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The Indore Management Journal (IMJ) is a biannual journal published by the Indian Institute of Management Indore, with an objective to provide a diverse perspective on management functionalities to its readers as well as a medium to share experiences, knowledge and practices with the wider community. IMJ publishes empirical and theoretical investigations that enhance the understanding of various phenomena related to Business and Management. The journal is structured to include one general and one special issue every year. We welcome proposals for special issues of IMJ from potential guest editors. Please share your suggestions with us.

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# *Editorial*

We are happy to place before you the first issue of the sixth volume Indore Management Journal (IMJ). The present issue carries seven articles across multiple disciplines. Based on the data from 360 organizations across four industries over a period of eleven years, the first article proposes the data envelop analysis as a new technique to measure working capital management efficiency. The second article draws from contingency theory to propose that organizational strategy can enhance the channel relationship when its coordination efforts are aligned with the business strategy and the environment. The third article empirically demonstrates a positive linkage between job satisfaction and life satisfaction. In addition, the study found a positive relationship between different task characteristics and job satisfaction. The fourth article sketches the legislative evolution of corporate environmental and social responsibility in India across three time periods spanning from year 1850 to 1980. The fifth article highlights the importance of eco-innovation and provides a theoretical model linking top management team, structural context and organizational climate to eco-innovation. The sixth article deliberates on social entrepreneurship. Tanking the case of Prajwala, an NGO, it highlights the activities undertaken to rehabilitate the victims of sex-trafficking especially women and girl children. Based on the results of 25 in-depth interviews in New Delhi, the last article enumerates the sources of stress among police officials. We are sure the articles will provide you a rich experience.

## **Editorial Team**

Indore Management Journal (IMJ)

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# *A DEA Based Approach to Working Capital Management Efficiency*

Utkarsh Goel and Anil K Sharma

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## **Abstract**

One of the important issues in financial decision making is that of managing working capital. The purpose of this study is to develop a new technique to measure working capital management efficiency based on frontier analysis technique. Data envelopment analysis (DEA) technique is currently being used in numerous studies to measure different forms of technical efficiency but has been ignored in studies related to working capital. We find that the existing measures of working capital management efficiency specially cash conversion cycle has been used by most researchers despite its shortcomings. We use data from 360 firms belonging to four industries in Indian manufacturing sector covering a period of 11 years (2003 to 2013) for our analysis. We found that this new measure based on DEA is able to provide more insights and better analysis opportunities than the existing measures. This may be useful to financial managers, investors and other stakeholders in taking better and more effective decisions. Our study examines the working capital management in an entirely new perspective that has not been previously studied and gives new direction to research in effective measurement of working capital management efficiency.

## **1. Introduction**

Financial decision making involves analysing the financial problems that a firm faces and deciding which course of action should be taken. One of the important issues during the financial decision making process is that of managing working capital (WC). Working capital can be understood as a metric that measures a company's operating liquidity. Working Capital is generally defined as the difference between resources in the form of cash or readily convertible into cash (current assets) and liabilities for which cash will be required soon (current liabilities). Working Capital management (WCM) deals

with managing short-term financing and short-term investment decisions of the firm (Sharma & Kumar, 2011). It is the management of short-term financing requirements of a firm. The objective of working capital management is to maintain a balance of each of the working capital components (Filbeck & Krueger, 2005). The overall goal of working capital management is that a firm should be able to continue its operations by managing the interrelationship between current assets and current liabilities. The importance of trade-offs between the two goals of working capital management, i.e., liquidity and profitability has always been stressed in the literature (Smith, 1980).

Working capital management involves decisions regarding:

- Inventory Levels: Deciding between the high costs of stockholding due to inventory pile up vs. the cost of stock outs.
- Receivable levels: Deciding between high levels of receivables to promote sales vs. cost of slow cash inflow.
- Creditor levels: Deciding between the benefits of delaying the payments vs. need to retain goodwill of the suppliers.
- Cash Levels: Deciding between the liquidity benefit of holding cash vs. opportunity cost.

The importance of efficient working capital management can be understood by the statement "Efficient working capital management is an integral component of the overall corporate strategy to create shareholder value" (Hyun-Han Shin & Soenen, 1998). It is very important for working capital management to be effective because it affects the performance and liquidity of the firms (Taleb et al., 2010). The viability of business relies on the ability to effectively manage receivables, inventory and payables (Filbeck & Krueger, 2005). Excessive working capital may have a negative impact on a firm's

profitability, whereas a low level may lead to problems of liquidity and stock-outs, resulting in difficulties in maintaining smooth operations (Van Horne and Wachowicz, 2004). Thus to maintain competitiveness firms should improve their WCM efficiency. Therefore it is important for firms to effectively measure the level of their WCM efficiency and identify the benchmark firms.

## 2. Literature Review: Efficiency of Working Capital Management

Traditionally, the liquidity position of the firm was gauged by a static view of working capital through current ratio. Later the operating cycle view of working capital was introduced by Richards & Laughlin (1980) which gave the concept of the cash conversion cycle (CCC). Most of the studies on working capital have used this cash conversion cycle as a measure of working capital management efficiency. Some later studies, like Gentry, Vaidyanathan & Lee (1990) have used a variation of cash conversion cycle i.e. weighted cash conversion cycle. However, its drawback that it cannot be effectively measured by an analyst outside of the management of the firm has made it less useful. Cash conversion cycle itself has been criticised in many studies, such as Bhattacharya (2004), as it is calculated by adding the ratios which have different denominators. This, according to many authors makes the measure mathematically incorrect. Shin & Soenen (1998) and Erasmus (2010) have discussed an alternative measure Net Trade Cycle (NTC)  $((\text{Inventories} + \text{Receivables} - \text{Creditors}) \times 365 / \text{Sales})$ . However NTC suffers from the shortcoming that it assigns equal weightage to all components of working capital and considers only sales as output for working capital investment. A number of studies have however found high correlation between the CCC/NTC and firm performance, which indicates that overall ranking of firms, calculated using these measures is somewhat correct. Therefore, there is a need for a measure which ranks firms similarly to these methods, but is free from their shortcomings.

In recent years, there has been a trend towards measuring efficiency using one of the frontier analysis methods. Specifically, the nonparametric data envelopment

analysis (DEA) method has been used in many scenarios to measure technical efficiency scores. However, DEA technique has been until now ignored in working capital management studies.

## 3. Introduction to Data Envelopment Analysis

DEA is a linear programming technique initially developed by Charnes et al. (1978) to evaluate the efficiency scores in cases where there are multiple outputs and inputs and when it is not possible to aggregate these multiple outputs (inputs) into one output (input). DEA is a comparative technique where the comparison of efficiency is carried out among a group of units referred to as Decision Making Units (DMUs). Here, the relative efficiency is measured in terms of the ratio of total weighted outputs and total weighted inputs. DEA is a non-parametric technique, i.e. it does not assume the data to have any particular structure. Thus, unlike other measures no assumption is made regarding the structure of the production function. In DEA the weight vector of inputs and outputs are not fixed. The technique allows each DMU to choose its own weights for inputs and outputs such that the ratio of weighted outputs to weighted inputs is maximised. In other words the standard for judging is set by the DMU itself. However, there is a constraint: the weights assigned should be such that no DMU is able to achieve the ratio of weighted outputs to weighted inputs more than unity. A DMU is efficient if it gets an efficiency score of 1.0. Thus an efficient frontier is created which connects all the DMUs which are efficient and all the DMUs not lying on the frontier are inefficient.

Two main models developed within the DEA technique are the CCR (Charnes, Cooper and Rhodes) model and BCC (Banker, Charnes and Cooper) model. The CCR model was developed by Charnes et al. (1978) and assumes a constant return to scale. The constant return to scale model does not take into consideration differences in scale of operation and assumes that the production frontier is a straight line. It can be used in cases where all DMUs are operating on the same scale and in practical scenarios of varying returns to scale it may not give optimal results.

The BCC model given by Banker et al. (1984) extended

the CCR model for technologies that exhibit variable returns to scale. This was done by making the efficient frontier a convex hull instead of a straight line. This is considered an improvement over the CCR model as it allows for variation in returns to scale. Thus in a real life scenario of varying economies of scale the BCC model is more suitable. However its disadvantage is that it leads to a large number of efficient DMUs in comparison to the CCR model. It has two forms, namely output oriented and input oriented. The efficiency score obtained from the above two models don not differ much and in general are inverse of each other. The difference lies in formulation as in input oriented the focus is on minimisation of inputs and in output oriented the focus is on maximisation of output.

The VRS (variable return to scale) BCC model is however not able to rank efficient units as it assigns efficiency of one to all efficient DMUs (DMUs that lie on the efficient frontier). The maximum efficiency score given is one and this can be achieved by more than one DMUs. All those DMUs which lie on efficient frontier will be termed as efficient. Thus we cannot compare and rank the efficient DMUs. To overcome this shortcoming Anderson (1993) introduced a variation of the BCC model to rank efficient DMUs. In this model BCC model is followed, however the DMU under evaluation is not considered (excluded) from the reference set. The model tests that by how much an efficient DMU's inputs can be increased without making the DMU inefficient, i.e. without removing it from the efficient frontier. In other words, it checks the maximum allowable increase in inputs by the efficient DMUs. This allows us to differentiate efficient DMUs which have higher allowable increase in inputs from other efficient DMUs.

#### **4. DEA Based Working Capital Management Efficiency**

##### **4.1 Data and Variables**

We have used major components of working capital, namely inventory, receivables and sundry creditors as input variables. Sales and cash flow from operations have been used as output variables. The selection of input variables is intuitive as major portion of the

investment in working capital is in the form of inventory and receivables. In addition, sundry creditor is considered as an input as it's a short term liability and reduces the required investment in working capital. However, there is a modification needed before using sundry creditors as input. The DEA considers DMU as more efficient, as it uses lesser inputs. However, higher value of sundry creditors represents lesser working capital investment and thus a more efficient DMU. Thus, in our case sundry creditor is a reverse input, i.e. the input, which needs to be increased for higher efficiency. To solve this problem we use a simple transformation technique suggested in literature (Zhu & Cook, 2007) where we take the inverse of the variable (sundry creditors) and use the same as input.

Moreover the DEA model does not accept negative values of inputs and outputs. However, in our case cashflow from operations may be negative for many firms. To combat this, we use the property of DEA given by Iqbal Ali & Seiford (1990) and Zhu & Cook (2007). According to the above researchers the input oriented model is translation invariant for output data. Thus, if we use an input oriented model we can modify any of the outputs without affecting the results. For each year and for each industry we found the minimum value of cash flow from operations among all the firms. We then added this minimum value incremented by one to the cash flows of all firms making all the negative cash flows non negative.

The selection of output variables is partially based on past working capital measures where sales/revenue is considered as the major output for working capital investment. In addition, we have added a new output measure cash flow from operations (CFO). Literature has suggested that a firm's operating efficiency is not dependent on the liquidation value of its assets, but rather on cash flow generated by those assets (Hyun-Han Shin & Soenen, 1998). It is therefore accepted that one of the main aims of WCM is to generate cash from operating activities. Thus higher the cash flow better is the working capital management of the firm.

All the data for inputs and outputs have been taken from the annual financial statement of firms and collected

using CMIE Prowess database. The data comprises of 360 manufacturing sector firms belonging to four industries, namely Food & Agro, Pharmaceuticals, Nonelectric Machinery and Textiles. The time period of study is March, 2003 to March, 2013.

**4.2 The Model**

In this paper, we have used DEA based input oriented non-decreasing returns to scale (NDRS) super efficiency measure to calculate WCM efficiency. Input oriented model has been used because we are trying to measure efficiency of working capital management and thus our orientation is towards minimising the working capital investment. Moreover, since we have modified the outputs (sundry creditors) we can only use input oriented technique. We expect that in the manufacturing sector, there is variable return to scale. We expect that there can be constant and/or increasing returns to scale in production but not decreasing returns to scale. This means there should be non-decreasing returns to scale and thus we have applied the NDRS model which is a special case of VRS model.

The dual VRS BCC model with modification for super efficiency is

$$\begin{aligned}
 & \min \theta^{super} \\
 & \text{subject to} \\
 & \sum_{j=1, j \neq 0}^n \lambda_j x_{ij} \leq \theta^{super} x_{i0} \quad i = 1, 2, \dots, m; \\
 & \sum_{j=1, j \neq 0}^n \lambda_j y_{rj} \geq \theta y_{r0} \quad r = 1, 2, \dots, s; \\
 & \lambda_j \geq 0 \quad J \neq 0 \\
 & \sum_{i=0} \lambda_i = 1
 \end{aligned}$$

Here  $\theta$  is inverse of efficiency,  $y$  and  $x$  represent output and inputs and  $\lambda$  represents weights associated with them.  $x_{ij}$  represents  $i$ th input of  $j$ th DMU and  $y_{rj}$  represents  $r$ th output of  $j$ th DMU.  $x_{i0}$  and  $y_{r0}$  are input and output values, respectively, of the DMU to be evaluated (DMU<sub>0</sub>). There are  $s$  outputs and  $m$  inputs for all  $n$  DMUs

The  $\sum_{i=0} \lambda_i = 1$  condition can be changed to  $\sum_{i \neq 0} \lambda_i \leq 1$  and  $\sum_{i \neq 0} \lambda_i \geq 1$  for non-increasing return to scale (NIRS) and non-decreasing Returns to Scale (NDRS) models respectively according to suitability

Initially, we took the CCC value for each firm grouped by industry for each year. A scatter plot of the data was constructed to identify and remove any outliers. Then, for each year, firms were ranked in the industry according to CCC. Firm with lower CCC were given higher rank and vice versa. The same method was carried for calculating and then ranking firms based on NTC.

For the DEA based model the input and output variables were taken for each firm grouped by industries and input oriented NDRS super efficiency model was run using EMS software to calculate super efficiency measure. This was repeated for each year. Partial output from the DEA model for food and agro industry for the year 2003 is shown in Table 1 (we have shown limited info in each table as presenting all tables would have occupied huge space).

Table 1: Part Output from DEA Run Using EMS (Food and Agro Industry 2003)

DMU	Efficiency	Inventory	Receivables	Sundry Creditors	Cashflow from ops.	Sales	Benchmarks
Upper Ganges Sugar & Inds. Ltd.	72.71%	0.28	0.09	0.63	0.73	0	41 (0.13) 44 (0.86) 83 (0.03)
Uttam Sugar Mills Ltd.	64.38%	0.25	0.41	0.34	0.64	0	41 (0.33) 55 (0.27) 81 (0.42)
Vishnu Sugar Mills Ltd.	93.21%	0.66	0.12	0.22	0.93	0	41 (0.29) 50 (0.67) 55 (0.05)
B & A Ltd.	128.32%	0.47	0.11	0.42	1.28	0	17
Jay Shree Tea & Inds. Ltd.	50.66%	0.41	0.37	0.22	0	0.18	7 (0.81) 8 (0.07) 43 (0.11) 83 (0.00)
Joonktollie Tea & Inds. Ltd.	85.77%	0.08	0.5	0.42	0.86	0	40 (0.01) 63 (0.71) 64 (0.29)
Neelamalai Agro Inds. Ltd.	96.41%	0.45	0.09	0.45	0	0.02	56 (0.63) 64 (0.05) 66 (0.01) 69 (0.30)
Rossell India Ltd.	168.68%	0.43	0.32	0.25	0	0.69	10
Scottish Assam Ltd.	197.38%	0.72	0.28	0	0.82	1.15	1
Stanes Amalgamated Estates Ltd.	123.12%	0.83	0	0.17	1.01	0.22	4
Tata Global Beverages Ltd.	108.98%	0.07	0.21	0.72	1	0.09	4
Ajanta Soya Ltd.	97.99%	0.9	0	0.1	0	0.76	4 (0.19) 72 (0.08) 81 (0.72)
Avanti Feeds Ltd.	42.25%	0.27	0.15	0.58	0.35	0.08	7 (0.01) 8 (0.06) 43 (0.05) 81 (0.90)
Jayant Agro-Org. Ltd.	57.59%	0.46	0.18	0.36	0	0	7 (0.09) 8 (0.55) 81 (0.36)
K S E Ltd.	114.19%	0.43	0.41	0.16	0	0.34	4
K S Oils Ltd.	40.05%	0.29	0.1	0.61	0.39	0.01	7 (0.44) 8 (0.42) 41 (0.03) 83 (0.11)
Marico Ltd.	80.93%	0.04	0.47	0.48	0.36	0.45	8 (0.04) 19(0.06) 44(0.09) 83(0.86)
Modi Naturals Ltd.	83.64%	0.35	0.33	0.32	0	0.44	4 (0.06) 43(0.15) 55(0.12) 64(0.67)

Thereafter, for each year the firms were ranked in the industry, according to super efficiency with higher super-efficient firms getting a higher rank. An example of such rank table is shown in Table 2.

## 5. Model Analysis

### 5.1 Rank Analysis

We calculated Spearman's rank correlation for each year between (i) firms' ranks according to CCC and according to NTC (ii) firms' ranks according to NTC and according to DEA (iii) firms' ranks according to CCC and according to DEA. We then compared the correlation measure with the critical values. Table 3 and Table 4 show the Spearman rank correlation between (i) CCC and DEA ranks and (ii) NTC and DEA ranks respectively.

We find that the correlation between ranks according to NTC and CCC are fairly high, suggesting a similarity in the ranking. We can infer from this that both the traditional measures, though calculated differently are ranking the firms in an almost similar manner. The correlation between DEA based ranking and the two traditional measures (CCC & NTC) are also high. We find that both the correlations (DEA with CCC and NTC) for each of the four industries are more than the critical values at 99% confidence interval. This strongly suggests that the DEA measure is able to rank the firms similar to the ranks of NTC and CCC.

A number of researchers have examined the relationship between CCC/NTC ranking and firm performance and have found strong evidence of a positive relationship. Since profitability is a performance measure, the positive relationship suggests that the traditional measures are able to rank the firms correctly according to their WCM efficiency. The DEA measure being highly correlated to the traditional measures is thus also able to rank the firms according to their WCM efficiency. However the DEA analysis produces results which are free from the shortcoming of the traditional measures and in addition are able to provide much more information about the working capital management efficiency of firms.

### 5.2 Mathematically Correct Calculation

The most widely used measure cash conversion cycle (CCC) has been criticised in literature for being mathematically flawed. This is because CCC is calculated by summing three ratios namely inventory days, receivable days and negative of payable days. This, according to many researchers is flawed as all of the three components have different denominators and thus cannot be added. It assumes that inventory consumption

**Table 2: Part of Ranking Table (Food and Agro Industry 2003)**

	DEA Efficiency	Rank DEA Efficiency	NWC	Rank NWC	NTC	Rank NTC
C C L Products (India) Ltd.	0.5571	67	109.57	52	0.2609	54
Tata Coffee Ltd.	0.3773	78	146.32	64	0.4164	70
B C L Industries & Infra Ltd.	0.8896	36	24.54	16	0.1175	29
Divya Jyoti Inds. Ltd.	1.5727	10	30.75	20	0.0447	12
Flex Foods Ltd.	0.3519	82	233.62	79	0.3497	65
Gujarat Ambuja Exports Ltd.	0.5561	68	85.77	45	0.2611	55
Harrisons Malayalam Ltd.	1.5105	11	-15.47	5	0.0182	8
J V L Agro Inds. Ltd.	1.1012	24	11.05	11	-0.0201	7
K R B L Ltd.	0.4888	73	290.28	83	0.8375	84
Kesar Enterprises Ltd.	0.6256	63	210.76	74	0.3865	68

**Table 3: Correlation Between CCC Based Ranks and DEA Based Ranks**

Year	Industry			
	Food and Agro (86 firms)	Textiles (87 firms)	Pharma (102 firms)	Non-Elec. Mac. (85 firms)
2003	0.4173	0.6493	0.3686	0.5954
2004	0.4701	0.4715	0.5139	0.6240
2005	0.3642	0.5777	0.5696	0.5491
2006	0.4199	0.6609	0.3358	0.5203
2007	0.5471	0.6061	0.3711	0.6280
2008	0.6340	0.6100	0.3741	0.6718
2009	0.4892	0.6390	0.3933	0.6205
2010	0.4163	0.6345	0.4911	0.5854
2011	0.4107	0.5466	0.4248	0.6439
2012	0.3980	0.5200	0.3732	0.4935
2013	0.5406	0.6402	0.3775	0.4146
Critical Value (99%)	0.278 (85 pairs)	0.278 (85 pairs)	0.256 (100 pairs)	0.278 (85 pairs)

**Table 4: Correlation Between NTC Based Ranks and DEA Based Ranks**

Year	Industry			
	Food and Agro (86 firms)	Textiles (87 firms)	Pharma (102 firms)	Non-Elec. Mac. (85 firms)
2003	0.6067	0.7157	0.5278	0.6225
2004	0.7473	0.5992	0.7586	0.6009
2005	0.6032	0.6770	0.6507	0.5406
2006	0.6375	0.7631	0.4752	0.5001
2007	0.7330	0.7921	0.6281	0.6268
2008	0.7286	0.7013	0.5832	0.6667
2009	0.6887	0.7700	0.5335	0.4978
2010	0.5274	0.6965	0.6526	0.3625
2011	0.4750	0.7148	0.5595	0.4519
2012	0.5139	0.6882	0.4024	0.3524
2013	0.6014	0.7082	0.4403	0.4337
Critical Value (99%)	0.278 (85 pairs)	0.278 (85 pairs)	0.256 (100 pairs)	0.278 (85 pairs)

days and days of sales (debtors' period) can be added i.e. days in all working capital components are universal and comparable, which is mathematically incorrect. Moreover, sometimes it can lead to negative CCC, which is absurd (Bhattacharya, 2004). The DEA based measure in contrast, is derived from linear programming and is mathematically correct. The method is non-parametric in nature and is not dependent on the units of inputs/outputs. Moreover, it has been proved that whatever be the units of measurement of inputs and outputs the efficiency measure will remain same (provided these units are same for all firms) (Cooper, Seiford, & Tone, 2006).

### 5.3 Data Type of Efficiency Measure

We know that there are four major data types, namely nominal, ordinal, interval and ratio. The traditional measures of CCC and NTC were not ratio type data, i.e. one cannot perform all types of mathematical operations with the measures. For example in case of CCC one cannot say that a person with CCC of 10 is twice as efficient as a firm with CCC of 20. This is because the CCC is calculated by adding three ratios which are unequal and are thus is only able to tell that a firm with lower CCC is better than the one with higher CCC, but cannot tell how much better. However, DEA based efficiency measure is a pure ratio type data and thus we can do multiplication and division type mathematical operation and can thus say that firm with efficiency 50% is twice as efficient as a firm with 25% efficiency.

### 5.4 Component Weightage and Analysis

Another shortcoming of these traditional measures is that they give equal weightage to each component of working capital. In CCC we just add the three components, assigning equal weights. Similarly, in NTC, we add inventory and receivables and subtract payables and then divide the result by revenue, again giving equal weights to all WC components. This may not be optimal. We cannot say with surety that a value of 5 for inventory days is same as the value of 5 for payable days. For each firm there is different level of liquidity associated with its WC components. For some firm it

may be easier for it to liquidate inventory and for some it may be easier to recover receivables. Thus assigning equal weights to components for all firms is a restricting condition. The DEA based analysis provides the freedom to each firm to choose the weight for its inputs and outputs such that it maximises the efficiency scores. A firm which is efficient in inventory management gets assigned higher weights for inventory input and so on.

For example (see Table 1) the entry for the firm Avanti Feeds Ltd. shows that the firm is giving different weights to WC components with 0.27 to inventory, 0.15 to receivable and 0.58 to creditors.

In addition, the DEA results are able to show what weights were assigned to each of the inputs/outputs for a particular firm. Thus we can know that in a particular year, which of the inputs were managed more efficiently by the firm and which were not. The input(s) with least weights are not managed efficiently as they have been least used to calculate efficiency. Such inputs need to be worked upon by the firm's management in order to improve the firm's efficiency. Thus, in the above case Avanti Feed Ltd has creditors as most efficient input and receivables as least efficient.

### 5.5 Sensitivity Analysis

The DEA based measure is able to carry out sensitivity analysis, which may be very useful to a firm for planning improvements and preparing budgets. Sensitivity analysis for a particular input gives a sensitivity value ( $m$ ) ( $0 < m < 1$ ) for each firm. This value  $m$  is the multiple by which the input of the firm has to be multiplied to make the DMU efficient. In other words, if we reduce the input (say  $p$ ) of a firm to value equal to  $m \times p$  then the DMU will become efficient.

In addition to this, the DEA measure gives for each inefficient DMU, a list of benchmark DMUs. These DMUs act as benchmarks to the DMU under consideration. The lambda values (as shown in Table 5) associated with these benchmarks reveal the point on the efficient frontier where the DMU under consideration will reach if the input is decreased (by multiplying input with sensitivity value). Since such a point should be a linear combination of efficient DMUs therefore these lambda values act as

weights. These weights when multiplied by benchmark DMUs' inputs will indicate the point on the frontier where the inefficient DMU under consideration can reach after becoming efficient (i.e. after reducing its input). Such type of analysis is not possible in traditional WCM measures. Moreover, the DEA measure is also able to provide sensitivity analysis for efficient firms.

It provides information about the allowable increase (decrease) in inputs (outputs) so that the firm remains efficient.

Table 5 shows a sample of sensitivity analysis on receivables carried out for food and agro industry for the year 2012. In Table 5 Kesar Enterprises Ltd. can

**Table 5: Example of Sensitivity Analysis Sheet Using DEA Frontier Software**

DMU Name	Efficiency Sensitivity	Optimal Lambdas with Benchmarks		Optimal Lambdas with Benchmarks		Optimal Lambdas with Benchmarks	
Kesar Enterprises Ltd.	0.36620	0.437	J V L Agro Inds. Ltd.	0.076	Rajshree Sugars & Chemicals Ltd.	0.592	S B E C Sugar Ltd.
Kohinoor Foods Ltd.	0.03811	0.714	J V L Agro Inds. Ltd.	2.000	United Provinces Sugar Co. Ltd.		
Monsanto India Ltd.	0.60654	0.093	Simbhaoli Sugars Ltd.	0.061	Tata Global Beverages Ltd.	1.552	Ruchi Infrastructure Ltd.
Rei Agro Ltd.	0.02180	0.552	J V L Agro Inds. Ltd.	3.844	United Provinces Sugar Co. Ltd.		
Vikas Granaries Ltd.	0.19978	0.021	Riga Sugar Co. Ltd.	0.164	Devon Plantations & Inds. Ltd.	0.815	Rossell India Ltd.
Vikas W S P Ltd.	0.27095	0.375	Rajshree Sugars & Chemicals Ltd.	0.578	Shree Renuka Sugars Ltd.	0.467	Rasoi Ltd.
Balrampur Chini Mills Ltd.	3.37481	0.088	E I D-Parry (India) Ltd.	0.716	Mawana Sugars Ltd.	0.197	Triveni Engineering & Inds. Ltd.
Bannari Amman Sugars Ltd.	0.04076	0.634	J V L Agro Inds. Ltd.	0.529	United Provinces Sugar Co. Ltd.		
Dalmia Bharat Sugar & Inds.Ltd.	0.34949	0.135	J V L Agro Inds. Ltd.	1.108	S B E C Sugar Ltd.	0.646	Simbhaoli Sugars Ltd.
Dhampur Sugar Mills Ltd.	0.69937	0.285	Balrampur Chini Mills Ltd.	0.067	Andrew Yule & Co. Ltd.	0.647	Ruchi Infrastructure Ltd.
Dharani Sugars & Chemicals Ltd.	0.63975	0.571	Rajshree Sugars & Chemicals Ltd.	0.319	S B E C Sugar Ltd.	0.109	United Provinces Sugar Co. Ltd.

become efficient by reducing its receivable levels to 36.62% of its initial level. It can then reach a point on efficient frontier which is referenced by: 0.437 times JVL Agro Inds. Ltd. receivables + 0.076 times Rajshree Sugars Chemicals Ltd. receivables + 0.592 times SBEC Sugar Ltd receivables.

### 5.6 Benchmarking

The DEA results as shown in Table 1 show a benchmark column for each firm under consideration. This column gives two types of information: (i) for firms with efficiency less than 100% it gives a list of benchmark firms with weights. If the weights of benchmark firms are multiplied by their particular inputs, then the resulting value is the target the inefficient DMU under consideration. If this target is achieved by the inefficient firm, then it will become 100% efficient. (ii) For firms with efficiency score more than 100% it gives the number of firms for which it is a benchmark firm. Thus, overall this DEA method of WCM efficiency is able to tell a firm about where to improve, how much to improve and which peers to look up to, in order to become more efficient. The firm can use this information to decide which inputs and by how much they need to be decreased in order to become an efficient firm. This is a clear advantage over traditional measures like CCC and NTC since they just provided efficiency measures with no information about how much to increase or decrease the input to become more efficient.

For example in Table 1 Avanti Feeds Ltd has benchmarks 7 (0.01), 8 (0.06), 43 (0.05), 81 (0.90) which means that DMU/Firm no. 7, 8, 43 and 81 are the benchmarks for Avanti Feeds Ltd and it can become efficient if it reduces its inputs to a value which is equal to 0.01 time DMU 7 input + 0.06 times DMU 8 input + 0.05 times DMU 43 input + 0.90 times DMU 81 input.

### 5.7 Model Extendibility

The DEA based WCM efficiency measure can be extended and modified according to the requirement.

(i) Return to scale: In our analysis, we assumed Non Decreasing returns to scale (NDRS) in the industry. However, depending upon the requirement and type of analysis, we can change the model to constant

return to scale or to other forms of variable return to scale. At this point it is important to mention that the constant return to scale model measures both technical and scale efficiency where a variable return to scale model measures pure technical efficiency (Ramanathan, 2003).

- (ii) Change of weights: In our analysis the weights of inputs and outputs were not restricted, i.e. they could take any value between 0 and 1. The model can be modified to restrict the weights to a maximum or minimum value. Also conditions can be applied e.g. Weights of inventory  $\geq 2x$  weight of receivables, etc. This can help in finding efficiency under a set of conditions. For example, in case a firm that more weightage should be given to inventory than receivables as they are more liquid.
- (iii) Inclusion of outside variables: The model can be extended to include regression model or a Tobit model (Lee, 2005) to take into consideration effect of outside or uncontrollable factors. These models are usually called two stage models and will be able to provide pure technical efficiency as the effect of uncontrollable factors will be removed.

## 6. Practical Implications

The DEA based technique because of its support for different type of analysis would prove useful to the regulator, i.e. government for policy framing and also to individual firms for effective management of short term resources. The government can make use of the measure to calculate the overall trend in efficiency of industry. This can be achieved by calculating the average of efficiencies of all firms for each year. For example Table 6 gives the average super efficiencies for Food and Agro industry for each year and the overall average efficiency. The table shows that the average efficiency of the industry is around 95%. This efficiency can be compared to the efficiencies of Food and Agro industries worldwide to get an idea of the competitiveness of the Indian industry. This can be used to either grant or withdraw incentives to the industry and to frame bank credit policy. Moreover the efficiency figure can be used to compare different industries to frame incentive policy. If it is found that an industry has a low average WCM

**Table 6: Average WCM Efficiency of Food and Agro Industry**

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Average Super Efficiency	97.9%	87.7%	85.1%	98.1%	100.0%	95.4%	99.9%	99.9%	93.9%	94.0%	99.8%
Overall Average	95.65%										

efficiency, then the government can take appropriate steps like building of public storage facilities. These warehouses can store the raw materials and firms can purchase from them as and when required. This will reduce inventory of firms and thus improve WCM efficiency.

The sensitivity analysis and working capital component wise analysis can help the regulators in understanding the expected changes in efficiency of firms due to small changes in inventories and/or availability of credit. This may help them in better forecasting the effect of the credit crunch or a shortage in raw material for inventory purpose. The component wise analysis for example in case of Food and Agro industry (Table 1) reveal that most of the firms have large weights associated with creditors and inventory and small weights associated with receivables. This reveals that overall industry is not managing the receivables efficiently and therefore appropriate steps can be taken like framing banking policies for easier and quicker discounting of receivables through banks etc. in order to improve the industry's WCM efficiency.

For individual firms like those in Food and Agro industry, it is possible for firms to benchmark themselves with respect to their peers. E.g. If the efficiency of a firm is below 97% in year 2003, then it can know that the short term fund management of the firm is not as per industry standards and that there is room for improvement. Moreover the DEA technique also aids in providing information to a less efficient firm about the amount of improvement required in order to become efficient. For example, from Table 1 we can see that Upper Ganges Sugar & Inds. Ltd. is less efficient firm and needs to improve to become efficient like DMU nos. 41 and 44. Similarly the firms can come to know that which of the

inputs are not being used in an effective manner by checking the component analysis as suggested in section 5.4 above.

This will help the financial and operations manager in better planning the purchase and storage of raw materials and other inventory items, improved management of receivables and creditors for effective utilisation of funds.

The technique however needs to be applied carefully in order to achieve correct results. Since the DEA technique measures relative efficiency, it is essential that the sample size should be as large as possible in order to include all types of firms. The technique has the disadvantage that its results are only as good as the reference sample. Moreover, since some industries like Foods and Agro industry have to go for seasonal purchase of raw material, therefore the inventory value may be extremely high at one point of time and very low in another. Using inventory value at just one particular time of year may yield suboptimal results and therefore quarterly or monthly average value of inventory, debtors and receivables need to be considered in such cases.

## 7. Conclusion

This paper proposes a new method for measuring working capital management efficiency based on DEA where we have used non decreasing return to scale input oriented super efficiency model. The paper shows that the new model is able to overcome most of the shortcomings of traditional measures (cash conversion cycle and net trade cycle) like mathematical flawed calculation and equal weights to inputs/outputs. In addition the paper presents superiority of the model over others due to its property of unit invariance, ratio type data output, ability to carry out sensitivity analysis

and benchmarking. Further, the paper shows that the model can be extended to incorporate different types of return to scale, put conditions on weights of inputs and outputs and to include the effect of outside uncontrollable variables. Our study examines the working capital management efficiency in an entirely new perspective and opens new direction of research in effective working capital management.

### End Note

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### References

- AL Taleb, G., AL-Zoued, A. A.-N., & AL-Shubiri, F. N. (2010). The determinants of effective working capital management policy: A case study on Jordan. *Interdisciplinary Journal of Contemporary Research In Business*, 2(4), 248-264.
- Andersen, P., & Petersen, N. C. (1993). A procedure for ranking efficient units in data envelopment analysis. *Management Science*, 39(10), 1261-1264.
- Banker, R. D., Charnes, A., & Cooper, W. W. (1984). Some models for estimating technical and scale inefficiencies in data envelopment analysis. *Management Science*, 30(9), 1078-1092.
- Bhattacharya, H. (2004). *Working capital management: strategies and techniques*. PHI Learning Pvt. Ltd.
- Charnes, A., Cooper, W. W., & Rhodes, E. (1978). Measuring the efficiency of decision making units. *European Journal of Operational Research*, 2(6), 429-444. doi:10.1016/0377-2217(78)90138-8
- Cooper, W. W., Seiford, L. M., & Tone, K. (2006). *Introduction to data envelopment analysis and its uses: With DEA-solver software and references*. Springer.
- Erasmus, P. D. (2010). Working capital management and profitability: The relationship between the net trade cycle and return on assets. *Management Dynamics*, 19(1), 2-10.
- Filbeck, G., & Krueger, T. M. (2005). An analysis of working capital management results across industries. *Mid - American Journal of Business*, 20(2), 11-18.
- Gentry, J. A., Vaidyanathan, R., & Hei Wai Lee. (1990). A weighted cash conversion cycle. *FM: The Journal of the Financial Management Association*, 19(1), 90.
- Hyun-Han Shin, & Soenen, L. (1998). Efficiency of working capital management and corporate profitability. *Financial Practice & Education*, 8(2), 37-45.
- Iqbal Ali, A., & Seiford, L. M. (1990). Translation invariance in data envelopment analysis. *Operations Research Letters*, 9(6), 403-405. doi:10.1016/0167-6377(90)90061-9
- Jun-Yen Lee. (2005). Comparing SFA and DEA methods on measuring production efficiency for forest and paper companies. *Forest Products Journal*, 55(7/8), 51-56.
- Ramanathan, R. (2003). *An introduction to data envelopment analysis: A tool for performance measurement*. SAGE.
- Richards, V. D., & Laughlin, E. J. (1980). A cash conversion cycle approach to liquidity analysis: Introduction. *Financial Management (pre-1986)*, 9(1), 32.
- Sharma, A. K., & Kumar, S. (2011). Effect of working capital management on firm profitability empirical evidence from India. *Global Business Review*, 12(1), 159-173
- Smith, K. (1980). *Profitability versus liquidity tradeoffs in working capital management, in readings on the management of working capital*. New York: St. Paul, West Publishing Company.
- Van Horne, J. C. & Wachowicz, J. M. (2004). *Fundamentals of financial management*(12 ed.). New york: Prentice Hall
- Zhu, J., & Cook, W. D. (2007). *Modeling data irregularities and structural complexities in data envelopment analysis*. Springer.

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# *Influence of Business Strategy on Inter-firm Coordination Efforts: Moderating Role of Environment*

Sandip Trada and Vikas Goyal

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## **Abstract**

The success of an organization's business strategy depends on the fit among various factors i.e. business environment, organizational structure, processes, control and coordination efforts, etc. (Fauzi, 2009). The coordination efforts that firms use while interacting with partnering firms can have a significant impact on their inter-firm relationships. Amongst various factors that influence the suitability of coordination efforts, business strategy of the firm has received special attention. The effectiveness of business strategy and coordination efforts is contingent on the specific environmental characteristic. We use Walker and Ruekert (1987) typology and develop a conceptual framework for the influence of business strategy on inter-firm coordination efforts under different environmental conditions. By drawing from contingency theory, we propose that firm strategy can enhance the channel relationship when its coordination efforts are aligned with business strategy and environment. We extend the applicability of business strategy to coordination efforts in the distribution channel and suggest that contingency theory can provide useful insights in understanding channel relationship.

**Keywords:** business strategy, coordination efforts, business environment, channel relationship, strategic fit, contingency theory.

## **1. Introduction**

The success of an organization's business strategy depends on the fit among multiple factors, i.e. business environment, structure, control and coordination system (Fauzi, 2009). Since its introduction, Miles and Snow's (1978) and Porter's (1980) typology of business strategies have received extensive research attention in the various disciplines. The majority of these researches have focused on the relation between (1) strategy and performance (Slater & Olsen, 2000) (2) environmental characteristic

and strategy (Desarbo et. al., 2005; Venkatraman, & Prescott, 1990), (3) organization's structural characteristics and strategy (Olson, Slater, & Hult, 2005; Walker & Ruekert, 1987), and (4) strategy and control (Govindarajan & Fisher, 1990; Lassar, & Kerr, 1996). These studies particularly investigated the impact of the strategy on firm performance under different environmental and/or organizational structural arrangement. Thus, it suggests that researchers are more interested about internal system, structure and process that enhance the positive effect of strategy on performance.

However, researchers have given less attention to the effect of strategy on inter-firm relationship with few exceptions (Justin & Litsschert, 1994; Lassar & Kerr, 1996), although it has been considered the critical driver of organization's performance (Dwyer & Oh, 1987, Morgan & Hunt, 1994). The effective implementation of firm strategy in market depends on its relationship with channel partners, as they distribute products and/or services to final consumers (Lassar & Kerr, 1996). The relationship between firm and channel partners depends on the type of the coordination efforts exercised by the manufacturer (Celly & Frazier, 1996). Thus, coordination efforts become critical from the perspective of improving relationship and enhancing the performance of the firm.

Scholars emphasised the importance of coordination efforts for effective implementation of firm strategy and enhancing the performance through strong relationship with channel partner (Celly & Frazier, 1996; Lassar, & Kerr, 1996), because firm's coordination efforts (1) provide signal to the channel partners about the objectives and activities valued by firm (i.e. sales, skills) (Celly & Frazier, 1996), (2) can enhance the channel partners' role clarity, thereby enhancing overall channel performance (Chun & Rainey, 2005), (3) can influence the resource allocation of distributors for selling activities (Anderson, Lodish & Weitz, 1987). Slater and Olson (2000) suggested that firm should align its strategy with

the sales force control system to enhance the performance. Thus, we build on this literature, and posit that strategic fit between strategy and coordination efforts will improve the overall performance of the firm.

The effective implementation of business strategy and the type of coordination efforts also depend on the environment in which firm operates (Celly & Frazier, 1996; Porter, 1980). The extant literature suggests that effectiveness of different strategies is contingent on the different environmental conditions (Homburg, Workman & Krohmer, 1999). For example, in complex and dynamic environment, differentiation strategy is more effective (Porter, 1980), whereas in stable environment, cost leadership strategy is found to be more successful (Marlin, Hoffman & Lamont, 1994). Similarly, the effectiveness of firm's coordination efforts also depends on the environmental characteristics. For example, behaviour based coordination efforts are more useful in uncertain environment for enhancing the relationship whereas outcome based coordination efforts lead to frustration and dysfunctional behaviour of channel members (Celly & Frazier, 1996). Thus, environment characteristics represent the significant contingency between firm's strategy and coordination efforts to improve the channel relationship and firm performance.

In channel research, inter-firm relationship is considered to be one of the important drivers of firm's performance (Dwyer & Oh, 1987; Morgan & Hunt, 1994). Among several factors, coordination efforts have profound effect on inter-firm relationship (Celly & Frazier, 1996). The use of specific type of coordination efforts depends on various factors (i.e, environment, resource constraint). One of the important determinants of the type of coordination efforts in channel relationship is firm's strategy (Lassar, & Kerr, 1996). Although, firm's strategy can play significant role in developing channel relationship through suitable coordination efforts, it has achieved very less attention in the existing research (Lassar & Kerr, 1996). Lassar, and Kerr, (1996) emphasised that fit between firm strategy and control (i.e. behaviour based and output based) can enhance the relationship with channel members. However, the significant role of environment on the strategy type and control used

has been ignored. Justin and Litsschert, (1994) focused on fit between strategy type and environmental uncertainty, and suggested that defensive strategies are more effective under uncertainty. This study also ignored the role of the control and studied only one characteristics of the environment.

Although, several scholars emphasised that success of firm's business strategy depends on the fit among multiple factors (Desarbo et al., 2005; Fauzi, 2009; Kabadayi, Eyuboglu & Thomas, 2007), the extant literature has given very less attention to fit among 'strategy, environment and coordination efforts' in inter-firm research. Thus, we draw from contingency theory and develop a conceptual framework to analyse the relationship between the business strategy and inter-firm coordination efforts. In addition, we also argue that relationship between the business strategy and the inter-firm coordination efforts is contingent on the external environment.

In the next section, we review the literature on contingency theory, business strategy, control theory and organizational environment, and develop the conceptual framework that identifies the moderating role of environment between the business strategies and inter-firm coordination efforts. Next, we present the propositions regarding the strategy type and corresponding coordination efforts under specific environmental condition, and emphasize the importance of fit among three strategic elements for inter-firm relationship. Finally, we conclude with a discussion on the potential expansion and application of the framework and the directions for future research.

## 2. Contingency Theory

The contingency theory to strategy implementation adopts the general and open systems approach (Vorhies, & Morgan, 2003), in which organization is considered to be a social system composed of interdependent subsystem. The success of the strategy depends on the alignment between the elements of these subsystem and the demands of the environment. The coordination between the elements of the subsystem is achieved through internal alignment between organizational policies and practices. This internal cohesion between

strategic elements interacts with the external environment to realize organization's objectives (Olsen, Slater & Hult, 2005). The interaction between the organizational internal subsystems and the external environment results in two important characteristics of open system (1) Adaptation (2) equifinality.

The theory of adaptation suggests that manager should adjust the strategy to deal with changes in the external environment (Chakravarthy, 1982). We extend the theory of adaptation to our context, and suggest that managers should adopt specific type of coordination efforts that best satisfy the demand of the firm's business strategy and enhance the channel relationship. The concept of equifinality suggests that organizational performance is more dependent on how effectively firm implement the selected strategy than the particular strategy in use (Gresov and Drazin 1997; Venkatraman 1990). Thus, equifinality indicate that managers should be more concern about the effective implementation of the chosen strategy to enhance the performance of the firm than the strategy itself. As environmental characteristics and coordination efforts are important contingency for effective strategy implementation, it is reasonable to expect that superior performance of the firm depends on how well the coordination efforts are align with the strategy under different environmental conditions.

### 3. Business Strategy

Business strategy refers to "how firms compete in an industry or market" (Vorhies & Morgan, 2003, pg. 51; Walker & Ruekert 1987). Extant literature identifies two major framework for business strategy, i.e. Porter's (1980) and Miles and Snow's (1978) typology. The Porter's (1980) framework has external orientation and centres on customers and competitors. However, Miles and Snow's (1978) typology has internal orientation and concentrate on rate of product market change (Walker & Ruekert 1987). Miles and Snow (1978) propose a broader classification of strategies that use different methods, to identify and approach the product-market domain, and devise the firm's structures and processes to achieve advantage over competitors. They recognize four prototype of how organizations deal with these issues: (1) "Prospectors" (2) "Defenders" (3) "Analyzers"

(4) "Reactors".

Prospectors constantly strive to find and exploit new products and market opportunities, whereas defenders tend to protect a segment to create a stable set of customers and products. Analyzers secure the middle position on the continuum in which prospector is on the one extreme and defender on the other. Thus, Analyzers follows prospectors into new product-market area and defenders in the other market through protection of products and customers. However, reactors do not respond consistently to any business problem. Porter (1980) contends that the aim of the business is to create extra value for customers compare to competitors in the market (i.e. low cost or differentiation) and to define the scope of market coverage (i.e. market wide or focused).

However, Walker and Ruekert (1987), argue that both typologies have intrinsic strengths and weaknesses. Porter's external orientation ignores the firm's role in strategy formulation and Miles and Snow's internal orientation overlook the impact of environment on strategy. Thus, both typologies are limited due to one dimensional orientation. By emphasising on both dimensions, Walker and Ruekert (1987) propose a mix typology of prospectors, differentiated defenders, and low-cost defenders. We draw from Walker and Ruekert's (1987) work and add the analyzer strategy due to its validity in strategic management literature (Slater et al., 2000; Olson, Slater & Hult, 2005; Oyedijo, & Akewusola, 2012). We do not consider reactors because of its inconsistent approach to environment.

### 4. Control System

Control system can be defined as any process that influences the behaviour of partnering firms, ideally in a way that enhance the welfare of both the firms (Anderson & Oliver, 1987; Snell 1992; Miao, Evans & Shaoming, 2007). It involves various firm processes, such as, setting goals, directing, monitoring and evaluating performance, administering reward / punishment, compensating, etc. (Celly & Frazier, 1996, Miao et al., 2007). Control theory identifies three major categories of controls i.e. output control, behavioural control, and capability control (Anderson & Oliver, 1987,

Challagalla & Shervani, 1996; Joshi, 2009).

In output control systems, managers set output targets (i.e. sales or profit) for the partnering firms and evaluate their performance on the basis of achievement of those pre-set targets. They do not emphasize specific activities or behaviour and provide flexibility to the partnering firms for achieving the targets in their own ways (Anderson & Oliver, 1987, Celly & Frazier, 1996; Miao et al., 2007). Additionally, output control offers an objective measure for performance evaluation under uncertainty (Hoskisson & Hitt, 1988). However, output controls must be used with caution, as overemphasis on short-term outcomes may discourage partnering firms from making long term investments (Hoskisson & Hitt, 1988). Furthermore, output controls are effective when the output of partnering firms can be measured accurately and completely (Anderson & Oliver, 1987; Celly & Frazier, 1996).

In behavioural control, managers specify the required activities, closely monitor and evaluate actual behaviour of employees and administer the rewards or punishment on the basis of performance of the specified activities (Anderson & Oliver, 1987; Celly & Frazier, 1996). Use of behavioural control needs high level of managerial guidance and intervention in the business activities of the partnering firms (Anderson and Oliver, 1987; Miao et al., 2007). Additionally, comprehensive behaviour control system demands detail information and close monitoring of employees which raise the cost for the organization (Celly & Frazier, 1996). The greater level of behaviour control can standardize the processes and curtail the flexibility of partnering firms. It may lead to inferior performance due to rigid and cautious behaviour of the partnering firms (Celly & Frazier, 1996).

Behaviour control system assumes managerial knowledge of cause-effect relationships between the actions and the outputs (Anderson & Oliver, 1987; Celly & Frazier, 1996). When managers lack the adequate cause-effect knowledge and do not fully comprehend the process, it is difficult for them to translate intentions into specific action. In such situations, they cannot effectively implement the behaviour based control system (Celly & Frazier, 1996). Furthermore, performance evaluation of partnering firms will be

complex and subjective under behavioural control system. Manager subjective evaluation of employees may introduce bias and lack of credibility in the performance appraisal system (Anderson & Oliver, 1987, Snell 1992).

Capability control systems involve setting goals for the skills and abilities of the partnering firms, monitoring their development, directing for improvement, and compensating on the basis of actual level of skills and abilities (Challagalla & Shervani, 1996, Miao et al., 2007). It emphasize on the building of skills and abilities that can enhance the overall performance of the firm and also of the partnering firm. Capability controls also satisfies the individual instinctive psychological need for competence and provide motivation for greater efforts (Deci & Ryan, 1985). The capability control ensures that the partnering firm possess the appropriate skills and abilities to deliver the greater performance. The exercise of the capability control demands better understanding of the skills and abilities required to perform the task. Thus, manager should have the enough cause and effect knowledge of market and the kind of skills required to transform that knowledge in to performance (Challagalla & Shervani, 1996).

Extant literature on alignment of strategy, environment, structure and control, focused at the organizational level (Vorhies & Morgan, 2003; Fauzi, 2009). In addition, control systems are studied in organizational context where the focal firm has formal authority over the partnering firms. However, several underlying conceptual arguments from organizational research seem to be useful in the channel context. Scholars have indicated that the conceptual arguments from organizational context are equally applicable in the inter-organizational research (Anderson & Oliver, 1987, Eisenhardt, 1989). In addition, if we change our focus to 'coordination efforts' (i.e. efforts by organization personnel to align channel members activities), output, behaviour and capability controls becomes relevant for the distribution channel. On the basis of these arguments, and previous channel literature, we used three types of 'coordination efforts' in this study, i.e. output-based, behaviour-based and capability-based coordination efforts.

### 5. Environmental Characteristics

In organizational control, and strategic management literature, environment has been considered as one of the important contingencies. In addition, organization's environment is crucial to management research from all major theoretical perspectives. The contingency theory (Boyd's et al., 1993) has shown that success of a business strategy depends on the different environmental conditions. In addition, Jaworski (1988) argued that appropriate use of controls depends on the environmental context faced by the organization. Researchers have found link between the specific environmental characteristic and the type of the controls being used by firms (Celly & Frazier, 1996; Fauzi, 2009). Fauzi (2009) found that fit among the business environment, strategy, and control system enhanced the performance of the organization. Thus, we argue that in general the success of the strategy and the appropriateness of control system will be moderated by environmental characteristics.

Although, earlier literature has identified several dimensions of the environment, the three dimensions have been considered particularly important and are included consistently in management research studies, i.e. munificence, dynamism, and complexity (Achrol & Stern 1988; Dwyer & Welsh 1985; Sharfman & Dean, 1991). In addition, it has been suggested that these three environmental dimensions are theoretically similar to those suggested by other scholars, but are more inclusive than others (Dess and Beard, 1984).

Munificence is defined as the availability and accessibility of critical environmental resources to firms' (Dess & Beard, 1984). High munificence refers to an abundance of resources and greater demand of the products in the environment whereas low level of munificence implies scarce resources in the environment (Achrol & Stern 1988). Complexity refers to the number of different, suppliers, buyers, competitors, and other environmental players that managers should consider in designing their strategies (Sharfman & Dean, 1991). Dynamism is the frequency of changes in the environment tied with the unpredictability in the market (Homburg et al., 1999). In this study, we argue that the

environmental characteristics will influence the types of the coordination efforts that must be used by the organization operating under different business strategies (Jaworski, 1988, Celly & Frazier, 1996).

### 6. Conceptual Framework: Hypothesis Development

The success of the organization's strategy depends on the fit among the business environment, strategy, structure, and control system (Desarbo et al., 2005; Fauzi, 2009). Govindarajan and Fisher (1988) found that the choice of control is the function of the firm's business strategy. They identified the appropriate controls for each strategy type for Miles and Snow's (1978) typology. In addition, Govindarajan and Gupta (1985) argued that managers have to adopt appropriate control under different environmental conditions to enhance organization performance. Thus, we argue that each strategy type uses appropriate coordination efforts under different environmental circumstances and develop prepositions to describe the type of the 'coordination efforts' that is most relevant for each strategy type under different environmental context.

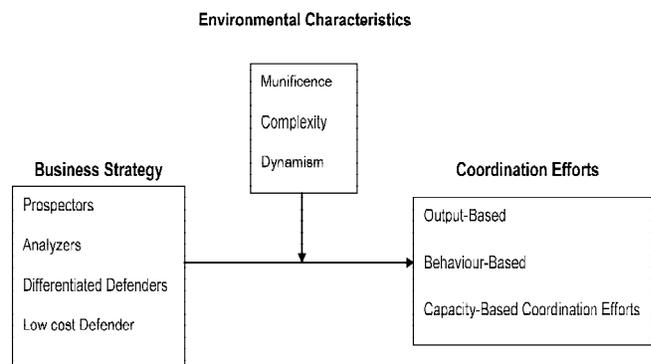


Figure 1: A Conceptual Framework of Strategic Fit Among Business Strategy, Environment and Coordination Efforts

#### 6.1 Prospectors

High environmental munificence indicates that the market demand for the firm's products is high. Prospectors rely on developing new products and focus on customers who are keen to buy innovative products (Miles & Snow, 1978; Olson et al., 2005). The development and sales of the new products is a complex and creative process which requires detail knowledge about particular

technique, product and customers. To facilitate this process, prospectors must provide enough autonomy to their partnering firms and use informal coordination mechanism (Walker & Ruekert, 1987; Olson et al., 2005). One of the important business partners is the partnering firms in downstream distribution channel relationships. Prospectors seek customer and market information from channel partners to improve the sales and new product development. In highly munificence environment, outcome based coordination efforts provide flexibility to channel members to use their own creative strategies to sell the products and understand customers (Anderson & Oliver, 1987; Celly & Frazier, 1996). Moreover, it is easier for prospector to accurately measure the output of the channel partners compared to measuring their behaviour or capability.

Behaviour based coordination efforts will standardize the sales processes and reduce the flexibility of channel partners which may lead to rigid and cautious behaviour (Celly & Frazier, 1996). Moreover, the cost of implementing behaviour based coordination efforts is higher relative to outcome based coordination efforts. In highly munificence environment, if the behaviour based coordination efforts do not generate enough sales it can frustrate the channel members (Celly & Frazier, 1996). Similarly, capability based coordination efforts builds the skills of the channel members, and provides no assurance of greater performance in the short run (Snell, 1992; Challagalla & Shervani, 1996). In the study of the sales force control system, Slate and Olson (2000) reported that outcome control significantly explain the performance of the prospectors. Therefore, we argue that

*Proposition 1: Prospectors will emphasize outcome-based coordination efforts in environment characterised by high munificence.*

When the environment is characterized by high complexity, organizations face high number of suppliers, customers, and competitors in the task environments (Sharfman & Dean, 1991). In such a complex environment, organization perceives more heterogeneity (Dess & Beard, 1984), and managers have greater information-processing requirements (Olson et al., 2005).

Moreover, as the prospectors place higher emphasis on developing new product and markets they will require even more information under high complexity (Slater & Narver, 1995). Prospectors are likely to have better understanding of how to market new products compared to their channel partners. Therefore, prospectors can guide their channel partners about how to market products, and collect required information. Thus, we argue that prospectors must use behaviour based coordination efforts in highly complex environment. The output based coordination efforts may not be appropriate as customer needs are heterogeneous. Prospectors may not use capability based coordination efforts due to lack of direct relationship with the performance in the short term (Snell, 1992; Challagalla & Shervani, 1996). Therefore, we propose

*Proposition 2: Prospectors will emphasize behaviour-based coordination efforts in environment characterised by high complexity.*

When the environment is high on dynamism, organization experiences higher uncertainty because of frequent and unpredictable changes in the external environment (Dess & Beard, 1984; Sharfman & Dean, 1991). Using output based coordination under highly dynamic environment may be considered as holding channel partners responsible for the uncontrollable factors (Jaworsky & Macinnis, 1989; Celly & Frazier, 1996). Output based coordination efforts may frustrate channel partners and elicit their dysfunctional behaviour. Moreover, under high uncertainty, output based coordination efforts may not provide meaningful information about the degree of support that a channel partner is extending towards the suppliers' products (Celly & Frazier, 1996). Additionally, it will be difficult for the prospector to clearly understand the cause and effect relationship between channel partner's activities and higher performance under dynamic environment. Therefore, behaviour based coordination efforts are less likely to be used in the dynamic environment (Merchant, 1985).

Prospector's continuous efforts to develop new products provide them with the knowledge and expertise on handling uncertain environments. Hence, in uncertain

environment, prospectors can use their product and channel functional knowledge to develop the skills and abilities of their channel partners. Enhanced skills and abilities of the channel partners can reduce the perceived riskiness of their actions and lessen perceived cause and effect ambiguity. Therefore, we argue that

*Proposition 3: Prospectors will emphasize capability-based coordination efforts in environment characterised by high dynamism.*

## 6.2 Differentiated Defenders

The competitive advantage of differentiated defenders depends on their ability to provide high quality products to niche customers who are willing to pay premium price (Walker & Ruekert, 1987; Olson et al., 2005). Differentiated defenders focus on existing customers by providing greater service and superior product quality. Therefore, differentiated defenders choose selective channel partners who can deliver superior service and maintain strong customer relationships (Slater & Olson, 2001). Differentiated defenders also develop close relationships with channel partners to get essential information about value creation opportunities. One of the key success factors for differentiated defenders therefore, is effective communication of this information between them and the channel partners.

As effectiveness in accomplishing these factors is very difficult to measure in the short term, differentiated defenders are more likely to use behaviour-based coordination efforts (Govindarajan & Fisher, 1990) in environment that is characterised by high munificence. The high demand in the output market may be less appealing to the differentiated defenders due to their focus on niche segments (Slater & Olson, 2000). To serve their consumer segment better, differentiated defenders would need lot of information from their channel partners which is difficult to come by output or capability coordination efforts. Therefore, we argue that

*Proposition 4: Differentiated defenders will emphasize behaviour-based coordination efforts in environment characterised by high munificence.*

When the environment has high complexity, differentiated defenders faces more heterogeneity and

a greater number of members in the task environments (Sharfman & Dean, 1991). However, this heterogeneity may not affect differentiated defenders as much as other competing firms, because differentiated defenders focus on a smaller niche segment. Differentiated defenders create customer value by providing unique products to customers, so they are less vulnerable to competitive actions. To defend the segment, differentiated defenders seek information about customers' requirement through channel partners (Slate & Olson, 2000). They also prescribe the service process to channel partners due to better understanding of the cause and effect knowledge of the marketing environment. Thus, Differentiated defenders are more likely to use behaviour-based coordination efforts over capability and outcome based coordination efforts. We propose

*Proposition 5: Differentiated defenders will emphasize behaviour-based coordination efforts in environment characterised by high complexity.*

When the environment is characterised by high dynamism, differentiated defenders faces external markets that are unpredictable and uncertain. In such environment, differentiated defenders would have insufficient understanding of the cause and effect relationships between external factors (Merchant, 1985; Celly & Frazier, 1996). Using output based coordination efforts by the supplier may frustrate the channel partners and induce their dysfunctional behaviour (Jaworsky & Macinnis, 1989; Celly & Frazier, 1996). Moreover, as differentiated defenders aim to provide unique value through superior customer service and higher customer orientation (Slate & Olson, 2000), they have to build superior service capability to satisfy the unique service needs of their customers. The right set of skills and abilities with their channel partners will ensure that differentiated defenders efforts are aligned with their business objectives (Celly and Frazier, 1996). Therefore, differentiated defenders are likely to use capability based coordination efforts over behaviour and outcome based coordination efforts in environment characterised by high dynamism. We propose that

*Proposition 6: Differentiated defenders will emphasize capability-based coordination efforts in environment characterised by high dynamism.*

### 6.3 Analyzers

Analyzers maintain the intermediate position between prospectors and defenders by focusing on regular customers while simultaneously exploiting new market opportunities (Miles & Snow, 1978; Olson et al., 2005). They develop either improved or cost effective version of the prospectors' products while protecting their core market and products (Olson et al., 2005). These dual demands create the coordination efforts conflict that requires constant information about customers and greater output at lesser cost. Analyzers must use the type of coordination efforts with their channel partners that defines their expectations for output in some contexts and prescribes expected behaviours in others. Thus, analyzers must adopt a mixed coordination efforts (Slate & Olson, 2000) that emphasis one type of coordination efforts relative to others as per the suitability under specific environmental conditions.

When the environment has high degree of munificence, analyzers are likely to use a mix of output and behaviour based coordination efforts for channel member, but more emphasis on output based coordination efforts due to high demand for the products. The more emphasis on output based coordination efforts provide them the flexibility to market products in a flexible and creative way and less emphasis on behaviour based coordination efforts maintain the coordination cost (Anderson & Oliver, 1987; Celly and Frazier, 1996). Additionally, behaviour based coordination efforts help analyzers in implementing specific procedure and gaining enhanced understanding of customers' needs. Therefore, we propose that,

*Proposition 7: Analyzers will emphasize output-based coordination efforts in environment characterised by high munificence.*

In case of highly complex environment, analyzers use the same mixed coordination efforts, but more emphasis on behaviour coordination efforts. The more emphasis on behaviour based coordination efforts provide detail information about the heterogeneous customers needs (Celly & Frazier, 1996) and less emphasis on the outcome based coordination efforts make channel members accountable for results.

*Proposition 8: Analyzers will emphasize behaviour-based coordination efforts in environment characterised by high complexity.*

When the environment is highly dynamic, analyzers are more likely to use capability and output based coordination efforts to build the necessary skill level and also generate reasonable output. The more emphasis on capability based coordination efforts ensure that channel members have appropriate skills (Challagalla & Shervani, 1996) and less emphasis on output based coordination efforts shows that channel partners are putting in enough efforts.

*Proposition 9: Analyzers will emphasize capability-based coordination efforts in environment characterised by high dynamism.*

### 6.4 Low-Cost Defenders

Low-cost defenders rely on providing quality products at lower cost with a minimum level of service (Walker & Ruekert, 1987; Olson et al., 2005). They seek to maximize the sales volume at lower marketing cost due to lower profit margin. Low-cost defenders emphasise on standardize practices to minimize the risk and administrative cost. In addition, low-cost defenders use relatively lower levels of marketing activities (Slater & Olson, 2001). As their customers are likely to make purchase decisions mostly on price, channel partners are evaluated primarily on their sales.

In environments characterised by high munificence, low-cost defenders are most likely to use outcome-based coordination efforts (Govindarajan & Fisher, 1990). Moreover, low-cost defenders are not likely to invest in capability building and standardizing channel partner's behaviour under high market demand. Additionally, due to high cost of emphasizing capability and behaviour based controls (Snell, 1992) in channel relationships, low-cost defenders are likely to prefer output based coordination efforts over capability and behaviour based coordination efforts. Therefore, we propose

*Proposition 10: Low-cost defenders will emphasize output-based coordination efforts in environment characterised by high munificence.*

When the environment is high on complexity, low-cost defenders would face a highly heterogeneous environment and would have to deal with greater number of stakeholders in the task environment (Dess & Beard, 1984). However, low-cost defenders mostly focus on low price products and are often less concerned about other market factors compared to the competitors. Moreover, low-cost defenders are usually sellers of commodity products that are often standardized and are not vulnerable to changing market information (Slater & Olson, 2000). Therefore, low-cost defenders are likely to emphasize outcome based coordination efforts for channel partners in complex environments. Output based coordination efforts will also provide flexibility to the channel partners to promote the products and focus on sales to the price sensitive segment (Snell, 1992; Celly & Frazier, 1996). Low-cost defenders will not prefer behaviour and capability based coordination efforts due to higher cost of emphasizing these coordination efforts in channel relationships. Therefore, we propose that

*Proposition 11: Low-cost defenders will emphasize output-based coordination efforts in environment characterised by high complexity.*

When the environment is high on dynamism, low-cost defenders face an unpredictable and uncertain environment. The lack of cause and effect understanding of channel activities will limit low-cost defenders' ability to assess the degree of support that channel partners extend to its products. In highly uncertain environment, emphasis on output measures may be equivalent to holding the distributor responsible for uncontrollable external factors that may lead to dissatisfaction of channel partners and elicit their dysfunctional behaviour (Celly & Frazier, 1996). Moreover, the use of outcome measures by low-cost defenders may transfer the excessive risk to the channel members and increase the overall coordination cost (Jaworsky & Macinnis, 1989; Merchant, 1985). Low cost defenders are less likely to emphasize the outcome and behaviour based coordination efforts due to higher implementation costs. We argue that low-cost defenders may emphasize capability based coordination efforts because of its cost efficiency relative to behaviour based coordination

efforts, and to improve the skills and abilities of channel partners for future gains.

*Proposition 12: Low-cost defenders will emphasize capability-based coordination efforts in environment characterised by high dynamism.*

## 7. Discussion

The paper extends the contingency theory in distribution channels to provide further insights in inter-firm relationship. The proposed conceptual framework integrates research from business strategy, control theory and distribution literature to develop propositions that examine the fit among business strategy, environmental conditions and coordination efforts on channel relationship.

The extant literature provides less insight about the role of strategy in channel relationship (Lassar, & Kerr, 1996), although it has been considered the critical driver of organization's performance (Dwyer & Oh, 1987; Morgan & Hunt, 1994). We draw from business strategy and distribution literature, and argue that effective implementation of strategy depends on the relationship with channel partner. This relationship is influenced by the strategic fit between coordination efforts and strategy used by the firm. Further, the effectiveness of strategy and coordination efforts is contingent on the specific environmental characteristics. Thus, the success of the business strategy is contingent on how well firm's strategy is aligned with the environmental conditions and coordination efforts.

In terms of theoretical contribution, this is the first study to focus explicitly on the 'strategic fit' among business level strategy, coordination efforts and environmental conditions in distribution channel. In addition, this study contributes to the scarce literature on application of strategy in marketing channel (Webster, 2005). Thus, we contribute in marketing literature by extending the influence of firm business strategy on channel relationship through coordination efforts.

We extend contingency theory in the distribution channel to provide useful insight for channel relationship. Although, contingency theory has been extensively used in organizational, strategy and marketing literature

(Vorhies, & Morgan, 2003; Desarbo et al., 2005; Olson et al., 2005), it has been rarely used in the distribution channel despite its theoretical and practical application to inter-firm relationship (Kabadayi, Eyuboglu & Thomas, 2007). We use contingency theory to develop propositions which emphasised the importance of 'strategic fit' among business strategy, environment and coordination efforts for channel relationship.

For managers, our study suggests that multiple combinations of business strategy, environment, and coordination efforts are possible that can enhance the channel relationship. In addition, we argue that, when channel manager improve the fit among the three strategic elements, their channel system will make greater contribution to the firm performance.

Besides the conceptual contribution, this study opens several directions for future research. The proposed 'strategy-environment-coordination' framework should be empirically tested to conform or reject the propositions. In addition, we have not explored the direct effect of the strategy on relationship quality between firm and channel members, but focus on coordination efforts as it has been found central to channel relationship (Celly, & Frazier, 1996). Further research can explore the direct effect of strategy on relationship quality and indirect effect through coordination efforts and provide insight on the role of firm strategy in channel relationship. The framework can be further extended to understand the indirect effect of the strategy on performance through coordination efforts as managers are more concerned about the effect of specific strategy on channel performance.

In this study, we have extended Walker and Ruekert (1987) typology, and analyzer strategy (Slater et al., 2007, Oyedijo, & Akewusola, 2012) in distribution channel to study the relationship among strategy, environment and coordination efforts. This proposed insight can be used by the future research to enhance the understanding of the concept of 'fit' by including additional variables. For example, researchers can use other typology (e.g. Miles and Snow, 1978; Porter, 1980) or hybrid strategies to understand its implication for channel relationship.

Although, we have focused on the fit among strategy, environment and coordination efforts to enhance the channel relationship, the combination of coordination efforts may have complementary effects on channel relationship. For example, the combination of capability based and outcome based controls have found positive combinatory effects on sales person's performance (Miao & Evans, 2012). Hence, the combination of coordination efforts for different strategy, environment configuration presents an interesting avenue for future research.

## References

- Achrol, R. S., & Stern, L. W. (1988). Environmental determinants of decision-making uncertainty in marketing channels. *Journal of Marketing Research* (JMR), 25(1).
- Anderson, E., & Oliver, R. L. (1987). Perspectives on behavior-based versus outcome-based salesforce control systems. *Journal of Marketing*, 51(4).
- Anderson, E., Lodish, L. M., & Weitz, B. A. (1987). Resource allocation behavior in conventional channels. *Journal of marketing Research*, 85-97.
- B. Boyd, G. Dess, and A. Rasheed (1993). Divergence between archival and perceptual measures of the environment: causes and consequences. *Academy of Management Review*, 18, 204-226, .
- Celly, K. S., & Frazier, G. L. (1996). Outcome-based and behavior-based coordination efforts in channel relationships. *Journal of marketing research*, 200-210.
- Chakravarthy, B. S. (1982). Adaptation: A promising metaphor for strategic management. *Academy of Management Review*, 7(1), 35-44.
- Challagalla, G. N., & Shervani, T. A. (1996). Dimensions and types of supervisory control: Effects on salesperson performance and satisfaction. *Journal of Marketing*, 60(1).
- Chun, Y. H., & Rainey, H. G. (2005). Goal ambiguity and organizational performance in US federal agencies. *Journal of Public Administration Research and Theory*, 15(4), 529-557.
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of research in personality*, 19(2), 109-134.
- DeSarbo, W. S., Anthony Di Benedetto, C., Song, M., & Sinha, I. (2005). Revisiting the miles and snow strategic framework: Uncovering interrelationships between strategic types, capabilities, environmental uncertainty, and firm performance. *Strategic Management Journal*, 26(1), 47-74.

- Dess, G. G., & Beard, D. W. (1984). Dimensions of organizational task environments. *Administrative Science Quarterly*, 52-73.
- Dwyer, F. R., & Welsh, M. A. (1985). Environmental relationships of the internal political economy of marketing channels. *Journal of Marketing Research*, 397-414.
- Dwyer, F. R., Schurr, P. H., & Oh, S. (1987). Developing buyer-seller relationships. *The Journal of marketing*, 11-27.
- Eisenhardt, K. M. (1985). Control: Organizational and economic approaches. *Management science*, 31(2), 134-149.
- Fauzi, H. (2009). The Performance implications of fit among environment, strategy, structure, control system and social performance. Strategy, Structure, Control System and Social Performance (October, 15).
- Govindarajan, V., & Fisher, J. (1988, August). Congruence between controls and business unit strategies: Implications for business unit performance and managerial job satisfaction. *In Academy of Management Proceedings* (Vol. 1988, No. 1, PP. 17-21).
- Govindarajan, V., & Fisher, J. (1990). Strategy, control systems, and resource sharing: Effects on business-unit performance. *Academy of Management journal*, 33(2), 259-285.
- Govindarajan, V., & Gupta, A. K. (1985). Linking control systems to business unit strategy: impact on performance. *Accounting, Organizations and Society*, 10 (1), 51-66
- Gresov, C., & Drazin, R. (1997). Equifinality: Functional equivalence in organization design. *Academy of Management Review*, 22(2), 403-428.
- Homburg, C., Workman Jr, J. P., & Krohmer, H. (1999). Marketing's influence within the firm. *The Journal of Marketing*, 1-17.
- Hoskisson, R. E., & Hitt, M. A. (1988). Strategic control systems and relative R&D investment in large multiproduct firms. *Strategic Management Journal*, 9(6), 605-621.
- Jaworski, B. J. (1988). Toward a theory of marketing control: Environmental context, control types, and consequences. *Journal of Marketing*, 52(3).
- Jaworski, B. J., & MacInnis, D. J. (1989). Marketing jobs and management controls: Toward a framework. *Journal of Marketing Research*, 406-419.
- Joshi, A. W. (2009). Continuous supplier performance improvement: Effects of collaborative communication and control. *Journal of Marketing*, 73(1), 133-150.
- Justin Tan, J., & Litsschert, R. J. (1994). Environment-strategy relationship and its performance implications: An empirical study of the chinese electronics industry. *Strategic management journal*, 15(1), 1-20.
- Kabadayi, S., Eyuboglu, N., & Thomas, G. P. (2007). The performance implications of designing multiple channels to fit with strategy and environment. *Journal of Marketing*, 71(4), 195-211.
- Lassar, W. M., & Kerr, J. L. (1996). Strategy and control in supplier-distributor relationships: An agency perspective. *Strategic Management Journal*, 17(8), 613-632.
- Marlin, D., Lamont, B. T., & Hoffman, J. J. (1994). Choice situation, strategy, and performance: A reexamination. *Strategic Management Journal*, 15(3), 229-239.
- Merchant, K. A. (1985). *Control in business organizations* (p. 1). Boston, MA: Pitman.
- Miao, C. F., & Evans, K. R. (2012). Effects of formal sales control systems: A combinatorial perspective. *International Journal of Research in Marketing*, 29(2), 181-191.
- Miao, C. F., Evans, K. R., & Shaoming, Z. (2007). The role of salesperson motivation in sales control systems- Intrinsic and extrinsic motivation revisited. *Journal of Business Research*, 60(5), 417-425.
- Michael E. Porter (1980). *Competitive strategy*, The Free Press, New York.
- Miles, R. E., Snow, C. C., Meyer, A. D., & Coleman, H. J. (1978). Organizational strategy, structure, and process. *Academy of management review*, 3(3), 546-562.
- Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *The journal of marketing*, 20-38.
- Olson, E. M., Slater, S. F., & Hult, G. T. M. (2005). The performance implications of fit among business strategy, marketing organization structure, and strategic behavior. *Journal of marketing*, 69(3), 49-65.
- Oyedijo, A., & Akewusola, R. O. (2012). Organizational strategy and firm performance: A test of miles and snow's model using 34 paint manufacturing SMES in South-western Nigeria. *Journal of Research in International Business Management*, 2(6), 170-178.
- Ruekert, R. W., & Walker Jr, O. C. (1987). Marketing's role in the implementation of business strategies: a critical review and conceptual framework. *The Journal of Marketing*, 15-33.
- Ruekert, R. W., & Walker, O. C. (1987). Interactions between marketing and R&D departments in implementing different business strategies. *Strategic Management Journal*, 8(3), 233-248.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist*, 55(1), 68.
- Sharfman, M. P., & Dean, J. W. (1991). Conceptualizing and measuring the organizational environment: A multidimensional approach. *Journal of Management*, 17(4), 681-700.

- Slater, S. F., & Narver, J. C. (1995). Market orientation and the learning organization. *The Journal of Marketing*, 63-74.
- Slater, S. F., & Olson, E. M. (2000). Strategy type and performance: The influence of sales force management. *Strategic Management Journal*, 21(8), 813-829.
- Slater, S. F., & Olson, E. M. (2001). Marketing's contribution to the implementation of business strategy: An empirical analysis. *Strategic Management Journal*, 22(11), 1055-1067.
- Slater, S. F., Hult, G. T. M., & Olson, E. M. (2007). On the importance of matching strategic behavior and target market selection to business strategy in high-tech markets. *Journal of the Academy of Marketing Science*, 35(1), 5-17.
- Snell, S. A. (1992). Control theory in strategic human resource management: The mediating effect of administrative information. *Academy of management Journal*, 35(2), 292-327.
- Venkatraman, N. (1989). The concept of fit in strategy research: Toward verbal and statistical correspondence. *Academy of management review*, 14(3), 423-444.
- Venkatraman, N., & Prescott, J. E. (1990). Environment-Strategy coalignment: An empirical test of its performance implications. *Strategic Management Journal*, 11(1), 1-23.
- Vorhies, D. W., & Morgan, N. A. (2003). A configuration theory assessment of marketing organization fit with business strategy and its relationship with marketing performance. *Journal of marketing*, 67(1), 100-115.
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# *Mediating role of Job satisfaction in the relationship between Task characteristics and Life satisfaction*

S. Riasudeen and R. Venkatesakumar

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## **Abstract**

The need to understand group influences on individuals at work is believed to be of great importance in organizational psychology. The reason for such continued studies is the belief that individuals' wellbeing depends on the nature of task being performed by the members of the group. This study focuses on identifying the relationship of task characteristics with life satisfaction having job satisfaction as mediating variable. For this a hypothetical model is developed and tested with a sample of four hundred and four employees of service sector involved in group task. Results of the analysis show amongst the task characteristics: task autonomy, decision making autonomy and feedback have a positive and significant relationship with job satisfaction leading to life satisfaction. One of the important characteristics: task variety has significant but inverse relationship with job satisfaction. Work scheduling autonomy, method autonomy and task identity have no influence on job satisfaction. Results confirm that life satisfaction is a spillover effect of job satisfaction. Based on this, managerial implications of findings, contributions, limitations, and future research directions are discussed.

**Key words:** Task characteristics, Job satisfaction, Life satisfaction

## **1. Introduction**

The nature and the characteristics of the task is known to affect the state of employees as evidenced by various studies made by Frese (1985), Karasek, Baker, Marxer, Ahlbom and Theorell (1981), Hackman, (1992), Cohen and Bailey (1997). Individual job satisfaction has been the focus of research efforts for several decades within the field of organizational psychology and the job satisfaction construct was linked with a wide range of outcomes. Research within the group and group performance has demonstrated that mean level of job

satisfaction is related with individual life satisfaction.

The job characteristic's effect on in-role job performance was the main focus of previous research. We state that viewing the job performance should not be limited to in-role job performance but also to supplement of job performance i.e. Life satisfaction. Over the years, job satisfaction and life satisfaction relationship has been conclusively researched. In spite of this, we were curious in knowing the mediating effect of job satisfaction having task characteristics as precedence in explaining life satisfaction. We posit this type of analysis allows strongest conclusions on designing the job to enhance individual's life satisfaction. Our search on identifying the relationship of job characteristics with life satisfaction have not fetched much results, even if, those studies have concentrated on job demands and its resources and life satisfaction having burnout as mediating variable (e.g. Demerouti, Bakker, Nachreiner & Schaufeli. 2001)

## **2. Conceptual Model and Hypotheses**

### **2.1 Task Characteristics and Job Satisfaction:**

The concept of meaningfulness of a task is based on task and its nature. Autonomy is related to how tasks are liaised with the other groups of the organization. The autonomy in group task has been defined as the amount of job-related independence, initiative, and freedom either permitted or required in daily work activities (Stamps & Piedmonte 1986), it includes autonomy of scheduling the work, method and decision making.

Higher autonomy means, individuals are vested with more privilege to make decisions, design work activities and adapt to transforming conditions. Workers provided with considerable information and decision making authority, experience prominence in the attainment of the objectives and heightened self-realization being a twin benefit of increased autonomy (Spreitzer, 1995). Increased involvement in decision making, facilitating

and interacting develops satisfaction and enhances performance (Beekun, 1989). Task performance is improved due to higher levels of collective autonomy since the information held by team members is also collectively increased (Hollenbeck, Ilgen, LePine, Colquitt, & Hedlund, 1998). We put forth, it is more beneficial to have task autonomy when work conditions and requirements are uncertain.

Task variety has been identified as best predictors of satisfaction by Glisson and Durick (1988). In their study, Campion, Medsker and Higgs (1993) found participation in decision making, variety in task and significance of task as job design variables delineate employee satisfaction. Zeffane (1994) disseminated task diversity, participation in decisions correlated highly and positively with job satisfaction. Groups with autonomy had increased job satisfaction, while it decreased in non-autonomous groups (Pearson 1992). The significant relationship of task characteristics such as task autonomy, task identity and feedback on performance were identified with job satisfaction by Chiu, Chen and Hsiao, (2005). Task characteristics i.e. skill variety and task significance have been identified to affect the level of job satisfaction positively (Badran, Kafafy & Jihan 2008) raising an issue of redesigning the job with presence of these characteristics. Task feedback defined as the extent to which a team is given information on the quality of its work (Strubler & York, 2007), can build internal job motivation as it conveys the outcomes of work activities (Cohen, Ledford & Spreitzer 1996)

Increased 'psychological state' of employee has been used as a 'measure' by Arnold and House, (1980) and Fried and Ferris, (1987) for identifying the mediating relationship of task variables with job satisfaction, while others (see, Fried, 1991; Taber & Alliger, 1995; Wall & Clegg, 1981) identified direct relationship between the two by controlling psychological state. The task characteristics create a sense of responsibility and influence helpful behaviors resulting in making the work psychologically meaningful and satisfying (Farh, Podsakoff & Organ, 1990). Bhuian and Mengue (2002) supporting earlier findings of Hackman and Oldham (1971, 1980) confirm that autonomy gives a sense of responsibility amongst employee in carrying out their

task and act as intrinsic motivation, influencing the net result of job satisfaction. Based on this we posit, enjoyment in the task and improved satisfaction enables an employee to align importance of his job with global functioning of the organization.

Task variety and work schedule opportunities, such as flexible hours, compressed workweeks, and working from home have provided employee a sense of belonging and enhanced job satisfaction (Levering & Moskowitz, 2007) and this finding was further supported by Lunenburg (2011) revealing task variety addresses the growth need strength of an employee, experiencing greater job satisfaction as they are highly motivated. This concept is essentially the same as Herzberg's, (2009) motivation factors. Inadequacy of task variety may lead to frustration, stress, and job dissatisfaction. To sum up, there is enough evidence suggesting meaningful individual relationships between characteristics of tasks with job satisfaction (see. Fried & Ferris, 1987; Spector, 1985; Stone, 1986).

Though, researchers consistently demonstrate a relationship of core task characteristics with job satisfaction (c.f. Judge, 2003; Saavedra & Kwun, 2000), only a single or few elements of task characteristics were investigated by researchers, i.e. job interdependence (Anderson & Williams 1996; Pearce & Gregersen 1991). Researchers in the past integrated all job characteristics into a single index and limited their focus only on identifying job satisfaction not extended to life satisfaction. In contrast, we analysed the four of five essential job dimensions identified by Hackman and Oldham's (1975) (i.e., task variety, task identity, autonomy, and feedback). Within autonomy we extended the study in identifying relationship of task autonomy, work method autonomy, work schedule autonomy and decision making autonomy. Accordingly, our discussion on task characteristics is extensive and statistically clarifies the unique effect of each task characteristic on job and life satisfaction.

Based on the above discussion, we expect a constructive relationship of task characteristics with job satisfaction and propose the following hypotheses:

*H1: Task autonomy is positively related to job satisfaction.*

H2: *Work scheduling autonomy is positively related to job satisfaction*

H3: *Decision making autonomy is positively related to job satisfaction*

H4: *Work method autonomy is positively related to job satisfaction*

H5: *Task variety is positively related to job satisfaction*

H6: *Task identity is positively related to job satisfaction*

H7: *Feedback is positively related to job satisfaction*

## **2.2 Job and Life Satisfaction:**

Life satisfaction is the outcome of one's satisfaction with domains of life such as family, health and work. As such, it is based on the conditions of environment and interceded by both work and non-work domains satisfaction. Details of experience regarding conditions of work, support of supervisors and compensation are evaluated by the individuals and preferred level of these factors leads to one's satisfaction with life. Life satisfaction is desirable outcome resulting in constructive organizational behaviour. This accentuates optimistic emotional state and engenders constructive effect in the work place. A person having life satisfaction perceives their work as more fulfilling, useful and enjoyable thus ensuing personal development, cooperation, supportiveness. As an outcome they show positive emotional symptoms (Wright & Cropanzano, 2000) leading to engagement and continuance resulting in reduced in employee turnover. In sum, job is an importunate and prominent of individual and society's wellbeing impinge on individual's life and entire community.

Research indicates, satisfaction related to work and non-work province describes fifty percent of the life satisfaction variance (e.g. Brief, Butcher, George & Link 1993). The 'bottom-up' perspective proposed by Brief et al (1993) identified job satisfaction as part of life satisfaction and having a casual influence on life satisfaction. Researchers have concluded that job satisfaction is considerably related with, or 'spills over' into perspective towards life, or life satisfaction (for reviews see Rain, Lane & Steiner, 1991; Tait, Padgett & Baldwin 1989,). Whereas, Diner (1984), considered job

satisfaction as a part of life satisfaction and has a perfunctory influence on life satisfaction.

Considering Job Characteristics Model (Hackman & Oldham, 1980) and the Demand/Control Model (Karasek & Theorell, 1990), Turner, Barling and Zacharatos (2002) suggested that building job characteristics into work enables employee to have a sense of well-being and be productive in their task. Research studies on life satisfaction and its impact on the job satisfaction have thrown conclusive light on the above concept. It is assumed that individuals assess the facet of their experiences while reasoning overall satisfaction with the life (Rice, McFarlin, Hunt & Near, 1985). Higher job satisfaction through positive meaningful job conditions and events were significantly associated with life satisfaction (Staw, Bell & Clausen 1986). In a different line of thought, Judge and Watanabe (1993), identified, life satisfaction has an immense relationship with job satisfaction than otherwise and such relationship is spurious, resulting from common influences such as task characteristics and social support. But Iverson (2000) tested a causal model and observed that job satisfaction has a stronger effect on life satisfaction and not otherwise.

As the outcomes of task related characteristics, Luthans (2002) identified that the life satisfaction is related to job satisfaction but the study analysed the influence of other variables such as commitment not strictly as an outcome of task characteristics. Taking an account of task characteristics, Rode (2004) identified life satisfaction as a spillover of job satisfaction. Bowling, Eschleman, Wang and Qiang (2010) in their meta-analysis found a stronger and positive correlation between job satisfaction and life satisfaction.

In order to test the relationship, the hypothesis is formulated as:

H8: *Job satisfaction is positively mediate the relationship between task characteristics and life satisfaction.*

## **3. Method**

### **3.1 Sample**

This study was carried out amongst the professionals engaged in business service sector. This sector was

chosen, as it has prominent emergence in achieving higher national and states income, trade, inflows of foreign direct investments and employment. This sector has steadied the growth of the Indian economy with a great amount of contribution. Economic survey of Government of India 2012-13 states " business service sector is a provider of skilled employment both in India and abroad, generating direct employment for nearly 2.8 million persons and indirect employment of around 8.9 million in 2011- 12, the shares of the services sectors in employment increased from 19.70 percent to 25.30 per cent".

As the study aims to analyze the impact of task characteristics, only individuals whose work has a presence of task characteristics have been included and individuals performing routine tasks and whose job does not have or have lesser task characteristics have been excluded from the study. Amongst 510 respondents randomly selected in the participating organizations, a structured questionnaire was distributed and the final sample consisted of 404 professionals. Amongst the participants 54.8 percent were male and 45.2 percent were female. Of those, under the age of 25 constitute 53.7 percent of total. Participants' educational levels are high school diploma (12.6%), bachelor's degree (60.6%), master's degree (9.9%), and professional degree (7.9%). Highly skilled constitute 15.4 percent and skilled 64.2 percent.

### 3.2 Measures

#### 3.2.1 Task Characteristics

A five point Likert type response format was used for all the measures ranging from strongly agree to strongly disagree. Autonomy, was measured with 12 items, drawn from scales developed by Hackman and Lawler (1971) 'Job Dimension measure', Hackman and Oldham (1975) 'Job Diagnostic survey', Breugh,(1985) 'Work Autonomy Scale', Morgeson and Humphrey (2005) 'The Work Design Questionnaire' for assessing job design and the nature of work. Task variety (4 items), Task identity (4 items), Feedback (6 items) were drawn from Hackman and Oldham (1975) and Morgeson and Humphrey (2005).

#### 3.2.2 Job and Life Satisfaction

Job satisfaction was measured by 10 items, drawn from Macdonald, Intyre (1997) 'Generic Job Satisfaction Scale'. Life satisfaction was measured by 5 items, drawn from Diener, Emmons, Larsen and Griffin, (1985) 'Satisfaction with Life Scale instrument' designed to measure global cognitive judgments of one's lives.

## 4. Results

### 4.1 Preliminary Analyses

The construct reliability of the measure used was assured by Cronbach's alphas. All the item loadings which explained the variance of over 50 percent in respective constructs were only included. The Average Variance Extracted (AVE) and Composite Reliability values are 0.5 and 0.7, respectively, more than the recommended cut-off points. (Ref. Table 1). Loadings and cross-loadings of variables were assessed in order to test discriminant validity and found that each item loaded higher on their specific construct than it cross-loaded on other constructs. As suggested by Fornell and Larcker (1981), a correlation matrix was constructed to represent square root of the Average Variance Extracted as diagonal values (see Table 2). A confirmatory factor analysis was performed to confirm the overall factor structure of variables with LISREL (version 8.72). The analysis on measurement model bestowed good fit to the data: Normed chi-square= 2.07 ( $p < .05$ ), Goodness of Fit Index (GFI) = .89, Adjusted Goodness of Fit Index (AGFI) = 0.86, Root Mean Squared Error of Approximation (RMSEA) = 0.05, Comparative Fit Index (CFI) = 0.98, Normed Fit Index (NFI) = 0.96. (Table 1)

### 4.2 Hypotheses Testing

The results of the structural equation modeling using maximum likelihood technique of the model proposed depicted in Figure 1, demonstrate a good fit: Normed Chi-Square= 2.11 ( $p < .05$ ), GFI = .86, AGFI= 0.84, RMSEA = 0.07, CFI= 0.96, NFI= 0.94.

The results of the analysis revealed the path coefficient of task autonomy with job satisfaction showing significant and positive relationship with the value of

**Table 1 : Item Statistics and Estimated Loadings**

Construct	Mean	Std.	Cronbach's alpha	AVE	Composite reliability	Item loadings (range)
Task autonomy	3.58	0.68	0.75	0.680	0.730	0.790-0.821
Work scheduling autonomy	3.58	0.71	0.77	0.651	0.726	0.710-0.756
Decision autonomy	3.40	0.75	0.70	0.667	0.820	0.721-0.769
Work method autonomy	3.58	0.72	0.72	0.655	0.793	0.768-0.802
Task variety	3.67	0.66	0.80	0.721	0.721	0.779-0.840
Task identity	3.64	0.63	0.76	0.681	0.676	0.626-0.672
Feedback	3.68	0.63	0.88	0.751	0.682	0.735-0.781
Job satisfaction	3.64	0.64	0.89	0.782	0.691	0.724-0.790
Life satisfaction	3.11	0.57	0.81	0.721	0.703	0.710-0.746

0.60 ( $t = 9.76$ ,  $p < 0.05$ ) thus supporting the hypothesis one. The hypothesis two is not supported as the coefficient of work scheduling autonomy shows non-significant negative relationship with the job satisfaction. As far as the decision autonomy is concerned it has positive significant relationship with job satisfaction with the value of 0.40 ( $t = 11.26$ ,  $p < 0.01$ ) hence the hypothesis three is also supported. The relationship between method autonomy and job satisfaction is not significant ( $t = 0.96$ ,  $p > 0.05$ ) thus hypothesis four is not accepted. Hypothesis five i.e. Task variety is positively related with job satisfaction is not supported, however, the results shows there is negative relationship which is of significance with the value -0.41 ( $t = 13.42$ ,  $p < 0.05$ ).

The relationship of task identity with job satisfaction is not significant hence the hypothesis six is not accepted. The feedback being positively related with job satisfaction as the value of coefficient being 0.53 ( $t = 7.34$ ,  $p < 0.01$ ), supports the hypothesis seven formulated. In total the task characteristics explain 35 percent of job satisfaction ( $t = 11.27$ ,  $p < 0.05$ ). The job satisfaction explains 31 percent of life satisfaction with  $t = 26.75$ ,  $p < 0.01$  and also shows a positive significant relation with 0.43 coefficient value. So the hypothesis eight is supported.

## 5. Discussion and Implications

A multitude of heterogeneous findings by previous research identifying relationship between job satisfaction and task-related variables has produced complicated results. The significant relationships of task-related variables with job satisfaction has been confirmed by empirical research (e.g., Fried & Ferris, 1987; Fried, 1991; Judge, Locke, Durham & Kluger 1998; Judge, Bono & Locke, 2000), but the topic of interest is the magnitude, extent and direction of the relationships. Thus the present study advances the existing literature on the mediating mechanisms of job satisfaction and its effects on life satisfaction and confirms the earlier findings of Hart, (1999) and Near, Smith, Rice and Hunt, (1984) who have found prominent relationship of job satisfaction with life satisfaction.

Autonomy has come to be synonymous with empowerment in modern research. In the present context both refer to the concept of providing workers, groups of workers with increased opportunity to determine their own courses of action towards attainment of the group goals and in the process, the objectives of the organization. This study results suggest building up task autonomy enables one to succeed even in the absence of continuous supervision and confirms earlier findings

(see, Bhuian & Mengue, 2002; Brown & Peterson, 1993; Fried & Ferris, 1987). Task autonomy provides a sense of trust worthiness and ownership of completing a task or project without depending upon much support from the supervisors. This feeling of trust results in accuracy and efficiency of task performance, building a congenial relationship among the members of the organization and also strengthens employee efforts in performing their task. Further it instills a 'sense of ownership' augmenting job satisfaction.

Decision autonomy as vertical loading includes empowering employees to decide and seek solutions to problems on their own which enhances work performance and in turn job satisfaction. Task designers must provide as much feedback as possible, as employees invest a substantial amount of their time and want to know how well they are doing. This will enable an employee to make appropriate adjustments in the current

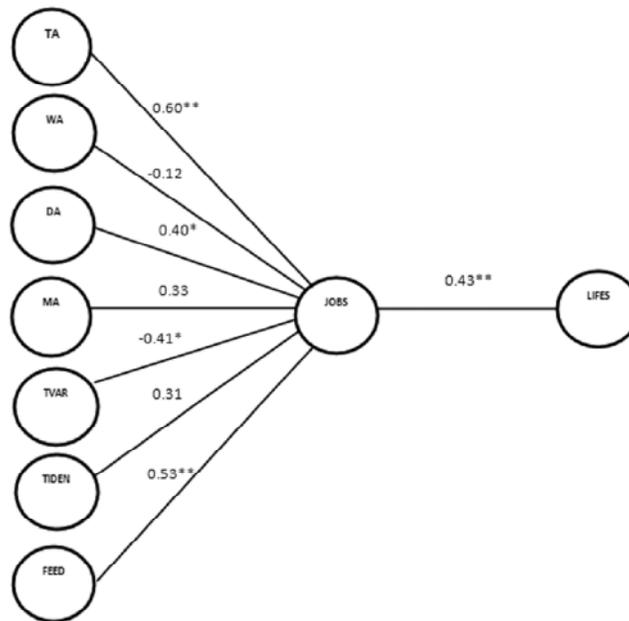
performance.

Our study results differ from Kopelman, (1985), Graen, Scandura, and Grean, (1986), who have found job enrichment as an outcome of task variety, increases the quality of job performance and enhances job satisfaction. However, the research findings of Kelley (1990) indicated that job enrichment works better only in less complex organizations (i.e. Small firms) providing support for this study result, as this study was carried out in the larger organisations having many different and connected tasks. Our study result suggests, too many tasks assigned may have negative impact on individual job satisfaction if the nature of the job is complex. Hence managers should ensure enrichment should be based on the nature of the job being performed and competency level of employee. Competency mapping at regular interval may help in creating skill level inventory enabling the managers to assess the capacity of their

**Table 2 : Correlation Matrix and Discriminant Validity Assessment**

Construct	1	2	3	4	5	6	7	8	9
1. Task autonomy	0.680								
2. Work scheduling autonomy	0.610	0.651							
3. Decision autonomy	0.629	0.565	0.667						
4. Work method autonomy	0.561	0.572	0.586	0.655					
5. Task variety	0.604	0.584	0.610	0.583	0.721				
6. Task identity	0.626	0.581	0.615	0.621	0.684	0.681			
7. Feedback	0.618	0.598	0.623	0.610	0.635	0.584	0.751		
8. Job satisfaction	0.642	0.610	0.531	0.592	0.620	0.639	0.690	0.782	
9. Life satisfaction	0.521	0.514	0.554	0.565	0.510	0.545	0.640	0.667	0.721

Note : N = 404



Note: All path coefficients are standardised. \*p<0.05, \*\*p<0.01

TA - Task Autonomy, WA - Work Scheduling Autonomy, DA - Decision making Autonomy, MA - Method Autonomy, TVAR - Task Variety, TIDEN - Task Identity, FEED - Feedback, JOBS - Job Satisfaction, LIFES - Life Satisfaction

**Figure 1. Structural Equation Modeling**

subordinates for job enrichment.

Considering the prominence of the organizational groups, it becomes imperative to devise work places where the employees feel positively about the work. We therefore put forth, managers should make the employee to perceive their task as autonomous, meaningful, and satisfying. This can be done through role clarity and role alignment, as this will have a positive impact on both job satisfaction and life satisfaction simultaneously.

**6. Limitations and Directions for Future Research**

Life satisfaction is known to be determined by variables such as in-role performance (e.g. Rode, et.al. 2005), personality construct (e.g., Rode, 2004), non-work domains (George & Brief, 1992) that were not assessed as part of this study. The data provided by the participants at only one point of time, emphasizes the need for longitudinal research. It is believable that the responses may change for number of model constructs subjected to particular situation. In the same line of research the

future attempts should be proceeded with additional task-related variables i.e. task significance and task interdependence in explaining the job and life satisfaction as well. The data collected for this study through self-reported measures via a single source hence common method variance could be a concern. Individual response of survey items may not be completely independent as there is a chance of influence of group membership.

The current study was carried out to identify the effect of task variables on life satisfaction having job satisfaction as the mediator, but an attempt must be made to delineate the direct linkages of task characteristics with life satisfaction. For example one could put forward the direct linkage between task autonomy with life satisfaction, evidencing an autonomous task provide individuals with much more life satisfaction. This study addresses only specific sector, hence similar studies can be extended to other sectors i.e. manufacturing and service providers of distinctive nature to form conclusive evidence.

## End Note

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## References

- Anderson, S. E., & Williams, L. J. (1996). Interpersonal, job, and individual factors related to helping processes at work. *Journal of Applied Psychology, 81*, 282-296.
- Arnold, H.J., & House, R. J (1980). Methodological and substantive extensions to the job characteristics model of motivation. *Organisational Behaviour and Human Performance, 25*(2), 161-183.
- Badran, Mohga A., Kafafy, & Jihan H (2008). The effect of job redesign on job satisfaction, resilience, commitment and flexibility: the case of an Egyptian public sector bank. *International Journal of Business Research, 8*(3), 27-41.
- Beekun, R. I. (1989). Assessing the effectiveness of socio technical interventions: Antidote or fad? *Human Relations, 42*(10), 877-897.
- Bhuiyan, S. N., & Mengue, B. (2002). An extension and evaluation of job characteristics, organizational commitment and job satisfaction in an expatriate, guest worker, sales setting. *Journal of Personal Selling and Sales Management, 22*(1), 1-11.
- Bowling, Nathan A., Eschleman, Kevin J Wang & Qiang (2010). A Meta-analytic examination of the relationship between job satisfaction and subjective wellbeing. *Journal of Occupational and Organizational Psychology, 83*(4), 915-934.
- Breaugh J.A., (1985). The Measurement of Work Autonomy. *Human Relations, 38*(6), 551-570.
- Brief, A.P., Butcher, A.H., George, J.M. & Link K.E. (1993). Integrating bottom-up and top-down theories of subjective well-being: The case of health. *Journal of Personality and social Psychology, 64*(4), 646-653.
- Brown, S. P., & Peterson, R. A. (1993). Antecedents and consequences of salesperson job satisfaction: Meta-analysis and assessment of causal effects. *Journal of Marketing Research, 30*, 63-77.
- Campion, M., A., Medsker, G. J., & Higgs, C. A. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups. *Personnel Psychology, 46*(2): 823-850.
- Chiu Su-Fen., Chen, & Hsiao- Lan. (2005). Relationship between job characteristics and organizational citizenship behavior: The mediational role of job satisfaction. *Social Behavior and Personality, 33*(6), 523-540.
- Cohen, S. G., Ledford, G. E., & Spreitzer, G. M. (1996). A predictive model of self-managing work team effectiveness. *Human Relations, 49*(5), 643-676.
- Cohen, S.G., & Bailey, D.E. (1997). What makes team work? 'Group effectiveness research from the shop floor to the executive suite. *Journal of Management, 23*(3), 239-290.
- Demerouti, E., Baker, A.B., Nachreiner, F., & Schaufeli, W.B. (2001). The job demands resources model of burnout. *Journal of Applied Psychology, 86*(3), 499-512.
- Diener, E., Emmons, R., Larsen, J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*(1), 71-75.
- Diener, E.1984. Subjective well-being. *Psychological Bulletin, 95*(3), 542- 575.
- Farh, J. L., Podsakoff, P. M., & Organ, D. W. (1990). Accounting for organizational citizenship behavior: Leader fairness and task scope versus satisfaction. *Journal of Management, 16*, 705-721.
- Fornell, C., & Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.
- Frese, M. (1985). Stress at work and psychosomatic complaints: A casual interpretation. *Journal of Applied Psychology, 70*(2), 314-328.
- Fried, Y. (1991). Meta-analytic comparison of the job diagnostic survey and job characteristics inventory as correlates of work satisfaction and performance. *Journal of Applied Psychology, 76*, 690-697.
- Fried, Y., & Ferris, G. R. (1987). The validity of the Job Characteristics Model: A review and meta-analysis. *Personnel Psychology, 40*(2), 287-322.
- George, J. M., & Brief, A. P. (1992). Feeling good - doing good: A conceptual analysis of the mood at work-organizational spontaneity relationship. *Psychological Bulletin, 112*(2), 310-329.
- Glisson. C., & Durick M. (1988). Predictors of Job Satisfaction and Organizational Commitment in Human Service Organizations. *Administrative science quarterly, 33*(1), 61-81.
- Graen, G. B., Scandura, T. A., & Graen, M. R. (1986). A field experimental test of the moderating effects of growth need strength on productivity. *Journal of Applied Psychology, 71*, 486-491.
- Hackman, J. R. (1992). Group influences on individuals in organizations, In M. D. Dunnette & L. M. Hough (ed.), 199-267. *Handbook of industrial and organizational psychology, 3*. Palo Alto, CA: Consulting Psychologists Press.
- Hackman, J.R., & Oldham, G.R. (1975). Development of Job Diagnostic Survey. *Journal of Applied Psychology, 60*(2), 159-170.
- Hackman, J.R., & Oldham, G.R. (1980). *Work redesign*, Reading, MA: Addison-Wesley
- Hackman, J.R., & Lawler, E.E. (1971). Employee reactions to job characteristics. *Journal of Applied Psychology, 55*(3), 259-286.

- Hart, P.M. (1999). Predicting employee life satisfaction: A coherent model of personality, work and non-work experiences, and domain satisfactions. *Journal of Applied Psychology*, 4(4), 564-84.
- Herzberg, F. (2009). *One more time: How do you motivate employees?* Cambridge, MA: Harvard Business School Press.
- Hollenbeck, J. R., Ilgen, D. R., LePine, J. A., Colquitt, J. A., & Hedlund, J. (1998). Extending the multilevel theory of team decision making: Effects of feedback and experience in hierarchical teams. *Academy of Management Journal*, 41(3), 269-282.
- Iverson R.D. (2000). The relationship between Job and Life Satisfaction: Evidence from a remote mining community. *Human Relations*, 53(6), 807-839.
- Judge, T. A. (2003). Promote job satisfaction through mental challenge. In E. A. Locke (Ed.), *Handbook of principles of organizational behavior* (75-89). Hoboken, NJ: Wiley-Blackwell.
- Judge, T. A., & Watanabe, S. (1993). Another look at the job satisfaction-life satisfaction relationship. *Journal of Applied Psychology*, 78(6), 939-948.
- Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *Journal of Applied Psychology*, 83(1), 17-34.
- Judge, T.A., Bono, J.E., & Locke, E.A. (2000). Personality and job satisfaction: The mediating role of job characteristics. *Journal of Applied Psychology*, 85(2), 237-249
- Karasek, R. A., & Theorell, T. (1990). *Healthy work: Stress, productivity, and the reconstruction of working life*. New York: Basic Books.
- Karasek, R.A., Baker, D., Marxer, F., Ahlbom, A., & Theorell, T (1981). Job decision latitude, job demands, and cardiovascular disease: A prospective study of Swedish men. *American Journal of Public Health*, 71(7), 694-705.
- Kelley, M. R. (1990). New process technology, job design, and work organization: A contingency model. *American Sociological Review*, 55(2), 191-208.
- Kopelman, R. E. (1985). Job redesign and productivity: A review of the evidence. *National Productivity Review*, 4(3), 237-255.
- Levering, R., & Moskowitz, M. (2007, January 22). The 100 best companies to work for *Fortune*, 94.
- Lunenburg, F.C (2011). Motivating by enriching jobs to make them more interesting and challenging. *International Journal of Management, Business and Administration*, 15(1).
- Luthans, F. (2002). Positive organizational behavior: Developing and managing psychological strengths. *Academy of Management Executive*, 16(1), 57-75.
- MacDonald, S., & Intyre.P. (1997). The Generic Job Satisfaction Scale: Scale development and its correlates. *Employee Assistance Quarterly*, 13 (2), 212-218.
- Morgeson, F.P., & Humphrey S.E., (2005). The Work Design Questionnaire (WDQ): Developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of Applied Psychology*, 91(6), 1321-1339.
- Near, J.P., Smith, C.A., Rice, R.W. & Hunt, R.G. (1984). A comparison of work and non-work predictors of life satisfaction. *Academy of Management Journal*, 27(1), 184-190.
- Pearce, J. L., & Gregersen, H. B. (1991). Task interdependence and extra role behavior: A test of the mediating effects of felt responsibility. *Journal of Applied Psychology*, 76(6), 838-884.
- Pearson, I (1992). Autonomous workgroups: An evaluation at an industrial site. *Human Relations*, 45(9), 905-936.
- Rain, J.S., Lane, I.M., & Steiner, D.D. (1991). A current look at the job satisfaction/life satisfaction relationship: Review and future considerations. *Human Relations*, 44, 287-307.
- Rice, R.W., McFarlin, D.B., Hunt, R.G., & Near, J.P. (1985). Organizational work and the perceived quality of life: Toward a conceptual model. *Academy of Management Review*, 10(2), 296-310.
- Rode J.C (2004). Job satisfaction and life satisfaction revisited: A longitudinal test of an integrated model, *Human Relations*, 57(9), 1205-1230.
- Rode, J.C., Arthaud-Day, M.L., Mooney, C.H., Near, J.P., Baldwin, T.T., Bommer, W.H., & Rubin, R.S. (2005). Life satisfaction and Student Performance. *Academy of Management Journal of Learning and Education*, 4(4), 421-433.
- Saavedra, & Kwun, S. K. (2000). Affective states in job characteristics theory. *Journal of Organizational Behavior*, 21, 131-146.
- Spector, P. E. (1985). Higher-order need strength as a moderator of the job scope-employee outcome relationship: A meta-analysis. *Journal of Occupational Psychology*, 58, 119-127.
- Spreitzer, G. M. (1995). Psychological empowerment in the workplace: Dimensions, measurement, and validation, *Academy of Management Journal*, 38(5), 1442-1465.
- Stamps, P.L., & Piedmonte, E.B. (1986). *Nurses and work satisfaction*. Ann Arbor, MI: Health Administration Press.
- Staw, B.M., Bell, N.E., & Clausen, J.A. (1986). The dispositional approach to job attitudes: A lifetime longitudinal test, *Administrative Science Quarterly*, 31(1), 56-77.
- Stone, E. F. (1986). Job scope-job satisfaction and job scope-job performance relationships. In E. A. Locke (Ed.), *Generalizing from laboratory to field settings* (pp. 189-206). Lexington, MA: Lexington Books.
- Strubler, D.C., & York, K.M (2007). An Exploratory study of Team characteristics model using organizational teams. *Small Group Research*, 38(6), 670-695.

- Taber, T. D., & Alliger, G. M. (1995). A task-level assessment of job satisfaction. *Journal of Organizational Behavior*, 16, 101-121.
- Tait, M., Padgett, M.Y., & Baldwin, T.T. (1989). Job and life satisfaction: A re-examination of the strength of the relationship and gender effects as a function of the date of the study. *Journal of Applied Psychology*, 74(3), 502-507.
- Turner, N., Barling, J., & Zacharatos, A. (2002). Positive psychology at work, In C. R. Snyder & S. J. Lopez (ed.), *Handbook of positive psychology*, pp. 715-728, New York: Oxford University Press
- Wall, T.D., & Clegg C.W. (1981). A longitudinal field study of group work redesign. *Journal of Occupational Behavior*, 2(1), 31-49
- Wright, T.A. & Cropanzano, R. (2000) Psychological well-being and job satisfaction as predictors of job performance. *Journal of Occupational Health Psychology*, 5(1), 84-94.
- Zeffane, R. (1994). Patterns of organizational commitment and perceived management style: A comparison of public and private sector employees. *Human Relations*, 47(8), 977-1010.

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# *Governance of Corporate Environmental and Social Responsibilities in India: Sketching the Contour of Legislative Evolution and Reforms*

**Shishir Tiwari and Gitanjali Ghosh**

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## **Abstract**

The present paper makes a modest attempt to analyse the legislative evolution and the reforms in governance in respect of corporate environmental and social responsibilities in India in the aftermath of the Bhopal tragedy. It consists of detailed description of the Legislative and Judicial Developments after Bhopal, a comprehensive study of the environmental regulations for corporations, and of self-regulatory measures adopted by the corporate entities. The paper also encompasses case studies to assess Corporate Social and Environmental Responsibility in practice.

## **1. Introduction**

All economies depend on the abilities of business to manufacture produce, provide services and carry out other economic activities. In pursuance of this, they generate employment and several other benefits. Despite the numerous benefits, they also contribute to damaging the environment by contaminating and depleting natural resources. Globalization, besides offering opportunities for economic development, has also resulted in a number of concerns in the social and environmental realms. In the wake of these concerns, several attempts are being made in the field of corporate social and environmental responsibility to induce the companies to behave in a socially responsible manner by abiding to laws, rules and regulations, self-regulation and other voluntary initiatives.

India has an illustrious history of corporate social responsibility which must be considered before going ahead with the paper. This illustrious legacy can be divided into four phases. The first phase (1850-1914) witnessed a shift to philanthropy from charity for purely religious purposes. This included the setting up of trusts and institutions like schools, colleges, hospitals,

orphanages, widows' homes, art galleries and museums. The older forms of charity such as the building and maintenance of temples, pilgrim rest houses and water tanks nevertheless, continued (Sood&Arora, 2006: 5). The second phase (1914-1960) was shaped the theory of trusteeship given by Mahatma Gandhi's which asserts the right of the capitalist to accumulate wealth and to use it to for the benefit of the society. Large contributions were made to reform programmes like empowering women, abolishing untouchability and developing rural areas (Ibid: 6). The third phase (1960-1980) was shaped by India's socialist policy warranting equitable distribution of wealth and eliminating its concentration which resulted in the decline of corporate philanthropy and increase of corporate malpractices owing to the unwillingness of the corporates to follow such principles (Ibid: 9). However, increasing unemployment and decreasing social welfare measures by the Government threatens not only the profitability but the very survival of companies, that led the corporate's to support community development through philanthropic activities (Ibid: 10). During the fourth and the current phase (1980 until date) the attitude of the corporates has shifted from that of charity and traditional philanthropy to direct engagement in development concerns and supporting disadvantaged groups. It is comprises of both traditional philanthropic engagement and sustainable business strategy (Ibid: 11).

Although the philanthropic approach is still widespread, the Indian attitude to corporate social responsibility shows a slight shift from traditional philanthropy to sustainable business. Nevertheless, the Indian corporate Social Responsibility agenda is dominated by community development activities which although considered to be important by the corporates is criticised by several stakeholders. The criticism focuses on the

aspects that a company's community development approach lacks transparency and specific standards and must be compared to violations of social and environmental standards within companies.

The Bhopal Gas tragedy provided the much needed jolt to the Government of India, judiciary and the corporations; as it brought to the fore the fact that a huge amount of work on corporate environmental and social responsibilities in India was the need of the hour. In the light of the above background, the present paper deals with the evolution of reforms in governance in respect of corporate environmental and social responsibilities in India, legislative and otherwise.

**2. Concept of Corporate Social and Environmental Responsibility**

Corporate Social Responsibility (CSR) and Corporate Environmental Responsibility (CER) are not two divergent concepts. In common parlance, corporate environmental responsibility is understood as a part and parcel of the broader concept of corporate social responsibility. A perusal of the some of the definitions of CSR will make the same evident.

The European Council defines CSR as a concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders on a voluntary basis.<sup>1</sup> CSR is a concept wherein companies voluntarily incorporate social and environmental concerns into their business operations as well as the interaction with their stakeholders. The idea of being a socially responsible company means a lot more than simply complying with the law while investing in the environment and human resources (Chahoud, 2007). Environmental aspect of CSR is the duty of the corporate to cover the environmental effects of the company's products operations and facilities; remove waste and emissions; increase the productivity and efficiency of its resources; and decrease practices that may adversely affect the enjoyment of resources by future generations (Mazurkiewicz, 2004).

CSR entails the simultaneous fulfilment of a company's economic, legal, ethical, and philanthropic responsibilities. In other words, a company should strive to make profit, obey the law, be ethical, and be a good corporate citizen (Carroll, 1991: 43). The pyramid of corporate social responsibility is depicted in the



**Figure 1: Pyramid of Corporate Social Responsibility**

[Source: Carroll, 1991: 43]

figure 1.

The pyramid depicts the four components of CSR, beginning with the main functions of every company i.e. economic performance. Apart from carrying on economic activities, the company is also expected to obey the law which codifies acceptable and unacceptable behaviour in the society. In addition, the company also needs to be ethical i.e., it is obliged to do what is right, just, and fair, to avoid or minimize harm to stakeholders (consumers, employees, environment, and others). Lastly, the company is also expected to be a good corporate citizen which is patent in its philanthropic acts of contributing financial and human resources to improve the quality of life of the community.

From the above definitions it becomes more than clear that CER is understood as a part and parcel of the broader concept of CSR. Nevertheless, CER can be defined as the duty of the corporation to mitigate its impacts on the natural environment (Salem, 2011: 183).

### 3. Legislative Enactments and Judicial Developments after the Bhopal Tragedy

#### 3.1 The Environment (Protection) Act, 1986

The Government of India enacted the Environment (Protection) Act, 1986 (hereinafter EP Act) under Article 253 of the Constitution of India in the aftermath of the Bhopal gas tragedy. The purpose of the Act is to implement the decisions of the United Nations Conference on the Human Environment, 1972 with regard to the protection and improvement of the human environment and the prevention of hazards to human beings, other living creatures, plants and property. It is an umbrella legislation providing a framework for Central Government to co-ordinate activities of various central and state authorities established under previous laws viz. Water Act and Air Act. It is also an enabling law which provides the essential legislative policy on environmental protection and empowers the executive to frame necessary rules and regulations.

Section 3(1) of the Act gives power to the Centre to take all such measures which are considered to be necessary or expedient by it in order to protect and improve the

quality of the environment and further, to prevent, control and abate environmental pollution. The Central Government is authorized to regulate industrial locations; set standards for the quality of the environment and control of emissions and effluent discharges; prescribe procedures for management of hazardous substances; establish safeguards for the prevention of accidents; and to collect and disseminate information regarding environmental pollution (Section 3(2)).

Under Sections 6 and 25 broad rule-making powers have been conferred on the Central Government. Section 6 provides that the Central Government may make rules, in respect of all or any of the matters referred to in Section 3 and Section 25 provides power to the Central Government to make rules, for carrying out the purposes of this Act.

In the later part of the paper, several rules that have been framed by the Central Government in exercise of its rule-making powers shall be discussed in details with respect to corporate environmental and social responsibilities.

#### 3.2 Doctrine of Absolute Liability

Absolute liability doctrine for the harm caused by an industry engaged in hazardous and inherently dangerous activities, free from the exceptions to the strict liability rule, was evolved in **M.C. Mehta vs. Union of India**,<sup>ii</sup> popularly known as the oleum gas leakage case. In **Indian Council of Enviro-Legal Action vs. Union of India**,<sup>iii</sup> the Supreme Court reiterated the principle of absolute liability laid down in the M.C. Mehta case. The Court explained that if the activity carried on is hazardous or inherently dangerous, the person carrying on such activity is liable to compensate the loss caused to the other due to his activity regardless of whether he had taken reasonable care while carrying out the activity. The Court also gave the rationale behind the absolute liability principle which is that it is the industry alone which has the resources to discover and guard against hazards in comparison to the victim. In addition, the aggrieved may also face difficulty in establishing the absence of reasonable care or foreseeability of the industry.

### **3.3 The Public Liability Insurance Act, 1991**

This Act was enacted by the Parliament in the aftermath of the Methyl isocyanate (MIC) gas leakage from the Union Carbide Corporation at Bhopal and oleum gas leakage from the Shriram Food and Fertilizer Industry at Delhi. This benevolent act was passed as it was observed that providing relief to victims of accident involving hazardous substances was a lengthy and lethargic process.

The Act provides for public liability insurance in order to provide immediate relief to the persons affected by accident occurring while handling any hazardous substance and for other connected and incidental matters. Section 2(d) of the Act defines 'hazardous substance' as any substance or preparation defined as hazardous substance under the EP Act, 1986 and exceeding such quantity specified by the Central Government. Section 2(e) of the EP Act, 1986 defines 'hazardous substance' as any substance or preparation which by reason of chemical or physio-chemical properties, or handling is liable to cause harm to human beings and other living creatures, plants and micro-organism.

Section 3(1) of the Act provides for liability to give relief in certain cases on principle of no fault. It provides that the owner shall be liable to give specified relief<sup>iv</sup> when death or injury to any person (other than a workman) or damage to any property has resulted from an accident. Section 3(2) further provides that in any claim for relief, the claimant shall not be required to plead and establish that the death, injury or damage was due to any wrongful act, neglect or default of any person. The amount of relief is provided in the Schedule attached to the Act.

The Collector of the District has been empowered to invite applications for relief in case of occurrence of an accident (Section 5). Any aggrieved person, legal representative or duly authorised agent can claim for relief if he has suffered injury, death or damage due to an accident involving hazardous substances (Section 6). A claim for relief shall be disposed of expeditiously, within 3 months (Section 7(7)).

### **3.4 The National Environment Tribunal Act, 1995**

This Act aimed at providing for strict liability for damages resulting from any accident while handling any hazardous substance. It also provided for the establishment of a National Environment Tribunal to expeditiously and effectively dispose cases resulting from such accident in order to give relief and compensation for damages to persons, property and environment and for other connected matters. Nevertheless, the Act failed to see the light of the day.

### **3.5 The National Environment Appellate Authority Act, 1997**

This Act was enacted to provide for the establishment of a National Environment Appellate Authority (hereinafter NEAA) for the purposes of hearing appeals in matters relating to restriction of areas in which any industries, operations or processes or class of industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards under the EP Act, 1986 and for other connected matters.

### **3.6 The National Green Tribunal Act, 2010**

The National Environment Tribunal Act, 1995 and The National Environment Appellate Authority (NEAA) Act, 1997 stand repealed with the enactment of the National Green Tribunal Act, 2010.<sup>v</sup> NEAA has been abolished and its functions have been vested in the National Green Tribunal (NGT) and pending appeals have also been transferred to NGT.<sup>vi</sup>

The NGT was established for the following:

- a. expeditious and effective disposal of cases pertaining to environmental protection and conservation of forests and other natural resources
- b. enforcement of any legal right pertaining to environment
- c. providing relief and compensation for damages to persons and property and
- d. for other connected matters.

The Green Tribunal consists of the Chairperson, full time Judicial Members (not less than 10 and maximum 20) and full time Expert Members (also not less than

10 and more than 20). The Chairperson has been given the freedom on inviting any expert, from outside, to assist the Tribunal in any particular case (Section 4). The Chairperson is appointed by the Central Government in consultation with the Chief Justice of India. Judicial and expert members are appointed on recommendations by the Selection Committee (Section 6). The Tribunal shall have jurisdiction on all civil cases where a substantial question relating to environment is involved arising out of the implementation of the enactments specified in Schedule I appended to the Act.<sup>vii</sup>

However, the NGT Act suffers from certain lacunae. To begin with, several significant laws, *viz.* the Wildlife (Protection) Act, 1972 and the Scheduled Tribes (Recognition of Forest Rights) Act, 2005 have not been brought under the ambit of the Act. Further, the term “substantial question” has also not been satisfactorily defined. Moreover, the Tribunal has benches only at five locations<sup>viii</sup> thereby significantly reducing the access to justice, as civil courts would not deal with such cases anymore.

#### 4. Environmental Regulations for Corporate Entities

In pursuance of the EP Act, 1986 several rules were framed dealing with various environment related aspects which are also concerned with corporate entities. A detailed discussion of such rules has been done hereafter.

##### 4.1 Environmental Clearance

###### 4.1.1 Environmental Impact Assessment

The environmental impact assessment began in India in the years 1976-77 when the Planning Commission asked the then Department of Science and Technology to examine the river-valley projects from an environmental perspective which was subsequently extended to the projects requiring approval of the Public Investment Board. However, these were only administrative decisions and were lacking in legislative support. Subsequently, the EP Act, 1986 was enacted and pursuant to Section 3(1) and 3(2)(v) of the Act read with Rule 5 of the Environment (Protection) Rules, 1986, environmental impact assessment became a statutory provision as contained in a notification<sup>ix</sup> issued on 27<sup>th</sup>

January 1994 and subsequently amended on 4<sup>th</sup> May 1994, 10<sup>th</sup> April 1997 and 27<sup>th</sup> January 2000 thereby making environmental impact assessment statutory for 30 activities.<sup>x</sup> This is the principal legislation which governs environmental impact assessment.

Owing to the fact that every human activity has an effect on the corresponding environment, it is essential to harmonise developmental activities with environmental concerns. Environmental Impact Assessment (EIA) is one of the tools available to ensure that the development options under consideration are sustainable. The objective of EIA is to detect the potential environmental problems likely to arise out of a proposed development project and to settle those problems in the planning and design stage itself thereby preventing future liabilities as well as expensive alterations in project design.

###### 4.1.2 Environment (Siting for Industrial Projects) Rules, 1999

Environment (Siting for Industrial Projects) Rules, 1999 (1999 Rules) have been issued by the Central Government in exercise of the powers conferred on it by Section 3(2)(v) of the EP Act, 1986 read with Rule 5 of the Environment (Protection) Rules, 1986. These rules mainly provide for three things:

- a. precautionary measures to be taken for site selecting
- b. areas to be avoided for siting of industries
- c. aspects of environmental protection which need to be incorporated during the implementation of the industrial development projects.

Rule 2 prohibits the setting up of certain industries<sup>xi</sup> in the following areas:

- a. the entire area within the municipal limits of all Municipal Corporations, Municipal Councils and Nagar Panchayats and a 25 km belt around the cities having population of more than 1 million
- b. 7 km belt around the periphery of wetlands<sup>xii</sup>
- c. 25 km belt around the periphery of National Parks, Sanctuaries and core zones of biosphere reserves
- d. 0.5 km wide strip on either side of national highways and rail lines.

Rule 4 prohibits the establishment of new units of

industries<sup>xiii</sup> to be set up within 7 km periphery of the important archaeological monuments.<sup>xiv</sup> Rule 2, nevertheless allows the establishment of new units in 7 km to 25 km belt around the periphery of the wetlands, however, with certain conditions that such allowance shall be given only after careful assessment of their adverse ecological and environmental impacts. Rule 3 imposes certain restrictions on the establishment of new units and expansion or modernization of existing units of the industries<sup>xv</sup> in the Taj Trapezium.<sup>xvi</sup> It lays down that they shall be regulated as per the guidelines laid down by the Central Pollution Control Board (CPCB).<sup>xvii</sup>

#### 4.1.3 *The Wild Life (Protection) Act, 1972*

Section 12 provides for grant of permit for special purposes. It lays down that the Chief Wild Life Warden may grant a permit to any person to hunt any wild animal specified in such permit, for the purpose of scientific research and derivation, collection or preparation of snake-venom for the manufacture of life-saving drugs, inter alia. Such permit shall be given by an order in writing stating the reasons there for and on payment of prescribed fee. However, proviso to the section further provides that such permit shall not be granted in respect of any wild animal specified in Schedule I, except with the prior permission of the Central Government, and in respect of any other wild animal, except with the prior permission of the State Government.

Chapter III-A of the Act has specified provisions to protect specified plants of sanctuaries, national parks, forests or such other notified area. Section 17D (1) prohibits dealing in specified plants without licence. It provides that any person shall not commence or carry on business or occupation as a dealer in a specified plant or its part or derivate without a licence granted by the Chief Wild Life Warden or any other officer authorised by the State Government. Moreover, every licence granted shall also specify the premises in which and the conditions under which the licensee shall carry on his business (Section 17D (1)).

#### 4.1.4 *The Forest (Conservation) Act, 1980*

Section 2 provides that any State Government or other authority shall not make any order directing certain acts, without the prior approval of the Central Government. The acts are as follows:

- i. de-reserving any reserved forest or any portion thereof
- ii. use of any forest land or any portion thereof for any non-forest purpose
- iii. assignment of any forest land or any portion thereof by way of lease or otherwise to any private person, authority, corporation, agency or any other organisation not owned, managed or controlled by Government
- iv. clearing of trees which have grown naturally in forest land or portion there from from such land or portion, for the purpose of using it for re-afforestation.

The term 'non-forest purposes' has been defined in Section 2 as breaking up or cleaning of any forest land or its portion for

- a. the cultivation of tea, coffee, spices, rubber, palms, oil-bearing, plants, horticultural crops or medicinal plants or
- b. any purpose other than afforestation.

Section 2 further clarifies that non- forest purposes do not include any work relating or ancillary to conservation, development and management of forests and wildlife viz.

- a. the establishment of check-posts, fire lines, wireless communications and
- b. the construction of fencing, bridges and culverts, dams, waterholes, trench marks, boundary marks, pipelines or other like purposes.

However, the State Governments chose to apply the vaguely defined term only to 'reserve forests' thereby effectively de-reserving other protected forests and allocating them for commercial or industrial use which led to large scale felling of trees.

#### *Case study: Godavarman case and Chinnappa case*

In T.N. Godavarman Thirumulkpad vs. Union of India

& Ors.,<sup>xviii</sup> the meaning of 'forest' under Section 2(i) of the Forest Conservation Act, 1980 was interpreted. The Court held that forest must be understood according to its dictionary meaning which covers all statutorily recognised forests designated as reserved, protected or otherwise and the term 'forest land' as including any area recorded as forest in the Government record irrespective of its ownership. In short, forests are to be understood irrespective of the ownership or classification thereof. The Court ordered all non-forestry activities, such as saw mills and mining operations, which had not received explicit approval from the central government to cease operating immediately. Another significant aspect of the order was that the felling of trees in all forests was to remain suspended except in accordance with the working plans of the State Governments, as approved by the Central Government.

The Act has undoubtedly helped in the prevention of degradation of forests due to the broad definition given by the Supreme Court to the term 'forest'. However, the Act fails to provide for a blanket ban on diversion of forest land for non-forest purposes. Moreover, the discretionary powers given to the Central Government provides scope for diverting forest land for non-forest purposes, that too, for reasons which may not completely valid.

#### **4.1.5 The Biological Diversity Act, 2002**

Section 3 provides that no person shall obtain any biological resource occurring in India or knowledge associated thereto for research or for commercial utilization or for bio survey and bio utilization without previous approval of the National Biodiversity Authority.

The persons who shall be required to take the approval of the National Biodiversity Authority include a body corporate, association or organization either not incorporated or registered in India; or incorporated or registered in India having any non-Indian participation in its share capital or management (Section 3(2)). Section 7 provides that a body corporate, association or organization which is registered in India, shall not obtain any biological resource for commercial utilization, or bio survey and bio utilization for commercial utilization

without giving prior intimation to the State Biodiversity Board concerned.

## **4.2 Disclosure of Information**

There exist three categories of environmental disclosure viz. involuntary disclosure, voluntary disclosure and mandatory disclosure (Brophy, 1999: 178). Involuntary disclosure is the disclosure of information of a company's environmental activities without its prior permission as well as against its will. Voluntary disclosure is the disclosure of information of a company's environmental activities voluntarily by the company itself. Mandatory disclosure is the disclosure of information of a company's environmental activities as per the requirements of law.

In pursuance of the provisions of the EP Act, 1986, several rules have been issued by the Central Government which, inter alia, contain provisions relating to disclosure of information by corporations which can be classified under three heads, viz. information regarding industrial operations, accidents, and mitigation measures. It must be noted at this juncture that all the Rules mentioned hereinafter do not contain provisions requiring all the kinds of information mentioned above.

### **4.2.1 Bio- Medical Waste (Management and Handling) Rules, 1998**

These rules were notified by the Central Government for the management and handling of bio-medical waste in exercise of the powers conferred on it by Sections 6, 8 and 25 of the EP Act, 1986. These rules apply to all persons who generate, receive, collect, transport, store, treat, dispose, or handle bio-medical waste in any form.

Rule 4 imposes a duty on every occupier of an institution generating bio-medical waste to take all steps to ensure that such waste is handled without any adverse effect to human health and the environment. Institution includes are hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank by whatever name it may be called.

*Information regarding industrial operations*

Rule 10 provides for submission of an Annual Report by every occupier to the prescribed authority by 31 January every year containing information about the categories and quantities of bio-medical wastes handled during the preceding year.

*Information regarding accidents*

Rule 12 lays down that when any accident occurs at any institution or facility or any other site where bio-medical waste is handled or during transportation of such waste, it shall be reported to the prescribed authority by the authorised person (occupier/ operator who possesses the necessary capacity to handle bio-medical waste in accordance with these rules and authorised as such by the prescribed authority).

**4.2.2 Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996**

The Central Government notified Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996 (hereinafter Chemical Accidents Rules, 1996) for the management and handling of bio-medical waste in exercise of the powers conferred on it by Sections 6, 8 and 25 of the EP Act, 1986.

*Information regarding mitigation measures*

The Rules provide for the setting up of Crisis Group at the Central, State, and District levels to deal with major chemical accidents and to provide expert guidance for handling chemical accidents at the apex, State and District respectively.<sup>xix</sup> The Chemical Accidents Rules, 1996 also provide for the Local Crisis Group (Rule 8) shall be the body in the industrial pocket to deal with chemical accidents and coordinate efforts in planning, preparedness and mitigation of a chemical accident (Rule 10). Rule 3(1) provides for the setting up of a Crisis Alert System by the Central Government.<sup>xx</sup> Rule 13 provides that the Central Crisis Group and the State Crisis Group shall provide information to the public on request regarding chemical accident prevention, preparedness and mitigation in the country and the State respectively. It further provides that the Local Crisis Group shall also provide information to the public

on request regarding possible chemical accident at a site in the industrial pocket and related information (Rule 13(3)).

**4.2.3 Manufacture, Storage and Import of Hazardous Chemical Rules, 1989**

The Central Government notified these rules for the manufacture, storage and import of hazardous chemicals in exercise of the powers conferred on it by Sections 6, 8 and 25 of the EP Act, 1986.

*Information regarding industrial operations*

Rule 15(2) provides that the occupier shall take appropriate steps to inform persons about an industrial activity, before that activity is commenced and in the case of an existing industrial activity within 90 days of coming into operation of these rules.

*Information regarding accidents*

Rule 5 provides that where a major accident occurs on a site or in a pipe line, the occupier shall notify the concerned authority within 48 hours of that accident, and furnish thereafter to the concerned authority a report relating to the accidents in installments.

*Information regarding mitigation measures*

Rule 4 imposes general responsibility on an occupier who has control of an industrial activity to provide evidence to show that he has done the following:

- a. identified the major accident hazards; and
- b. taken adequate steps to
  - i. prevent such major accidents and to limit their consequences to persons and the environment;
  - ii. provide to the persons working on the site with the information, training and equipment including anti-dotes necessary to ensure their safety.

Rule 13 provides for an on-site emergency plan<sup>xxi</sup> to be prepared by an occupier and kept up-to-date detailing how major accidents will be dealt with on the site on which the industrial activity is carried on. The plan shall also include the name of the person who is responsible for safety on the site and the names of those who are authorized to take action in case of an emergency. The occupier shall further ensure that the emergency plan

takes into account any modification made in the industrial activity and also that every person on the site who is affected by the plan is informed of its relevant provisions. The occupier shall prepare the emergency plan before the commencement of a new industrial activity, or within 90 days of commencement of these rules in case of an existing industrial activity. In addition, the occupier shall ensure that a mock drill of the on-site emergency plan is conducted every six months, a detailed report of which shall be made available to the concerned Authority immediately.

Rule 15 provides that the occupier shall take appropriate steps to inform all persons outside the site who are likely to be in an area which may be potentially affected by a major accident. The information shall include the nature of the major accident hazard, the safety measures and the do's and don'ts which should be adopted in the event of a major accident. Such information may be given either directly or through District Emergency Authority.

Rule 14 provides for preparation of an adequate off-site emergency plan by the concerned authority (identified in Column 2 of Schedule V) and kept up-to-date detailing how emergencies relating to a possible major accident on that site will be dealt with. The concerned authority shall also consult the occupier, and such other necessary persons in preparing that plan.

The concerned authority may require the occupier to provide him with such information relating to the industrial activity under his control as the concerned authority may require, including the nature, extent and likely effects off-site of possible major accidents to prepare the emergency plan. Rule 14(2) provides that the authority concerned shall also provide the occupier with any information from the off-site emergency plan which relates to his duties under rule 13. The concerned authority shall prepare the emergency plan before the commencement of a new industrial activity, or within 6 months of operation of these rules in case of an existing industrial activity.

#### **4.2.4 Hazardous Wastes (Management and Handling) Rules, 1989**

The Central Government notified these rules for the management and handling of hazardous wastes in exercise of the powers conferred on it by Sections 6, 8 and 25 of the EP Act, 1986.

Rule 4 provides for the responsibility of the occupier while handling wastes. It entails that the occupier generating hazardous wastes (listed in column 2 of the Schedule) in quantities equal to or exceeding the given limits (listed in column 2 of the Schedule) shall take all practical steps to ensure proper handling and disposal of such wastes without any adverse effects. The occupier shall be further responsible, either himself or through the operator of a facility, for proper collection, reception, treatment, storage and disposal of these wastes. He shall also give such information to the operator of a facility, as may be specified by the SPCB.

##### *Information regarding industrial operations*

Rule 9 provides that the occupier generating hazardous waste and operator of a facility for collection, reception, treatment, transport, storage and disposal of hazardous waste shall maintain records of such operations and send annual returns to the State Pollution Control Board.

##### *Information regarding accidents*

Rule 10 provides that the occupier or operator of a facility shall immediately report an accident which occurs at the facility or on a hazardous waste site or during transportation of hazardous wastes to the State Pollution Control Board.

#### **4.2.5 Rules for the Manufacture, Use, Import, Export, and Storage of Hazardous Micro-organisms, Genetically Engineered Organisms or Cells, 1989**

The Central Government notified these rules in exercise of the powers conferred on it by Sections 6, 8 and 25 of the EP Act, 1986 for the protection of the environment, nature and health, in connection with the application of gene technology and micro-organisms.

*Information regarding accidents*

Rule 16 imposes responsibility to notify any accidents or interruption of operations that may result in discharges of genetically engineered organisms or cells, harmful to the nature, environment or health or involving any danger thereto to the state medical officer and District Level Committee/State Biotechnology Co-ordination Committee. The rule imposes this responsibility on the persons who are responsible for conditions or arrangements under Rules 7 to 11.

**4.2.6 Hazardous Wastes (Management, Handling and Trans-boundary Movement) Rules, 2008**

The Central Government notified these rules for the management and handling of hazardous wastes in exercise of the powers conferred on it by Sections 6, 8 and 25 of the EP Act, 1986.

*Information regarding accidents*

Rule 24 provides for immediate reporting of accident which occurs at the facility or on a hazardous waste site or during transportation of the hazardous waste by the occupier or operator of the facility or the transporter to the State Pollution Control Board.

*Information regarding mitigation measures*

Rule 4(5) provides that while handling hazardous wastes, the occupier shall take all adequate steps to contain contaminants and prevent accidents and limit their consequences on human beings and the environment. It further lays down that the occupier shall provide necessary training, equipment and the information to persons working on the site to ensure their safety.

**4.2.7 Batteries (Management and Handling) Rules, 2001**

The Central Government notified Batteries (Management and Handling) Rules, 2001 for the management and handling of batteries in exercise of the powers conferred on it by Sections 6, 8 and 25 of the EP Act, 1986. These rules are applicable on every manufacturer, importer, re-conditioner, assembler, dealer, recycler, auctioneer, consumer and bulk consumer involved in manufacture, processing, sale, purchase and use of batteries or its

components (Rule 2).

*Information regarding industrial operations*

It is the responsibility of a manufacturer, importer, assembler and re-conditioner to file a half-yearly return of their sales and buy-back to the State Board by 30th June and 31st December every year (Rule 4(iii)). A dealer also has the responsibility of filing half-yearly returns of the sale of new batteries and buy-back of old batteries to the manufacturer by 31st May and 30th November every year (Rule 7(iv)). A recycler has to submit annual returns to the State Board (Rule 8(iii)) and to make all the records available for inspection to the State Board (Rule 8(iv)). A bulk consumer and an auctioneer also have the responsibility of filing half-yearly returns to the State Board (Rule 10(2)(ii) and Rule 11(ii)).

*Information regarding mitigation measures*

The rules have imposed the responsibility on manufacturer, importer, assembler, re-conditioner and recycler to create public awareness through advertisements, publications, posters or by other means with regard to the following (Rule 4(viii) and Rule 8(vi)):

- a. hazards of lead
- b. responsibility of consumers to return their used batteries only to the dealers or designated collection centres and
- c. addresses of dealers and designated collection centres.

**4.2.8 Municipal Solid Wastes (Management and Handling) Rules, 2000**

The Central Government notified these rules to regulate the management and handling of the municipal solid wastes in exercise of the powers conferred on it by Sections 6, 8 and 25 of the EP Act, 1986.

*Information regarding industrial operations*

Rule 4 imposes a responsibility on the municipal authority to furnish its annual report, with a copy to the State Board or the Committee, to

- a. the Secretary-in-charge of the Department of Urban Development of the concerned State or as the case may be of the Union territory, in case of a metropolitan

city; or

- b. the District Magistrate or the Deputy Commissioner concerned in case of all other towns and cities.

#### *Information regarding accidents*

Rule 9 provides that when an accident occurs at any municipal solid wastes collection, segregation, storage, processing, treatment and disposal facility or landfill site or during the transportation of such wastes, the municipal authority shall forthwith report the accident to the Secretary in-charge of the Urban Development Department in metropolitan cities, and to District Collector or Deputy Commissioner in all other cases.

### **4.3 Assistance to Authorities**

It is essential for the corporate entities to provide assistance to the authorities with respect to giving information about industrial operations, assisting during inspection and investigation and taking of samples, filing returns and providing co-operation. These are provided for in the legislations which have been discussed hereinafter:

#### **4.3.1 The Water (Prevention and Control of Pollution) Act, 1974**

##### *Information*

Section 20(3) of the Act provides that a State Board may give directions requiring any person in charge of any establishment where any industry, operation or process, or treatment and disposal system is carried on to furnish to it information regarding the construction, installation or operation of such establishment, or any disposal system, or any extension or addition to such establishment other prescribed particulars.

Section 31 provides that if accident or other unforeseen act or event occurs at any place where any industry, operation or process, or any treatment and disposal system or any extension or addition thereto is being carried on as a result of which any poisonous, noxious or polluting matter is being discharged, or is likely to be discharged into a stream or well or sewer or on land and, as a result of such discharge, the water in any

stream or well is being polluted, or is likely to be polluted, then the person in charge of such place shall immediately intimate the occurrence of such accident, act or event to the State Board and such other prescribed authorities or agencies.

##### *Inspection and Investigation*

Section 23 vests the power of entry to and inspection of any place on any person empowered by a State Board, with such considered necessary assistance, for several purposes.

##### *Taking Samples*

Section 21 provides that a State Board or any officer empowered by it in this behalf shall have power to take samples of water from any stream or well or samples of any sewage or trade effluent which is passing from any plant or vessel or from or over any place into any such stream or well, for the purpose of analysis.

#### **4.3.2 The Air (Prevention and Control of Pollution) Act, 1981**

##### *Information*

Section 23(1) provides that when the emission of any air pollutant into the atmosphere in excess of the standards laid down by the State Board occurs or is apprehended to occur as a result of an accident or other unforeseen act or event, the person in charge of the premises from where such emission occurs or is apprehended to occur shall immediately inform the State Board and such prescribed authorities or agencies about the same.

Section 25 provides that the State Board or any officer so empowered may call for any information (including information regarding the types of air pollutants emitted into the atmosphere and the level of the emission of such air pollutants) from the occupier or any other person carrying on any industry or operating any control equipment or industrial plant.

*Inspection and Investigation*

Section 25 also provides the State Board or such officer with the right to inspect the premises of any industry, or from where control equipment or industrial plant is being carried on or operated for the purpose of verifying the correctness of the information given by the occupier or any other person carrying on any industry or operating any control equipment or industrial plant.

Section 24 vests the power of entry to and inspection of any place on any person empowered by a State Board, with such considered necessary assistance, for several purposes.

*Co-operation*

Section 24(2) further makes it binding on every person operating any control equipment or any industrial plant in an air pollution control area to render all assistance to the person empowered by the State Board for carrying out his functions, failing to do which without any reasonable cause or excuse shall make him guilty of an offence under this Act.

*Taking samples*

Section 26 provides that a State Board or any officer so empowered shall have power to take samples of air or emission from any chimney, flue or duct or any other outlet in such manner as may be prescribed, for the purpose of analysis.

**4.3.3 The Environment (Protection) Act, 1986***Information*

Section 9(1) provides that where the discharge of any environmental pollutant in excess of the prescribed standards occurs or is apprehended to occur due to any accident or other unforeseen act or event, the person responsible for such discharge and the person in charge of the place at which such discharge occurs or is apprehended to occur shall immediately intimate the fact of such occurrence or apprehension of such occurrence to the prescribed authorities or agencies.

*Inspection and Investigation*

Section 10(1) vests the power of entry to and inspection of any place on any person empowered by the Central Government, with such considered necessary assistance, for several purposes.

*Co-operation*

Section 10(2) further makes it binding on every person operating any hazardous substance to render all assistance to the person empowered by the Central Government for carrying out his functions, failing to do which without any reasonable cause or excuse shall make him guilty of an offence under this Act.

*Taking samples*

Section 11 provides that the Central Government or any officer so empowered shall have power to take samples of air, water, soil or other substance from any factory, premises or other place in such manner as may be prescribed, for the purpose of analysis.

*Returns*

Section 20 provides that the Central Government may require any person, officer, State Government or other authority to furnish to it or any prescribed authority or officer any reports, returns, statistics, accounts and other information which they will be bound to do.

Inspection is a key function of State Pollution Control Boards (hereinafter SPCB). The frequency of on-site visits to verify compliance is determined by the pollution potential (red/orange/green) and size (based on the value of capital investment) of the industry. The Central Pollution Control Board (hereinafter CPCB) guidance on the frequency of regular inspections is presented in Table 1. However, individual states have different interpretations of the guidance viz. red category facilities are supposed to be inspected once a month in Gujarat, once every three months in Orissa, and once every two years in West Bengal.<sup>xvii</sup> In addition to inspections for evaluating compliance, SPCBs conduct inspections in response to complaints and sometimes as part of the consent renewal process.

There are no standard inspection and sampling procedures prescribed either in the Water Act, Air Act

**Table 1: Minimum Frequency of Inspections: CPCB Guidelines<sup>xxiii</sup>**

Size of Industry	Category of Pollution Potential	Inspection Frequency
Large and medium sized	Red	Once every 3 months
	Orange	Once a year
	Green	Once in 2 years
Small scale (capital investment of less than Rs. 10000)	Red	Once a year
	Orange	Once in 3 years
	Green	Once in 5 years

or EP Act, or the rules. The CPCB and SPCBs also have not issued uniform guidelines. Resultantly, Boards develop and apply their own methods, which is an inefficient way to use limited agency resources viz. deficiency of the sampling procedure is quoted as one of the main reasons why courts often rule against the government.

Since there are very few SPCB inspectors who have to visit a number of facilities, they are under tremendous pressure to complete inspections as soon as possible which limits their effectiveness and results in poor detection of violations.

#### 4.4 Conforming To Standards

The mode of controlling pollution by the setting of standards is a debatable issue. In India, the standards have been challenged for being too relaxed, too strict, or just irrelevant. The Ministry of Environment and Forests has stipulated standards for general waste water discharge and emission which limit the volumes and concentration of the emissions and effluents released into the atmosphere. There are specific standards for certain industries and they are generally more strict for the new plants in comparison to the existing ones. The corporate entities also have the responsibility to adhere and conform to standards prescribed under various legislations. The relevant provisions have been discussed hereinafter:

##### **4.4.1 The Water (Prevention and Control of Pollution) Act, 1974**

Section 24 prohibits entry of any poisonous, noxious or polluting matter into any stream, well, sewer or on land for disposal determined in accordance with such standards as laid down by the State Board.

##### **4.4.2 The Air (Prevention And Control of Pollution) Act, 1981**

Section 22 provides that persons operating any industrial plant, in any air pollution control area shall not discharge or cause or permit the discharge of the emission of any air pollutant exceeding the standard laid down by State Board.

##### **4.4.3 The Environment (Protection) Act, 1986**

Section 7 provides that persons carrying on any industry, operation or process shall not emit or permit the discharge or emission of any environmental pollutants in excess of prescribed standards. The Central Government has framed the Environment (Protection) Rules, 1986 (hereinafter EP Rules) to implement this mandate. The standards are set out in the schedules appended to the Rules. The standards can be broadly classified into three, viz (Divan & Rosencranz, 2001: 68): Source standards require the polluter to restrict at source the emission and discharge of environmental pollutants. Product standards fix the pollution norms for new manufactured products. Ambient standards set maximum pollutants loads in the air and guide regulators on the environmental quality that ought to be maintained for healthy living.

### **Source standards**

Schedule I lays down industry specific standards for effluent discharge and emissions for 89 designated industries. Every industrial unit must comply with the norms within a year of their publication (Rule 3(3)) or such shorter period that may be ordered by the Pollution Control Board (Rule 3(4)). The Central Government may specify a period beyond a year for compliance for any specific industry (Rule 3(4) (b)). The industrial units which are not covered under Schedule I must comply with the general standards for discharge of environmental pollutants prescribed in Schedule VI (Rule 3(3A)). The general standards are also known as minimum national standards because they represent the least amount of parameters to be met by every industry until specific standards are notified under Schedule I. The Pollution Control Boards are empowered to specify stricter standards than the ones published where necessary (Rules 3(2) and 3A).

### *Product standards*

Part E (A) of Schedule VI prescribes noise standards and Schedule IV emission standards for automobiles at the manufacturing stage. Domestic appliances such as air conditioners, refrigerators, air coolers and construction equipment such as concrete mixers, cranes, saws are required to meet prescribed noise standards (Part E (B) of Schedule VI).

### *Ambient standards*

Schedules III and VII prescribe national ambient air quality standards in respect of noise and other air pollutants. The levels of ambient air quality have been fixed after providing an adequate margin of safety to protect public health, vegetation and property ((Divan & Rosencranz, 2001: 69).

Section 8 of the EP Act, 1986 provides that persons handling hazardous substances shall do so in accordance with prescribed procedure after complying with prescribed safeguards.

State Pollution Control Board (SPCB) are vested with the primary enforcement powers in the states, while the Central Pollution Control Board (CPCB) performs the same for union territories. The CPCB's role is to provide

technical assistance and guidance to the SPCBs as well as to coordinate activities among the states. Further, the CPCB exercises general oversight and may temporarily assume SPCB functions, in case of failure of a State Board to comply with a CPCB direction.. An issue of coordination between SPCBs and other state-level government agencies entrusted with some environment-related responsibilities, including departments of transport (with respect to mobile source pollution), of urban development (municipal waste), of industries (siting of industrial facilities), etc. SPCBs also receive administrative directions as well as funding from their respective state governments. This results in the formation of a dual chain of command which leads to problems owing to the fact that the CPCB's proposed actions are not effectively implemented at times due to state government's indifference or inaction .

A brief glance of the pollution control laws brings to light the fact that the cost of compliance is significantly higher than the cost of defiance thereby rendering the penalties prescribed under the Acts ineffective. For example, the penal provisions for violation of the Water Act are imprisonment for a term which may extend to three months, or with a fine which may extend to Rs. 10000 or with both, and in case violation continues an additional fine of up to Rs. 5000 for every such violation. Penal provisions alone cannot discourage violations of environmental laws, it has to be supported by incentives for better compliance.

## **5. Self-Regulation Measures By Corporate Entities**

### **5.1 Environmental Management System (EMS)**

The British Standards Institute defines an Environmental Management System as "the organizational structure, responsibilities, practices, procedures, processes and resources for determining and implementing environmental policy" (Netherwood, 1999: 36). Environmental Management System (EMS) is a framework that helps a company achieve its environmental goals through consistent control of its operations. However, the EMS itself does not dictate a level of environmental performance that must be achieved. EMS is a set of processes and practices that enable an organization to reduce its environmental

impacts and increase its operating efficiency.

The environmental management system is based on the following four principles (Starkey, 1999: 87-88):

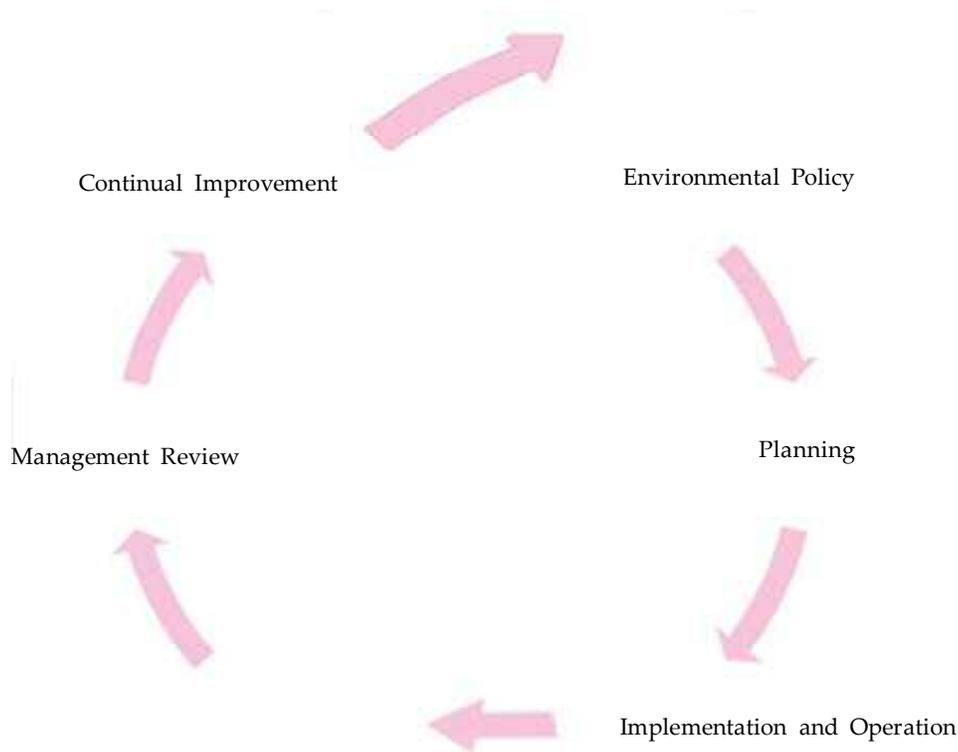
- An organization should have a purpose
- It should have commitment towards taking appropriate actions for the realisation of the purpose
- It should have the capability of performing the actions required for the fulfilment of the purpose
- It should continuously keep learning to perform better and improve its management system.

The basic stages of the Environmental Management System of an organization are as under (Netherwood, 1999: 36-37):

- a policy statement which indicates commitment to the improvement of the environment and protection and conservation of the natural resources
- plans and programmes to implement the policy within and outside the organization
- integration of these plans into the daily activities and culture of the organization
- audit and review of the environmental management



Figure 2: Environmental Management System [Source: Netherwood, 1999:39]



**Figure 3: EMS Model as per ISO 14000** [Source: Goetsch& Davis, 2001: 103]

performance of the organization

- provision of education and training to increase understanding of environmental issues within the organization
- publication of information regarding the environmental performance of the organization.

The basic stages of the Environmental Management System can be better depicted graphically (figure 2).

#### **EMS Model as per ISO 14000**

ISO 14000 does not suggest an environmental management system as it is difficult to design a single structure which fits all organizations. ISO 14001 and 14004 specify the fundamental requirements of an EMS from which the organization can translate into an EMS structure. ISO 14000 EMS model is shown in the figure 3.

#### **5.2 International Organization for Standardization (ISO)**

ISO launched its environmental management system standard, ISO 14000 in 1996,. The standard provides tools for companies and organizations to help them identify as well as control their environmental impact. ISO 14000 is based on a set of principles which are as follows (Starkey, 1999: 90):

Principle 1- An organization should define its policy and ensure commitment to EMS.

Principle 2- An organization should formulate a plan to fulfil its environmental policy.

Principle 3- An organization should develop the capabilities and support mechanisms to achieve its environmental policy, objectives and targets.

Principle 4- An organization should measure, monitor and evaluate its environmental performance.

Principle 5- An organization should review and continually improve its EMS with an objective of improving its overall environmental performance.

### **5.2.1 Objectives of ISO**

The fundamental objective of ISO 14000 is to assist organizations in preventing environmental impacts of the organizations' activities, products, or services. Organizations adhering to ISO 14000 can be assured that their environmental performance meets and will continually meet its legal and policy requirements. ISO 14000 does not establish environmental goals or impose absolute environmental performance requirements; these are for the organization and the respective regulatory agencies to determine (Goetsch & Davis, 2001: 7).

ISO 14000 environmental management standards exist to help the organization to do the following:

- Comply with applicable laws, regulations and other environmentally oriented requirements and
- Minimize the negative effect of their operations on the environment
- Continuously strive to improve in the above mentioned fields.

The ISO 14000 family addresses several aspects of environmental management. It provides practical tools for companies and organizations seeking to identify and control their environmental impact as well as to constantly improve their environmental performance. ISO 14001: 2004 and ISO 14004:2004 particularly focus on environmental management systems (EMS).

#### **ISO 14001: 2004**

ISO 14001 : 2004 sets out the criteria for an environmental management system. It does not state requirements for environmental performance, but provides a framework that a company or organization can follow to set up an effective EMS. ISO 14001: 2004 provides specific requirements for an EMS to enable an organization to develop and implement a policy which take into account legal and other requirements to which the organization subscribes in addition to information about significant environmental aspects. It applies to those environmental

aspects which the organization identifies as those which it can influence and control. It does not state specific environmental performance criteria though. It can be used by any organization regardless of its activity or sector. The extent of the application will depend on factors such as the environmental policy of the organization, the nature of its activities, products and services and the location where and the conditions in which it functions.

The benefits of using ISO 14001:2004 include reduced cost of waste management, savings in consumption of energy and materials, lower distribution costs, improved corporate image among regulators, customers and the public.<sup>xxiv</sup>

#### **ISO 14004:2004**

ISO 14004:2004 provides guidance on the establishment, implementation, maintenance and improvement of an environmental management system and its coordination with other management systems. The guidelines in ISO 14004:2004 are applicable to any organization, regardless of its size, type, location or level of maturity.<sup>xxv</sup>

#### **ISO 26000:2010**

ISO 26000 provides guidance with regard to how businesses and organizations can operate in a socially responsible way i.e. act in an ethical and transparent manner which contributes to the welfare of society. It helps clarify the concept of social responsibility and shares best practices relating to social responsibility thereby helping companies to give effect to principles. It is applicable on all types of organizations regardless of their activity, size or location.<sup>xxvi</sup> As ISO 26000:2010 provides guidance rather than requirements; it is not used for certification purposes.<sup>xxvii</sup>

ISO 26000 addresses seven core subjects of social responsibility of which environment is one including prevention of pollution, sustainable resource use, climate change mitigation and adaptation, protection of the environment, biodiversity and restoration of natural habitats.<sup>xxviii</sup>

### 5.3 Corporate Social Responsibility Voluntary Guidelines, 2009<sup>xxix</sup>

The Ministry of Corporate Affairs issued the Corporate Social Responsibility Voluntary Guidelines, 2009 were issued by in order to guide business entities strategic planning and to provide a roadmap for their CSR initiatives. The Guidelines list several core elements, of which Respect for Environment is one. Respect for Environment entails companies should do the following:

- a. take measures to check and prevent pollution
- b. recycle, manage and reduce waste
- c. manage natural resources in a sustainable manner
- d. ensure optimal use of resources like land and water
- e. proactively respond to the challenges of climate change by adopting cleaner production methods, promoting efficient use of energy and environment friendly technologies.

### 5.4 Guidelines on Corporate Social Responsibility for Central Public Sector Enterprises, 2007<sup>xxx</sup>

The Guidelines provide several parameters for selection of projects for CSR initiatives of Central Public Sector Enterprises (CPSEs) out of which the ones mentioned below indicate environmental considerations, viz.

- a. CSR activities may be related to United Nations Global Compact Programme on Environment.
- b. CSR projects may be closely linked with the principles of Sustainable Development, based on the immediate and long-term social and environmental consequences of their activities.
- c. Every CPSE should shoulder responsibility for restoring or compensating for any ecological damage that is taking place as a result of its operations.

The Guidelines go on to say that activities related to sustainable development will form a significant element of the total initiatives of CSR and such activities should come under the 3 UN Global Compact Principles pertaining to the Environment in pursuance of which companies should:

- a. Support a precautionary approach to environmental challenges;

- b. Undertake initiatives to promote greater environmental responsibility;
- c. Encourage the development and diffusion of environment friendly technologies.

The Guidelines also urge the Companies to consider the Environmental Management System as per ISO 14001.

### 5.5 National Voluntary Guidelines on Social, Environmental and Economical Responsibilities of Business, 2011<sup>xxxi</sup>

A refined version of the Corporate Social Responsibility Voluntary Guidelines 2009 was released by the Ministry of Corporate Affairs in December 2009. Due consideration has been given to significant inputs received from diverse stakeholder groups from all over the country in the preparation of these guidelines, based on which appropriate changes have been made in the Guidelines of 2009. These Guidelines provide the basic requirements for responsible functioning of businesses.

Principle 6 lays down that business should respect, protect, and make efforts to restore the environment. The principle recognizes environmental responsibility as a prerequisite for sustainable economic growth and well-being of the society. It emphasizes that environmental issues are interconnected at the local, regional and global levels and therefore, businesses should address issues such as global warming, biodiversity conservation and climate change in a comprehensive and systematic manner. It further encourages businesses to be accountable for direct and indirect environmental impacts of their operations, products and services and to constantly strive to make them environment friendly. In addition, it urges businesses to follow the precautionary principle and not go ahead with a particular action if it is unsure of its adverse impacts. The Core Elements of this Principle entails the businesses to take several environment friendly actions.

### 5.6 Reserve Bank of India Circular on Corporate Social Responsibility, Sustainable Development and Non-Financial Reporting-Role of Banks, 2007<sup>xxxii</sup>

The Circular sought to spread awareness about Corporate Social Responsibility (CSR), Sustainable Development (SD) and Non-Financial Reporting (NFR) among banks. It says that banks need to integrate the concepts of Corporate Social Responsibility (CSR) and Sustainability with their business strategy which can be done through:

#### 1. *Commitment to Sustainability*

Commitment to sustainability entail that banks must expand the scope of their activities from that of profit maximization to that of promoting social and environmental sustainability.

#### 2. *Commitment to 'Do No Harm'*

Commitment to 'do no harm' entail that banks should prevent and minimize the environmentally and socially detrimental impacts of their operations.

#### 3. *Commitment to Responsibility*

Commitment to responsibility entail that banks should bear full responsibility for the environmental and social bearings of their transactions.

#### 4. *Commitment to Accountability*

Commitment to accountability entail that banks must be accountable to their stakeholders, especially those that are affected by the activities and side effects of companies they finance.

### 5.7 The Companies Act, 2013

Section 135 provides that every company having net worth of Rs. 500 crore or more, or turnover of Rs. 1000 crore or more or a net profit of Rs. 5 crore or more during any financial year shall constitute a Corporate Social Responsibility Committee of the Board. It shall consist of three or more directors, including at least one independent director (Section 135(1)). The Board of every company shall ensure that the company spends at least 2% of the average net profits of the company made

during the three immediately preceding financial years, in pursuance of its Corporate Social Responsibility Policy in every financial year (Section 135(5)). The company shall also give preference to the local area and surrounding areas where it operates, for spending the amount earmarked for Corporate Social Responsibility activities (Proviso to Section 135(5)).

Schedule VII enlists activities which may be included by companies in their Corporate Social Responsibility Policies and the list, inter alia, provides for activities relating to ensuring environmental sustainability as well. The Act does not make 2% spending on CSR mandatory and also makes no effort to define CSR. The only obligation is to earmark the funds, form a committee, formulate a CSR policy, and spend the cash. In case of non-spending of the earmarked cash, only an explanation is required in the annual report.

A thorough perusal of these self-regulatory measures evidences the fact that they are all voluntary and not obligatory in nature. The corporates are free to decide their actual plan of action, if any. Even, in the Companies Act, 2013 non-compliance with the provision directing spending of 2% of said profits amounts merely to an explanation in the Annual Report and no more.

### 6. Criminal Liability of Corporate Entities

The criminal liability of corporate entities can be discussed under two major heads i.e. offences by companies and offences by government departments.

#### 6.1 Offences by Companies

##### 6.1.1 *The Water (Prevention and Control of Pollution) Act, 1974*

Section 47 provides for criminal liability in case of offences committed by companies. Section 47(1) provides that at the time of commission of the offence, every person who was

- a. in charge of, and
- b. responsible to the company for the conduct of the business of the company as well as the company shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accord-

ingly.

In addition, Section 47(2) provides that where an offence under this Act has been committed by a company and it is proved that the offence

- a. has been committed with the consent or connivance of, or
- b. is attributable to any neglect on the part of any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

A proviso to Section 47 also provides for an exception to criminal liability. It provides that if the accused person shall not be liable to any punishment if he proves that:

- a. the offence was committed without his knowledge, or
- b. he exercised all due diligence to prevent the commission of such offence.

### **6.1.2 The Air (Prevention and Control of Pollution) Act, 1981**

Section 40 provides for criminal liability in case of offences committed by companies. Section 40 is similar to Section 47 under the Water Act Section.

### **6.1.3 The Environment (Protection) Act, 1986**

Section 16 provides for criminal liability in case of offences committed by companies. Section 16 is also similar to Section 48 under the Water Act.

## **6.2 Offences by Government Departments**

### **6.2.1 The Water (Prevention and Control of Pollution) Act, 1974**

Section 48 provides for criminal liability in case of offences committed by Government Departments. It provides that the Head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly.

Similar to the exception proviso to Section 47, a proviso to Section 48 also provides for an exception to criminal

liability of the Head of the Department on similar grounds.

### **6.2.2 The Air (Prevention and Control of Pollution) Act, 1981**

Section 41 is similar to Section 48 under the Water Act in as much as it also holds the Head of Department to be guilty and liable to be prosecuted and punished and also provides for an exception to his criminal liability.

In addition to this, Section 41(2) provides that where an offence has been proved to be committed with the consent or connivance of, or is attributable to any neglect on the part of any other officer, he shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

### **6.2.3 The Environment (Protection) Act, 1986**

Section 17 is similar to Section 41 of the Air Act in as much as it also holds the Head of Department to be guilty and liable to be prosecuted and punished and providing for an exception to his criminal liability and also in as much as it holds any other officer guilty and liable to be prosecuted and punished if in offence is proved against him.

## **6.3 Case Laws Regarding Criminal Liability of Corporate Entities**

### **6.3.1 Uttar Pradesh Pollution Control Board vs. Mohan Meakins Ltd.**

In *Uttar Pradesh Pollution Control Board vs. Mohan Meakins Ltd.*,<sup>xxiii</sup> the matter was related to the discharge of trade effluents by an industrial unit in river Gomathi, and the directors of that company were accused of an offence under Section 43 of the Water (Prevention and Control of Pollution) Act, 1974. The counsel for the directors submitted that they should be discharged on the ground that a long time has lapsed. The Supreme Court held that lapse of a long period of time cannot be reason enough to absolve the directors from trial.

### **6.3.2 Uttar Pradesh Pollution Control Board vs. Modi Distillery and ors.**

In *Uttar Pradesh Pollution Control Board vs. Modi*

Distillery and ors.,<sup>xxxiv</sup> Modidistillery, an industrial unit of M/s. Modi Industries Ltd., was manufacturing industrial alcohol and discharging its highly noxious and polluted trade effluents into the river through a local drain. Instead of prosecuting M/s. Modi Industries Ltd., the Pollution Control Board impleaded the industrial unit Modi distillery and the Chairman, Vice-Chairman, Managing Director and members of the Board of Directors of the Company as respondents. The Single Judge of the High Court quashed the proceedings on the ground that there could be no vicarious liability imputed on the Chairman, Vice-Chairman, Managing Director and other members of the Board of Directors of the Company under Section 47 of the Water (Prevention and Control of Pollution) Act, 1974 unless there was a prosecution of the Company. However the Supreme Court held that a reading of the provisions contained in Section 47 of the Water (Prevention and Control of Pollution) Act, 1974 makes it clear that the officials of the Company who own the respondent industrial unit could be prosecuted since they are in charge of and responsible to the Company for the business of that unit. Therefore, they could be deemed to be guilty of the offence with which they were charged.

### **6.3.3 K.K. Nandi vs. Amitabha Banerjee**

In K.K. Nandi vs. Amitabha Banerjee,<sup>xxxv</sup> K.K. Nandi was the manager of a company carrying on the business of manufacturing brewer in the District of Hooghly and was responsible for the day to day work of the factory. An inspection of the factory led to the discovery that the company had systematically neglected and refused to take any measures for treatment of the effluent containing poisonous and noxious properties which it was continuously discharging into the Hooghly river. Under the provisions of the Water (Prevention and Control of Pollution) Act, 1974 any person discharging any sewage or trade effluent into a stream or well is required to obtain consent of the State Board prior to its discharging of sewage or trade effluent into a stream or well. As the company had not done so in the present matter, they were liable for prosecution under Sections 25 and 26 of the said Act. K.K. Nandi had filed this application for quashing the proceedings against him

on the grounds that there was no prima facie case whatsoever against him and it had not been enumerated as to how he had violated the said provisions.

It was held that manager is liable under Section 47 of the said Act it is the manager who is in charge of and responsible for the conduct of the business of the company which makes him prima facie liable.

### **6.3.4 Mahmud Ali vs. State Of Bihar and anr.**

In Mahmud Ali vs. State Of Bihar and anr.,<sup>xxxvi</sup> the Bihar State Water Pollution Control and Prevention Board had instituted a complaint against M/s. M. A. Paper and Card Board Factory (P) Ltd., for offences punishable under Sections 41 and 44 of the Water (Prevention and Control of Pollution) Act, 1974. The primary charge against the accused company was that it was discharging vast masses of polluted water and other trade effluents from its paper factory in river 'Daha' without the consent of the Board and was causing great and grave environmental problems to the society at large and to the inhabitants of the surrounding environment. Mahmud Ali was the Managing Director in charge of and responsible to the Company for the conduct of the business both at the time of commission of the offence and at the time of his deposition and was held equally responsible and liable under Section 47 of the Act.

The petitioner had filed this present petition for quashing the issue of process against him on the ground that the complaint had not expressly incorporated within it the words that the petitioner was in charge and/or responsible to the Company for the conduct of the business of the Company and that no specific allegation had been levelled that the offence was committed either with the connivance or consent of the petitioner or was attributable to any neglect on his part.

It was held that under Section 319 of the Cr.P.C. 1973 a criminal court can add a person against whom evidence comes forth during the trial showing his involvement in the offence, not being the accused before it and, as an accused and try him along with those that are being tried.

### **6.3.5 Haryana State Board vs. Jai Bharat Woollen Finishing Works**

In *Haryana State Board vs. Jai Bharat Woollen Finishing Works*,<sup>xxxvii</sup> the Haryana State Board for Prevention and Control of Water Pollution, through its Assistant Environmental Engineer, filed a complaint under Sections 43 and 44 of the Water (Prevention and Control of Pollution) Act, 1974, against the partnership concern known as Jai Bharat Woollen Finishing Works, its manager, SubhashChander, and partner, Phoola Devi. The accused were tried by the Sub-Divisional Judicial Magistrate, Panipat, and were acquitted and consequently, the Board had preferred this appeal against the acquittal.

The Court held that Section 47 of the Water Act relating to offences by companies which includes a partnership firm, lays down that, where an offence under the Act is committed by any company, every person who, at the time the offence was committed, was in charge of, and was responsible to the company for the conduct of the business of the company, as well as the company shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly. Since Phoola Devi was a sleeping partner, her acquittal was upheld.

### **6.3.6 N.A. Palkhivala and anr. vs. Madhya Pradesh Pradushan Niwaran**

In *N.A. Palkhivala and anr. vs. Madhya Pradesh Pradushan Niwaran*,<sup>xxxviii</sup> it was held that the duties and responsibilities of the Chairman and Deputy Chairman bear no resemblance to that of the manager and hence, it the Chairman and Deputy Chairman of the Company cannot be prosecuted for offences committed by the company by virtue of office held by them as they are not the persons directly in charge of and responsible to the company for the conduct of its business. It was the obligation of the complainant to specifically allege facts from which it could be reasonably inferred that the Chairman and Dy. Chairman of the Company were directly in charge of and responsible for the conduct of the business of the company to hold them liable.

## **7. Conclusion and Suggestions**

In conclusion, India has a great and old tradition of CSR but the concept of CER is yet to grasp an independent ground of its own despite having become an integral part of the CSR policies of the corporates. Initially the Government harboured a carefree attitude towards its regulation but subsequent to the Bhopal gas tragedy, it jumped into action and enacted a plethora of legislations and rules in addition to formulating several policies and guidelines in order to regulate corporates carrying on business in India especially with regard to their social and environmental responsibilities.

A perusal of the legislative framework quite evidently points out the fact that there is no dearth of law to regulate corporates but their impact is limited in the sense that they encompass a narrow field of the environmental impacts of business activities carried out by the corporates. The provisions relating to the corporate environmental and social responsibilities are basically in the form of guidelines and not at all binding in nature. This undermines the efficacy of the said policies and guidelines.

However, Indian environmental statutes are more often observed in breach than in practice. Environmental law enforcement is highly specialized area of implementation, but it is marred with shortcomings like lack or inadequacy of skill, less than satisfactory infrastructural facilities, jurisdictional conflicts and lack of coordination, among different agencies of implementation. Ability of the more resourceful industries in hiding their violations and non-compliance and in exerting undue pressure on the enforcement agencies has also contributed to the inefficiency of the enforcement system.

Nevertheless, the enactment and formulation of all the said legislations, rules, policies and guidelines is definitely a positive step towards regulation of these corporates in comparison to the situation that existed at the time of the Bhopal gas tragedy.

With respect to the carrying out of corporate environmental and social responsibilities by corporate entities in actual practice, the researcher carried out a case study of five of the topmost corporates carrying

on business in India in both public and private sectors. A perusal of the data shows that the corporates do not have a separate Corporate Environment Responsibility policy except for one; the rest have integrated environmental responsibilities in their Corporate Social Responsibility policies. They have undertaken several steps towards the fulfilment of their environmental responsibilities and have also reported about it in the form of Sustainability Reports. However, the accuracy of these reports remains to be tested specially on the parameters of whether they are mere greenwash.

The researchers seek to make a few suggestions with

regard to corporate environmental and social responsibilities in the light of the research undertaken. First of all, efforts have to be made for the evolution of a consolidated law on the matter. Second, the corporates have to be made to realise that activities in respect of corporate environmental responsibility is not philanthropic in nature but a must duty on their part.

Third, policies on corporate environmental responsibility have to be made binding in such manner that it does not hamper the prospects of the corporates and at the same time succeeds in affording better protection to the environment.

### Annex I

**Table 2: Disclosure of Information**

Sl. No	Rules	Disclosure of information regarding industrial operations	Disclosure of information regarding accidents	Disclosure of information regarding mitigation measures
1.	Bio- Medical Waste (Management and Handling) Rules, 1998.	Rule 10	Rule 12	
2.	Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996.			Rules 3, 6, 8
3.	Manufacture, Storage and Import of Hazardous Chemical Rules, 1989.	Rule 15(2)	Rule 5	Rules 4, 13, 14, 15
4.	Hazardous Wastes (Management and Handling) Rules, 1989.	Rule 9	Rule 10	
5.	Rules for the Manufacture, Use, Import, Export, and Storage of Hazardous Micro- organisms, Genetically Engineered Organisms or Cells, 1989		Rule 16	
6.	Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008.		Rule 24	Rule 4(5)
7.	Batteries (Management and Handling) Rules, 2001.	Rules 4(iii), 7(iv), 8(iii), 8(iv), 10(2)(ii) 11(ii)		Rules 4(viii), 8(vi)
8.	Municipal Solid Wastes (Management and Handling) Rules, 2000.	Rule 4	Rule 9	

## Annex II

Table 3: Assistance to Authorities

Sl.No	Legislation	Information	Inspection & Investigation	Co-operation	Taking Samples	Returns
1.	The Water (Prevention and Control of Pollution) Act, 1974	Sections 20(3), 31	Section 23		Section 21	
2.	The Air (Prevention And Control of Pollution) Act, 1981	Sections 23(1), 25	Section 24, 25	Section 24(2)	Section 26	
3.	The Environmental (Protection) Act, 1986	Section 9(1)	Section 10(1)		Section 11	Section 20

## End Note

- i The European Multi-Stakeholder Forum, where the European Council first pushed for adoption of CSR principles by business, adopted this definition in its final report on Corporate Social Responsibility. Available at, [http://ec.europa.eu/enterprise/mobile/topics/policies/sustainable-business/corporate-social-responsibility/index\\_en.htm](http://ec.europa.eu/enterprise/mobile/topics/policies/sustainable-business/corporate-social-responsibility/index_en.htm) (Last visited on January 10, 2014).
- ii AIR 1987 SC 1086 (Supreme Court of India).
- iii AIR 1996 SC 1446 (Supreme Court of India).
- iv The relief has been specified in the Schedule attached to the Public Liability Insurance Act, 1991.
- v Section 38, The National Green Tribunal Act, 2010.
- vi The NGT has been set up by the Central Government. The first Green Tribunal was officially notified on October 19, 2010 and Lokeshwar Singh Panta J. was appointed as the Chairperson of the Tribunal.
- vii Schedule I, The National Green Tribunal Act, 2010. The enactments are The Water (Prevention and Control of Pollution) Act, 1974; The Water (Prevention and Control of Pollution) Cess Act, 1977; The Forest (Conservation) Act, 1980; The Air (Prevention and Control of Pollution) Act, 1981; The Environment (Protection) Act, 1986; The Public Liability Insurance Act, 1991; The Biological Diversity Act, 2002.
- viii The Tribunal has benches at New Delhi, Bhopal, Pune, Kolkata and Chennai.
- ix Notification can be accessed online, available at <http://envfor.nic.in/sites/default/files/EIA%20Notification.pdf> (Last visited on January 14, 2014).
- x The list of these activities can be accessed online, available at <http://envfor.nic.in/sites/default/files/EIA%20Notification.pdf> (Last visited on January 14, 2014).
- xi listed in Annexure-I, 1999 Rules.
- xii listed in Annexure-II, 1999 Rules.
- xiii listed in Annexure-III, 1999 Rules.
- xiv listed in Annexure-IV, 1999 Rules.
- xv listed in Annexure-I, 1999 Rules.
- xvi An area of 10400 sq.km. between 26°45'N and 77°15'E to 27°45'N and 77°15'E to the West of TajMahal and between 27°00'N and 78°30'N and 78°30'E to the East of TajMahal, known as the Taj Trapezium.
- xvii The CPCB has specifically laid down Guidelines for this area entitled 'Inventory and Assessment of Pollution Emission in and around Agra-Mathura Region (Abridged)'.
- xviii (1996) 9 S.C.R. 982 (Supreme Court of India).
- xix Rules 3, 6 of 8 the Chemical Accidents Rules, 1996.
- xx Crisis Alert System consists of the following:
- setting up a functional control room at such place which is deemed fit;
  - setting up an information networking system with the State and district control rooms;
  - appointing adequate staff and experts to man the functional control room;
  - publishing a list of Major Accident Hazard installations;
  - publishing a list of major chemical accidents in chronological order;
  - publishing a list of members of the Central, State and District Crisis Groups;
  - taking measures to create awareness amongst the public to prevent chemical accidents.
- xxi It contains details specified in Schedule II of the Rules.

- xxii [http://www.cccindia.co/corecentre/Database/Docs/DocFiles/environmental\\_india.pdf](http://www.cccindia.co/corecentre/Database/Docs/DocFiles/environmental_india.pdf) (Last visited on January 16, 2014).
- xxiii Ibid.
- xxiv <http://www.iso.org/iso/home/standards/management-standards/iso14000.htm>(Last visited in January 18, 2014).
- xxv [http://www.iso.org/iso/catalogue\\_detail?csnumber=31808](http://www.iso.org/iso/catalogue_detail?csnumber=31808)(Last visited on January 18, 2014).
- xxvi <http://www.iso.org/iso/home/standards/iso26000.htm> (Last visited on January 18, 2014).
- xxvii [http://www.iso.org/iso/catalogue\\_detail?csnumber=42546](http://www.iso.org/iso/catalogue_detail?csnumber=42546) (Last visited on January 18, 2014).
- xxviii [http://www.iso.org/iso/discovering\\_iso\\_26000.pdf](http://www.iso.org/iso/discovering_iso_26000.pdf)(Last visited on January 18, 2014).
- xxix The Corporate Social Responsibility Voluntary Guidelines, 2009 are available at:[http://www.nfcgindia.org/pdf/CSR\\_Voluntary\\_Guidelines\\_2009.pdf](http://www.nfcgindia.org/pdf/CSR_Voluntary_Guidelines_2009.pdf) (Last visited on January 10, 2014).
- xxx The Guidelines on Corporate Social Responsibility for Central Public Sector Enterprises, 2007 are available at: <http://www.hindustanpetroleum.com/Upload/En/UPdf/DPECSR1.pdf> (Last visited on January 10, 2014).
- xxxi The National Voluntary Guidelines on Social, Environmental and Economical Responsibilities of Business, 2011 are available at: [http://www.mca.gov.in/Ministry/latestnews/National\\_Voluntary\\_Guidelines\\_2011\\_12jul2011.pdf](http://www.mca.gov.in/Ministry/latestnews/National_Voluntary_Guidelines_2011_12jul2011.pdf) (Last visited on January 10, 2014).
- xxxii Reserve Bank of India Circular on Corporate Social Responsibility, Sustainable Development and Non-Financial Reporting-Role of Banks dated December 20, 2007 is available at: <http://rbidocs.rbi.org.in/rdocs/notification/PDFs/82186.pdf> (Last visited on January 10, 2014).
- xxxiii AIR 2000 SC 1456 (Supreme Court of India).
- xxxiv AIR 1988 SC 1128 (Supreme Court of India).
- xxxv 1983 CriLJ 1479 (Supreme Court of India).
- xxxvi AIR 1986 Pat 133 (Patna High Court).
- xxxvii 1993 CriLJ 384 (Punjab- Haryana High Court).
- xxxviii 1990 CriLJ 1856 (Supreme Court of India).
- Chahoud, Tatjana et al. (2007). *Corporate social and environmental responsibility in India - Assessing the UN Global Compact's Role*. German Development Institute, available at: [http://www.die-gdi.de/CMS-Homepage/openwebcms3.nsf/\(ynDK\\_contentByKey\)/ENTR-7BMDUB/\\$FILE/Studies%2026.pdf](http://www.die-gdi.de/CMS-Homepage/openwebcms3.nsf/(ynDK_contentByKey)/ENTR-7BMDUB/$FILE/Studies%2026.pdf) (Last visited on January 18, 2014).
- Divan, Shyam and Armin Rosencranz (2001). *Environmental law and policy in India*. India: OUP.
- Goetsch, David L. and Davis, Stanley B. (2001). *ISO 14000 Environmental management*. New Jersey: Prentice Hall PTR.
- Mazurkiewicz, Piotr (2004). Corporate environmental responsibility: Is a common CSR framework possible? available at: <http://siteresources.worldbank.org/EXTDEVCOMSUSDEVT/Resources/csrframework.pdf> (Last visited on January 12, 2014).
- Netherwood, Alan (1999). Environmental management systems. In Richard Welford (ed.). *Corporate Environmental Management*. London: Earthscan.
- Salem, MiladAbdelnabi (2011). Can the eco-efficiency represent corporate environmental performance? *International Journal of Humanities and Social Science*, 1(14), 182-187.
- Sood, Atul and BimalArora (2006). *The political economy of corporate responsibility in India* (Technology, Business and Society Programme Paper No. 18).United Nations Research Institute for Social Development.
- Starkey, Richard (1999). *The standardization of environmental management systems*. In Richard Welford (ed.). *Corporate Environmental Management*. London: Earthscan.

## References

- Alan Netherwood (1999). Environmental management systems. In Richard Welford (ed.). *Corporate Environmental Management*. London: Earthscan.
- Brophy, Michael and Richard Starkey (1999). Environmental reporting. In Richard Welford (ed.). *Corporate Environmental Management*. London: Earthscan.
- Carroll, Archie B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons*, 34(4), 39-48.

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# *TMT Behavioral Integration, Pathways to Eco-Innovation through Organizational Ambidexterity*

Aparna Venugopal and T N Krishnan

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## **Abstract**

Eco-Innovations are the fail-safe pathway for firms to sustain their competitive advantage in a dynamic environment. Eco-Innovations represent the economically, socially, and environmentally sustainable innovations. For years it has been suggested that responsible leadership and top management teams are essential to generating, adopting, and diffusing innovations in firms. Eco-Innovations are no different. In this paper we suggest that Top Management Team (TMT) behavioral integration is a key antecedent of Eco-Innovations in organizations. Further we argue that organizations with 'Organizational Ambidexterity' mediate the above linkage. Organizational Ambidexterity is the ability of firms to balance any two disparate firm level goals simultaneously. Usually, these firm level goals are Exploration and Exploitation. TMT behavioral integration is essential to build 'Organizational Ambidexterity'. In this paper, we propose a theoretical model to explore various structural, climate and cultural elements in the TMT behavioral integration and their indirect effects on 'Organizational Ambidexterity' and 'Eco-innovation'. Since, this paper brings together works on varied fields as 'innovation', 'organizational ambidexterity' and 'upper echelon theory', researchers interested in such cross-disciplinary studies would benefit from this model. The model would be a huge help to practitioners who are constantly on the lookout for the exact recipe to orient their firms as hubs of sustainable innovations.

**Keywords:** Eco-Innovation, Top Management Team, Upper Echelon, Exploration, Exploitation, Ambidexterity

## **1. Introduction**

In a world where firms try hard to sustain enhanced financial performance, to keep that edge over their competitors, to be better at what they do every day; most often environmental considerations are pushed

afar. Yet, if firms truly need to sustain over years, and do this without harming their natural environment, they need to consider the costs they create to the environment with each step they take towards sustaining their competitive advantage. Continuous innovations are the best way for firms to sustain their competitive advantage. These innovations can cause costs and benefits to the environment. When the costs exceed the benefits, the firm's measures to sustain firm performance, turn detrimental for the society at large. Hence, with each innovation firms should make sure that they are environmentally sustainable in nature.

Environmentally sustainable innovations are called eco-innovations (Hellstrom, 2007). They are inclusive of all measures of relevant actors (firms, politicians, unions, associations, churches, private households) which develop new ideas, behaviors, products and processes, apply or introduce them and which contribute to a reduction of environmental burdens or to ecologically specified sustainability targets. Eco-innovations can be developed by firms or non-profit organizations, they can be traded on markets, and their nature can be widely varied. Innovations can also be developed through social or institutional responses too (Rennings, 2000).

Studies on innovation focus on any one stage of innovation: idea generation, diffusion or adoption or sometimes a combination of these various stages. In this paper we focus only on the generation of an idea for a sustainable ecoinnovation in a firm. The facilitators of eco-innovations in firms at the idea generation stage that rise from within the organization are much similar to the internal drivers of a normal organizational innovation. Therefore, first we did a literature review of the determinants of organizational innovation. In this review we found that the Top Management Team (TMT), Structural Context, and Organizational Climate had special influence on innovative idea generation in firms. Second, we proposed a theoretical model to build eco-

innovations in firms with Ambidexterity mediating the link between the various determinants and organizational eco-innovations.

The purpose of this paper is to trace down the roots of innovative idea generation in firms and find out the role of organizational ambidexterity in the link between the TMT and Innovation idea generation. Since this paper throws light on the inter-linkages of the various facilitators of ambidexterity and innovations in firms, this paper would be of significant relevance to researchers working on ambidexterity and the upper echelons perspective. This paper would also be helpful to the practitioners who are constantly on the lookout for ways to sustain their competitive advantage through innovations in firms.

This paper is divided into two sections. In the first section, literature on the determinants of innovations and its linkages with organizational ambidexterity are explored. The second section presents a theoretical model with definite propositions worthy of future research.

## 2. Literature Review

### 1. *Eco-Innovations in Firms*

Eco-innovations developed within organizations are organizational eco-innovations (Rennings, 2000). Organizational innovations are generally classified into product/process, technical/administrative and radical/incremental (Damanpour, 1991). Following this classification organizational eco innovation could also be technical/administrative, radical/incremental, and product/process based. For a comprehensive understanding of organizational eco innovations, the focus of this paper includes all the above mentioned categories of organizational eco innovations. Let us now look at the various determinants of organizational innovations.

### 2. *Role of TMT*

Previous studies (Li et al, 2013; Smith & Tushman, 2005) have examined TMT as an important antecedent of innovation. The TMT is different from the 'leader' of a firm. A leader includes only the Chief Executing Officers (CEO) of a firm (Hage & Dewar, 1973; Ling, Simsek,

Lubatkin, & Veiga, 2008). Even though the leader of a firm is a part of its TMT, the leader alone does not constitute it. Similar to Hambrick & Finkelstein (1987), Lubatkin, Simsek, Ling, & Veiga (2006: 665) argued that, "no other group including the board of directors has a greater potential for affecting the form and fate of an organization as the small group of senior executives residing at the apex of the organization". This small group at the top with the ability to take strategic decisions in the firm constitute the Top Management Team (Ling, Simsek, Lubatkin & Veiga, 2008).

On reviewing the literature on innovations, it has been determined that the TMT values (Hage & Dewar, 1973), vision (Hoonsopon & Reunrom, 2012), involvement (De Brentani & Kleinschmidt, 2004), assumptions regarding technology acceptance (Claver, Llopis, Garcia, & Molina, 1998), and intrinsic motivation (Pierce & Delbecq, 1977) were all determinants of organizational innovations. Figure 1 shows these effects in a pictorial format.

We see that many of the individual characteristics of the TMT members will influence the innovations in a firm. Much earlier itself, Hambrick & Mason (1984) in their pioneering work on 'Upper echelons perspective' had proposed that the organizational outcomes, such as strategic choices and performance levels, are predicted by managerial characteristics.

It has also been empirically established that the mere presence of top management characteristics alone team does not facilitate new product development (De Brentani & Kleinschmidt, 2004). Other factors such as structural context and organization climate were found to be the other significant predictors of innovations in firms.

### 3. *Role of the Structural Context*

A structural context denotes the various administrative mechanisms that the corporate management can manipulate to change the perceived interests of the strategic actors in the organization (Burgelman, 1983). These would include administrative mechanisms as: choices of top management regarding the overall strategic configuration, the degree of formalization of positions and relationships, the measures of managerial

performance, and the appointment of middle level managers. On review of the various determinants of organizational innovation, it was found that many such administrative mechanisms were regularly employed to enhance innovation in firms. For example; Pierce & Delbecq (1977) proposed that Organization size, and decentralization will have positive effects on innovation of firms. Hoonsopon & Reunrom (2012) proposed 'centralization' and 'formalization' as features of an organization's structure influencing radical and incremental innovation. Higher levels of centralization and formalization were found to enhance incremental innovation (Hoonsopon & Reunrom, 2012). For example, in 3M, a 15 percent rule is followed. It allows the employees to spend 15 percent of their time on innovative ideas of their own choosing, fairs and technical audits as mechanisms to bring in more participation of employees and create an open organization climate (Brand, 1998). Barsh, Capozzi, & Davidson (2008), found that leaders of a firm could encourage innovation by setting performance metrics and targets for innovation, create a decentralized network of middle managers with an open and positive mindset, turn selected managers into innovation leaders and create opportunities for managing experimentation of ideas. As can be seen, all the above mentioned facilitators of organizational innovation are administrative mechanisms that affect centralization, formalization, participation, and autonomy and employee performance. In other words these are administrative mechanisms facilitated by the TMT in a firm to enhance the interests of the strategic actors of the firm. As earlier mentioned, these administrative mechanisms have been defines as the structural context of a firm (Burgelman, 1983). Of course, other nominal descriptions as HR systems, HR architecture or HR bundles might also refer to some of the administrative mechanisms mentioned above, but, not all. Hence, in this paper we, consider the 'structural context' inclusive of the administrative mechanisms to provide the desired level of centralization (Pierce & Delbecq, 1977), formalization (Hoonsopon & Reunrom 2012; Pierce & Delbecq, 1977), participation (Brand, 1998), autonomy (Brand, 1998), and employee performance (Barsh, Capozzi, & Davidson, 2008), to be significant predictor of organizational innovation. The

TMT decides this Structural context. As explained in the earlier section there is empirical proof to establish the effect of the TMT personal characteristics on organizational innovations. Sinha (2013) proposed that the TMT personal characteristics influence the choice of the structural context too. Burgelman (1983) had suggested that the structural context of a firm and the induced behavior of senior and middle level managers held mutually reciprocal relationships with each other. The senior and middle level managers influenced the structural context of a firm and the structural context in turn influenced the managerial behavior in the firm. Carpenter, Geletkanycz, & Sanders (2004), pointed out that TMT does not exist in vacuum, and as they impact organizational outcomes, the outcomes and organizational context in turn affect the TMT behavior too. Hence, it can be seen that the TMT puts in place a structural context, which in turn influences innovations in firms and also the TMT behavior. Hence TMT behavior itself can be molded with the right structural context. Figure 2 shows these relationships.

#### **4. Role of the Organization Climate**

In addition, many other determinants of organizational innovation were also found in the literature review. An innovative culture where the corporate management is willing to take risks, where participation of all firm members are requested, where creativity is stimulated, and where responsibility is shared, were found to encourage more innovation in firms (Claver, Llopis, Garcia & Molina, 1998). With respect to 'Knowledge management', Chen, Huang, Hsiao (2010) had empirically established that, the effect of knowledge management on firm innovation is positively moderated by a supportive organizational climate and decentralized, integrated, and less formalized organizational structure. In this case, the supportive organizational climate indicated a work environment which is sociable, encouraging, open relationship oriented and collaborative (Chen, Huang, & Hsiao, 2010). Studies have argued that social and relational capital enhances innovations (Delgado-Verde, Navas-Lopez, Cruz-Gonzales, & Amores-Salvado, 2011). Perceived Organizational Support (POS) is positively related to innovation in firms (Eisenberger, Fasolo, & Davis-

LaMastro, 1990). Sanz-Valle, Naranjo-Valencia, Jimenez-Jimenez & Perez-Caballero (2011) empirically established that an organization culture with both flexibility and external focus could enhance technical innovation in firms.

On review of the determinants of innovation in firms, the organization climate and culture were both found to be significant predictors in various studies. The differences between climate and culture are now clearly examined to understand whether climate and culture in fact represent the same, similar, or different predictors of innovation. Organization climate is regarded as the way in which the deep structures of organization culture are manifested in the interplay between the situational contingencies, interacting group members, and ultimately the culture itself. Though slowly, culture changes with the outcomes of this interplay too (Moran & Volkwein, 1992). Climate seems to be a reflection of the stronger, more enduring, invisible, preconscious and collective construct of culture, in the form of values, attitudes, and behaviors, with the ability to affect and change the underlying culture slowly (Denison, 1996). Hence though innovation studies might have considered culture as a predictor of innovation, they may in fact have measured the more visible and measurable climate dimensions. Hence in this paper we consider organization climate having the dimensions of participation and shared responsibility (Claver, Llopis, Garcia & Molina, 1998), decentralized and less formalized nature (Chen, Huang, & Hsiao, 2010), flexibility/autonomy (Sanz-Valle, Naranjo-Valencia, Jimenez-Jimenez & Perez-Caballero, 2011), and a strong social capital (Delgado-Verde, Navas-Lopez, Cruz-Gonzales, & Amores-Salvado, 2011; Eisenberger, Fasolo, & Davis-LaMastro, 1990) to be predictors of organizational innovations. In the earlier section, we had said that all these dimensions would be induced in the management behavior by a structural context. As said earlier, the structural context of an organization is defined by its constituent administrative mechanisms. Appropriate administrative mechanisms can bring about the desired level of centralization, formalization, participation, autonomy and employee performance in an organization. (Barsh, Capozzi, & Davidson, 2008;

Brand, 1998; Hoonsopon & Reunrom, 2012; & Pierce & Delbecq, 1977). Hence, it is now clear that the structural context induces the management behavior via an organization climate with the dimensions of openness, flexibility, shared responsibility, decentralized and less formalized nature and a strong social capital. Figure 3 shows these relationships pictorially.

Yet, the basic constituents or the different mechanisms used by firms to induce these dimensions in the organization climate are still unclear. In this paper, we propose a model highlighting the basic constituents of a structural context that facilitates TMT behavior towards innovative idea generation.

### **5. Organizational Ambidexterity and Organizational Innovations**

The National Knowledge Commission Report, otherwise known as the NKC Report (2007: 4), defines Innovation as "A breakthrough or incremental process, occurring systematically or sporadically in a firm, by which varying degrees of measurable value enhancement is planned and achieved, in any commercial activity introducing new or improved goods or services and/or, implementing new or improved operational processes and/or implementing new or improved organizational/managerial processes, in order to improve market share, competitiveness and quality while reducing costs". When an innovation is new to the firm and the industry it is considered as a radical or breakthrough innovation, while otherwise it is considered an incremental innovation (Daft & Becker, 1978). Let us take a closer look at the definition of innovation in the NKC Report (2007). Innovations can occur in firms either systematically or sporadically. Both these sets of innovations could be radical or incremental in nature. Systematic innovation occurs through a series of stages: Idea generation, Idea Conversion to Innovation and Innovation diffusion (Hansen & Birkinshaw, 2007).

Of these stages of systematic innovation process, Forsman (2009) sees the knowledge search behavior/ the idea generation stage, as the pivotal one. This knowledge search could be either external to the firm or within the firm. Authors (Andriopoulos & Lewis, 2009; He &

Wong, 2004) in the past have associated radical innovation with exploration of new opportunities and incremental innovations with exploitation of existing competencies. By definition 'Organizational Ambidexterity' is the organizational capability to balance any two disparate goals; usually exploration of external knowledge and exploitation of internal knowledge (Gibson & Birkinshaw, 2004). As per this definition, ambidextrous firms could also be interpreted as firms who innovate radically and incrementally simultaneously. In fact, Jansen, Volberda, & Van Den Bosch (2005) had measured the ambidexterity level of a firm in terms of exploratory and exploitative innovations. While exploration has been defined to result from a relatively broad and generalized search to expand the firm's knowledge domains into unfamiliar or novel areas and/or to establish new combinatory mechanisms (Kang & Snell, 2009), exploitation, has been conceptualized to rely on a more narrow, localized and in-depth search and/or a repetitive combinative mechanism in order to obtain well defined solutions pertinent to a firm's existing knowledge domains (Kang & Snell, 2009). Exploration included things captured by terms as search, variation, experimentation, risk taking, play, flexibility, discovery and innovation (March, 1991). Exploitation included things captured by terms as refinement, choice, production, efficiency, selection, implementation, and execution (March, 1991).

Based on the understandings of 'exploration' and 'exploitation', the two disparate goals concurrently pursued to develop the organizational capability of ambidexterity; organizational ambidexterity would induce firms to generate innovative ideas, evaluate them, and implement them. In other words, of the stages of systematic innovation as described by Hansen & Birkinshaw (2007), except for innovation diffusion, ambidexterity would provide the organizational capability for all the rest. Of course there might be other antecedents to systematic innovations in firms too, but Organizational Ambidexterity, seems to be a necessary if not sufficient facilitator of innovations in firms. Since the focus of this paper is limited to the idea generation stage of eco-innovations, here ambidexterity is seen as a necessary facilitating organizational ability for eco-

innovations. We assume that the idea generation of eco-innovations in organizations is not different from other organizational innovations. Based on the relationships established empirically in literature so far, a theoretical model linking TMT-Organizational Ambidexterity-Eco innovations is proposed.

### **3. Theoretical Model on the TMT-Organizational Ambidexterity - Eco Innovation Relationship - A Research Agenda**

In the earlier section it was established that Organizational Ambidexterity does have an influence on innovations. On a brief review of the literature on Ambidexterity, it was found that, many authors (Lubatkin et al., 2006; Mihalache et al., 2014; Cao et al., 2010), had empirically established the influence of the TMT on organizational ambidexterity. As mentioned earlier, Burgelman (1983) had already suggested that the TMT which chooses the structural context would in turn be influenced by it too. Since, the root causes of innovation idea generation and ambidexterity are both traced to the TMT, and since ambidexterity in turn influences innovations in firms, it can be seen that ambidexterity is an effective mediator in the link between the TMT and innovation.

At the conceptual level, for idea generation, a knowledge search external and internal to the organization is essential. Organizational ambidexterity has at times been defined as merely this 'knowledge search behavior' by Katila & Ahuja (2002). At the operational level, both innovations and ambidexterity are tracked down to the same level of analysis: the TMT. At the strategic level, both ambidexterity and innovation idea generation in firms can be traced down to the same type and level of decisions: strategic decisions at the TMT level regarding whether to explore external knowledge or exploit existing knowledge within firms. Hence based on Baron & Kenny's (1986) conceptual, operational and strategic considerations, ambidexterity is definitely a mediator and not a moderator in the relationship between TMT and Organizational Eco-Innovation.

The theoretical model shown in Figure 4 assumes that the organizational innovation process is systematic and not sporadic. Also, the model assumes that the stage

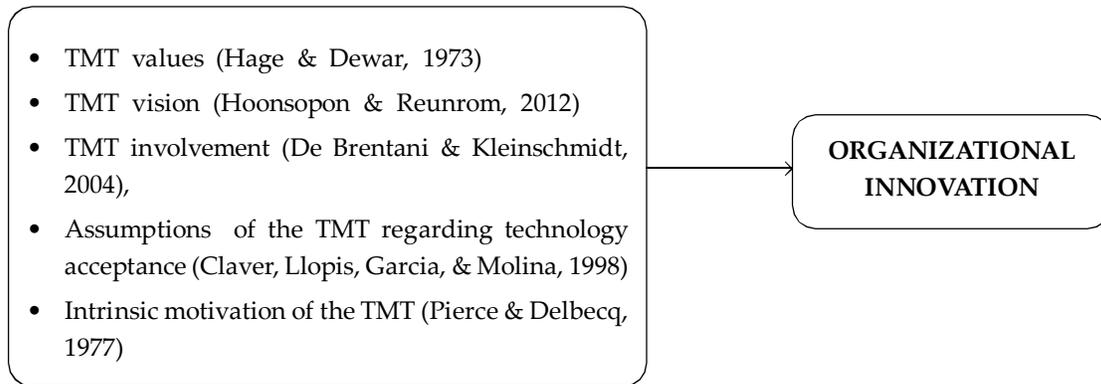
of innovation in question is the idea generation stage. The TMT behavior of exploration and exploitation activities is constrained in their knowledge search by the constraint that the idea generated from this knowledge should be environmentally sustainable. The Theoretical model also limits its focus to the determinants of innovation and ambidexterity within the firm. Apart from the fact that the knowledge search and ideas generated are constrained by environmental considerations, we are assuming that the idea generation process of eco innovations is the same as that of any regular organizational innovation. Hence, the above given theoretical model applies to eco innovations too.

#### 4. Conclusion

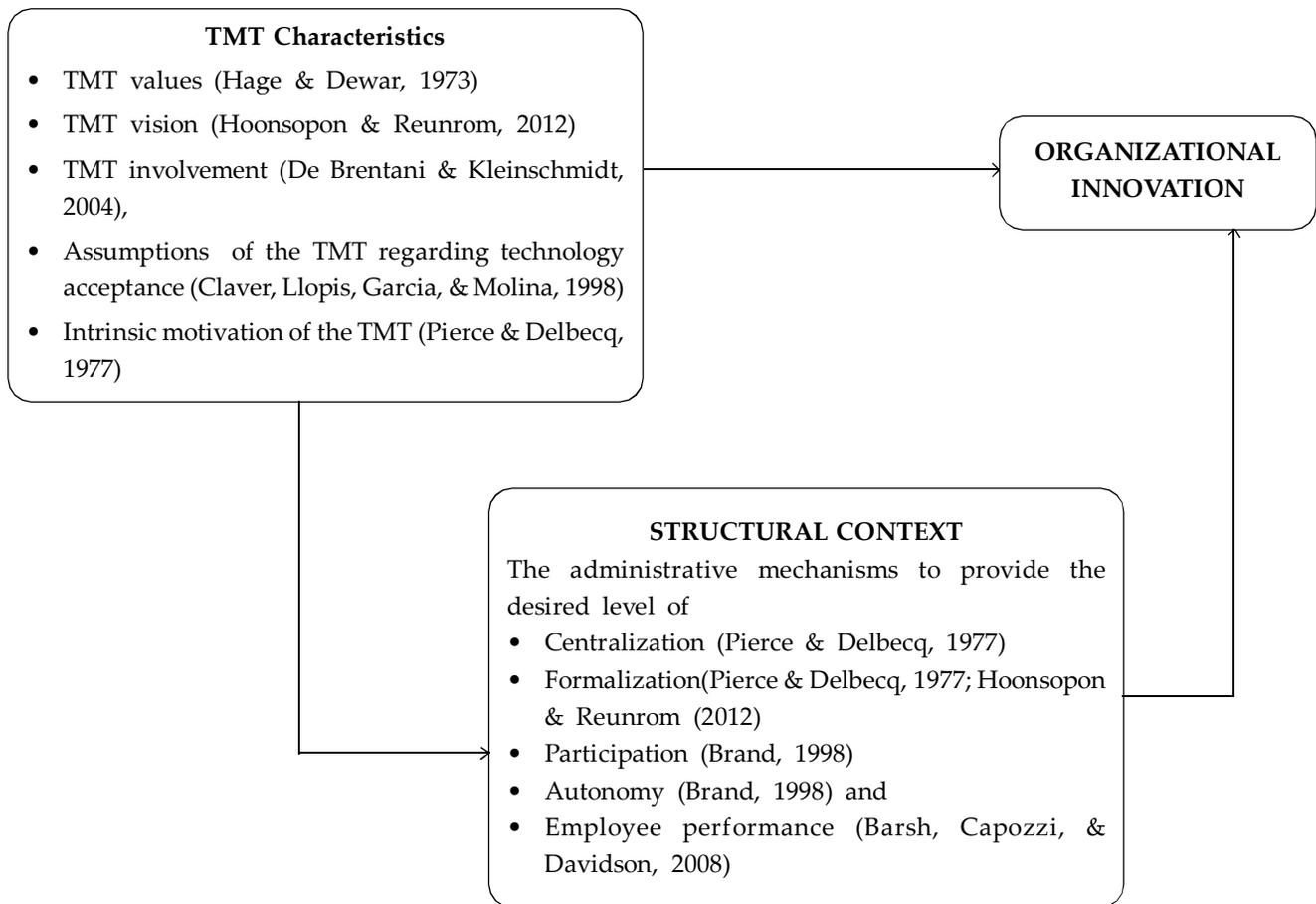
Today's management research needs to cater to tomorrow's business needs. Businesses need innovations to sustain their enhanced financial performance. In this paper, we chose to look at the determinants of only those organizational innovations which were environmentally sustainable. We also limited our research by focusing only on the internal determinants of eco-innovations within organizations. No external environment influence has been considered. To explore the root explanations of eco-innovations in organizations, we analyzed only the 'idea generation stage' of innovation processes in organizations. We assume that at this stage there are

not many differences in the innovation processes of eco innovations and regular organizational innovations.

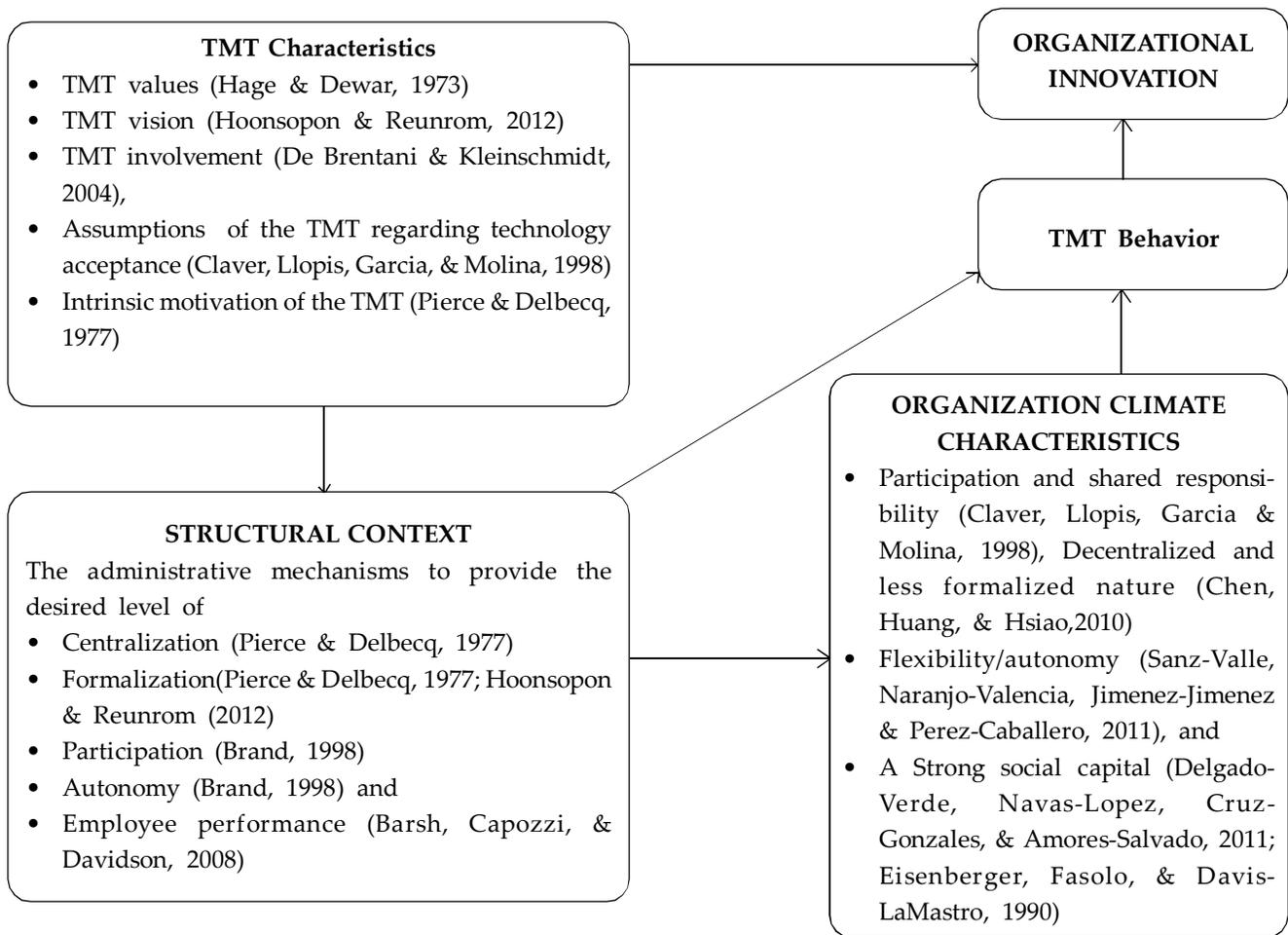
We propose that the Top Management Teams (TMT), Structural Contexts, and Climates in organizations influenced the innovative idea generation in firms. Based on the literature review, we proposed a theoretical model to build eco innovations in firms. In this model, we propose organizational ambidexterity to mediate the link between the various determinants and organizational eco-innovations. In this paper, we aim to trace down the roots of innovation idea generation in firms and find out the role of organizational ambidexterity in the link between the TMT and eco-innovation idea generation. This paper is anticipated to add to the literature on the antecedents of organizational ambidexterity. The paper is also expected to advance the empirical validity of the upper echelons perspective. We also expect this paper to explain the importance of developing the capability of 'organizational ambidexterity' for firms to innovate and more importantly to innovate in an environmentally sustainable manner. Hence, it is of significant relevance to researchers working on ambidexterity and the upper echelons perspective. This paper is helpful to the practitioners who are constantly on the lookout for the right recipe to sustain their competitive advantage through innovations in firms without harming the environment.



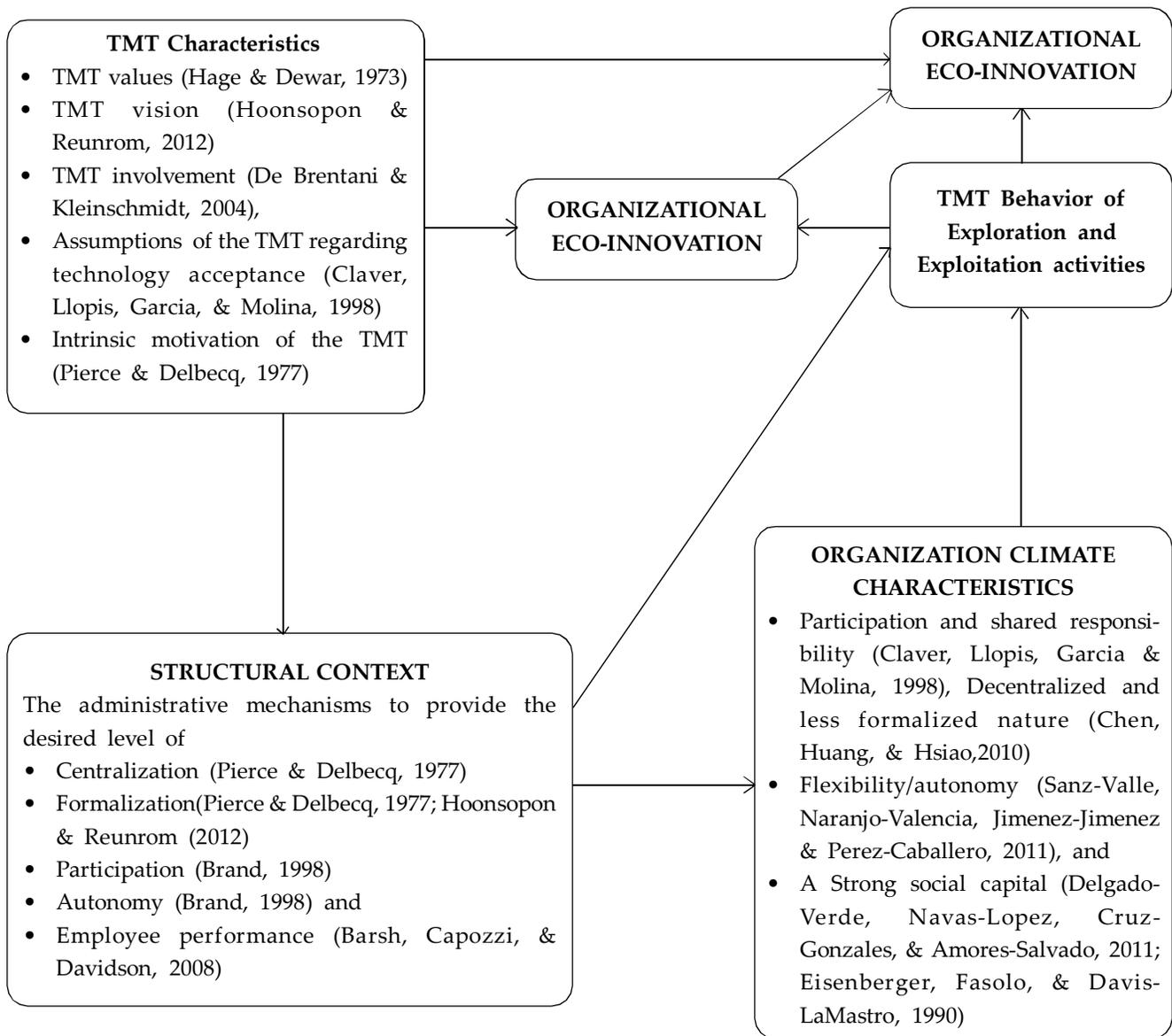
**Figure 1**  
**Influence of the TMT on Organizational Innovations**



**Figure 2**  
**The Influence of the TMT, and the Structural Context on Organizational Innovations**



**Figure 3**  
**The Influence of the TMT, Structural Context and Organization Climate on Innovations**



**Figure 4**  
**TMT, Structural Context, Organization Climate, Organizational Ambidexterity and Organizational Innovations**

## References

- Andriopoulos, C., & Lewis, M. W. (2009). Exploitation-exploration tensions and organizational ambidexterity: Managing paradoxes of innovation. *Organization Science*, 20(4), 696-717
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173
- Barsh, J., Capozzi, M. M., & Davidson, J. (2008). Leadership and innovation. *McKinsey Quarterly*, 1, 36.
- Brand, A. (1998). Knowledge management and innovation at 3M. *Journal of Knowledge Management*, 2(1), 17-22.
- Burgelman, R. A. (1983). A model of the interaction of strategic behavior, corporate context, and the concept of strategy. *Academy of Management Review*, 8(1), 61-70.
- Cao, Q., Simsek, Z., & Zhang, H. (2010). Modelling the joint impact of the CEO and the TMT on organizational ambidexterity. *Journal of Management Studies*, 47(7), 1272-1296
- Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management*, 30(6), 749-778
- Chen, C. J., Huang, J. W., & Hsiao, Y. C. (2010). Knowledge management and innovativeness: The role of organizational climate and structure. *International Journal of Manpower*, 31(8), 848-870
- Claver, E., Llopis, J., Garcia, D., & Molina, H. (1998). Organizational culture for innovation and new technological behavior. *The Journal of High Technology Management Research*, 9(1), 55-68
- Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34(3), 555-590.
- Daft, R. L., & Becker, S. W. (1978). *The innovative organization: Innovation adoption in school organizations*. New York: Elsevier
- De Brentani, U., & Kleinschmidt, E. J. (2004). Corporate culture and commitment: impact on performance of international new product development programs. *Journal of Product Innovation Management*, 21(5), 309-333.
- Delgado-Verde, M., Navas-López, J. E., Cruz-González, J., & Amores-Salvador, J. (2011). Radical innovation from relations-based knowledge: Empirical evidence in Spanish technology-intensive firms. *Journal of Knowledge Management*, 15(5), 722-737.
- Denison, D. R. (1996). What is the difference between organizational culture and organizational climate? A native's point of view on a decade of paradigm wars. *Academy of Management Review*, 21(3), 619-654
- Eisenberger, R., Fasolo, P., & Davis-LaMastro, V. (1990). Perceived organizational support and employee diligence, commitment, and innovation. *Journal of Applied Psychology*, 75(1), 51
- Forsman, H. (2009). Balancing capability building for radical and incremental innovations. *International Journal of Innovation Management*, 13(04), 501-520
- Gibson, C. B., & Birkinshaw, J. (2004). The antecedents, consequences, and mediating role of organizational ambidexterity. *Academy of Management Journal*, 47(2), 209-226.
- Hage, J., & Dewar, R. (1973). Elite values versus organizational structure in predicting innovation. *Administrative Science Quarterly*, 279-290.
- Hambrick, D. C., & Finkelstein, S. (1987). Managerial discretion: A bridge between polar views of organizational outcomes. *Research in Organizational Behavior*.
- Hansen, M.T. and Birkinshaw, J., 2007. The innovation value chain. *Harvard Business Review*, 85 (6), 121-130.
- He, Z. L., & Wong, P. K. (2004). Exploration vs. exploitation: An empirical test of the ambidexterity hypothesis. *Organization Science*, 15(4), 481-494.
- Hellström, T. (2007). Dimensions of environmentally sustainable innovation: The structure of eco-innovation concepts. *Sustainable Development*, 15(3), 148-159.
- Hoonsopon, D., & Ruenrom, G. (2012). The impact of organizational capabilities on the development of radical and incremental product innovation and product innovation performance. *Journal of Managerial Issues*, 24(3)
- Jansen, J. J., Volberda, H. W., & Van Den Bosch, F. A. (2005). Exploratory innovation, exploitative innovation, and ambidexterity: The impact of environmental and organizational antecedents. *Schmalenbach Business Review*, 57, 351-363
- Kang, S. C., & Snell, S. A. (2009). Intellectual capital architectures and ambidextrous learning: A framework for human resource management. *Journal of Management Studies*, 46(1), 65-92.
- Katila, R., & Ahuja, G. (2002). Something old, something new: A longitudinal study of search behavior and new product introduction. *Academy of Management Journal*, 45(6), 1183-1194
- Li, Q., Maggitti, P. G., Smith, K. G., Tesluk, P. E., & Katila, R. (2013). Top management attention to innovation: The role of search selection and intensity in new product introductions. *Academy of Management Journal*, 56(3), 893-916.
- Ling, Y. A. N., Simsek, Z., Lubatkin, M. H., & Veiga, J. F. (2008). Transformational leadership's role in promoting corporate entrepreneurship: Examining the CEO-TMT interface. *Academy of Management Journal*, 51(3), 557-576.

- Lubatkin, M. H., Simsek, Z., Ling, Y., & Veiga, J. F. (2006). Ambidexterity and performance in small-to medium-sized firms: The pivotal role of top management team behavioral integration. *Journal of Management*, 32(5), 646-672
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2(1), 71-87.
- Moran, E. T., & Volkwein, J. F. (1992). The cultural approach to the formation of organizational climate. *Human Relations*, 45(1), 19-47
- Mihalache, O. R., Jansen, J. J., Van den Bosch, F. A., & Volberda, H. W. (2014). Top management team shared leadership and organizational ambidexterity: A moderated mediation framework. *Strategic Entrepreneurship Journal*, 8(2), 128-148.
- Reilly, C. A., & Tushman, M. L. (2004). The ambidextrous organization. *Harvard Business Review*, 82(4), 74-83
- Pierce, J. L., & Delbecq, A. L. (1977). Organization structure, individual attitudes and innovation. *Academy of Management Review*, 2(1), 27-37.
- Rennings, K. (1998). *Towards a theory and policy of eco-innovation-neoclassical and (Co-) evolutionary perspectives* (No. 98-24). ZEW Discussion Papers.
- Sanz-Valle, R., Naranjo-Valencia, J. C., Jiménez-Jiménez, D., & Perez-Caballero, L. (2011). Linking organizational learning with technical innovation and organizational culture. *Journal of Knowledge Management*, 15(6), 997-1015.
- Sinha, S. (2013). Managing ambidexterity in growth phase of start-up firms (Doctoral dissertation), IIM Ahmedabad.
- Smith, W. K., & Tushman, M. L. (2005). Managing strategic contradictions: A top management model for managing innovation streams. *Organization Science*, 16(5), 522-536.

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# *Rehabilitation of Sex Trafficked women and Girls through Social Entrepreneurship: A Case Study of PRAJWALA*

**M. Roja Lakshmi and V. Dileep Kumar**

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## **Abstract**

This research paper analyzes how entrepreneurial skills provide economic rehabilitation and social reintegration to the largely marginalized and alienated victims of sex trafficking for social and sustainable development. PRAJWALA an anti-trafficking organization in Hyderabad which was started in the year 1996: It works towards preventing women and children from entering into prostitution through social entrepreneurship. This Anti-trafficking Organization developed a Rescue and Restoration Program (RRP) in order to break the cycle of exploitation, and end the torment faced by the victims of trafficking. The RRP team fulfills the four-fold objectives of undertaking rescue missions, providing crisis counselling at police stations, conducting home investigations, and supporting the judicial process with a team of directors, coordinators and barefoot counsellors, many of whom are survivors of sex trafficking themselves. Its uniqueness involved five basic component models which include identifying need-based, aptitude-based, market-assessed, viable and sustainable economic options, and livelihood training. This analysis, in turn attempts to understand the role of PRAJWALA in fostering entrepreneurial skills for long term social reintegration and the manner in which it helps the victims become an entrepreneur in corporate and professional environments. The findings of the research might prove helpful for social value creation through studying the new voices of the alienated.

**Keywords:** Rehabilitation, Innovative miniature, Victims of Sex trafficking, Social Entrepreneurship, Voice of Prajwala.

## **1. Introduction & Background**

In the wake of globalization and the resultant marginalization and alienation of large sections of humanity, sex trafficking of women and girls has become a matter of urgent concern in today's world. The National Crime Records Bureau, Government of India report of

CRIME IN INDIA 2011, enumerates that crimes against women in India are very high in general and more so among Scheduled Castes, Schedule tribes, Minority women with increased crimes against girls in particular. The State of Andhra Pradesh stood first with a crime rate of 14.67% against women among Indian states followed by Maharashtra and Madhya Pradesh with 9.59% and 9.54% respectively (Crime in India Report page: 48). In India, over 200,000 women and children are inducted into the flesh trade every year (PRAJWALA's Annual Survey Report, 2012-13), and the Andhra Pradesh state is one of the largest suppliers of women and children for the purpose of commercial sexual exploitation. The reasons behind this flesh trade are poverty, unemployment, illiteracy, family financial problems, rape, kidnapping and abduction, love and marriage, superstitions, craze to enter the entertainment industry such as TV serials, media and cinema. The sources of trafficking come from auto drivers, pimps and middlemen who trap girls and women Economic hardships coupled with the prevailing status of women in society, and changing public attitudes towards sex and morality creates a context which encourages this modern form of slavery. An incredibly disturbing fact is that the age of the women/girls entering prostitution has seen a progressive decline in the last decade. This may be partly due to the wide belief that sex with young girls, especially virgins, will cure sexually transmitted diseases and prevent one from contracting HIV/AIDS. One of every four victims rescued from prostitution is a child, and 60% of these children are HIV positive (PRAJWALA Annual Report 2012-13).

Sex trafficking not only results in severe violation of human rights but also causes adverse physical, psychological and moral consequences for the victims. All hopes and dreams of a better life are shattered and over time the girls become penniless, mentally broken and affected with serious/life-threatening illnesses such as HIV/AIDS. The journey of sex trafficking destroys the body, mind and soul of a victim, and fundamentally

takes away her capacity to trust herself or anyone around her. The damage done is deep rooted and often irreversible, as the sense of rejection, betrayal and numbness that a trafficked women or girl goes through makes her lose faith in humanity. Skewed identity, poor self-worth and learnt helplessness also make her believe that there is no hope for her in the outside world and her destiny is to sell her body. Prajwala, works on the premise that prevention is better than cure, and that addressing the root cause of sex trafficking is the most effective means of eradicating it. As a result, the organization has developed two interventions that strive to eliminate the sources of trafficking. The first is providing education to equip vulnerable children (Girls) with skills to ensure a bright future, and the second is targeting vulnerable women to make them aware of the dangers of commercial sexual exploitation by means of rehabilitation through entrepreneurial skills, which ultimately provides the victims with a source of livelihood, sustainable development and obtaining dignity of life.

PRAJWALA believes that rehabilitation is a long-term holistic process, with interconnected approaches that cannot be stand-alone interventions. They have developed a stage-wise intervention strategy. The first step involves psychological rehabilitation of victims, to ensure that the damage caused by being trafficked for a prolonged period of time is undone, and that their emotional stability and self-confidence is restored. The next stage of providing economic options ensures that the victim has access to livelihood opportunities that reduce the chances of re-trafficking. Finally, civic support provides the survivors with an identity, financial stability and security in the form of financial aid, subsidized housing, and assets. It further reduces the risk of re-entry into prostitution. Essentially, the three stages of PRAJWALA's rehabilitation strategy include: psychological rehabilitation in therapeutic shelter homes, economic rehabilitation through Prajwala Enterprises and Employability Training Unit and civic rehabilitation which provides support for the victims through identity cards, immediate relief funds and access to government welfare benefits.

The two dynamic aspects of PRAJWALA's social rehabilitation process involves: institutional care and

protection involving counseling in an ambience of healing and building capacities of self-esteem, and self-confidence through Life Skills Education and adopting entrepreneurial skills through a social entrepreneurship. The latter involves a process in which individuals build or transform institutions to generate solutions to social problems, such as poverty, illness, illiteracy, environmental destruction, human rights abuses and corruption, in order to make life better for many. According to Gregory Dees, social entrepreneurs do the same for social change, creating new combinations of people and resources that significantly improve society's capacity to address the problem. He also explains that, they create public value, pursue new opportunities, innovate and adapt, act boldly, leverage resources they do not control, and exhibit a strong sense of accountability.

This research paper reports on the in-depth examination of economic rehabilitation of women victims of trafficking that was carried out by PRAJWALA. In order to fulfil this vision, PRAJWALA created its own production cum training unit in 2004 called Prajwala Enterprises (PE), which was started with support from the International Organization for Migration and Catholic Relief Services. In the process of economic rehabilitation, the Prajwala Enterprise and the Employability Training Unit has two interventions, which includes the livelihood skills and occupational training needed to face the world with a proud smile and confidence. Prajwala Enterprises holds that a key aspect of preparedness for social reintegration is the employability factor. Hence, it is essential that the livelihood training is selected based on interest and aptitude by assessing the victim as well as market viability of the trade. PRAJWALA taps the victim's extraordinary inner strength and lack of awkwardness in a male-dominated trade. It has been observed that survivors excel in trades that are non-conventional and mostly part of a male bastion such as livelihood training opportunities in cab driving, security guard, masonry, etc. Depending on the aptitude, health and legal status of survivors, the trades available for on-the-job training at Prajwala Enterprises include welding/fabrication, screen printing, lamination, carpentry and book-binding. During orientation, each trainee spends one full day in each of the four available trades to see which was most

appropriate for their interests and skill-sets. Then, they spend 3 months gaining real-time work experience in the pre-designated department of their choice. Apart from this, a 10-day security guard training was undertaken in collaboration with Balaram Security Services, Bangalore. Two retired army officers-Major Prashanth Rai and Major Bhawana Chiranjay conducted the certificate course, which intended to train the candidates on basic skills required to enter in to the security sector. The candidates gained employment in 44 Kasturba Gandhi Balika Vidyalaya (KGBV) schools in 20 districts of Andhra Pradesh. Since Prajwala's inception, over 5081 women have been reintegrated with their families and a total of 37 victims have been repatriated to their respective countries.

## 2. Objectives of the Study

- To study the Socio-economic conditions and social categories of trafficked respondents
- To examine the role of Prajwala Enterprises in the rehabilitation of trafficked women
- To know how Prajwala Enterprise (PE) and Employability Training Unit (ETU) are imparting entrepreneurial skills through social entrepreneurship
- To study the challenges which impedes innovation in entrepreneurship development

## 3. Review of Literature

Dees (2005) in his commentary on 'Social Entrepreneurs and Education' states that social entrepreneurship is very new to the academic world, especially outside of business and public policy. Academic attention to this "field" is only about a decade old. Only recently this topic has attracted the attention of scholars from the disciplines of education, public health, and social work. He explains that the term "social entrepreneur" is not meant to convey the mindset common to large business corporations. Entrepreneurs, even in business, are subversives, those who are "reforming or revolutionizing the pattern of production," as economist Joseph Schumpeter put it. They are the agents of "creative destruction" - out with the old and in with the new. George also adds Howard Stevenson's, vision a professor of entrepreneurship at Harvard, explicitly contrasts them

with "administrators" who preserve status quo. Entrepreneurs may be part of what Habermas calls "the system," as Humphries and Grant suggest, but they are not corporate or bureaucratic. They promote change within the system, and some of them actively work to change the system. Yes, most business entrepreneurs are concerned about profit and without it they cannot survive. But for many entrepreneurs this is not the primary motivation. By marrying the concept of entrepreneurship with the word "social," George hopes to describe someone who focuses on social change instead of profit as the goal, and approaches this goal with an entrepreneurial spirit, as one of determination, innovation, and resourcefulness. George concludes that the social entrepreneurship construct has a great potential for helping us mobilize resources for social good and for stimulating new thinking about economic and social institutions.

Srivastava (2007) in his article 'Benefiting from Social Entrepreneurship and Social Businesses in India', states that he believes that India needs extensive application of multidisciplinary approaches and entrepreneurial energy in social and environmental sectors. The challenge is: how to have more number and better quality of social entrepreneurs in the country? Social entrepreneurship, although an old field of practice, is a new and emerging field of systematic knowledge and learning. The growth in social entrepreneurship should not be left to chance. Borrowing from Peter Drucker's book 'Innovation and Entrepreneurship', he observes that everyone who can face up to decision-making can learn to be an entrepreneur and behave entrepreneurially. Entrepreneurship, then, is a behavior rather than a personality trait, and its foundation lies in concept and theory rather than in intuition. Even if one attributes some credit to personality, some experts have suggested, a large number of selected people (after initial screening) can be trained to be entrepreneurs. Extending this logic further, Srivastava thinks that most people who can combine a spirit of social service and entrepreneurial behavior can learn and develop themselves as social entrepreneurs. Furthermore, when social entrepreneurial education and training is spreading in other countries (e.g., USA and UK), there is growing need to promote

such education in India also. The social entrepreneurship, as a special type of leadership, can flourish here only if its value is recognized by a significant section of Indian society, especially the policy makers, educationists, media and other government bodies. If this happens, it can create new waves of opportunities, strategies, approaches, and impacts in the direction of sustainable development.

Johanna and Ignasi (2004) in their working paper 'Social Entrepreneurship and Research: A source of Explanation, Prediction and Delight', explain that social entrepreneurship, as a practice and a field for scholarly investigation, provides unique opportunities to challenge, question and rethink concepts and assumptions from different fields of management and business research. They talk about the view of social entrepreneurship as a process that catalyses social change and important social needs in a way that is not dominated by the direct financial benefits for the entrepreneurs. It is seen as differing from other forms of entrepreneurship in the relatively higher priority given to promoting social value and development versus capturing economic value. Johanna and Ignasi have drawn these conclusions by trying to identify the distinctive domain of social entrepreneurship and argued that social entrepreneurship differs from other forms of entrepreneurship in that it gives high priority to social value creation.

The UNICEF (2007) report entitled 'Adolescents and Civil Engagement: Social Entrepreneurship and Young People' highlights that children and young people have a vision of developing themselves in this world and they have a key role to play in their self-development as well as in the development of their communities. Taking initiative, creating a project, conceptualizing and launching one's own venture are exceptions, not the rule in most young people's experience. Every child is good at something. Encouraging and giving that child the opportunity to succeed is extremely important in shaping their personality and tolerance for risk. Young people are an integral part of the world's human capital and they are increasingly being seen as key participants in decision making and development. Lastly, this report explains that the social entrepreneurship can lead to the

achievement of holistic development in young people, and allow them to contribute to the development of their own communities and is also helpful in achieving the Millennium Development Goals. This article will provide an overview of social entrepreneurship as it currently exists, outline the ways in which young people are involved, demonstrate the ways in which young people are contributing as social entrepreneurs to UNICEF's goals, and provide guidelines to support and scale-up youth social entrepreneurship interventions.

#### 4. Methodology

The concept of social entrepreneurship has emerged as a research area in the social sciences and in management field, and aims to create an impression of a modern approach to social value creation. This study deals with PRAJWALA (Non-Government Organization), Hyderabad, of Andhra Pradesh. PRAJWALA emerged as an anti-trafficking organization, and is founded on the principle of preventing women and children from entering into prostitution, which is the worst form of sexual slavery. Since its inception in 1996, over and around 7000 women and children have been rescued. Among these, 5000 were children and adolescent girls and 2000 were women of middle age. The authors of this study have taken a sample size of 100 victims of trafficking, from Prajwala's Enterprise. These are individuals who are actively engaged in vocational training and entrepreneur skills. In this study, we used a combination of participant observation, semi-structured interviews and archival materials. We used random sampling technique to select the respondents, and interviewed respondents, trainees and rescue team as well as shelter team members. Data was collected from 'December 10, 2013' to 'January 15, 2014' were duly tabulated. Secondary information was collected from various documents such as books, articles, newsletters, reports, magazines, daily newspapers, as well as from the existing literature to understand the role of Prajwala's vision and the practice of social entrepreneurship in transforming marginalized voiceless women into empowered social entrepreneurs.

## 5. Data Analysis

**Table: 1 Social Category \* Family Background of Trafficked Respondents**

Social Category of the Respondent	Family Background of the Respondent		
	Poor	Middle Class	Upper Middle Class
General Category	4	5	3
OBC	12	6	1
SC	15	2	4
ST	13	3	3
Minority	12	4	4
Others	4	4	3

Table-1 enumerates the social category of the respondents with respect to their family background. 60% victims are from a poor background and prone to be victims of sex trafficking. They have either been rescued by Prajwala's powerful rescue team or have joined from the crisis counseling of police and law enforcement agencies, followed by 24% of victims from middle class family background and the remaining 16% are from rich family background. The social category of the respondents reflects that Scheduled caste and Minority background

women are more vulnerable with 21% and 20% respectively, followed by Other Backward Class women and Scheduled Tribe women with 36 percent. Lastly, the general category and other category women make up 23% of the numbers. It was also noticed that they were trapped into sex trafficking through various means. The reasons for trafficking in the State are Duped by close relatives and friends, beguiled by middlemen, problems of poverty, and craze towards the movie industry.

**Table: 2 Age of the Respondent \* Role of Prajwala in Providing Rehabilitation**

Age of the respondent	Role of Prajwala in providing rehabilitation		
	Psychological	Economic	Civic
10-14 Years	12	8	5
15-18 Years	9	10	6
19-25 Years	9	11	5
26-35 Years	8	10	7

Table-2 enumerates the age of the respondents and the role of Prajwala in providing rehabilitation to the victims, in which there are 25% girls and 75% women. The multiple traumas faced by girls who are sex trafficked encompass the beginning of a life struggle which is marked by ill-treatment, oppression and indebtedness. Victims of sex trafficking are sold and resold over and over again in a continuous cycle of exploitation. Once a trafficked girl eventually succumbs to her

circumstances within prostitution, she is closely watched and her movements and interactions are monitored and restricted. A constant struggle for existence in an exploitative structure of pimps, sex racket, middle men and brothel house owners makes any escape attempt virtually impossible. The respondents from different age groups are undergoing the psychological and economic rehabilitation with almost an equal percentage (39% and 38% respectively) followed by civic rehabilitation (23%).

**Table: 3 Choice of Livelihood Training in Prajwala Enterprise \* Educational Qualification**

Livelihood Training in Prajwala Enterprise	Educational Qualification of Respondent				
	illiterate	Primary	Secondary	Higher Secondary	Graduation
Cab Driving	0	0	2	0	2
Security Guard	2	2	3	3	0
Beautician Course	2	2	1	0	0
Welding	5	6	1	3	0
Lamination	3	5	2	1	0
Screen Printing	3	3	4	2	0
Carpentry	4	4	1	1	0
Book Binding	5	4	5	0	3
House Keeping	0	1	1	1	3
Voc. Training	3	2	3	1	1

Before introducing the rehabilitation process, Prajwala started the rescue and restoration program (RRP) team which fulfils the four-fold objectives of undertaking powerful rescue missions, crisis counseling at police stations, conducting home investigations, law enforcement agencies and other capacity building programs. This provides the werewithal to effectively fight human trafficking. (Table 3)

The table 3 explains the respondent's choice of livelihood training with respect to their educational qualification. Prajwala's uniqueness is demonstrated by its five basic component model which includes identifying need-based, aptitude based, market assessed, viable and sustainable economic options, and providing livelihood training. According to this model, as majority of them were from very low educational background (illiterate), 79% with primary and secondary education level and the remaining 21% have higher secondary and graduation level education. Out of 100 respondents 62% have opted for cab driving, security personnel, welding, carpentry and housekeeping and 38% have opted for other occupations such as beautician course, lamination, screen printing, vocational training (Table 4).

This anti-trafficking organisation has introduced a dynamic aspect of learning of Life Skills Education (LSE) in order to cope with the stress and humiliation.

Life Skills training gives them moral support to lead their life in a safe and dignified way and also helps the victims build self-confidence and feelings of self-worth. This eventually empowers them to unlearn negative thought patterns and begin the healing process from within. The changes in respondent's life reflect the positive impact of Life Skills Education which they have adopted not only help to increase their employability but also to reduce the risk of being re-trafficked into prostitution. Half of the respondents have started thinking critically and creatively, are aware of themselves and are practicing and learning effective communication skills, the remaining 50% respondents are in the process of decision making, developing interpersonal relationships and empathy towards others as well as learning problem solving techniques (Table 5).

The table 5 enumerates innovative strategies for the improvement of entrepreneur skills for the marginalized women and the age of the respondents. The respondents have suggested some innovative strategies for the development of entrepreneurship by improving entrepreneur skills. 36% have suggested market-assessed and socially dignified jobs, followed by 23% asking for skill-oriented training which should be given to the trainees, 17% have addressed the provision of placement facilities, and 14% suggested aptitude and need-based training will be fruitful in acquiring a job in the

**Table: 4 Type of Life Skills Education Adopted \* Age of the Respondent**

Type of Life Skills Education Adopted	Age of the Respondent			
	10-14 Years	15-18 Years	19-25 Years	26-35 Years
Self-Awareness	4	3	3	2
Creative Thinking	2	1	1	4
Critical Thinking	5	2	3	3
Empathy	4	1	6	4
Decision Making	1	3	3	2
Problem Solving	1	3	1	2
Interpersonal Relationship	2	2	2	3
Effective Communication	3	3	3	1
Coping with Emotions	1	3	2	2
Coping with Stress	2	4	1	2

competitive market space and lastly, 10% suggested entrepreneurs should have viable economic options, so that they can start their own business firm or can be self-employed.

## 6. Conclusion

The study concludes that Prajwala not only promotes entrepreneur skills but is also the largest rehabilitation center for sex trafficked victims in India, and capable of accommodating up to 1,200 rescued victims of commercial sexual exploitation at any given time. From the initial stage of being trafficked to years of leading lives as slaves, and finally to being rescued and subjected to a different sort of pain, these victims see it all. Psychosocial interventions thus pose a significant challenge, as the healing of the pain and undoing all the damages done by stakeholders who were custodians of protection need to go hand in hand. Nonetheless, such challenges appear miniscule compared to the enablers and strengths that make success the norm at Astha Nivas (Shelter Home Name), including effective cooperation of children, strong team support, and continuous guidance from management. Throughout the entire rescue-restoration process, the custodial and judicial procedures immediately post-rescue are usually not victim-friendly and make the survivor believe that her journey of victimization is never-ending. Moreover, around 65% of the victims are not ready to join Prajwala as they see nothing wrong with selling their bodies to

men in return for money instead of joining Prajwala's Enterprise. Around 48% of the respondents had been re-trafficked and joined the Shelter home of Prajwala with broken bodies and 40% with sexually transmitted diseases. Only 12% had a realization about exploitation and cheating by middle men, pimps and brothel lady heads and started to join immediately after police station counseling and Prajwala's rescue team counseling process.

PRAJWALA's (Anti-Trafficking organization) efforts are fruitful to ensure the successful rehabilitation and social reintegration of survivors. Despite many challenges over the years, Prajwala has received financial support from UNICEF, International Organization for Migration, Government of India, UNIFEM, Volkart Foundation, Catholic Relief Services, Ek Disha Inc, Hilton Foundation, Give India, UNODC, Misereor (Germany), Leger Foundation (Canada), Edukans (The Netherlands), Vital Voices, Global Giving, Reliance Foundation, Philip R. Berlinski, Google, United Way of Mumbai, iPartner and Goldman Gives/Krishna Rao Family Foundation. These agencies have played a crucial role not only by being the financial backbone of the organization but also by consistently mentoring it. Prajwala's rescue approach is becoming a best practice model nationally and internationally for cross-learning and replication. Nonetheless, rescue is only the beginning of a long struggle to get the victim's life back on track after being subjected to the oppressive conditions of the flesh trade.

**Table: 5 Innovative Strategies for the improvement of Entrepreneur Skills\* Age**

Innovative Strategies for Entrepreneur Skills	Age of the Respondent			
	10-14 Years	15-18 Years	19-25 Years	26-35 Years
Placement	6	4	5	2
Market Assessed	6	4	3	5
Socially Dignified	5	4	4	5
Skill -Oriented	3	7	9	4
Economic Options	2	2	2	4
Aptitude -Based	2	2	1	2
Need-Based	1	2	1	3

Thus, advocacy is one of the most important tasks undertaken in Prajwala. Prajwala is motivated and has taken many initiatives for long-term systemic change to happen in the trafficking sector. Through social entrepreneurship and by imparting entrepreneur skills for the victims livelihood and sustainable economic growth, they hope to produce more number of entrepreneurs from the trafficked women and result in the welfare of the society.

### End Note

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### References

- Alvord, S. H., Brown, L. D. & Letts, C. W. (2004). Social entrepreneurship and societal transformation an exploratory study. *The Journal of Applied Behavioral Science*, 40 (3), 260--282.
- Bornstein, D. & Davis, S. (2010). *Social entrepreneurship*. New York: Oxford University Press.
- Chand, V. (2009). Beyond nongovernmental development action into social entrepreneurship. *Journal Of Entrepreneurship*, 18 (2), 139--166.
- Fayolle, A., Gailly, B. & Lassas-Clerc, N. (2006). Assessing the impact of entrepreneurship education programmes: a new methodology. *Journal Of European Industrial Training*, 30 (9), 701--720.
- Gregory, J. (2004). Social entrepreneurs and education. *Current Issues In Comparative Education*, 8 (1), pp. 51-55.
- Low, M. B. & Macmillan, I. C. (1988). Entrepreneurship: Past research and future challenges. *Journal of Management*, 14 (2), 139-161.
- Pratap, S. (2012). Social entrepreneurship: A growing trend in Indian economy. *International Journal Of Innovations In Engineering And Technology*, 1 (3), 44-52.

Seth, S. & Kumar, S. (2011). Social entrepreneurship: A growing trend in Indian business. *Entrepreneurial Practice Review*, 1 (4).

Sper & lo, J. (2005). Social Entrepreneurs and educational leadership in Bangladesh. *Current Issues In Comparative Education*, 8 (1), 18--30.

Srivastava, K. (2007). Benefiting from social entrepreneurship and social businesses in India. *Economic And Political Weekly*, 6 (3), 17-27.

UNICEF. (2007). *Adolescents and Civil engagement: Social Entrepreneurship and Young People*, (A summary of the role of social entrepreneurship in the development of young people, communities and the achievement of the MDGs). [report] Adolescent Development and Participation Unit Programme Division, pp. 1-48.

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# Sources of Stress among Police Officials: A Qualitative Investigation

Vaijyanthee Kumar and T. J. Kamalanabhan

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## Abstract

This paper reports the results of 25 semi-structured in-depth interviews carried out with police personnel housed at the police station in the state of Delhi, India. The purpose of the research was to identify factors that resulted in subjective experience of stress among police personnel. The results of the in-depth interview with the Inspectors and Sub-Inspectors at the police station revealed several factors that could be treated as sources of stress. As guided by thematic analysis, several categories of possible stressors were observed. These categories were found to be associated with the work, organisation and community. This paper concludes with the findings, discussions and future implications.

**Key Words:** Police, stress, potential stressors, workplace problems, Delhi police.

## 1. Introduction

With the winds of change, altering work roles, procedures, policies and expectations; jobs have become more complex and highly demanding. In such a competitive work environment, one of the most common side effects of work life is stress. Stress has been defined differently by several academicians over several decades. Modern definitions of stress recognise that it is a personal experience caused by pressure or demands on an individual, and impacts upon the individual's ability to cope or rather, his/her perception of that ability (Blaug et al., 2007). Several professions, especially those related to human services such as nurses, psychiatrists, counsellors, police etc. have been found to be prone to stress and strain (Webster, 2012). Among the human services occupations, police work has been found to be the most stressful (Burke, 1993; Anshel, 2000). In fact, psychologists agree that a police officer is under stress and pressure unequalled by any other profession (Somodevilla, 1978).

Policemen can be viewed as social surgeons who make interventions in social situations to preserve law and order of the state. The job of a policeman has been said to be unique as one deliberately engages himself for which he is feared, hated and at times reviled or even assaulted in the ordinary performance of their duties (Symonds, 1970). To carry out their job of maintaining law and order and engaging in investigations, they are required to be detached, unemotional, scientific and cautious (Mathur, 1995). Considering the nature and demands of their work, police personnel are certainly prone to experiencing stress.

Stress in such a profession can be debilitating not only to the individual but also to the police organisation and the community at large. At an individual level, studies have indicated that police officers experiencing stress reported poor physical and subjective health (Berg, Hem, Lau, & Ekeberg, 2005; Kirkcaldy, Cooper & Ruffalo, 1995), burnout (Brown, Cooper & Kirkcaldy, 1996), showed symptoms of depression, anxiety and drug use. Cases of suicide attempts have also been observed as an outcome of pressure and stress in the police occupation (Anshel, 2000). Work related consequences of police stress included absenteeism from work (Wright & Saylor, 1991), job dissatisfaction (Norvell, Belles & Hills, 1998) and retirement at an early age (Kop, Euwema & Schaufeli, 1999). Apart from the loss faced by the organisation, it is the society at large which suffers. As a result of the job, police personnel turn out to be cynical and engage in misconduct especially with the public (Vadackumchery, 1998; Niederhoffer, 1967). A stressed police force may indirectly manifest an increased turbulence in law and order and elevated crime rates. Police stress has been identified with destructive outcomes such as use of force towards the public (Burke & Mikkelsen, 2005) and immoral and callous behaviour towards civilians and victims. This section of the paper elaborated on the consequences of police stress and how

it impairs the personnel, organisation and the society. The following section, based on prior literature will examine the stressors in the police context.

## 2. Review Literature

Research on police stress has been in abundance since work in this area began in mid 1970's (Aaron, 2000). There exists a plethora of research that has focussed on what causes police stress. Some of the stressors that represented the nature of the job were violent arrests, gruesome crime scenes (Violanti & Aron, 1993) and unpredictable incidents in police work (He, Zhao & Archbold, 2002). Physical threats involved in the job, use of force, dealing with ambiguous situations and shift work were also highlighted in the police stress literature (Brown & Campbell, 1994; Hart, Wearing & Headey, 1995). Organisational factors have been given adequate importance in recent literature and have been found to be a better predictor of police stress than the factors that represented the nature of police work (Morash et al., 2006). A study by Buker & Weicko (2007) which aimed at assessing the effects of commonly examined police stressors on Turkish National Police revealed that organisational issues were the most important causes of stress in policing. Of all the several variables studied, job satisfaction especially with supervisor was found to be the strongest predictor of stress. Other stressors identified in the study were excessive workload, inadequate staff, inadequate specific policies and excess of "red tape". In addition, lack of supervision, unfair practices at work (Ayres & Flanagan, 1994), lack of participation in decision making (Morash et al., 2006; Slate, Johnson & Colbert, 2007) were also found to be possible stressors in the context of police. Similarly, lack of recognition and insufficient administrative support led to stress (Ayres & Flanagan, 1994). Morash & Harr (1995) highlighted the significance of workplace problems as distinct stressors, which included negative interactions with officers, feelings about status, opportunities and physical abilities and practice of bias and harassment. Furthermore, Morash et al. (2006) empirically tested and revealed that bias among co-workers highly predicted stress followed by a feeling of lack of influence on how police work is accomplished. When police officers perceived themselves

as having a strong work related peer support system, stress perceived was found to be relatively less (Ellison & Genz, 1983; Graf, 1986).

Research in India on police stress acquired scientific importance in late 1980s. Early work in this area concluded that long and unpredictable working hours, dealing with violators of law and anti-social elements, threats of being injured or killed, bureaucratic structure, rigidly allocated work pattern, high disciplinary procedures and regimentation, lack of respect from public and work shifts were sources of stress among police personnel (Bhaskar, 1986; Mathur, 1995). Another study by Bano (2011) indicated that political pressure, lack of time for family, negative public image and low salary were the primary causes of stress among police personnel in Uttar Pradesh. Similarly, Selokar et al. (2011) in an attempt to identify the stressors among police personnel in Wardha, Maharashtra, found that majority of the personnel were under stress due to varied reasons such as criticism by superiors, excess work, lack of rewards, inadequate value given to abilities and commitments and no satisfaction from work. Suresh et al. (2013) made an attempt to determine job events that were significant sources of stress among Chennai police. The study revealed that stress was due to organisational factors rather than physical hazards involved in the police work. The factors included round-clock duty, no time for family, inadequate salaries / facilities, negative interaction with other police staff, poor equipment, no recognition, too many cases, insufficient staff and harassment. Another study by Srinivasan & Ilango (2013) revealed that lack of superiors interest in their subordinates, irregular office work, heavy workload and dealing with criminals were stressors faced by constables in Northern part of Tamil Nadu.

The available literature on police stress in India indicates wide range of job and organisational stressors faced by police personnel. These stressors were observed to vary across cities, designations and over time. Research on police stress in India extensively relied on quantitative methodology, using Likert rating scales. Qualitative technique, which employs an open ended approach, paves way for better and an in-depth understanding of

nature of stress and stressors have been rarely used to study police stress. This necessitates a qualitative study of police stress in the Indian context to identify the current potential stressors in police. The rationale to carry out the study may be supported by the statistics of recorded suicide rates of police personnel and the complaints/cases registered against police personnel. The statistics of 2001 (National Crime Records Bureau) revealed that there were a total of 114 cases of police suicide across different states in India while the 2013 record disclosed 214 suicide cases. This escalation in suicide cases may be attributed to the levels of stress among police personnel (Burke & Mikkelsen, 2007). Complaints against police personnel by civilians about their cynical behavior have also considerably increased over the years. The complaints reported in 2001 was 12,345 while those in 2013 were 51,120 (National Crime Record Bureau) which may be a result of chronic stress experienced by the personnel. The past literature and current statistics demands a study to identify and focus on what causes stress among police workforce. With these issues in mind, this paper attempts to explore the sources of stress for police personnel.

### 3. Methodology

Since stress and its experience is a subjective concern, any investigation into stress is best treated qualitatively through narratives, enabling an understanding of the lived experiences of the participants (Bryman, 2004). Thus, to meet the objective of the study, the authors devised a semi-structured interview schedule. The questions in the interview schedule were guided by factors identified as stressors in the past literature.

A total of 25 police personnel were interviewed, out of which 15 were Inspectors and 10 Sub-Inspectors working in 8 different police stations for Delhi Police. Sampling technique employed for the study was purposive sampling as the inclusion criteria for the study was police personnel with minimum 2 years of experience in police station/district police unit. The age range of the sample varied from 25 to 45 years. The sample had a good balance for sex, 12 female and 13 male personnel. An elaborate representation of the sample demographics is provided in Table 1.

**Table 1**  
**Demographics of the respondents (n=25)**

Respondent	Age (yrs)	Experience (yrs)	Designation	Gender
1	27	4.3	Sub Inspector	M
2	32	8.1	Sub Inspector	F
3	33	10.1	Sub Inspector	M
4	42	19.8	Inspector	F
5	44	20	Inspector	M
6	25	3	Sub Inspector	F
7	28	4	Sub Inspector	F
8	29	5	Sub Inspector	M
9	33	10	Sub Inspector	F
10	36	12	Inspector	M
11	34	11.4	Inspector	M
12	38	13.2	Inspector	F
13	26	3.1	Sub Inspector	M
14	41	17.1	Inspector	F
15	28	4.2	Sub Inspector	M
16	43	20.4	Inspector	F
17	35	12.8	Inspector	M
18	37	13.6	Inspector	M
19	44	20.4	Inspector	F
20	40	16	Inspector	F
21	38	14.8	Inspector	M
22	39	15.2	Inspector	M
23	37	14.3	Inspector	M
24	42	19.1	Inspector	F
25	34	10	Sub Inspector	F

Interviews with each of the participant ranged from 45 to 65 minutes. Recorded interview responses were summarized and transcribed verbatim. The 8 paged transcripts were analysed using thematic analysis, a qualitative method used for 'identifying, analysing and

reporting patterns (themes) within data' (Braun & Clarke, 2006). On analysis of each of the interview, a coding framework was devised. Transcripts were read repeatedly to identify the key themes and categories for coding. Themes were generated and identified through an iterative process. The transcripts were further shared with seven subject matter experts for validation of the themes.

#### 4. Findings

The results of the semi-structured interviews with the Inspectors and Sub-Inspectors at the police stations revealed several factors that could be treated as sources of stress. As guided by thematic analysis, several themes of possible stressors were observed. These factors were found to be associated with the nature of work/job, organisational and community factors. The identified themes and their respective narratives and verbatims are elaborated in the following section.

##### 4.1 Work Overload

The most common potential stressor noted during the interview was work overload. Both Inspectors and Sub-Inspectors described about the amount of work they had to perform all through the day which included tasks like investigation, maintaining law and order, court duty and emergency situations. They stated that too much work in too less time was extremely demanding. They unanimously stated that juggling these competing tasks were a source of stress. They asserted that there was a lack of division of work among personnel and lack of man power led to work overload and over piling of work. The following verbatim from an interview corroborates the work overload as a stressor.

*"We end up doing unexpected things. The work that is allocated is at random due to which work is never ending and we feel loaded with work. There have been several days when, while dealing with criminal cases, investigation and interrogation, we have been called for other tasks such as VIP security or dealing with public, etc. This way we are overloaded with several tasks with too less time due to which there happens a delay in the work, leaving us stressed."*

[Respondent 2]

The participants unanimously agreed that prioritising work was stressful for them, since they worked according to deadlines. Excess work and the need to meet the deadlines lead participants to a state of distress. The following example helps understand this better.

*"When to do what is always a concern for me. There are too many tasks to accomplish. Due to overload of work, I am unable to prioritise work and eventually become helpless and give up. When performing one task, I often think about the pending tasks. Since the time I have joined, I have been overburdened with work. It is impossible to meet deadlines."*

[Respondent 17]

##### 4.2 Long Working Hours

The second potential source of stress, that was highlighted in the analysis of the interview was long hours of work. The participants complained that there was no limit on the working hours and experienced great suffering due to unfixed timings. Participants agreed that there were days when they did not sleep. They described that the police job with respect to time was too demanding and imposed significant pressure, leaving them stressed. This is evidenced in the respondent comment given below.

*"There are days when we don't get enough sleep. We are actually required to work for limited hours, but that is only on papers. I suffer from a sense of guilt that I am unable to give time to my family. I barely get to see my family. We just go on and on and on. This has impacted me mentally and physically too. And despite this, our job is a thankless job."*

[Respondent 10]

The participants attributed long working hours as taxing their mental, emotional, physical and intellectual abilities. Most agreed that they were distressed since the working schedule did not permit them to spend time with their family. The following verbatim reflects and supports long hours of work as stressful.

*"I don't remember the last time I spent quality time with my children, husband and parents. My life revolves around police station since I dedicate most of the time of my life at work. I don't have time for myself too. Limitless working"*

*hours have made my life meaningless and challenge my mental, emotional, and intellectual competence."*

[Respondent 25]

### **4.3 Job Insecurity**

The third potential source of stress among participants was an intense feeling of job insecurity. This was observed despite the police job being a government job where job insecurity issues are relatively less. They felt threatened and feared loss of job and hence when probed by the authors on whether they were proactively looking for an alternate job, most of them agreed. One of the common reasons attributed to this feeling was lack of trust in the police system. The following quote is testament to the above mentioned research finding.

*"This is a government job but I am always under threat that I may be suspended any time. The internal politics and blame game makes me feel that my job is at risk."*

[Respondent 5]

The participants emphasised on the misuse of power by senior officials which led them to believe that their stability in job was uncertain, consequently leading to a feeling of job insecurity. This is seen in the quote below by one of the participants.

*"I am not sure what is going to happen to my job tomorrow. I am always under tension about my job. Although it's not easy to remove a government official, yet I suffer from uncertainty. This is especially because power in this profession plays a predominant role and if power can take away lives, then what is job? I plan to quit this job soon and apply for other government jobs, before I turn thirty!"*

[Respondent 1]

### **4.4 Lack of Participation in Decision Making**

The Inspectors and Sub-Inspectors reported that lack of participation and involvement in decision making contributed to work stress. They asserted that they were not heard; they were not asked or consulted on trivial issues related to their own work at the police station. Interviewees stated that there was no scope for them to express and question the process of decision making. They speculated that it was the bureaucratic structure

of the police organisation that did not allow them to participate in the decision making affairs. An example of this finding is characterized in the following comment.

*"I feel undervalued in this place. We are just given orders and we have to blindly obey them (seniors). There is no freedom of speech in this environment. We are not considered in the decision making process. We are here only to nod our heads. They (police organisation) must know that we are not in the Army!"*

[Respondent 7]

Interviewees further shared that they felt underestimated about their competence to be involved in the decision making process and perceived themselves as worthless. The following quote from an interview describes it well.

*"I have never been asked to take decisions at work. In fact, whenever I have taken decisions, I have been embarrassed and humiliated (by seniors/supervisor). My words hold no value to this system. Only those sitting at higher positions are valued and we end up following their decisions, irrespective of whether right or wrong. I feel worthless because I have never been involved in any decision making process. Maybe we are not considered capable enough to make decisions."*

[Respondent 18]

### **4.5 Lack of Fairness at Workplace**

Lack of fairness in the organisation was found to be associated with work stress. The interviewees emphasized that the most observable partial practice was unequal distribution of work. Another frequent manifestation of bias at work was granting opportunities to only a few. They expressed that transfers and promotions were based on favouritism and nepotism. The practice of bias at work led the participants to believe that there was injustice and discrimination prevalent in the system. They also commonly agreed that this practice was conscious and rampant and it had no solution. However, coping in such an unfavourable environment was arduous for the respondents eventually leading to experience of stress. The following verbatim illustrates the findings and supports lack of fairness as a stressor.

*"There is no transparency at all in this system. I have been*

*transferred from one station to the other without any justification. Also there is favouritism that persists. I have seen some of my peers sitting without any work while some overloaded with work. Some are granted leaves, while some are not. I have never been recognised for my work in my fifteen years of service while those who have not made significant contribution have been constantly pushed into limelight. It is caste, religion, gender and other reasons that introduce bias."*

[Respondent 24]

The sample narrated their personal episodes of how unfair treatment was evident in their daily lives at work. They confessed that police system is vulnerable to inequitable and discriminatory traditions. The following comment reflects the above viewpoint.

*"The police system as an institution is driven by prejudice and discrimination. I have struggled and still struggling with the unfair practices that prevail in this system. I have been denied promotions twice, because my colleague was favoured as he belonged to a particular section of the society. I have worked day and night, while those who are favoured have spent nights at home. There is preferential treatment practiced outright and experiencing these unjust instances everyday is distressing."*

[Respondent 3]

#### **4.6 Poor Compensation & Benefits**

Lack of appropriate pay, perks and allowances was a concern and plausible source of stress for all participants. Respondents unanimously agreed that they were devoid of sufficient pay and allowances especially, the travel allowance. They further reported that while patrolling and investigating, they had to bear the expenses of the fuel for the official vehicles. They commonly felt that police is a profession which involves risk of life and for this reason they demanded better pay and benefits. They also emphasised on the poor housing facilities provided to them. The comments by the personnel interviewed confirm the existence above mentioned source of stress.

*"The pay that we get is inadequate. We are devoid of basic benefits. Army personnel get so many monetary benefits, why*

*not us? We do not have police schools, canteen or anything special. Travel allowance is also very less. When I have to travel for investigation or court or any other official work, I take my bike and use my money for petrol. We should also have risk allowance since our occupation is risky."*

[Respondent 15]

*"We all work for food and shelter, but this job gives only tension and headache. Financially, we might be perceived as more than sufficient but the truth is that we spend from our personal finances to complete our official tasks and are left with less than half our monthly salary to spend on our family. When we have to travel to other states for case investigation purpose, we book our own railway ticket which most times are not reimbursed. Although there are police quarters available for us, but they are insufficient and the condition of the quarters are not habitable. We are not privileged like other government employees to have our police dispensaries/hospitals and schools. One month extra salary every year does not compensate for the expenses that we bear to complete tasks."*

[Respondent 22]

#### **4.7 Lack of Resources for Investigation**

Another likely stressor that was highlighted in the interviews was inadequate, insufficient and inappropriate tools and techniques for investigation. They attributed the conventional methods and techniques used for examination for the delay in investigation, and reasoned it as a cause for piled up work. As an example, a common response observed was unavailability of breath analyser in the police station. The following excerpts from the interviews describe poor resources as a source of stress.

*"We are still using old methods of investigation. There is immense technological advancement yet we are not provided with such tools. Even basic computer facility is not offered. Using computers and newer technologies for tracking lost property, or for interrogation would have made our tasks efficient and effective."*

[Respondent 20]

*"Our police is very far from development as compared to other state police. We lack basic resources to carry out investigation.*

*Equipments are not provided on time and are very scarce. The only tool that is available throughout the day and across all police stations is the wireless communication equipment. However equipments required at the crime scene, or at the time of investigation are rarely available. Sometimes we go to other police stations to borrow such equipments. A small example includes unavailability of torch light for a crime scene at night."*

[Respondent 13]

#### **4.8 Poor Relations with the Public**

Participants of the study described public's negative perception towards police as a source of stress. There was a wide agreement on the ill status of the police in the eyes of the public. They felt themselves to be hated by the society and instead wanted to be perceived as friendly protectors. The following verbatim reflects the above mentioned stressor.

*"Although we work for the citizens and protect them, but we are loathed by the society. They (public) perceive us as their enemies. When not in uniform, I am greeted well. But when I am in my uniform, I am stared at and abused. This brings down my morale and motivation to work for the public. My child is teased in school because I am in police. My family has not been accepted by the society yet. I don't have friends beyond police circle. Why are we treated this way?"*

[Respondent 21]

Another issue that appeared prominent in the interviews public was the unrealistic demands of the public such as completion of investigations within a week. This seemed impractical and inordinately demanding to the interviewed personnel. This is supported by the below mentioned verbatim.

*"Public has very high expectations from us. They think that we should solve their problems in no time. They are unaware of the work load that we have. They also lack awareness on what issues they should bring to us. Sometimes even marital or property issues are brought to us. But such issues are actually dealt by civil courts. When we try to educate the complainant on this, they call us 'kaamchor' (somebody who tries to run away from their responsibility) and unprofessional. While walking on the road, they (public) view us with hatred*

*and sometimes with fear. We do not share friendly relations with community rather they (public) do not want to maintain cordial relations with us."*

[Respondent 8]

#### **4.9 Poor relations with Media**

Media (print and audio-visual) was also found to be a constant stressor for the participants. They were of the opinion that media published and highlighted negative views about the police personnel and the police organisation. Media reports of alleged police wrongdoing affected their status in the society. Media, according to the interviewees, highlighted what police 'could not' achieve. They further shared that journalists encounter them with questions, the answers to which are highly confidential and restrictive. This consequently creates a rift between media and police. The narratives below stands testimony to the above mentioned viewpoint.

*"Media highlights only what we have not achieved. If criminal cases are on a rise, are we to be blamed? We do our work from our end. It is sad see that no one is concerned about our accomplishments. Public loses faith in us because of what media publishes."*

[Respondent 4]

*"Media has been chasing us since time immemorial and has been adulterating our status in the society. What they publish and talk on television affects our mental health because we are viewed in negative lights. Thanks to media for pulling down my motivation and pride."*

[Respondent 19]

The following section presents the discussion of the current findings in light with the previous literature and current state of Delhi Police.

### **Discussion**

Keeping in view the widespread belief that police is one of the most stressful occupations (Kappeler et al., 2000), the present study aimed to explore and identify the sources of stress at work among two specific ranks, Inspectors & Sub-Inspectors housed at various police stations, using in-depth interviews. The 25 narratives

showed high levels agreement with International and Indian literature.

Work overload was a major stressor for the participants, as indicated in the findings section. This factor not only impacted their work life in terms of prioritising work but also affected their family life. Similarly, findings also revealed that exceedingly long working hours was a major stressor for the participants. Long and unfixed working hours as a source of stress may be attributed to the nature of the job which mandates the police personnel to be alert and available throughout the day. Especially, this might hold true in case of Delhi, the capital city. Apart from Delhi's historic relevance, it is one of the VIP cities where The President resides, parliament session proceeds and a shed for several political parties. This makes the city further vulnerable and sensitive, imposing and urging the police department to be alert and vigilant. In the current context, long working hours may also be a result of work overload as mentioned by the participants earlier. Further, the escalation in crime rates in the city may be attributed to the increase in the workload and long hours of work. Within policing, there is limited support for this finding (Webster, 2012). Deschamps et al. (2003) found that excessive work load was related to symptoms of job stress in police officers. A study by Davey et al. (2001) found that working long hours and working overtime were also highly predictive of job stress. In fact, they found that, more number of hours the officers worked, the higher were the level of job stress. The above findings can be supported by recent empirical quantitative research conducted in India which stated that long working hours and work overload were root causes of stress among police personnel (Naik, 2012; Tyagi & Dhar, 2014). Water & Ussery (2007) explained police stress as a result of inherent occupational reasons which requires police personnel to be highly vigilant even when off duty, eventually taking a toll on their level of resilience. Another reason contributing to these stressors may be shortage of manpower in the police station. This holds true for a Delhi Police, as evidence reports that there is a discrepancy in police-population ratio. As per 2013, Police-population ratio was 391.33 per one lakh persons as against the sanctioned strength

of 420.49 (National Crime Record Bureau). This may indicate shortage of manpower in the police station which may have led to work overload and long hours of working eventually contributing to work stress.

This study explored that job insecurity was a stressor for police. The feeling that they may be removed from the system is a constant worrisome issue. Job insecurity in general has been cited as a stressor by several researchers (Cox et al., 2000). As few participants during the interview revealed that fear of loss of job was a result of lack of trust and faith in the system, and organisational politics thus, feelings of job insecurity may have resulted due to unfair practices at work. However, this finding is not consistent with previous literature related police stress in India. Job insecurity as a stressor in police has been rarely observed. This unique finding may be attributed to the in-depth interviews that the authors of the present study carried out which allowed participants to express their concerns overtly.

Studies on police stress have also demonstrated that organizational factors such as participation in decision-making can reduce stress (Morash & Haarr 1995; Morash et al. 2006) justifying the current findings of the study which indicates that lack of involvement in the process of decision making is a contributor to stress among the interviewees. Lack of participation as a stressor may be explained by the bureaucratic structure that the Police organisation follows. Studies have shown that a rigid communication system characterised by a bureaucratic structure has significantly affected police personnel's level of stress (He et al. 2002; Violanti & Aron, 1993). In fact, a bureaucratic structure has been found to be responsible for several workplace factors such as work overload, red tapism, man power shortage, and poor supervision/leadership ensuing stress among police officers (Buker & Weiko, 2007).

In the present study, lack of fairness and prevalence of bias at the workplace has been found as a stressor. There is a small but growing body of research which suggests perceptions of fairness make a unique contribution to perceived job stress among police community (Morash et al., 2006; Abdollahi, 2002). A study by Noblet, Rodwell & Allisey (2009) on Australian police force also revealed

that perceived lack of fairness significantly explained job stress which supports the current finding, that fairness at work may predict the levels of stress among police personnel. In line with the above finding, Siegrist (2002) too professed that perceived imbalance of effort and rewards will lead to higher risk of impaired health and well being linking unfair practices and experience of stress.

There is plethora of literature on poor pay and allowances, lack of housing facilities and lack of adequate resources for investigation contributing to police work stress (Ayres & Flanagan, 1994; Joseph & Nagarajamurthy, 2014; Srinivasan & Ilango, 2013; Suresh et al., 2013). However, it has been observed by authors that compensation and allowances as sources of stress have widely echoed in Indian police stress studies than in International literature on police stress. This finding may be analysed as a representation of poor organisational support which has been found to be a source of stress in previous literature (Davey et al., 2001). Organisational support has been often defined as a global belief that the organisation recognises and values employee contribution as reflected in tangible resources such as pay, rewards or other forms of compensation and benefits (Eisenberger et al., 1986). This may explain the present finding that stress may be a consequence of lack of organisational support. Similarly, inadequate and poor equipments, characterised as lack of resources has been a likely source of stress and negative health & organisational outcomes (Cox et al., 2000).

The sole reason for existence of Police force is society. However, this study found that relations with society which includes public and media are a key source of stress for police. Lack of support from community, poor relations and criticisms from public and media further decimates the police-community relations. The respect that a policeman deserves for protecting the citizens remains discontented, which lowers police morale and eventually leaves them stressed. Figley (1999) stated that lack of appreciation by public and media causes police personnel to become cynical towards the community. The above findings are consistent with previous literature (Garcia et al., 2004; Mathur, 1995; Suresh et al., 2013).

This study greatly contributes to the literature on sources of police stress. When viewed from managerial lens, this study gives insight into the policies, its renewal and implementation. The findings of this study are suggestive of introducing reforms as a primary intervention to deal with stressed officials.

### Conclusion

The outcomes of stress can be deleterious as chronic stress may lead to development of burnout and lower the engagement levels of police personnel. This may further cause work impairment which may be a heavy toll on the police organisation and the State and Central government. This study has usefully generated knowledge on sources of stress (among Inspectors and Sub-Inspectors) prevalent in Delhi Police. These stressors namely work overload, long working hours, job insecurity, lack of participation in decision making, unfair practices, poor compensation, improper tools and techniques for investigation, poor public image of police and criticizing role of media warrants immediate attention and consideration to improve the well being of the police, police organisation and the society at large.

### Future Implications

The present qualitative study paves way for and warrants an empirical research. The stressors that are discussed in this paper can be quantitatively tested in a model to determine the stressors. An extensive study based on the present results can be fruitful to the police organisations as the findings will aid in developing interventions for mitigating distress among Inspectors and Sub-Inspectors at the Police station. The results of the study will guide the practitioners and academicians to further empirically test the stressors and further devise a plan of action to combat stress.

### References

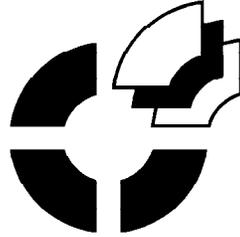
- Aaron, J. (2000). Stress & coping in police officers. *Police Quarterly*, 3, 428-450.
- Abdollahi, K.M. (2002). Understanding police stress research. *Journal of Forensic Psychology Practice*, 2, 1-24.
- Agolla, J.E. (2009). Occupational stress among police officers: The case of Botswana police service. *Research Journal of Business Management*, 2(1), 25-35.

- Anshel, M. H. (2000). A conceptual model and implications for coping with stressful events in police work. *Criminal Justice and Behavior*, 27, 375-400.
- Ayres, R. M., & Flanagan, G. S. (1992). *Preventing law enforcement stress: The organization's role*. Washington, DC: U.S. Department of Justice Bureau of Justice Assistance.
- Bano, R. (2011). *Job Stress among Police Personnel*. Paper presented at International Conference on Economics and Finance Research, Singapore. Retrieved from <http://www.ipedr.com/vol4/56-F10027.pdf>.
- Berg, A.M., Hem, E., Lau, B.H. & Ekeberg, O. (2005). Stress in the Norwegian police service. *Occupational Medicine*, 55, 113-20.
- Bhaskar, S. (1986). *Investigation into relation between job stress and personality factors among police*. (Unpublished doctoral dissertation). University of Delhi, Delhi.
- Bhaskar, S. (1990). *Measuring job stress of the Indian police: An empirical approach*. *Abhigyan*, 30-44.
- Biggam, F. H., Power, K. G. & MacDonald, R. R. (1997). Self-perceived occupational stress and distress in a Scottish police force. *Work and Stress*, 11, 118-133.
- Blaug, R., Kenyon, A. & Lekhi, R. (2007). Stress at Work: A report prepared for the Work Foundations Principal Partners. Retrieved from [http://www.theworkfoundation.com/assets/docs/publications/69\\_stress\\_at\\_work.pdf](http://www.theworkfoundation.com/assets/docs/publications/69_stress_at_work.pdf)
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Brough, P. (2004). Comparing the influence of traumatic and organisational stressors upon the psychological health of police, fire and ambulance officers. *International Journal of Stress Management*, 11, 227-244.
- Brown, J., Cooper, C. L., & Kirkcaldy, B. (1996). Occupational stress among senior police officers. *British Journal of Psychology*, 87, 31-45.
- Brown, J.M. & Campbell, E.A. (1994). *Stress and policing: Sources and strategies*. Chichester, John Wiley & Sons.
- Bryman, A. (2004). *Social research methods (2nd edition)*. Oxford: Oxford University Press
- Buker, H. & Wiecko, F. (2007). Are causes of police stress global? : Testing the effects of common police stressors on the Turkish National Police. *Policing: An International Journal of Police Strategies & Management*, 30(2), 291-309.
- Burke, R. J. (1993). Work-family stress, conflict, coping, and burnout in police officers. *Stress Medicine*, 9(3), 171-180.
- Burke, R. J. & Mikkelsen, A. (2005). Burnout, job stress and attitudes towards the use of force by Norwegian police officers. *Policing: An International Journal of Police Strategies & Management*, 28(2), 269 - 278.
- Burke, R.J. & Mikkelsen, A. (2007). Suicide Ideation among police officers in Norway. *Policing: An International Journal of Police Strategies & Management*, 30(2), 228-236.
- Channabasavanna, S.M., Geetha, P.R., & Subbakrishna, D.K. (1998). Subjective wellbeing among Police personnel. *Indian Journal of Psychiatry*, 40(2), 172-9.
- Cox, T., Griffiths, A. & Rial-Gonzalez, E. (2000). Research on work-related stress, office for official publications of the European communities: Luxembourg, Office for Official Publications of the European Communities. Retrieved from <http://agency.osha.eu.int/publications/reports/stress>
- Davey, J.D., Patricia, L.O., & Sheehan, M.C. (2001). Demographic and workplace characteristics which add to the prediction of stress and job satisfaction within the police workplace. *Journal of Police and Criminal Psychology*, 16(1).
- Deschamps, F. P., Paganon-Badinier, I., Marchand, A. C., & Merle, C. (2003). Sources and assessment of occupational stress in the police. *Journal of Occupational Health*, 45, 358-364.
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology*, 71, 500-507.
- Ellison, K. W., & Genz, J. (1983). *Stress and the police officer*. Springfield, IL: Charles C Thomas.
- Figley, C. R. (1997). *Burnout in families: The systemic costs of caring*. Boca Raton: CRC Press.
- Garcia, L., Nesbary, D. K., & Gu, J. (2004). Perceptual variations of stressors among police officers during an era of decreasing crime. *Journal of Contemporary Criminal Justice*, 20(1), 33-50.
- Graf, F.A. (1986). The relationship between social support and occupational stress among police officers. *Journals of Police Science and Administration*, 14, 178-186.
- Hart, P.M., Wearing, A.J. & Headey, B. (1995). Police stress and wellbeing: Integrating personality, coping and daily work experiences. *Journal of Occupational and Organizational Psychology*, 68, 133-56.
- He, N., Zhao, J., & Archbold, C. A. (2002). Gender and police stress: The convergent and divergent impact of work environment, work-family conflict, and stress coping mechanisms of female and male police officers. *Policing: An International Journal of Police Strategies and Management*, 25, 687 - 708.
- Joseph, J.K. & Nagarajamurthy, B. (2014). Stress Management in Police work. *IOSR Journal of Humanities and Social Science*, 19(10), 36-38.
- Kirkcaldy, B., Cooper, C. L., & Ruffalo, P. (1995). Work stress and health in a sample of U.S. police. *Psychological Reports*, 76, 700-702.

- Kop, N., Euwema, M., & Schaufeli, W. (1999). Burnout, job stress, and violent behaviour among Dutch police officers. *Work and Stress*, 13, 326-340.
- Mathur, P. (1995). Perception of police stress: An empirical study of stressors and coping responses among police personnel in India. *Indian Journal of Criminology*, 23, 9-19.
- Morash, M. & Haarr, R.N. (1995). Gender, workplace problems, and stress in policing. *Justice Quarterly*, 12(1), 113-140.
- Morash, M., Haarr, R. N. & Kwak, D. (2006). Multilevel influences on police stress. *Journal of Contemporary Criminal Justice*, 22, 26-43.
- National Crime Records Bureau (2012). Retrieved from <http://ncrb.nic.in/CD-CII2012/Statistics2012.pdf>
- Naik, K.D. (2012). An analytical study of job stress of the police personnel at Waghodiya police station in Vadodara city. *Paper presented at the Ninth AIMS International Conference on Management, India*. Retrieved from <http://www.icmis.net/aims-international/aims9/aims9cd/pdf/P9435-Final.pdf>
- Niederhoffer, A. (1967). *Behind the shield: The police in urban society*. New York: Anchor Books.
- Noblet, A.J., Rodwell, J.J. & Allisey, A.F. (2009). Police stress: The role of the psychological contract and perceptions of fairness. *Policing: An International Journal of Police Strategies & Management*, 32(4), 613 - 630.
- Norvell, N., Belles, D., & Hills, H. (1998). Perceived stress levels and physical symptoms in supervisory law enforcement personnel. *Journal of Police Science and Administration*, 16, 75-79.
- Selokar, D., Nimbarte, S., Ahana, S., Gaidhane, A. & Wagh, V. (2011). Occupational stress among police personnel of Wardha City, India. *Australian Medical Journal*, 4(3), 114-7. Doi: <http://dx.doi.org/10.4066/AMJ.2011.562>
- Siegrist, J. (2002). *Effort-reward imbalance at work and health*. In P. L. Perrewé & D. C. Ganster (Eds.) *Research in occupational stress and well being*, vol. 2 (pp. 261-291). Amsterdam: JAI.
- Slate, R.N., Johnson, W.W. & Colbert, S.S. (2007). Police stress: A structural model. *Journal of Police and Criminal Psychology*, 22, 102-112.
- Somodevilla, S.A. (1978). The psychologist's role in the Police department. *The Police Chief*, 45, 21-23.
- Srinivasan, S. & Ilango, P. (2013). Stress problems faced by police constables in North Chennai. *Global Research Analysis*, 2(4). Retrieved from [https://www.academia.edu/3313879/Stress\\_Problems\\_of\\_Police\\_Constables](https://www.academia.edu/3313879/Stress_Problems_of_Police_Constables)
- Suresh, R. S., Anantharaman, R.N., Angusamy, A. & Ganesan, J. (2013). Sources of job stress in police work in a developing Country. *International Journal of Business and Management*, 8(13), 102-110.
- Symonds, M. (1970). Emotional hazards of police work. *American Journal of Psychoanalysis*, 30(2), 155-160.
- Tyagi, A. & Dhar, R.L. (2014). Factors affecting health of the police officials: Mediating role of job stress. *Policing: An International Journal of Police Strategies & Management*, 37(3), 649-664.
- Vadackumchery, J. (1998). *Indian Police: 2001- What went wrong here?* A.P.H. Publishing Corporation, Delhi.
- Violanti, J. M., & Aron, F. (1993). Sources of police stressors, job attitudes, and psychological distress. *Psychological Reports*, 72, 899-904.
- Violanti, J.M. & Aron, F. (1994). Ranking police stressors. *Psychological Reports*, 75, 824-830.
- Waters, J. A., & Ussery, W. (2007). Police stress: History, contributing factors, symptoms, and interventions. *Policing*, 30(2), 169-188. Doi:10.1108/13639510710753199
- Webster, J. (2012). *A meta-analytic review of the correlates of perceived stress among police officers*. (Unpublished doctoral dissertation). University of Cincinnati. Retrieved from ProQuest Dissertations & Theses
- Wright, K. N., & Saylor, W. G. (1991). Male and female employees' perceptions of prison work: Is there a difference? *Justice Quarterly*, 8, 508-524.

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