the effects of the other independent variables are held constant.

The *t*-tests were conceptualized as the measures of whether the predictor makes a significant contribution to the model. The predictor is said to make a significant contribution to the model. The smaller the value of *Sig*. (and the larger the value of *t*) the greater the contribution of that predictor.

For this model,

Regulation Aspect	($t(146) = 1.988, p < 0.049$)
Financial Aspect	($t(146) = 2.049, p < 0.042$)
Stakeholder Information	($t(146) = 2.987, p < 0.003$)

From the magnitude of *t*-statistic it was found that stakeholder information had a higher impact whereas the regulation aspect and financial aspect had a similar but slightly less impact. Therefore, regulation aspect, financial aspect and stakeholder information are all significant predictors of EEC. For the model, the VIF values for regulations, financial aspect and stakeholder information are all well below 10 and the tolerance statistics are all well

above 0.2; therefore, it can be safely concluded that there is no collinearity within the data.

5.2 RESEARCH FINDINGS

In many developing countries, environmental ethics is still a new phenomenon. Environmental ethics is still a new concept to manufacturing companies and to stakeholders it is just beginning to be developed (Yaacob et al., 2003). Many companies in developing countries characterized EEC as a side issue and not as the main corporate agenda (Austin, 1991). However, the awareness of environmental ethics among manufacturing companies in Malaysia is increasing (Yaacob et al., 2003). Although manufacturing companies seem to be sceptical about investing large amounts of money in EEC and are hesitant to accept this new concept of doing business, it was empirically proven that manufacturing industries in Malaysia did invest some amount of money in environmental efforts by having financial cost supported. The media has tried their best to reveal any environmental degradation (Newman and Breden, 1992) and it was not until recently that the importance of EEC was felt in Malaysia. The issues of global warming, haze, flood and tsunamis have been the main topics in the media and have opened the eyes of the nation, specifically, the manufacturing industry, to consider the importance of environmental ethics.

5.2.1 THE OBJECTIVES OF THE RESEARCH

As outlined by the study, a comprehensive review of the concept of environmental ethics was taken. While doing so, many aspects of environmental ethics have been considered. Chapter 2 has explained in

depth the concept of environmental ethics by explaining environmental ethics development, which highlights, among others, the goal (Ohara, 1998) and task of environmental ethics. Also explained in depth were, among others, the green movement, which revealed some motivations for greening (Saha and Darnton, 2005); environmental ethics philosophy (Schmidheiny, 1992), which explained ecocentric, biocentric and anthropocentric; environmental sustainability, which revealed environmental principles and ethical decision making, which exhibited reasons why people damage the environment (Polonsky, 1994a).

Also included were the manufacturing industry, which exhibited ecological footprint (Hart, 1997); the managers as the respondents of this research, which explained ethics and compliance officers responsibilities (Weber and Fortun, 2005); the core themes, the environmental ethics approaches that described the classification (Roome, 1992; Hunt and Auster, 1990; Wartic and Cochran, 1985; Caroll, 1979); the environmental ethics motives and the benefits of environmental ethics, such as customer satisfaction, quality of work life and environmental impact (Stainer and Stainer, 1997). Such information is important for the purpose of understanding this concept and enables the managers to fine-tune their strategies in order to gain the benefits of profitability and reduce negative environmental impact.

The main objective of the study is to identify the factors contributing to the environmental ethical commitment in Malaysia. Based on the literature, interviews and with underlying TPB, the factors under study were the

ecological concern (that represented the attitude), the regulations (that represented subjective norms), the self-efficacy as an internal perceived behavioural control, financial aspect, ethical climate, stakeholder information and stakeholder pressure as the external perceived behavioural control and Personal Moral Obligation.

5.2.2 FACTORS THAT DETERMINE EEC

Apart from identifying the contributing factors, it was also the objective of this study to determine EEC factors by analysing the hypothesis under study using the specified statistical tools used. Hypothesis one stated that manager's environmental ethical commitment will be influenced positively by their ecological concern towards the natural environment. The hypothesis was tested by correlating EEC as the dependent variable with an index of 16 items of independent variable, namely, the ecological concern variable. The correlation obtained was 0.480, which was positive and significant. However, regression analysis showed an insignificant result, thus, hypothesis one was not supported and it can be concluded that manager's environmental ethical commitment will not be influenced positively by their ecological concern towards the natural environment.

Based on the attitude (ecological concerns) outcome, the study found that the influence on EEC by ecological concern was not supported. This result was in contrast to Flannery and May (2000) who indicated that the managers' commitment was positively influenced by the managers' ecological concern. This result was expected, as high concern towards the

ecology will not necessarily increase the company's commitment towards the natural environment. Based on the analysis and in accordance with Gill et al. (1986), the respondents did not seem to worry about pesticides on food products, noise pollution, hazy days or think about polluting industries.

Based on the results, the respondents were not frightened and they were not angry to think that the food was contaminated with pesticides, the harm being done to the planet and animal life and the idea that eventually the world would be dead if the natural environment was not taken into consideration. They also did not worry or get upset about the effects of haze on their families and the idea of pollution getting worst. The companies did not urge their counterparts to use and reduce products that pollute in order to preserve the resources, as to them, the benefits of using it were more important than the pollution aspect of the products. They seemed to be confused when they were faced with the issues of corporations and the environment as referred to in Gill et al. (1986).

However, to alter this situation (the confusion among consumers and the public's attitude towards corporations and the environment), it has been suggested that the confusion needs to be altered with a substantial long-term commitment to the environment (Stisser, 1994).

Hypothesis two stated that manager's EEC will be influenced positively by their perception of regulations imposed by the government. The hypothesis was tested by correlating EEC as the dependent variable with an index of

seven items of the regulations independent variable. The correlation obtained was 0.540, which was positive and significant for regulation. However, regression analysis showed a significant result, thus, hypothesis two was supported and it can be concluded that manager's EEC will be influenced by the regulations imposed by the government concerning the natural environment.

The result of this study on the regulation aspect as the subjective norms construct indicates that regulation was supported. In Malaysia, regulations play an important role in compelling the Malaysian manufacturing companies to commit ethically. This result is in line with research done by Flannery and May (2000), and Cordano and Frieze (2000). Manufacturing in Malaysia revealed that regulation is one of the factors that is responsible to urge them to value the environment.

It was the regulations imposed by the Malaysian government that provide information and trigger manufacturing companies to be motivated and alert to improve environmental quality. The regulation aspect did educate them to act professionally in the manufacturing industry in order to avoid risk to the corporations. However, the manufacturing companies were only committed to the ethics of the natural environment because they want to avoid fines, criminal penalties, legal judgment and other legal costs.

In terms of regulation effort, in 1990, Malaysia was one of the developing countries, which actively negotiated for a convention on climate change by

insisting that developed countries must take the lead in reducing greenhouse gases. In 1992, Malaysia objected to the draft text to the UNFCCC (United Nations Climate Change Conference) at the Intergovernmental Negotiating Committee because it did not contain any meaningful commitment to a reduction in greenhouse gases by developed countries. Malaysia signed the UNFCCC on 9 June 1993 and ratified it on 17 July 1994. Malaysia also signed the Kyoto Protocol on 12 March 1999 and ratified it on 4 September 2002, as a commitment by Malaysia to address global warming and climate change (Impak, 2009: 5).

In 1995, the Institute of Strategic and International Studies (ISIS), Malaysia, coordinated the preparation of the initial National Communication of Malaysia (NC1), which was submitted to the UNFCCC in 2000. The report provided information on the greenhouse gas inventory, possible impacts and vulnerable economic sectors due to climate change, public awareness and education programmes. It was hoped that the NC2 would be completed in 2009 (Impak, 2009: 5).

Although Malaysia does not have a dedicated policy on climate change, it has instituted its own policies and measures to address the impact of climate change. For example, Malaysia has never had clear policies, rules and regulations for the conservation of forests – the latter being an efficient carbon sink. Chapter 19 of the Ninth Malaysia plan indicated Malaysia's commitment to reducing its high dependence on petroleum products by promoting the use of alternative fuels and renewable energy for power

generation. Malaysia will continue to promote energy efficiency initiatives not only in industries, transport and commercial sectors but also in government buildings (Impak, 2009a:5).

Other initiatives include several projects on renewable energy funded by the Global Environmental Facility (GEF) that are currently underway. The Global Biomass-based Power Conservation and Co-generation project using palm oil refinery waste and empty fruit bunches are good examples. It produces biogas, while methane is captured in the process, which also reduces the emission of greenhouse gases into the atmosphere. The Malaysian Industrial Energy Efficiency Project (MIEEIP) undertook capacity building and demonstration programmes to industries. Malaysian NGOs were also active in promoting public awareness amongst Malaysians regarding climate change that was initiated by the Centre for Environment, Technology and Development Malaysia (CETDEM) to act proactively on climate change issues through the enhancement of the understanding and awareness of these issues (Impak, 2009b:5).

Malaysia has also produced several national climate-related policies towards achieving sustainable development, and which are already in place. Selected national climate-related policies include the National Environmental Policy, National Forest Policy 1978, Biodiversity Policy, National Energy Policy, National Transport Policy (Land) and the Third National Agricultural Policy (1998-2010) (Impak, 2009a).

Some of the major programmes promoted by DOE included Enviro-Camps, Environmental Debates, Sustainable School-Environmental Award, Clean-Up Projects (Gotong Royong), Tree planting and landscaping, Radio environmental quizzes, Environmental Essay Writing Competition, drawing/colouring competition, Langkawi Award, Enviro-camp Facilitators' Training Programmes (for environmental educators and teachers), sustainable city programme (for local authorities) and "Enviro-Walk" for the senior management of companies or industries (Impak, 2009a).

Malaysia also introduced several tax incentives in 2003 to industries to adopt green technology and help the nation to reduce GHG emissions and protect the environment. The incentives included energy conservation for own consumption and incentive for renewable resources (Impak, 2009b).

Hypothesis three stated that manager's EEC will be influenced positively in relation to their own organizational ethical climates. The hypothesis was tested by correlating EEC as the dependent variable with an index of eight items of organizational ethical climate independent variables. The correlation obtained was 0.434, which was positive and significant. However, regression analysis showed an insignificant result, thus, hypothesis three was not supported and it can be concluded that manager's EEC will not be influenced positively by their ethical climate towards the natural environment.

The study also revealed that ethical climate was not correlated and was not significant. This finding was not consistent with the previous empirical works by Flannery and May (2000), or Victor and Cullen (1988), thus showing that ethical climate did not influence manufacturing managers in Malaysia to commit ethically. Corporations in Malaysia did not have a specific ethical code to provide guidelines, enhance professionalism or the image of the corporations concerning the natural environment.

This result also confirms that manufacturing companies in Malaysia do not consider law, professional standards, company rules and regulations and ethical code and are not strictly obeying the companies' policies when it comes to environmental issues, as referred to in Victor and Cullen (1988). This is because stakeholder's interest and values are in conflict and laws are unclear when it comes to the uncertain conditions of environmental issues (Trevino, 1986).

Hypothesis four stated that manager's EEC will be influenced positively by their levels of self-efficacy. The hypothesis was tested by correlating EEC as the dependent variable with an index of eight items of the self-efficacy independent variable. The correlation obtained was 0.497, which is positive and significant. However, regression analysis shows an insignificant result, thus, hypothesis four is not supported and it can be concluded that manager's EEC will not be influenced by their self-efficacy towards the natural environment.

This result of this study regarding the self-efficacy is not substantiated and is in line with Flannery and May (2000). This result indicates that self-efficacy does not play an important role in increasing commitment towards the natural environment. This is merely because managers in Malaysia did not refer to their knowledge, skills and abilities in order to decide ethically. In terms of self-efficacy, the respondents are not referring to their skills, abilities, qualification, technical knowledge and experience to handle a more challenging job (pertaining to environmental issues) and be able to perform successfully in the company, as referred to by Jones (1986).

This is because, according to Bandura (1977) there are differences between self-efficacy expectations and outcome expectancies that are due to the fact that the transformation of behaviour will not be realized if managers have serious doubts about their ability to perform, as first they have to undergo the efficacy expectation stage.

Hypothesis five stated that manager's EEC will be influenced positively in relation to their perceptions of financial cost considerations. The hypothesis was tested by correlating EEC as the dependent variable with an index of five items of the financial cost considerations independent variable. The correlation obtained was 0.525, which is positive and significant. However, regression analysis shows a significant result, thus, hypothesis five is supported and it can be concluded that manager's EEC will be influenced positively by their financial aspect towards the natural environment.

The result for financial aspect was positive and significant. This was reversed in the study by Flannery and May (2000) and Christmann (2000), which revealed it to be negative and not supported. The reason behind this is simply because the cost of having an environmental plan is high (Barbakow, 1995); the companies tend to achieve excellence as they have in mind that this action could support the realization of the companies' environmental strategy (Henriques and Sadorsky, 1996). Manufacturing managers in Malaysia also believe that the increased cost of environmental effort will help the company to achieve a lower cost of operations, and, thus, reduce the environmental impact and increase their corporate image.

Although there is a history of increasing cost that decreasing return (Walley and Whitehead, 1994), environmental ethical commitment managed to convince the managers to modify their behaviour regarding waste disposal or reduction in material usage (Azzone and Manzini, 1994), thus, excelled in the realization of environmental strategy as they have financial resources to implement ecological solutions (Schmidheiny, 1992). It was proven that by expanding the financial aspect to include environmental protection cost, the company can achieve a competitive position (Christmann, 2000), gain lower cost of operations, reduce environmental impact and improve revenue (Cordano, 1993).

Based on the result, the financial aspect of complying with the EEC is important to the corporations as it would influence the managers' decision making regarding issues pertaining to the natural environment. The result

also indicates that Malaysian manufacturing managers believe that committing ethically to the environment will improve the cost position, thus, influencing the corporate bottom line and offer opportunity to achieve competitive advantage and enable them to compete in the global market, as referred to in Flannery and May (2000), and Christmann (2000).

Hypothesis six stated that manager's EEC will be influenced positively by their personal moral obligation (PMO). The hypothesis was tested by correlating EEC as the dependent variable with an index of six items of the PMO independent variable. The correlation obtained was 0.367, which was positive and significant. However, regression analysis showed an insignificant result, thus, hypothesis six is not supported and it can be concluded that manager's EEC will not be influenced by their personal moral obligation towards the natural environment.

In line with Flannery and May (2000), the result of this study regarding the personal moral obligation (PMO) is not supported. However, this finding is not consistent with the previous empirical work by Randall and Gibson (1991) in the medical profession, Gorsuch and Ortberg (1983) who studied moral obligation, and Vining and Ebreo (1992) in predicting recycling behaviour. The result of this study indicates that personal moral obligation (PMO) is not the factor to increase the commitment of manufacturing companies in Malaysia.

This result also emphasizes that although it reflects personal values rather than the values of the corporation, as was argued by Liedka (1991) the decisions are made by individuals and not by corporations and England (1967), it emphasizes that personal characteristics of the managers are superior to business characteristics in influencing the actual business goals. However, it is difficult to measure moral behaviour in ethical research, as there is a gap between the theory and practice of ethics (Vidaver-Cohen, 1998).

The result of this study on personal moral obligation is not in line with Shearer (1990) in business and the new environmental imperative, McIntosh (1990) in marketing and politics, Keller (1987) in industry and the environment and Freeman and Liedka (1991) in corporate social responsibility. It was found that manufacturing companies in Malaysia were not obligated morally to be more socially responsible. The moral obligations were more reflected from the personal characteristics of the managers as compared to business characteristics (England, 1967; Dose, 1997) because not all work values have moral considerations (Gorsuch and Ortberg, 1981).

Thus, work values only tend to be moral if they abide by standard rules and ethics (Canavagh et al., 1981). This result is also not in line with Clark (1989) in managing planet earth, Kurland (1995a) in ethical intention, Randal and Gibson (1991) in medical profession's ethical decision making, Gorsuch and Ortberg (1983) in relation to moral obligation and attitudes to behavioural intentions and Vining and Ebreo (1992) in predicting recycling

behaviour that used the modified version of TPB to include PMO to predict behaviour that later managed to significantly explain the variation in the dependent variable.

Based on the results, it appears that the managers did not consider the moral obligation to make sure that the company's operations do not harm the natural environment and people. They (the managers) believed that they had no obligation and responsibility to describe and disclose any information regarding the environmental aspects of their production if required by the customers. At any point of time, they were not aware that it would be morally wrong for them to allow any discharge of untreated hazardous waste from the company operations to the river without treatment, similar to Flannery and May (2000), and Kurland (1995).

Hypothesis seven stated that EEC will be influenced positively by their stakeholders' information. The hypothesis was tested by correlating EEC as the dependent variable with an index of nine items of stakeholders' information independent variable. The correlation obtained was 0.586, which was positive and significant. However, regression analysis showed a significant result, thus, hypothesis seven is supported and it can be concluded that manager's EEC will be influenced positively by their stakeholders' information towards the natural environment.

As a proposed variable to influence the EEC, stakeholders' information in Malaysia was supported to influence EEC. The inclusion of stakeholder

aspect in the theoretical framework was the researcher's effort to highlight the importance of stakeholders' involvement in pressuring and providing information about the issues of the natural world. The result was significant to stakeholder information but not significant to stakeholder pressure.

According to Valor (2005), stakeholders influence corporations to move towards ethical environment and, therefore, a good relationship with the stakeholders is important to be effective and to achieve excellence. Manufacturing companies in Malaysia believe that valuing the stakeholder would, among others, increase customers' satisfaction, repeat purchases, gain loyalty, impose good reputation to the company, build good integration and cooperation with suppliers, increase shareholder investments in the company, have a good corporate governance, avoid public scrutiny, boost awareness campaign and also offer good partnership with the government.

Corporations were urged to interact with all kinds and levels of stakeholder in order to comply with the legislation (Zain et al., 2001). The interaction would result in a tremendous outcome. They might achieve employee satisfaction, productivity, loyalty and reputation, and customers who are loyal and satisfied will repeat purchases, suppliers tend to be loyal and cooperative, shareholders will invest, activists and NGOs will cooperate, community will supply workforce, government will impose partnership and legal system will offer remediation (Harrison and Lewellyn, 2004).

This study confirms that public opinion influences corporations to consider the ecological impact in decision making (Simmon and Whyne, 1993) and their grievances can affect corporations by decreasing equity value (Laplante and Lanoie, 2001), especially in workplace safety (Fry and Lee, 1989), product safety (Viscusi and Hersh, 1990) and environmental regulations (Muoghalu et al., 1990). Trade associations collect current and pending information (Porter and van der Linde, 1985) and employees' suggestions play a major role in environmental awareness (Dechant and Altman, 1994), which will lead to increased sales (Koys, 2001; Webster, 1992).

Consumers were concerned with the environment (Stisser, 1994) and have considerable influence on the corporations' bottom line as they affect the sales of the corporations (Homberg and Pflesser, 2000). Shareholders also play an important role in shaping EEC of the corporations to understand the decisions made, are involved and collaborate in environmental groups and offer sincere commitment to the environment (Walley and Whitehead, 1994). Walley and Whitehead (1994) claimed that combined hyperactive media (television, newspaper and radio) was confirmed to be a powerful influence on the corporations.

The manufacturing companies in Malaysia are getting information that could alter the companies' ways of managing their operations regarding the natural environment. The newspaper, television/radio, the customers, competitors, the government, trade association, environmental organizations, employees and informal networking are providing information that would influence the

manufacturing companies in moving managers towards making positive environmental changes.

Hypothesis eight stated that manager's EEC will be influenced positively by their stakeholders' pressure. The hypothesis was tested by correlating EEC as the dependent variable with an index of seven items of stakeholders' pressure independent variable. The correlation obtained was 0.234, which was positive and significant. However, regression analysis showed an insignificant result, thus, hypothesis eight is not supported and it can be concluded that manager's EEC will not be influenced by their stakeholder pressure towards the natural environment.

The result of this study regarding the stakeholder pressure indicates that the manufacturing companies in Malaysia are not pressured by their stakeholders. The customers, suppliers, shareholders, government, employees, environmental organization, the community and lobby group are not the sources of pressure to the manufacturing companies as they are not the pressure factors of consideration for the companies to be committed towards the natural environment, based on Henriques and Sadorsky (1999).

Therefore, the attitude (ecological concerns), ethical climate, self-efficacy, PMO and stakeholder pressure variables are not able to explain any amount of variations in EEC. It was empirically proven that the regulation aspect, financial costs and stakeholders' information are the most important factors

that influenced manufacturing companies' managers to commit ethically towards the natural environment.

5.2.3 THE ENVIRONMENTAL ETHICAL IMPACT

Another objective of the study, as outlined earlier, was to assess the impact of the factors under study on the environmental ethical concept. Based on the multiple regression result in the previous chapter, the result indicated a percentage of 41.7% in explaining the amount of the variation in environmental ethical commitment (EEC). In trying to reveal all the factors that contribute to EEC, it is admitted that the result indicates a moderate significant percentage. This result left the rest 58.3% as the "The Other Factors" that needs to be investigated further.

Multiple regression analysis reveals that from eight independent variables only three independent variables were able to significantly explain the amount of variation of the environmental ethical commitment in Malaysia. The independent variables were regulation aspect, financial aspect and stakeholder information as they significantly improved the ability to predict EEC.

The result was expected as the concept was relatively new (Partridge, 1980) in the business literature as well as to the manufacturing industry in Malaysia and the study dealt with stressful (Said et al., 2003) issues of environmental ethics. Nevertheless, surprisingly, the study managed to reveal that of the proposed factors; the regulation aspect, financial aspect

and stakeholder information were positively correlated and significantly substantiated. This indicates that the regulation aspect, financial aspect and stakeholder information are the factors to influence Malaysian managers to be committed towards the environmental ethics concept.

In terms of regulation and based on Cordano and Frieze (2000), the leadership in the companies thinks that the government should take stronger action to protect the nation's resources, the pollution laws are sufficient to protect the environment; the natural environment is valuable and should be protected at all costs. They also think that Malaysian antipollution laws should be enforced more strongly, the society should emphasize the environment over their jobs, the government should use the full capacity of its authority in its efforts to protect natural resources, and that environmental regulations have placed fair burdens on all industries (Cordano and Frieze, 2000).

In terms of financial aspects, based on Flannery and May (2000) and Christmann (2000), the respondents agreed that the cost of complying with the environmentally ethical commitment would have considerable influence on managerial decisions. Committing ethically to the environment is believed to improve the position of the companies, thus, influencing the corporate bottom line, offering opportunity in the global market and, most importantly, achieving competitive advantage (Flannery and May, 2000; Christmann, 2000). Furthermore, it was found that pollution control does not impose high costs on business firms in developed or developing countries

(Wheeler, 2000). Wheeler (2000) emphasized that companies in developing countries have even lower costs because these countries have lower costs of labour and materials used for pollution control compared to OECD economies.

In terms of stakeholder information and based on Henriques and Sadorsky (1999), the newspaper has played an important role in providing information to the companies. The companies also benefitted from gaining information regarding the natural environment from the television and radio, the customers, the government, the competitors, trade associations and the environmental organizations. The employees have also provided the companies with a source of information insofar as the natural environment is concerned. They all played a vital role with regards to the natural environment to provide information to the companies. The informal networking with other firms doing similar work has benefitted the companies insofar as the environmental issues are concerned (Henriques and Sadorsky, 1999).

5.2.4 THE SOURCES OF INFORMATION AND PRESSURE ON COMPANIES

Another main objective of the research is to measure the importance of each source of information and the importance of each source of pressure on the companies. The respondents were asked to rank each source of information and pressure by the stakeholders on their companies. The results indicate

that out of 150 respondents, only 103 companies responded to Section B of the questionnaire, which represents 69% of total respondents.

The remaining 47 respondents (31%) either left the column blank unanswered or answered the section wrongly. Based on the mean statistic of stakeholder information below (Table 5.10) the respondents ranked [based on a scale of 1 (not at all important) and 9 (very important)] the most important source of information in rank order as the government, customers, TV/radio, newspaper, competitors, environmental organizations, trade associations, employee information and informal network.

Table 5.10

Ranking of the Importance of Sources of Information to Consider Environmental Issues

Source of Information	**Mean Statistic**	**Standard Error**
Government	6.9320	.22091
Customers	6.3689	.24313
TV/radio	5.1165	.27550
Newspaper	5.0097	.27657
Competitors	4.7379	.27036
Environmental Organization	4.5340	.20765
Trade Association	4.3495	.20151
Employee	4.0971	.18766
Informal Networking	3.7961	.22344

Note: Mean score on a scale of 1 (not at all important) to 9 (very important).

Based on the mean statistic of stakeholder pressure shown in Table 5.11, the respondents ranked [based on a scale of 1 (not at all important) and 8 (very important)] the most important source of pressure in rank order as the customers, government, shareholders, suppliers, employees, environmental organization, neighbourhood/community and other lobby groups. From the ranking analysis of both stakeholder information and pressure, it can be concluded that the government and customers are the two major sources of information as well as pressure followed by other sources of information and pressure experienced by manufacturing companies in Malaysia.

Table 5.11

Ranking of the Importance of Sources of Pressure to Consider Environmental Issues

Source of Pressure	**Mean Statistic**	**Standard Error**
Customers	6.3786	.20576
Government	5.6990	.20139
Shareholders	4.7184	.19426
Suppliers	4.6602	.23955
Employees	4.5922	.19637
Environmental Organization	3.6117	.19435
Neighbourhood/Community	3.1942	.17113
Other Lobby Groups	3.1456	.18772

Note: Mean score on a scale of 1 (not at all important) to 8 (very important).

5.2.5 COMPANIES PERCEPTIONS OF ENVIRONMENTAL ISSUES

Another objective of the research is to measure the perception of companies concerning environmental issues (Section C). The majority of the respondents (94%) rated that their companies claimed that environmental issues were increased in importance. A small number of the companies rated that they perceived environmental issues had decreased in importance, remain unchanged and not important (6%).

It was found that the majority of the companies' claimed that environmental issues increased in importance. According to Henriques and Sadorsky (1996), companies that value the natural environment, as in concern given to environmental issues, are more likely to have a plan. This is important as the success of the companies relies on the steps taken by the company and any plan initiated by the companies is crucial as it represents their environmental ethical commitment (Henriques and Sadorsky, 1999).

The majority of the companies were operating with more than 150 employees (60%) and had been operating for more than 5 years (90%). However, the majority of the respondents classified their companies to be reactive with 67 respondents (44.7%) while 55 respondents (36.7%) classified themselves as accommodative. Only, 16 (10.7%) of the respondents claimed themselves to be proactive and 12 (8%) of the respondents classified themselves as defensive.