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SAMSMRITI –The SAMS Journal is a peer reviewed bi-annual journal published in January and July every year by Sambhram Academy of Management Studies, Bangalore.

The aim of the journal is to provide a platform for researchers, academicians and practitioners from diverse domains of management to share research achievements and practical experiences to stimulate scholarly debate in the development of management science and decision making.

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## EDITORIAL

‘Environmental degradation, increase in income inequality, outright corruption in the service of getting deals done’ are on increasing scale. Hence there is need for the moral sensibility in the business environment. The trendy business game with the price war of the day in the global free market environment unmindful of the inequality and exhaustion of the resources cost the economies of the world.

The concept of business is old. The journey of man from ages is to live happily, peacefully and in all safety and security in every business of life. The most predominant one is the nature's provision for man's existence and sustenance. The cycle and automaticity of nature to keep a balance always have enabled the life to survive on this planet. But many species and lives have become extinct from the earth as a result of creation of chaos in the cosmos. The knowledge driven techno savvy economies of the world today are heading towards a competitive free market economy. Most often ignoring the basic concept of sustainable sensitized business.

From Adam Smith to Amartya Sen the theoretical devices with the empirical approaches have made radical changes – no doubt, but many of them remained trendy. The complexity of man and nature often are not taken into consideration and many regions of the world remained non responsive to these major changes. Disparities continue to exist, mal administration and corruption at a rampant rate prevail.

To become a corporate citizen is the maxim and goal of many. But where they are heading towards without co-ordination with the nature and society. From Feudalism to Modern free market economy the world has experienced several changes in social theories and orders. When the Soviet communist economy is transformed into glasnost and perestroika of Mr. Gorbachev, people never expected the most powerful European economy may transform to such an extent. Further the changes are trendy. Whether such system sustain and ensure a fair distribution where the world can bring in just and peace in a global environment. Again the unbridled free market global allure can ensure to stop the exhaustion of natural resource and environment. If development is destruction and exhaustion then issues before the world to overcome the negatives of developments are difficult tasks.

Is there any survey of what we possess, what we want, what we have to demand? In this technologically and scientifically advanced age, human wants, desires are brewed beyond the limits. It may be through advertisement, media or websites. The advertisement syndrome and the urge to drive and exhaust the resources and balance the nature at a faster rate making natural imbalances and chaos.

In the human history many civilizations of the world had become extinct fully. The world today is promoting the idea of ‘handy’ - a convenient and controllable possession or a thing. This passion for being handy denounces the responsibility. Several sacred institutions in the societies are fast breaking down by fostering this passion for example the family in the society.

Always there are contradictions between individualistic and socialistic societies. Individualistic thoughts are often projected as specified which means self portrait or self image of the person

which is not immoral. But if it moves towards the passion for self love, then that attitude is condemnable.

The educated elite therefore must arise to sharply focus in the administration not only on the business of the state, but the administration of the governance of the govt., judiciary, executive and other systems of the society which are closely linked with any business of the state and economy. This governance will have to be viewed both at micro and macro levels as to how the balance is ensured to achieve an equalitarian set up in the state through ideal business, excellent administration, just governance, unbiased judiciary, unless any business is governed by all these with ethics it will be short-lived and the ultimate result will be disaster and extinction of culture and civilization. Hence identify pseudo business of any kind and people involving with such things to bring them to books. This is very much required for any further sustenance of any society.

**Dr K.C. John**

**Editor-in-Chief**

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## **SPECIAL ISSUE**

**On**

### **CORPORATE GOVERNANCE AND BUSINESS POLICY**

*Corporate governance involves commitment of a company to run its businesses in a legal, ethical and transparent manner - a dedication that must come from the very top and permeate throughout the organization. That being so, much of what constitutes good corporate governance has to be voluntary. Law and regulations can, at best, define the basic framework - boundary conditions that cannot be crossed. CII has always held the view that while law may need to be strengthened when occasions so demand, there are fundamental limits to using legislative and regulatory instruments to enforce better corporate governance.*

*Business policy deals with decisions regarding the future of an ongoing enterprise. Such policy decisions are taken at the top level after carefully evaluating the organizational strengths and weaknesses in terms of product price, quality, leadership position, resources etc., in relation to its environment. Once established the policy decisions shape the future of a company to channelize the available resources along desired lines and direct the energies of people working at various levels towards predetermined goals. In a way, business policy implies the choice of purposes, the shaping of organizational identity and character the continuous definition of what is to be achieved and the deployment of resources for achieving corporate goals.*

*The above is the pretext based on which we decide to dedicate the Decadal Special Issue of our Journal SAMSMRITI on the topic "CORPORATE GOVERNANCE AND BUSINESS POLICY"; the issue being Volume 10, Issue -1, January - June 2016. Articles are invited (both empirical and conceptual) from academicians, practitioners, researchers, policy makers and corporate professionals on this topic to reach us @ [editorsamsmruti@yahoo.com](mailto:editorsamsmruti@yahoo.com) before September 31, 2105.*

# Occupational Fraud Profiles and Victim Characteristics Analysis: A Malaysian Study

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Normah Omar<sup>2</sup>

## Abstract

*This study employs a content analysis approach in the analysis of six Malaysian mainstream online newspapers that reported occupational frauds over a five-year period. Information reviewed measures the extent of fraud cases being reported, which includes among others (1) the profile of fraudsters; i.e. gender, race, age and position in the organization; (2) organizational victim characteristics; i.e. size, type of business entity and industry) and (3) details of fraud cases; i.e. types of fraud committed, amount of losses reported, hearing court, whether the case is under investigation or legal proceedings and court's judgment result for three types of occupational fraud: asset misappropriation, corruption, and fraudulent financial statements. Findings from this study suggest that much of the profiles of fraudsters are consistent with the purpose of explaining their behavior and assisting in the investigation of crime. The analysis revealed that among a common fraud behavior discovered was that suspects in high profile corruption and asset misappropriation fraud cases comprised older age males who hold high managerial position at their workplace. Results from the present study also indicate that private sector organizations from among private limited companies, and those especially involved in oil and gas industry are the most exposed to high median loss. The implications of the findings for fraud reported and profiled are further discussed.*

**Key Words:** Occupational Fraud, Financial Fraud, Fraud Profiles

## Introduction

In the past, the majority of enforcement agencies in Malaysia were more focused on 'street crimes' than so-called 'suit crimes', mainly because the former are more visible and immediately threatening. However, by only focusing resources on what is seen by many as 'real' crime, hidden areas of criminality the terrain of fraudsters, embezzlers and corrupt characters of all kinds are being allowed to flourish. It is argued here that white-collar crime threatens the relationship of trust between citizens and government, professionals and clients, businesses and customers and employers and employees needed to sustain a healthy community, and are placing Malaysia's public and private institutions under serious and mounting pressure.

Fraud is a specific crime. It does not usually involve violence to another person, but does harm a system or corporate entity, which in turn can harm people. Fraud can be defined as dishonest actions to steal or misrepresent or gain advantage at the expense of others or due process. The effects of fraud are widespread: companies can suffer financially, damaged reputation, loss of investor confidence, loss of customer trust and possible legal costs. The trilogy of crime analysis indicates that there is motivation, a victim or suitable target and opportunity.

It is understood that the key to effective fraud detection and prevention is first understanding the early signs of fraud and second, establishing effective compliance programs. Thus, profiling is the starting

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point for identifying the fraud management initiative based on sound initial profiling of the key fraud risks facing the business.

In seeking to identify fraudulent behaviour within an organization much attention has been focused on fraud indicators which are loosely termed: 'red flags', 'fraud alerts' and 'personal indicators'. Red flags are behavioural clues that may be picked up by managers, colleagues, internal auditors, subordinates that suggest an employee or colleague may be engaging in some form of fraudulent or improper conduct.

There are two further categories that need to be considered in respect to fraudulent behaviour. The first category is fraud methods. People often ask which industries are likely to be the most vulnerable to fraud. Experience suggests that any industry type is vulnerable to fraud but that certain types of fraud are more common in particular industries such as construction (where secret commissions and corruption of the tendering process may appear) and insurance (where claims are manipulated).

Another important consideration in the identification of fraud is what can be described as fraud consequences or results. Fraud impact or consequence can be described as the operational and/ or financial impact of the fraudulent behaviour. This study is convinced that these five components of fraud profile namely perpetrators' backgrounds, victim organization characteristic, fraud modus operandi, law and enforcement agencies involved and judicial treatment can be used to provide a focused, cost effective response to fraud prevention and detection.

Despite the increasing number of financial fraud cases in this country, there is minimal research effort that focuses on developing fraud profiles of fraudsters. Fraud profiles if done correctly can provide good indicators of why and how financial frauds are being perpetrated. Given the complexity of white-collar crime and the issues surrounding it, comparative multidisciplinary policy research, rather than narrow legalistic or auditing perspectives which until recently have dominated theorizing about 'white-collar crime', is both necessary and desirable. Research of this nature gauges the nature and extent of the problem, suggesting practical ways in which various stakeholders, including the public, can tackle these crimes.

### **Understanding Occupational Fraud**

The Report on Occupational Fraud and Abuse in year 2008 defines occupational fraud and abuse as: 'The use of one's occupation for personal enrichment through the deliberate misuse or application of the employing organization's resources or assets'. This encompasses a wide variety of conduct by managers, employees, executives and principals of organizations, ranging from simple pilferage to sophisticated investment swindles. Common violations include asset misappropriation, corruption, false statements, petty theft and pilferage, false overtime, use of company property for personal benefit, and payroll and sick-time abuses.

Occupational fraud contains three mutually exclusive categories: asset misappropriation, corruption, and fraudulent statements. However each separate category of occupational fraud is unique, but has four elements in common: it is clandestine, violates the perpetrator's fiduciary duties to the organization, is committed for the purpose of direct or indirect financial benefit to the perpetrator, and costs the employing organization assets, revenues, or reserves. In conceptualizing occupational fraud as a violation of trust, this definition permitted a comparison of individual and organizational characteristics for each offense type (Shapiro, 1990).

### **The fraud profile**

Turvey (1999), in his book "Criminal Profiling: An Introduction to Behavioral Evidence Analysis" stated that not everyone doing criminal profile work is doing it correctly. "Many dangerously unqualified, unscrupulous individuals are in the practice of creating criminal profiles". Turvey, thus stressed that providing the solid foundation on which a standard of workmanship, ethics, definitions, practices, methodology, training, education, and peer review can be uniformly established so that criminal profiling can become a profession rather than a haphazard job for ill-prepared probers.

However, Turvey dismisses the popular myth that profilers are born with an intuitive gift. Instead, Turvey advocates that criminal profiling is a discipline that will necessitate the careful evaluation of physical evidence, collected and properly analyzed by a team of specialists from different areas, for the purpose of systematically reconstructing the crime scene, developing a strategy to assist in the capture of the offender, and thereafter aiding in the trial. Therefore, a criminal profiler is only one component, although an integral one, in the criminal investigation process.

### **Individual characteristics**

The white-collar crime literature contained assumptions about the image of the “typical” offender, which conformed to Sutherland (1949) original description. This perpetrator was often portrayed as a highly educated male in the upper ranks of his organization, who commits a one-time criminal act. The work of Weisburd (1991) demonstrated that white-collar offenders might be better characterized as “middle-class”. As no prior research empirically examined differences in offender characteristics for occupational fraud, this study determined whether the “high status” image of the white-collar offender was reflected in the individual characteristics of employees who committed asset misappropriation, corruption, and fraudulent statements.

#### ***Age***

The age-crime distribution is positively skewed, with rates of offending that peaked between the “crime prone” ages of eighteen to twenty-five, and then decline over time—an aging out effect (Hirschi and Gottfredson (1983)). While the age distribution appears to hold for aggregated crime rates, it varies when white-collar and street offenses are compared separately, suggesting that differences in age may also be revealed when distinct types of fraud are compared (Benson & Moore, 1992). The age distribution of white-collar crime differs from more traditional crimes, mainly because many conceptual definitions specify that legitimate employment is a condition for the crime to occur. Legitimate employment opportunities are often restricted by age requirements, so white-collar offenders are likely to be, on average, older than common offenders. Based on their sample of convicted offenders, Wheeler, Weisburd, Waring, and Bode (1988) found that the “typical white-collar offender” was a White male, aged forty on average. Alternatively, the image of the common, street offender was a Black male, aged thirty.

#### ***Gender***

Many studies of gender and crime relied on official statistics (e.g., Uniform Crime Reports) for a comparison of male and female involvement in various offenses. For offenses commonly labelled white-collar or economic crime (i.e. embezzlement, forgery, and fraud), arrests of males outnumbered those of females. A closer examination of arrest trends suggested that for some economic offenses, the gender gap narrowed in recent decades (Heimer, 2000; Steffensmeier, 1993). The increases in female arrests might be related to policy changes resulting in greater likelihood of enforcement, and did not necessarily reflect a corresponding increase in women’s actual white-collar offending.

One exception was Daly (1989) reanalysis of Wheeler, Weisburd, and Bode (1982) data from a pre-sentence investigation (PSI) reports for male and female offenders convicted of eight federal, “white-collar” offenses. Daly (1989) analysis showed that the sample as a whole did not fit the stereotypical conceptualization of a high status white-collar offender. Daly (1989) found that women were more likely to have lower status occupations (e.g., clerical), while men were more likely to be employed as managers or administrators. Compared to their male counterparts, the women in the sample also had lower levels of education and income. Daly’s results implied that gender contributed to opportunities for certain types of occupational fraud, but not others.

#### ***Education***

Many previous studies examined how the educational levels of offenders related to distinct types of crime. The research showed that the lower an individual’s level of education, the more likely one was to participate in criminal activity (Loeber & Dishion, 1983; Thornberry, Lizotte, Krohn, & Farnworth, 1991). Initial employment opportunities might be limited by minimum educational requirements, and “low status” jobs might require limited education. Within an organization, an occupation such as

auditor traditionally included specialized training and education before obtaining a position, while a clerical worker's skill could largely be learned on the job (Albrecht & Zimbelman, 2003).

### ***Position***

The offender's position in the victim organization played a part in the type of fraud committed in white collar crimes. Cressey (1953) study of convicted embezzlers indicated that specific knowledge, often obtained within the context of one's fiduciary duties to the organization, was a necessary condition for offenses to take place. Within organizations, one's position in the hierarchy will likely limit the types of occupational fraud that might be committed. For example, those in managerial or executive positions might have access to greater opportunities, and might be viewed as "trusted", while those lower on the organizational totem pole might only have the opportunity to commit less serious forms of fraud (Friedrichs, 2004). In summary, an individual's position in an organization can influence his or her opportunities, resulting in distinct types of offenses committed by employees at different organizational levels (Piquero & Piquero, 2001; Vaughan, 2001).

### ***Organizational characteristics***

Much of this literature contained assumptions about organizations: namely, those large, profit-making companies were associated with white-collar crime (Tonry & Reiss, 1993). Using a number of characteristics, the present study considered the extent to which the popularly perceived image of the organization as a setting for white-collar crime was supported in this sample.

### ***Type of organizations***

Most prior studies were limited to a single organization, or single types of organizations, resulting in little knowledge about how variation in the organizational setting might contribute to the varieties of fraud committed (Vaughan, 2001). Broader research on public perception of crime provided some guidance as to how fraud against different types of organizations might be perceived.

An earlier survey conducted by Erwin O Smigel (1956) asked citizen participants to rate hypothetical situations in which victim organizations differed in type and size. Results showed that there was a positive relationship between the size and level of bureaucracy of the organization and the willingness to approve of stealing from that organization.

The above literature suggested that crime in general might be more likely in certain types of organizations (e.g., bureaucracies), but failed to identify whether certain types of crime were more common in specific organizational settings that were not profit-oriented, such as charities or religious institutions (Fleckenstein & Bowes, 2000). Considering organizations that differed in function and purpose made it possible to determine whether types of fraud vary across unique settings.

### ***Size of organization***

Sutherland (1949) research on large corporations first called attention to organizational size as an important explanatory factor in white-collar crime research. The finding that larger organizations were associated with greater amounts of crime was consistently supported (Baucus, 1989; Kesner, Victor, & Lamont, 1989). Clinard, Yeager, and Clinard (1980) found that diversification in large companies was a determinant of offending. Hill, Kelley, Agle, Hitt, and Hoskisson (1992) found that factors such as decentralization, span of control, and incentive systems, which vary with organizational size, predicted crime, suggesting that the relationship between size and crime was not strictly linear.

### ***Internal controls***

Unlike street or common crime, which is traditionally handled by the police, organizations that are victimized by their employees may rely on alternative mechanisms of control and enforcement (Simpson, 2002; Trevino & Victor, 1992). Before fraud cases are referred to outside authorities, organizations can use various internal processes to deal with offending employees. Such processes may be in place as a means of screening potential workers at the pre-employment stage, or in preventing and detecting different types of fraud by current employees. Examples of internal controls include background checks, anonymous reporting systems, and audits.

Existing studies considered internal controls within the context of general deterrence theory, as well as rational choice to suggest that employees who contemplate committing fraud will first weigh perceived costs and benefits (Hollinger & Clark, 1983). Internal controls that are highly visible can serve as general deterrents. If it is known that an organization regularly conducts reliable, internal audits of all departments, and fires those employees who are caught committing fraud, deterrence theory would suggest that the potential offender will decide that the risks of fraud (i.e. detection by the audit and subsequently fired) outweigh the perceived benefits (e.g. financial gain for the offender). All of the cases included in the present study involved detected frauds, suggesting a failure of internal controls in preventing crime. It was important, however, to determine whether certain internal controls were associated with all types of fraud, or was only related to specific offenses.

## **Measures towards Combating Fraud**

### ***Law & punishment***

According to Ball and Friedman (1977), “statutes aimed at economic regulation (white-collar crime) often provide multiple, alternative sanctions. The sanctions may include cease and desist orders, injunctive divestiture proceedings, awards of damages, monetary fines or forfeitures, seizures of goods, revocations of business or occupational licences and prison sentences...”. They concluded that direct imprisonment is generally considered criminal sanctions whereas fine or money penalty, awards or damages and other forms of non-criminal sanctions are classified as “civil” or regulatory sanctions.

Those in favour of using imprisonment as a sanction argue that the impact of white-collar crimes is so severe that they warrant harsh punishments which should be at least on par with those imposed upon conventional street offenders. Furthermore, some white-collar offenders have based their personal success in life on respectability and conformity. Therefore, imprisonment is a more effective deterrent to white-collar offenders than conventional street offenders because the stigma of prison is more intensely felt by the middle and upper-class offenders (Braithwaite, 1989). Clinard et al. (1980) reported that imprisonment, even in sentences as short as six months, was punishment most feared by businessmen, according to their own testimony.

In Malaysia, the Parliament amended the provisions of punishments for certain white-collar offences on 17 September 1993. Offences of criminal breach of trust under sections 406 to 409 and cheating under section 420 of the Penal Code now carry a mandatory minimum term of imprisonment (one year) together with mandatory whipping, and the courts have the discretion to further impose a fine. This shift in legislative policy to make both imprisonment and whipping mandatory is attributable to the public outcry against the high spate of acquittals in white-collar crimes then and the lenient punishments meted out to offenders who were successfully prosecuted (Francis Ng Aik Guan, 2000). In the case of *PP v Tan Koon Swan* (1987 1 MLJ), the court stated that criminal breach of trust or abetment thereof committed in the heart of a financial centre would certainly attract deterrent terms as “public interest plainly requires that the accused receive a punishment which will not only fit his crime but which will act as a deterrent to other persons who may be similarly disposed” and the “commercial market place must be protected from and purged of the likes of the accused”.

### ***Enforcement***

The Royal Malaysia Police (RMP) as the main law enforcement agency in this country has specific offences to deal with. Apart from the police, other law enforcement agencies such as Bank Negara, Securities Commission, Anti-Corruption Agency, Inland Revenue Department, Customs and Excise Department, Environmental Department and others are also empowered to investigate certain offences according to specific provisions and respective jurisdictions.

Over the years, the RMP has successfully investigated, arrested and prosecuted most of the criminals. On proactive measures, the RMP has prevented further loss of billions of ringgit by mounting numerous operations against criminal syndicates of credit card fraud, land fraud, bank fraud, computer fraud, product piracy and money laundering.

Another problem seems to be that there are many bodies that oversee the regulation of white-collar crime. Recently, the Malaysian government through its agency namely Companies Commission of Malaysia (SSM) is more serious to combat white collar crime by forming special task. The said special task force has been established on 3rd March 2010 that would collaborate with other government agencies such as Bank Negara, the Securities Commission, Bursa Malaysia and Bukit Aman police to help fight against white collar crimes and build greater investor confidence, among locals and foreigners.

It is believed that the component of individual, organisational, fraud's modus operandi, law and enforcement characteristics described above provides a basis for evaluating the extent of occupational fraud profile literature. Furthermore, by combining the literature that contributes from previous research, it should facilitate an understanding of this empirical research and provide a structured means for the theoretical framework and hypothesis development. In the following chapter, this study will discuss on the sample data which will reflect the real cases of a commercial crime reported in Malaysia, particularly fraud cases which related to occupations.

## **Research Methodology**

### ***Selection of sample***

This study used data based on the occupational fraud cases reported in Malaysia's prime online newspapers covering the periods between January 2006 until March 2011. The sample consisted of 128 cases related to occupational fraud and abuse, which had occurred in Malaysia.

### ***Procedures***

Data collection began in January 2006 until March 2011. The data were randomly selected within criteria set and each article was set to provide detailed information about white collar crime story that met the following seven criteria:

- a. the case involved occupational fraud;
- b. the cases were committed and reported in Malaysia;
- c. all legal proceedings resulting from the case are available;
- d. the investigation of the fraud was completed;
- e. regardless the amount of losses (big or small), the amount was stated;
- f. the amount of losses in (5) above was stipulated in monetary value
- g. the regulatory agencies were reasonably sure the perpetrator had been identified and reported.

This study had collected 150 articles in 6 major online newspapers namely New Straits Times, The Star, Utusan Malaysia, Kosmo, BERNAMA and Daily Express. Of this number, only 128 articles provided detailed information on actual occupational fraud cases which also met all seven said criteria. The excluded cases also victimized organizations, but were committed by non-employees (e.g. vendors and customers) so they did not meet the study's definition of occupational fraud. This restriction was made to avoid the possibility that the articles being chosen based on researcher's own interest, well known or "celebrated" case, which would likely result in highly skewed distributions of the variables of interest. To ensure that the cases were not duplicated, the articles were sorted according to the date of cases reported. Of the cases reported are on the same day regardless of where it sources, thus the articles which give the latest and highest information will be selected. All the detailed information about the organizational victims and individual perpetrators in the case, and resulting legal proceedings were coded. Once coded, analyses were done using the SPSS statistical software in order to get possible and relevant results.

## **Description of variables**

### ***Type of fraud***

The type of occupational fraud was a dependent variable and coded as ordinal variable. Asset misappropriation, the first category, involved theft or misuse of an organization's assets (coded = 1).

Examples of asset misappropriation include theft of cash or theft of other inventory. Corruption, the second category, involved employees wrongfully using their influence in business transactions to obtain benefits for themselves that were contrary to the duties to their employer (coded = 2). Examples of corruption include bribery, conflicts of interests, and illegal gratuities. The third category, fraudulent statements, involved falsification of an organization's records or documents (coded = 3). Examples of fraudulent statements include financial (e.g. manipulating revenue) and nonfinancial (i.e. manipulating credentials or documents). The fourth category, Assets Misappropriation & Fraudulent Statement, involved two types of fraud simultaneously (coded = 4).

#### ***Amount of loss reported***

The amount of losses reported was another dependent variable and considered as a scale variable in SPSS. The data collected was based on the actual amount of losses reported in the newspaper. The amount was coded and entered into actual Malaysia Ringgit (RM) currency.

#### ***Perpetrator's personal characteristics***

Age was the perpetrator's age at the time of the offense, and was measured in years. Gender was nominal data due to mutually exclusive coded (1 = male; 2 = female). Race was a nominal variable reflecting the perpetrator's racial background: (1 = Malays; 2 = Chinese; 3 = Indian; 4 = Others). Position in the organization was coded as follows: (1 = Employees; 2 = Middle Management; 3 = Top Management; 4 = Owner).

#### ***Organizational characteristics***

Type of business entity indicated whether the organization was a publicly traded company coded as "1", privately held company coded as "2", Enterprise (Sole proprietor) coded as "3", non-profit agency coded as "4", government agency coded as "5", or Partnership coded as "6". As for the industry involved in each case, it was coded as "1" for government and public administration, "2" for banking and financial services, "3" for manufacturing, "4" for oil and gas, "5" for utilities or "6" for the Services. The said industry also have been categories into 3 major classes of business sector which were government coded as "1", private coded as "2" and non-profit organization coded as "3". All variables above were coded as nominal variables.

#### ***Fraud's modus operandi characteristics***

Researcher has identified 3 elements of data to be categorized under these characteristics namely fraud duration, number of suspects and collusion types. Fraud duration and number of suspects were entered in terms of actual week periods and number of persons involved respectively. However, collusion types were coded as "0" if no Collusion, "1" for collusion between employees & management, "2" collusion between employees & third parties or "3" collusion between management & third parties.

#### ***Law and enforcement characteristics***

Law was a nominal variable and coded (1 = Anti-Corruption Act 1997 (Revised 2009) (694 Act); 2 = Anti Money Laundering and Financing Terrorist Act 2001 (613 Act); 3 = Banking and Financial Institutions Act 1989 (519 Act); 4 = Securities Commission Act 1993 (498 Act); 5 = Companies Act 1965 (125 Act); 6 = Penal Code (574 Act)). As for an enforcement agency, it was coded (1 = Royal Malaysian Police; 2 = Malaysian Companies Commission; 3 = Malaysian Central Bank; 4 = Malaysian Anti Corruption Commission; 5 = Malaysian Securities Commission). Each case reported were being charged not just one charge, but a majority of it, many. So, researcher categorized it as ordinal variables and entered the data in actual number of charges. The duration of charges taken place was calculated based on the date of cases committed and the date of case mention in court (for cases that not yet settle in court for judgment) or judgment date.

#### ***Judicial characteristics***

Normally in the news reported, it did mention the case status and it has been coded (1 = being charged in court; 2 = judgment given but still awaiting appeal to superior court; 3 = final Judgment/ no appeal requested). All Charges have been handled by 5 levels of court which were coded (1 = Magistrate Court; 2 = Session Court; 3 = High Court; 4 = Appeal Court; 5 = Federal Court). During court's trial/



mention, normally the court will give opportunity for suspect to get a bailout and this variable was entered as the actual amount of money in terms of Malaysia Ringgit (RM). For cases that completed the trial and got their verdict, it was coded (1 = Free or released; 2 = Fine Only; 3 = Prison Only; 4 = Fine & Prison; 5 = Prison & Caned). The researcher is also studying the amount of each verdict namely, fine, prison and cane which were entered in actual amount of Malaysia Ringgit (RM), number of months and number of canes to be imposed respectively.

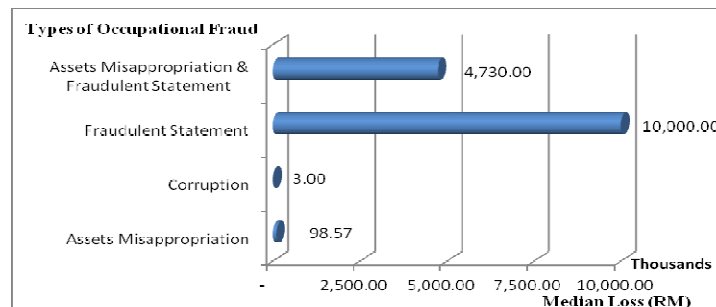
## Results and analysis

The main objectives of the study are to develop a fraud profiling model for occupational fraud. Meanwhile, the specific objectives are to examine each fraud profile characteristic namely, the perpetrator's personal character, the victim's organisation background, the types of law and enforcement involved, a kind of fraud's modus operandi and judicial system features affect the types of occupational fraud committed and the amount of loss reported.

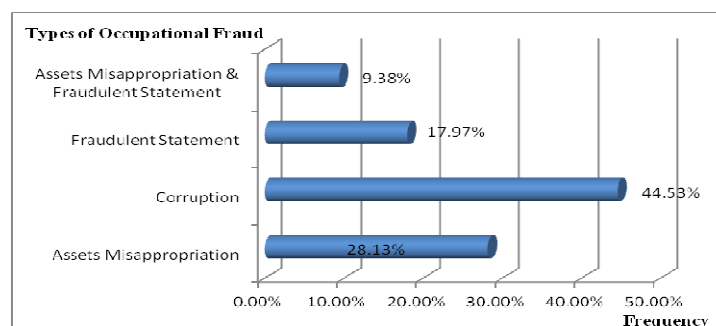
### *Fraud case profile*

The findings of occupational fraud case profile according to two characteristics, namely the types of occupational fraud committed and the amount of loss reported. Based on Figure 1 and 4.2, Breakdown of occupational fraud shows that corruptions (45%) make up reportedly the highest percentage of perpetrators, followed by the asset misappropriation (28%) and fraudulent statement (18%). However, the highest contributed median losses were coming from fraudulent statement and followed by a combination of asset misappropriation and fraudulent statement which amounting RM10 million and RM4.7 million respectively.

**Figure 1: Types of Occupational Fraud – Frequency**



**Figure 2: Types of Occupational Fraud – Median Loss (RM)**



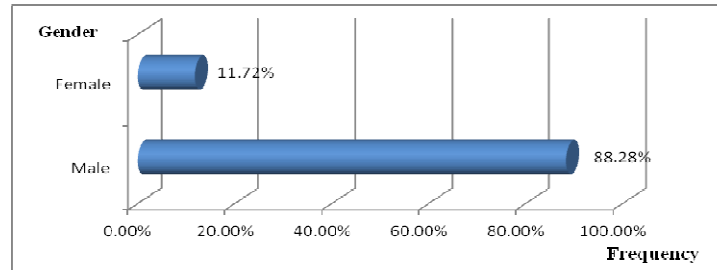
### *Perpetrators' profile*

The findings of fraud perpetrators' profile have been compiled according to five characteristics, namely gender, ethnicity, and position in the organization. These are the most common traits reported under occupational fraud case in newspaper in Malaysia. A similar finding by Ismail (2007), and Pritchard and Hughes (1997), found race, gender and age are three common details reported by journalists of newspapers in Malaysia and United States (US) respectively.

### ***Perpetrator's gender***

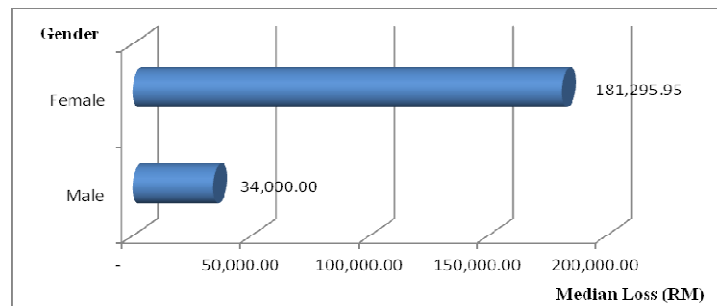
Consistent with prior findings of criminal studies made by Daly 1989, this suggested that males are more involved than females in commercial crime or fraud. It was reported in ACFE Global Report 2010, in the Asia-Pacific region it was noted that 84% of all frauds had been committed by males. However in this country, Figure 3 depicts that the male represented 88% of all frauds had been committed.

**Figure 3: Suspect's Gender - Frequency**



Based on Figure 4, there was a great disparity between men and women in terms of the number of frauds committed and the size of the frauds that shown an inverse association. Schemes committed by male fraudsters caused a median loss of RM34,000, whereas schemes committed by females resulted in a RM181,296 median losses. The gap in median losses between males and females was much smaller in Malaysia than what researchers found in Asia-Pacific region report, which are \$300,000 and \$215,000 for male and female respectively (ACFE, 2010).

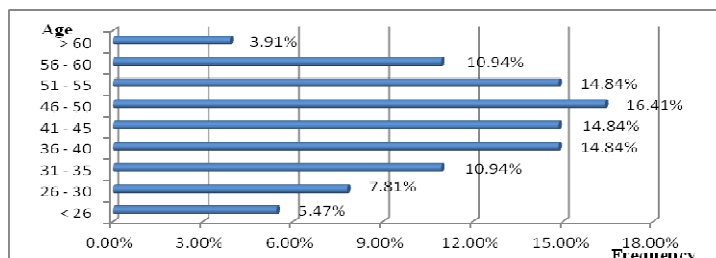
**Figure 4: Suspect's Gender - Median Loss (RM)**



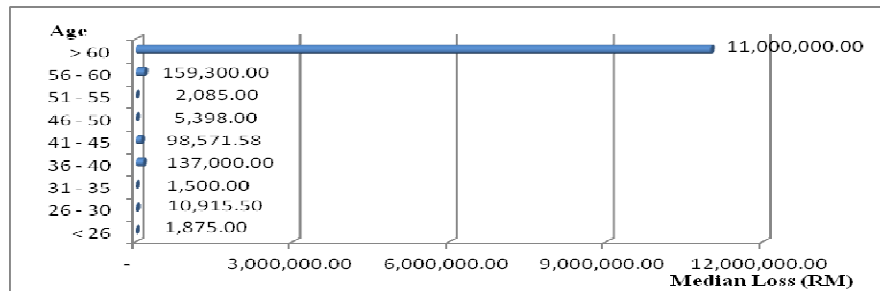
### ***Perpetrator's age***

The following Figure 5 and 6 show the distribution and median loss of frauds committed in Malaysia based on the age of the perpetrator. As a result, nearly 61% of fraud perpetrators were between the ages of 36 and 55. However, losses tended to rise with the age of the fraudster. The largest losses were caused by perpetrators aged 60 and above. Even though the cases contributed by them aged 60 and above were isolated but those few fraud cases causing huge losses among other age.

**Figure 5: Suspect's Age – Frequency**



**Figure 6: Suspect's Age – Median Loss (RM)**

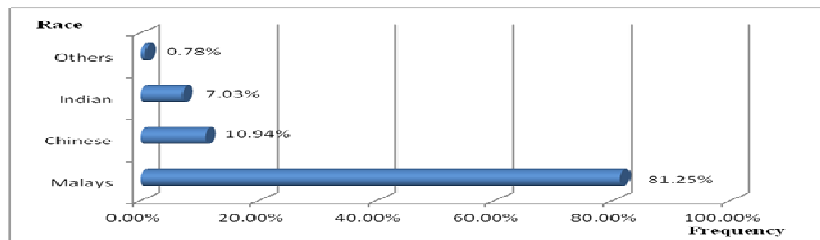


#### ***Perpetrator's ethnicity***

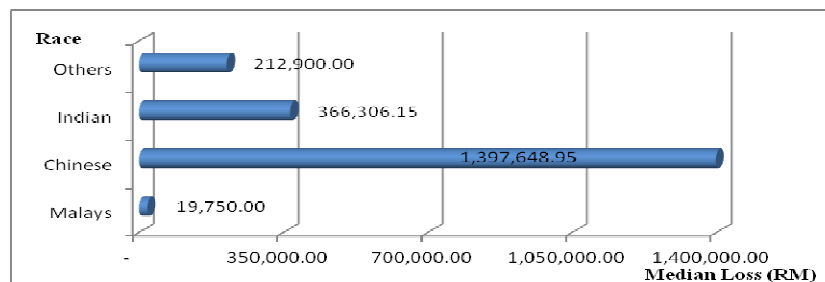
The breakdown of races is shown in Figure 7 that Malays make up reportedly the highest percentage of perpetrators, followed by Chinese and Indians. This is not surprising considering that the Malays make up roughly 60% of the population and without discounting the fact that New Straits Times, Utusan Malaysia, Kosmo and BERNAMA are controlled by Malays chief editors, who typically give more attention to Malay-related stories. Furthermore, the data samples were mostly related to government servant who is majority are Malays which involved a lot in corruption cases.

Surprisingly in Figure 8, though, Chinese perpetrators with about 11% had caused the largest median loss which was about RM1.4 million. This was contrary to frequency findings in which Malays were associated with the lowest median losses of nearly to RM20,000. This even happened due to Chinese people are more hold a professional and high position compared to other races. They are also considered a group of ethnic that often associated with the business sector in this country.

**Figure 7: Suspect's Race - Frequency**



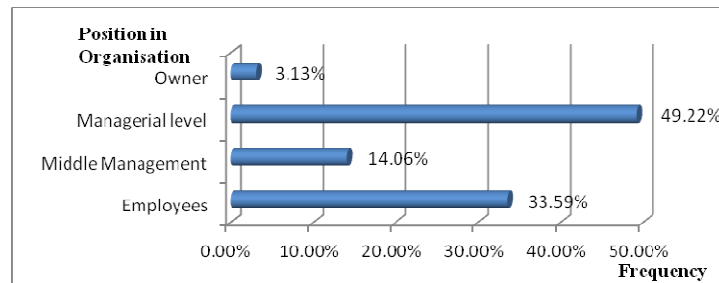
**Figure 8: Suspect's Race – Median Loss (RM)**



#### ***Perpetrator's position***

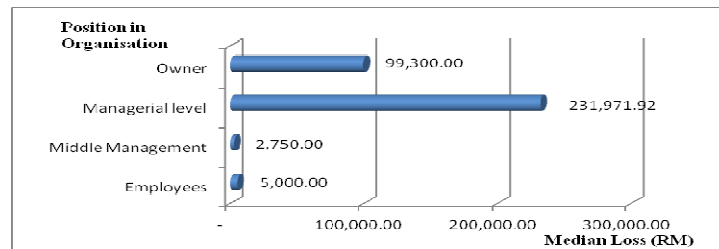
The chart in Figure 9 below shows the distribution of fraud perpetrators based on their general position within the victim organization. Approximately 52% of all perpetrators were an owner and manager level, while 34% were employees, 14% were middle management. Most probably, the reason for top management doing fraud because they normally are senior staff which have advantages such as they are certainly a trusted person and able to beat the victim organisation internal security control easily.

**Figure 9: Suspect by Position - Frequency**



The losses caused by owners and managerial level were significantly higher than the losses caused by middle management and employees. Specifically, based on Figure 10, the managerial level accounted for 49% of the frauds with their median loss was nearly RM232,000 per scheme. This is two times higher than the losses caused by owners and forty six times higher than the losses associated with middle management and employee frauds. Those high losses made by top management was expectedly because they usually have a huge authority to make a decision and less other party like internal auditors were monitoring them.

**Figure 10: Suspect by Position – Median Loss (RM)**



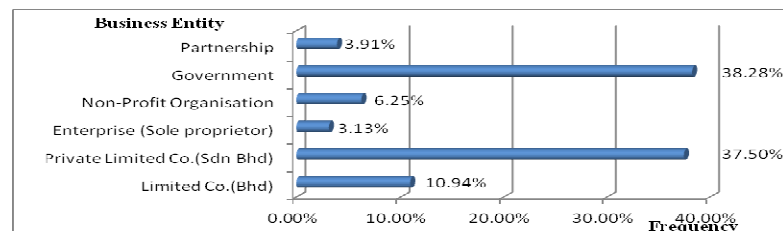
### ***Fraud organisational profile***

In general terms, some basic characteristics are often present for companies which are exposed to a high probability of fraud. These characteristics are often present in companies where the risks are high such as in organisations of high-risk companies (poor internal control) with high-risk employees (compulsive personalities) or high-risk management (loose ethics) (Bologna & Lindquist, 1995). These findings of fraud organizations' profile were based on three characteristics, namely types of business entity, industry and sector. These are the most common traits reported under occupational fraud case in newspaper in Malaysia. Hope with these findings, it would help to understand how occupational fraud impacts different kinds of organizations and indicate some measure of the effectiveness of various anti-fraud controls.

### ***Type of business entities***

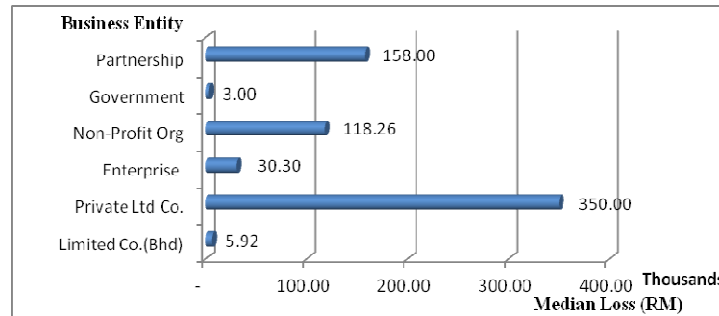
According to Figure 11 and 12, approximately 82% of victim organizations were either privately held or publicly traded entities. The highest losses, however, were experienced by private limited companies and partnership, which suffered a median loss of RM350,000 and RM158,000 per fraud scheme respectively.

**Figure 11: Business Entity Types - Frequency**



Example case in relation with private limited companies that suffer a huge loss was a married couple facing 189 money laundering charges and three other charges under the Banking and Financial Institutions Act 1989 for illegal deposit-taking totalling RM222million from the public. They were also alleged to have managed a company which had illegally received the monies from the depositors (The Star, 2008). Unfortunately, as at 31 March 2011, there was no report of any trial progress or judgement by any online local newspaper for researcher to conclude the case.

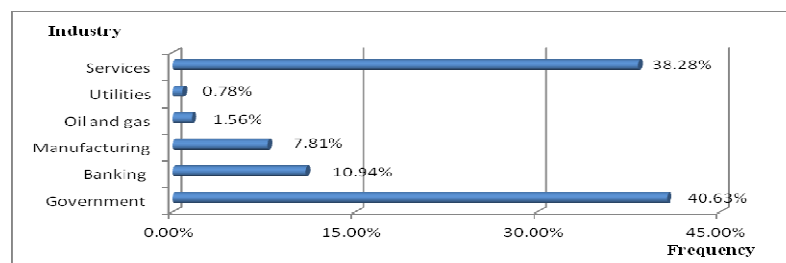
**Figure 12: Business Entity Types – Median Loss (RM)**



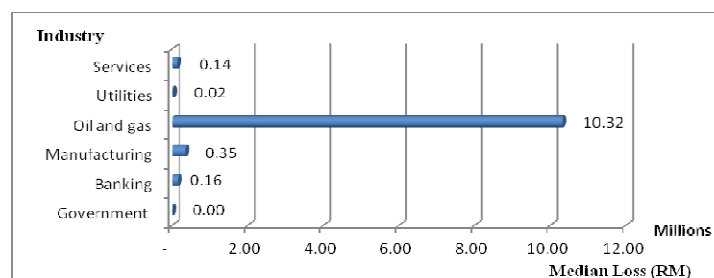
### *Type of industries*

The Figure 13 and 14 below shows the distribution of occupational fraud profile based on the victim organization's industries. The largest numbers of companies suffered were from Government and Services industry which contributed of 41% and 38% respectively. Surprisingly, oil and gas industry was the second lowest frequency with about 1.6%, had caused the largest median loss of more than RM10 million. This finding was consistent with previous studies (Baucus, 1989; Kesner et al., 1989) where the larger organizations were associated with greater amounts of crime. Example case in relation to oil and gas industry was a director of Oriental Petroleum Sdn. Ltd. (Oriental Petroleum) charged with dishonestly making a false undertaking of the company KALIANDA Marketing (M) Sdn. Bhd. on four charges under the Companies Act in relation to oil supply involve transactions totalling more than RM10 million. A Sessions Court then set bail to a suspect at RM100,000 for all four charges (Utusan Malaysia, 2009). Though, as at 31 March 2011, there was no report of any trial progress or judgement by any online local newspaper for researcher to conclude the case.

**Figure 13: Industry – Frequency**



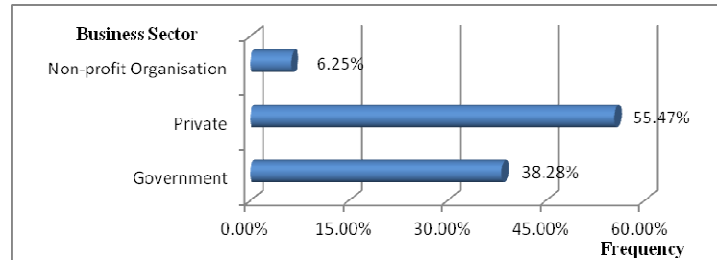
**Figure 14: Industry – Median Loss (RM)**



### ***Type of business sector***

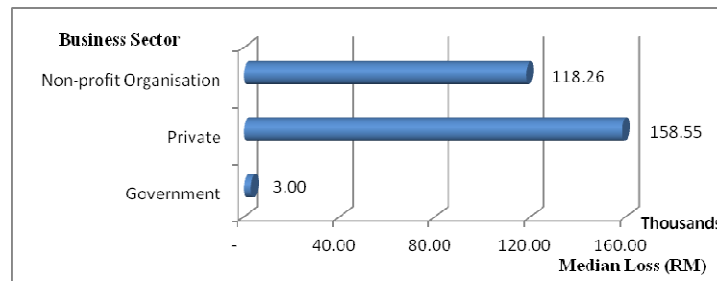
The chart below shows the distribution of fraud organizational based on their business sector. Approximately 56% of private sector, 38% of government sector and 6% of government were being affected by occupational fraud.

**Figure 15: Business Sector - Frequency**



The losses caused by the private sector were significantly higher than the losses caused by nonprofit organizations and government. Furthermore, though, nonprofit organization frequency were small percentage, but it had suffered a huge median loss approximately RM118,000 per scheme. This is forty times higher than the losses suffered by government and slightly less than the losses associated with the private sector.

**Figure 16: Business Sector – Median Loss (RM)**



### ***Modus operandi profile***

This sub-section elaborates on the findings related to the modus operandi of the fraud cases. Basically, for this item, modus operandi has been examined based on three characteristics, namely the types of collusion, fraud duration and number of suspects. These are the most common traits reported under occupational fraud case in newspaper in Malaysia. The findings should develop some understandings on how different kinds of modus operandi give an impact on fraud pattern and losses.

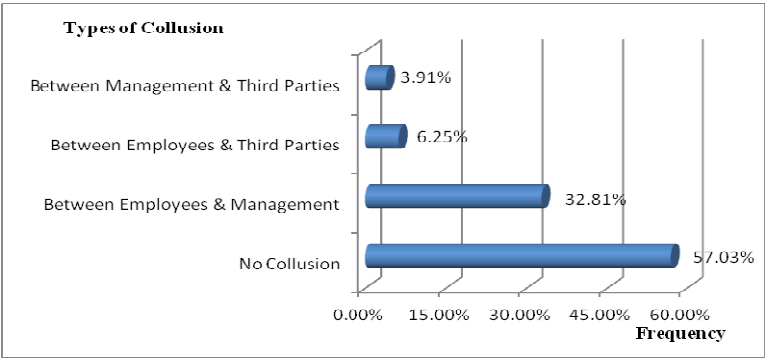
#### ***Types of collusion***

This is where an employee colludes with another party (whether from outside or inside the business) to use his role as an employee to obtain a personal benefit. Collusion frauds occur off the books of the business. That is, usually no action needs to be hidden in business records. Based on Figure 17, it shows that about 57% of fraud perpetrators did their scheme by individually. From 43% of cases occurred in collusion, about 33% of them were colluded between employees and management. According to Figure 18, these two types of collusion were contributed the largest median losses where collusion between employees and management were the highest about RM350,000 and followed by individual scheme about RM64,000.

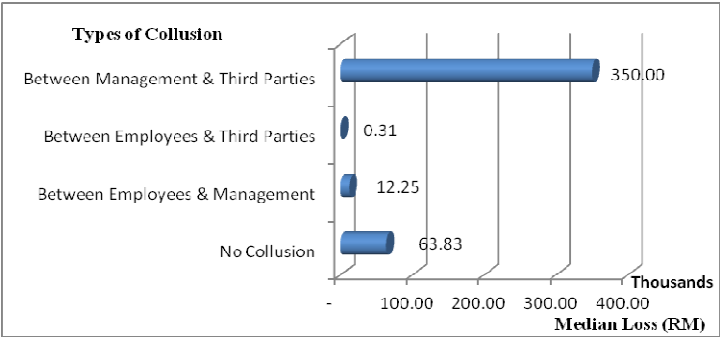
In conjunction with collusion, among a case selected was on 15 October, 2008, the Shah Alam Sessions Court sentenced to a former dean of the Faculty of Sports Science and Recreation Universiti Teknologi MARA (UiTM) after being found guilty of false acceptance of the document certifying the supply of sports equipment worth RM138,600 while the equipment is supplied. The suspect then makes an appeal and as a result, the Shah Alam High Court on 17 February 2010 dismissed the appeal

to set aside the conviction and sentence of three years' jail and fined RM10, 000(Utusan Malaysia, 2010).

**Figure 17: Types of Collusion - Frequency**



**Figure 18: Types of Collusion - Median Loss (RM)**



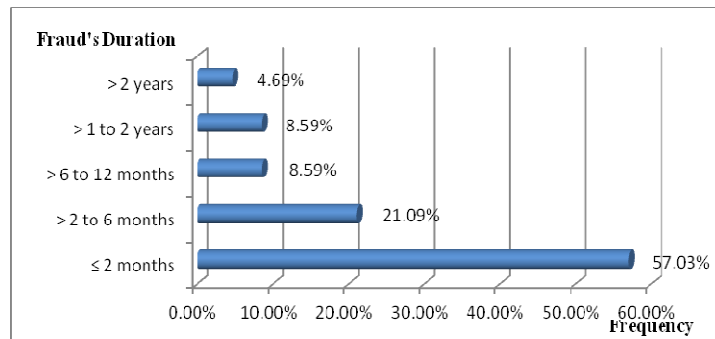
***Tenure of fraud***

According to Figure 19, employees who had made fraud for 2 months or less where the highest frequency of 57% which resulted a median loss of RM5,000. However, based on Figure 20, the median loss became increased as more time given by the victim organization to deter such fraud in continuing to happen. To some extent, these data may also be linked to the position data shown earlier. The longer that an employee works for an organization, the more likely it is that the employee will advance to increasing levels of authority and had an opportunity to conceal the scheme as long as possible or even can make the evidence disappeared at all.

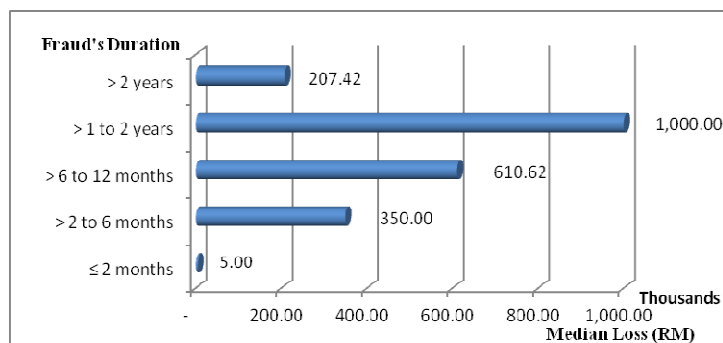
With regards to the result, the best illustration case was a former managing director of a supermarket chain who being charged on 23 May 2008 at the Ampang Sessions Court with 31 counts of money laundering involving some RM2.4million. The said suspect was committing the offences between 16 January, 2004 and 28 May, 2007. The suspect only being caught and charge after he had done his fraud scheme for about duration of 3 years and 4 months.

Another case was a former clerk a manufacturer of the Company Sony Malaysia brought to the Georgetown Sessions Court on four counts of breach of trust monies belonging to the company amounting to almost RM400, 000. The suspect was charged with committing the offence on 2 April 2001 and March 30, 2004 which he did his fraud scheme for about duration of 3 years (Utusan Malaysia, 2008). Conversely, as at 31 March 2011, there were no reports of both cases above of any trial progress or judgement by any online local newspaper for researcher to conclude the case.

**Figure 19: Fraud's Duration - Frequency**



**Figure 20: Fraud's Duration – Median Loss (RM)**

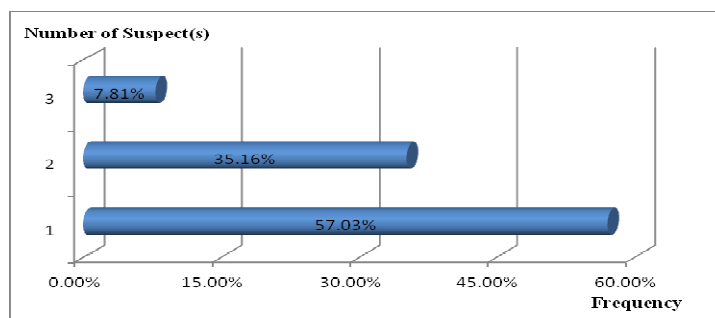


### ***Number of collusion***

It was expected that there was a direct correlation between the number of suspects and the size of the loss in the case. According to Figure 21, approximately 57% of all cases were committed by one suspect, while 35% and 8% were perpetrated by 2 and 3 suspects respectively. In relation, based on Figure 22, the median loss was becoming increasing as more suspects involved in victim organization to make the scheme successful.

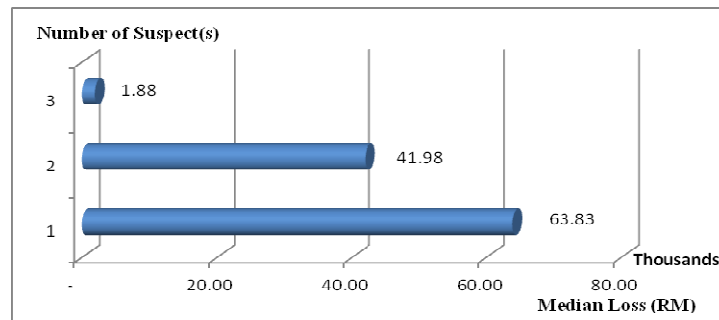
In relation with many suspect involved, there was a case on 15 June 2001 where the suspects were three police officers accused of corruption request and obtain a pair of lovers. They were accused of soliciting a fee of RM5,000 from the couple as an inducement not to take legal action against those alleged to have committed the offence seclusion and on the same date, the two of the suspects also being allegedly earning RM3,000 from the victim. However, as at 31 March 2011, there was no report of any trial progress or judgement by any online local newspaper for researcher to conclude the case.

**Figure 21: Number of Suspect(s) - Frequency**





**Figure 22: Number of Suspect(s) – Median Loss (RM)**



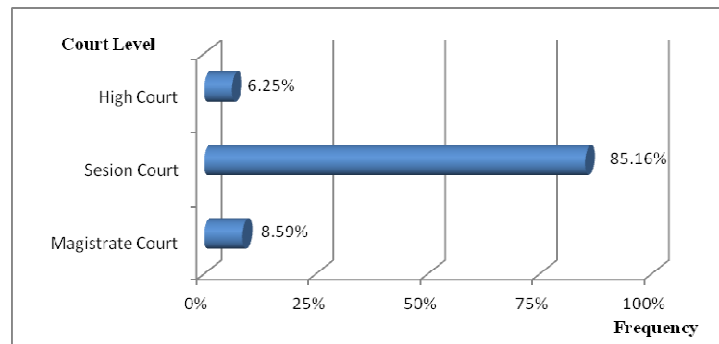
### ***Judicial profile***

The findings of judicial profile according to three characteristics, namely the level of court, resolved cases and the court's ruling. These are the most common traits reported under occupational fraud case in newspaper in Malaysia. Expectedly, with this finding, it would help to understand how different kinds of judgmental level and ruling give an impact on fraud pattern and losses.

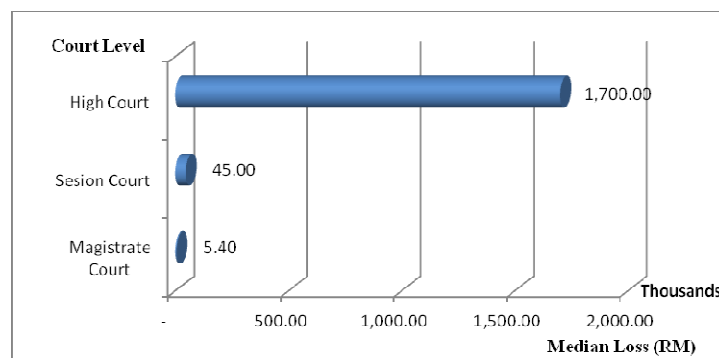
### ***Level of court***

The chart in Figure 23 below shows the distribution of resolving cases or yet in trial accordance to court's hierarchy as at 31 March 2011. Approximately 9% of cases were being charged at Magistrate while 85% and 6% were respectively being charged at Session and High Court. Based on Figure 24, despite a High Court handle fewer cases compared to other two lower courts due to limited jurisdiction, the High Court had heard a high profile case which has a median loss of RM1.7 million.

**Figure 23: Court Level - Frequency**



**Figure 24: Court Level – Median Loss (RM)**

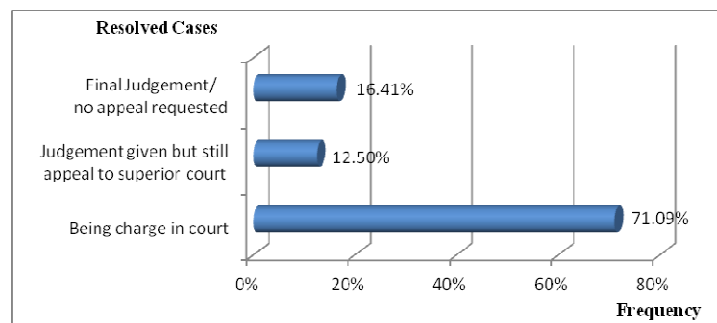


For example, there was a case with regards to a small amount of losses but being heard by the High Court for judicial review. The case was about a suspended City Hall clerk being sentenced to a year's jail and fined RM3,000 for cheating. The suspect had allegedly induced victim (i.e. contractor) to give her RM3, 000 as payment for the purpose of expediting the payment process of the City Hall's letter of offer invoice(The Star, 2008).

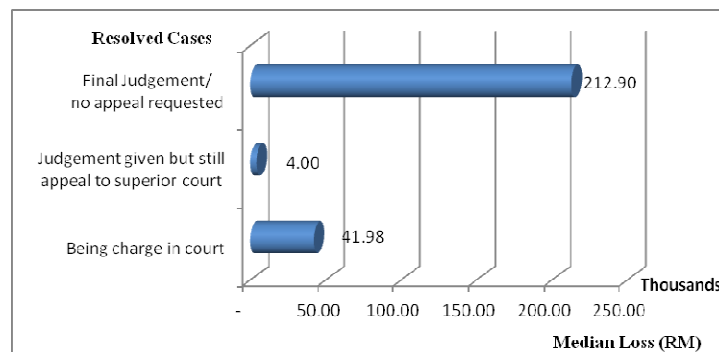
### ***Resolved cases***

The chart below shows the distribution of resolving cases as at 31 March 2011. Approximately 71% of cases were still under court trial, 16% of the cases were solved and being verdict whereas 13% cases were waiting for final judgment from superior court. There is a common reason that a certain case would not consider as a final judgement. The famous one was if the suspect was being convicted guilty and his sentence was either being jailed or cane or both. Example of this case is about a suspect made a false cheque amounting nearly to RM40,000. During that time she was an assistant accountant to a private company named Rantau Seraya Sdn. Bhd. Despite Kuala Lumpur Session Court decided to give a less sentence of 3 month jailed only, she still insisted make an appeal for her case to the High Court for another less sentences (Utusan Malaysia, 2007).

**Figure 25: Resolved Cases - Frequency**



**Figure 26: Resolved Cases – Median Loss (RM)**



### ***Court's ruling***

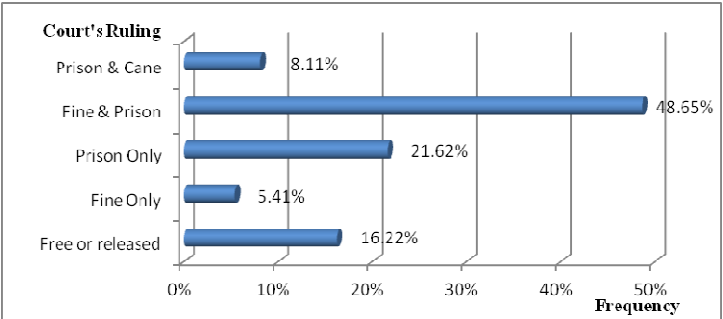
In criminal occupational fraud cases, the amount of loss resulting from the fraud is often the most important factor in sentencing decisions. The current Federal U.S.SentencingGuidelines stipulate that sentencing courts “need only make a reasonable estimate of loss ... based on available information,” and although the court need not establish the loss with precision, it may not engage in “pure speculation.”

In Malaysia, according to Court of Appeal Judge, Wan Yahya J in Public Prosecutor v Safian bin Abdullah & Anor (1993) stated that “sentencing offenders is a complex discerning process, which

depends not on the use of a common mathematical yardstick but on various considerations of facts and circumstances relating to the offence, the offender and public interest.”

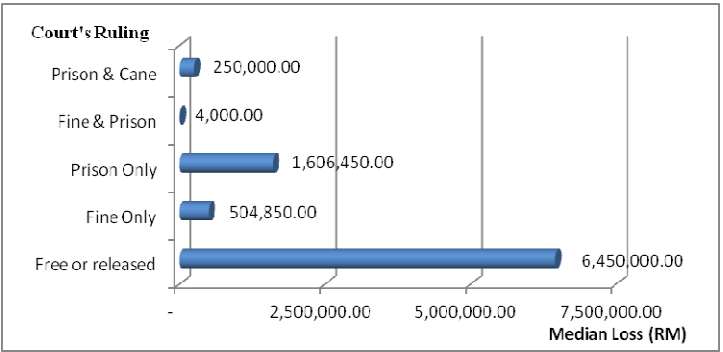
The above guidelines, however, do not set forth standards on how to determine a reasonable estimate of loss, leaving each court to develop its own standards. The government bears the burden to prove both the existence and the amount of the loss attributable to the offences of conviction. The following charts show the distribution and median loss based on the court’s ruling in Malaysia. As a result, nearly 49% of fraud perpetrators were being sentenced to fines and prison, 22% for prison only, 16% for being released on charges, 8% for prison and cane and 5% for fine only. However, there was no evidence to indicate that the said sentence above associated with the median loss made by offenders. It was proven that for lightening sentences such as fine only or being released of the charges were awarded by court for offenders that made the highest median losses of RM1.6 million and RM6.5 million respectively.

**Figure 27: Court Decisions - Frequency**



In this study, the heavy sentence being passed to suspect was a case of a former independent consultant for a company providing card-based solutions, software and applications had sentenced to three years’ jail and ordered to be given two strokes of the cane for money laundering and criminal breach of trust (CBT) involving RM3 million (Bernama, 2010). On the other similar case, charges of money laundering amounting to RM10million brought against a developer and a former MIC Youth treasurer were thrown out by the Kuala Lumpur Sessions Court because of the prosecutor had failed to ascertain whether the land and the sums of RM10mil and RM400,000 were proceeds from an unlawful activity (The Star, 2010).

**Figure 28: Court Decisions – Median Loss (RM)**



**Discussions**

This study established the extent to which a sample of occupational fraud case details reported in the local newspaper regarding individuals suspect, victim organisation, law and enforcement agencies involved, fraud modus operandi and judiciary outcome. The analyses revealed that the characteristics

of individuals who committed asset misappropriation, corruption, and fraudulent statements differed, as did many of the organizational characteristics associated with these three types of occupational fraud. These findings will discuss the entire possible outcome specifically in related to frequency of occupational fraud occurred and the impact of losses. As Friedrichs (2002) argued, it was critical that conceptualizations of occupational crime were not conflated with the inclusion of contradictory workplace activities more closely aligned with conventional crime (e.g., sexual harassment).

As for perpetrator profile, it is discovered that Malays, males and older age (i.e. 36 to 55 years old) with hold a managerial position of fraud suspects constitutes a large population in high profile cases, namely; corruption and asset misappropriation. However, Chinese, females and older age with hold managerial positions of fraud suspects constitutes a highest median loss for cases such as fraudulent statements and asset misappropriation.

Not all offenders conformed to a high status image. The results painted a clear picture of employees who committed fraudulent statements: they were more likely to be older (i.e. 41 to 50 years old), Malays males who held managerial or executive positions in their victim organizations. This profile resembled that of past research, and suggested that previous findings based on official record samples of convicted offenders were generalizable to broader settings.

The occupational fraud of asset misappropriation was committed by individuals who shared characteristics that were less representative of the white-collar crime prototype. In fact, they were similar to Weisburd (1991) middle-class offenders. These individuals were younger on average (i.e. 26 to 40 years old), Malays male, and did not hold managerial or executive positions. Other types of occupational fraud, corruption, were committed by individuals who shared characteristics of both the white-collar crime prototype and also similar to Weisburd (1991) middle-class offenders. These individuals were older (i.e. 41 to 55 years old), Malays male and equally likely held by employees and managerial or executive positions.

The above findings provided partial support for Daly (1989) study, which also showed distinct differences in the white-collar crimes of males and females, due in part to characteristics such as occupational roles and education. While asset misappropriation and corruption were equally likely to be committed by males and females, fraudulent statements were distinctly linked to being male, and were also tied to higher positions in organizations. However, In terms of the impact of losses, there was evidence that employees of Malays females and older age with hold managerial positions of fraud suspects constitutes a highest median loss for cases such as fraudulent statements and asset misappropriation. Additional research on gender differences in motivation for white-collar offending would shed light on this discrepancy. As for a victim organisation profile, the results of the present study indicated that in the private sector such as private limited companies, especially those involved in oil and gas industry are the most exposed to high median loss. Based on the frequency, private and government sector is both relatively similar to weighted exposure to occupational fraud risk.

How did organizations that were victimized by occupational fraud compare to the image of the large, profit-making organization frequently described in the literature? The results showed that the three types of fraud also differed with regard to organizational characteristics. Asset misappropriation was committed significantly more often in smaller organizations. Corruption took place in larger organizations, and in particular, publicly traded companies. Finally, fraudulent statements also victimized smaller organizations, as well as privately held companies, and did not appear to affect non-profit agencies, which was expected given that this particular form of fraud often involved misrepresentation of a company's financial performance.

The victims' organizations would normally lodge a report to RMP of any criminal offence committed by their employees. A fraud suspect would then be charged by at least one prosecution and it would normally take a year to convict the offender by the relevant court. However, for those fraud suspects who inflicted higher losses, they are expected to be convicted by the court within one to two years. Among the fraud cases, it was discovered that fraud suspect normally committed the offence

individually. However, if the fraud suspect is conspiring with an outsider and the conspiracy was in progress for one to two years, it would impact high losses to the victim's organization.

In the past, any cases which are under the purview of high court rather than Session Court were resolved much faster and also rarely had referred to the superior court for an appeal. The reasons of cases at the High Court were not successfully charged due to lack of evidence or lack of preparation of the respective prosecutor. As a result, fraud suspects were free from the said charges. Hence a lot suspect highly demanded to make an appeal to the High Court in hopes that they might have a chance of being released from charges or at least being convicted with less punishment comparable to Session Court.

## **Conclusion**

This study is sought to develop a fraud profiling model for occupational fraud in Malaysia by establishing a common characteristic of fraud perpetrators and victim organisation in such fraudulent act. The common characteristic is based on the highest frequency and median loss found in this research. Generally, it is discovered that Malays, males and older age (i.e. 36 to 55 years old) with hold a managerial position of fraud suspects constitutes a large population in high profile cases, namely; corruption and asset misappropriation. However, Chinese, females and older age with hold managerial positions of fraud suspects constitutes a highest median loss for cases such as fraudulent statements and asset misappropriation. The private sector such as private limited companies, especially those involved in oil and gas industry are the most exposed to high median loss. Based on the frequency, private and government sector is both relatively similar to weighted exposure to occupational fraud risk.

The victims' organizations would normally lodge a report to RMP of any criminal offence committed by their employees. A fraud suspect would then be charged by at least one prosecution and it would normally take a year to convict the offender by the relevant court. However, for those fraud suspects who inflicted higher losses, they are expected to be convicted by the court within one to two years. Among the fraud cases, it was discovered that fraud suspect normally committed the offence individually. However, if the fraud suspect is conspiring with an outsider and the conspiracy was in progress for one to two years, it would impact high losses to the victim's organization. The cases are usually handled in the session court however if the amount involved is huge then the said case should be handled by the high court. In the past, any cases which are under the purview of high court rather than session court were resolved much faster and the said judgment also rarely had referred to the superior court for an appeal.

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# Mean Ranking of Benefits Derived From Supply Chain Management Information System (SCMIS)

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## **Abstract**

*The present empirical study examines the mean ranking of benefits derived from supply chain management information system (SCMIS) in 44 small manufacturing firms operating in district Udhampur of J&K State. The research framework was examined by empirical analysis of primary data collected. The data was further analysed with the assistance of ranking tables and regression analysis. The results of ranking tables revealed that supply Chain management information system assists in reducing overall costs of the business, Increases operational efficiency, increases responsiveness in supply chain and increases operational flexibility. Further, the results of linear regression exposed that supply chain management information system leads to reduction of overall costs of the businesses and also results in enhancing operational efficiency.*

**Key Words:** Information System, Supply Chain (SC), Small Manufacturing Firms

## **Introduction**

Information is considered as life blood of business now-a-days. If a business receives proper information and further appropriately analyses and interprets it then only a business can ensure its success in the modern era. Information sharing and communication acknowledges the true disclosure of facts and figures regarding business operations and its position comparative to its competitors. Increasing level of information sharing & communication in a channel network provides rapid access to the required information, more sensitivity towards the needs of the customers and improves operational efficiency resulting in short development time (Dyer, 1996), enhanced design quality (Takeishi, 2001), reduction in uncertainty (Daft & Lengel, 1986), improvement in development performance & delivery schedule compliance (Brown & Eisenhardt, 1995). Information sharing enhances operational efficiency and refers to cost control in performing business activities. It acts as a competitive tool (Eccles & Pyburn, and Beamon, 1999). Operational efficiency with the aid of information sharing focuses on distribution initiatives, enhanced transactional profitability, achievement in company goals & strategies, timely availability of information for ensuring market flexibility (Lee & Whang, 1998). It also improves competencies in specific areas of supply chain including cost, delivery, speed, quality & flexibility and ability to provide a differentiated customer service at a lowest possible cost (Fawcett & Clinton, 1996).

## **Literature Review**

The literature regarding information sharing and communication, has been overwhelmingly framed along efficiency criteria and its benefits (Gal-Or & Ghose, 2005). Li & Ye (1999)

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included logistics coordination & organisational relationship linkages, incentive alignment, collaborative performance systems, process improvements by imparting operational efficiency. A firm can inculcate operational efficiency in performing business activities with the help of proper information sharing and communication (Medori & Steeple, 2000) resulting in reduced cost, delivery speed & reliability, quality & flexibility, overall efficiency and ability to provide & differentiated customer services. Past studies report positive relationships between the level of supply chain information sharing on collaborative performance at market place (Cousins & Menguc, 2006 and Kim et al., 2006). The nature of information exchange encompasses diverse areas such as product, customer, supplier, manufacturing procedure, transportation, inventory, competitive, sales & markets etc. The paper focuses on the benefits derived from supply chain management information system in 44 small manufacturing firms of district Udhampur, J&K State.

## **Research Hypotheses**

The following two were the main hypotheses of the current study:

H 1: Supply chain management information system leads to reduction of overall costs of the businesses.

H 2: Supply chain management information system results in enhancement of operational efficiency

## **Research Methodology**

Research methodology comprises area of research, nature of data/information (Primary or secondary), questionnaire/schedule, research tools applied etc. The research methodology adopted proceeds as follows:

The primary data for the study were collected from 44 functional manufacturing SSIs registered under District Industries Centre (DIC), Udhampur of J&K State sub-divided into ten lines of operation comprising cement (8), pesticide (3), steel (3), battery/lead/alloy (5), menthol (2), guns (2), conduit pipes (2), gates/grills/varnish (5), maize/atta/dal mills (3) and miscellaneous (11). Census method was used to elicit response from owners/managers of the SSIs. Information was collected by administering self developed questionnaire prepared after consulting experts and extensive review of literature. Items in the questionnaire were in descriptive form, ranking, open ended and five-point Likert scale. The data collected was further analysed with the help of SPSS (Version 16.00) for purification, checking validity and reliability. Ranking tables were used to elicit meaningful responses from the data.

## **Sampling and Data Collection**

The primary data for the study were collected from 44 functional manufacturing SSIs out of 49 units registered under District Industries Centre (DIC), Udhampur of J&K State. The manufacturing units were sub-divided into ten lines of operation comprising cement (8), pesticide (3), steel (3), battery/lead/alloy (5), menthol (2), guns (2), conduit pipes (2), gates/grills/varnish (5), maize/atta/dal mills (3) and miscellaneous (11). The miscellaneous category includes small scale units namely M/s Supertech Industry, M/s Luxmi Electronics Works, Shaj Nath Vanaspati Ltd., M/s Aditiya Cables, Poles and Transformers, Shankar Lime Industry, M/s Unique Carbon Industries, M/s B.S Traders, M/s Vijay Candles, Everest Health Care Products, M/s J.K Petro

Chemicals, M/s Ajay Ice Factory. Census method was used to elicit response from owners/managers of the SSIs.

### **The Survey Instrument**

Information was collected by administering self developed questionnaire prepared after consulting experts and review of literature which comprised of general information and statements of supply chain management information system. Statements in the questionnaire were in descriptive form, ranking, dichotomous, open ended and five -point Likert scale, where 1 stands for strongly disagree and 5 for strongly agree.

### **Collection of Data**

The primary data were collected by making three to four visits for getting response from respondents. Census method was applied for collecting data from the respective respondents. The secondary information was collected from various sources namely books, empirical papers from online & hard copies of journals. Various multivariate tools such as Mean, standard deviation and ranking tables were used for drawing meaningful inferences.

### **Reliability and Validity of the Instrument**

**Reliability:** The alpha reliability coefficients for  $F_1$  (0.802),  $F_2$  (0.823),  $F_3$  (0.829) is higher than the criteria of 0.77 obtained by Gordon and Narayanan (1984) indicating high consistency.  $F_4$  (0.627) and  $F_5$  (0.605) are also at a minimum acceptable level of 0.50 as recommended by Brown et al. (2001) and Kakati and Dhar (2002) thereby obtaining satisfactory internal consistency (Table 1.1).

**Validity:** The content validity of the scale was calculated by meeting various experts/academicians/eminent research scholars. The five factors obtained alpha reliability higher & equal to 0.50 and satisfactory KMO value at 0.688, indicating significant construct validity of the construct (Hair et al., 1995).

### **Data Analysis and Interpretation**

The Table 1 below exposes mean rank of benefits derived from supply chain management information system (SCMIS) by small manufacturing firms operating in District Udhampur of J&K State. These 44 small manufacturing firms have been divided into ten lines of operations namely cement (8), pesticide (3), steel (3), battery/lead/alloy (5), menthol (2), guns (2), conduit pipes (2), gates/grills/varnish (5), maize/atta/dal mills (3) and miscellaneous (11). The different benefits that a business can accrue by supply chain management information system are: “Helps in reducing costs”, “Increases operational efficiency”, “Increases responsiveness in supply chain” and “Increases operational flexibility”. The ranking of benefits derived from adopting supply chain management information systems (SCMIS) is done to make the study appealing and interesting. Cost reduction is identified as the foremost benefits by almost all the managers except for pesticides/insecticides, gates/grills/varnish/paint and miscellaneous. The other benefits in descending order are increase in operational efficiency, increase responsiveness in SC and increase operational flexibility. The ranking categorization is done as follows:

**Table 1: Unit-wise Ranking of Benefits Derived from Supply Chain Management Information System (SCMIS)**

Units/Benefits	Helps in reducing costs	Increases operational flexibility	Increases responsiveness in SC	Increases operational efficiency
Cement	1.87 (I)	3 (IV)	2.62 (III)	2.5 (II)
Battery/Lead/Alloy	1.8 (I)	2.6 (II)	2.8 (IV)	2.7 (III)
Pesticides/Insecticides	2 (II)	2.3 (III)	4 (IV)	1.6 (I)
Conduit pipes	1 (I)	3.5 (IV)	3 (III)	2.5 (II)
Menthol	1 (I)	4 (IV)	2 (II)	3 (III)
Guns	2 (I)	3.5 (IV)	2.5 (III)	2 (II)
Steel	1.3 (I)	3 (IV)	3 (III)	2.6 (II)
Gates/Grills/Varnish/Paint	3 (III)	2 (II)	3.2 (IV)	1.8 (I)
Atta/Maize/Dal mills	2 (I)	3.3 (IV)	2 (II)	2.6 (III)
Others (Miscellaneous)	2.45 (II)	2.81 (IV)	2.63 (III)	2.0 (I)
<b>Mean &amp; Rank</b>	<b>1.84 (I)</b>	<b>3.00 (IV)</b>	<b>2.77 (III)</b>	<b>2.34 (II)</b>

**Note:** Where 1 denotes “highest rank” and 4 denotes “lowest rank”

### **Cements**

There are eight cements units working in district Udhampur namely: M/s Associated Cements, Zenith Cement Industry, Shivalik Cements, M/s Continental Cement Industry, Wullar Cements, M/s Shri Nath Industry and Uma Cement Industry. As far as mean ranking related to the benefits derived from supply chain management information system of these units is concerned “Helps in reducing costs” was accorded rank one by all the units operating under this group. “Increases operational efficiency” was given rank two by cement industry and “Increases responsiveness in supply chain” was consigned rank three. “Increases operational flexibility” was accorded rank four. It was clear that the cement industry contoured that supply chain management information system results in reducing costs.

### **Battery/Lead/Alloy**

Five firms operating under this category were Radha Industries, Pilot Batteries, Durga Batteries, Suraksha Batteries and Avtar Batteries. “Helps in reducing costs” was accorded rank one by all the units operating under this group as it was found the main benefit derived from SCMIS. “Increases operational flexibility” was given rank two by these small firms and “Increases operational efficiency” was relegated rank three. “Increases responsiveness in supply chain” was accorded rank four as depicted by their mean values and is represented in the table 1.

### **Pesticides/Insecticides**

Under this category three units are operating namely M/s Dhanuva Agritech Ltd., Safex Chemicals Ltd. and M/s Modern Insecticides. As far as ranking related to benefits derived from supply chain management information system of these firms is concerned “Increases operational efficiency” was accorded rank one by all the units operating under this group. “Helps in reducing costs” was given rank two by these firms and “Increases operational flexibility” was assigned rank three. “Increases responsiveness in supply chain” was accorded rank four as depicted by

their mean values and is represented in the table 1. It was clear that the main benefit derived from SCMIS is that it assists in increasing operational flexibility.

### **Conduit pipes**

Two units operating under this group were M/s Pee Kay Products and Rukhmani Plastics. As far as ranking related to the benefits derived from supply chain management information system by these firms is concerned “Helps in reducing costs” was accorded rank one by both the units operating under this group. “Increases operational efficiency” was given rank two by conduit pipes and “Increases responsiveness in supply chain” was consigned rank three. “Increases operational flexibility” was accorded rank four. It was clear that the conduit pipes industry main benefit derived from SCMIS previewed was reduction of costs.

### **Menthol**

M/s Harikripa Perfumes Pvt. Ltd. and M/s Mahadurga Industries were found to be operating under this category of industries. “Helps in reducing costs” was accorded rank one by both the units operating under this group as it was found the main benefit derived by these units. “Increases responsiveness in supply chain” was given rank two by these small firms and “Increases operational efficiency” was consigned rank three. “Increases operational flexibility” was accorded rank four respectively.

### **Guns**

Two competitors namely M/s Gulab Gun Factory and M/s Hunter Gun Factory accorded rank one to “Helps in reducing costs” as it was found to be their main benefit derived by supply chain management information system, “Increases operational efficiency” ranked two, “Increases responsiveness in supply chain” ranked three, “Increases operational flexibility” ranked four respectively.

### **Steel**

M/s Maha Luxmi Steel Fabricators, M/s Faqir Chand Sanak Raj and M/s Gupta Furniture are operating under this category. Rank one was assigned to “Helps in reducing costs” as it was found to be their main benefit derived. “Increases operational efficiency” ranked two, “Increases responsiveness in supply chain” ranked three; “Increases operational flexibility” ranked four respectively.

### **Gates/Grills/Varnish/Paint**

Five units are operating under this category namely M/s Balaji Industries, M/s Wazir Engineering Works, ISRO Products, Shakti Engineering Works and M/s Everest Paints. These small scale units assigned rank one to “Increases operational efficiency”. “Increases operational flexibility” was given rank two by these units, “Helps in reducing costs” was allotted rank three, “Increases responsiveness in supply chain” was aligned rank four

### **Atta/Maize/Dal mills**

Shalimar Floor Mills, M/s Udhampur Dal Mills and M/s Sharda Enterprises are functioning under this class. As far as ranking related to benefits derived from supply chain management information system by these firms is concerned “Helps in reducing costs” was accorded rank one

by all the units operating under this group. “Increases responsiveness in supply chain” was given rank two by this industry. “Increases operational efficiency” was assigned rank three. “Increases operational flexibility” was allotted rank four depicted by their mean values.

#### Others (Miscellaneous)

Eleven units operating under this group were M/s Supertech Industry, M/s Luxmi Electronics Works, Shaj Nath Vanaspati Ltd., M/s Aditiya Cables, Poles and Transformers, Shankar Lime Industry, M/s Unique Carbon Industries, M/s B.S Traders, M/s Vijay Candles, Everest Health Care Products, M/s J.K Petro Chemicals and M/s Ajay Ice Factory. As far as ranking related to benefits derived from supply chain management information system by these firms is concerned “Increases operational efficiency” was accorded rank one by most of the units and “Helps in reducing costs” was given rank two by almost all the units operating, “Increases responsiveness in supply chain” was appropriated rank three, “Increases operational flexibility” was allotted rank four. The nub is that all the firms operating under DIC (SIDCO & SICOP) were mainly befitted for: firstly, “Helps in reducing costs”, then by “Increases operational efficiency”, afterwards “Increases responsiveness in supply chain” and lastly by “Increases operational flexibility”, as depicted by their respective mean ranks (Table 1).

**Table 2: Regression Model Summary**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of Estimate	F value ANOVA	Sig. level	$\beta$	t	Sig. level
1.	.782	.700	.602	.2133	41.542	.000	.354	11.821	.000

- a. Predictors: (Constant), Reduces overall costs  
b. Dependent Variable: Information system

Table 2 shows output from regression analysis to elicit the impact of information system on reduction of overall costs. The result of linear regression analysis (Table 2) enticed that the correlation between predictor and outcome is positive with value of R as .782, which signifies good correlation between predictor and the outcome. In the model 1, R is .782 which indicates 78% association between dependent and independent variable. R-Square for this model is .700 which means that 70% of variation in information system can be explained from the independent variable. Adjusted R square (.602) indicates that if anytime another independent variable is added to model, the R-square will increase. Further beta value reveals significant relationship of independent variable with dependent variable. Change in R square is also found to be significant with F-values significant at 5% confidence level. Thus the hypothesis “**Supply chain management information system leads to reduction of overall costs of the businesses**” is accepted as represented by its significance level  $p < .05$ .

**Table 3: Regression Model Summary**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error of Estimate	F value ANOVA	Sig. level	$\beta$	t	Sig. level
1.	.800	.702	.610	.2277	46.248	.000	.452	9.286	.002

- a. Predictors: (Constant), Increases operational efficiency  
b. Dependent Variable: Information system

Table 3 shows output from regression analysis to elicit the impact of information system on operational efficiency. The result of linear regression analysis (Table 3) enticed that the correlation between predictor and outcome is positive with value of R as .800, which signifies good correlation between predictor and the outcome. In the model 1, R is .800 which indicates 80% association between dependent and independent variable. R-Square for this model is .702 which means that 70% of variation in information system can be explained from the independent variable. Adjusted R square (.610) indicates that if anytime another independent variable is added to model, the R-square will increase. Further beta value reveals significant relationship of independent variable with dependent variable. Change in R square is also found to be significant with F-values significant at 5% confidence level. Thus the hypothesis **“Supply chain management information system results in enhancement of operational efficiency”** is accepted as represented by its significance level  $p < .05$ .

## Conclusion

Information means to inform someone or to receive information from someone. Information sharing results in costs controls, enhancement in profitability, proper inventory management, reduces uncertainty and behaviours, improves market share, enhances product promotion and distribution, assists in building trust, cooperation and collaboration, analyses customers response towards product performance and features, makes comparative analysis with competitors and others. The present research appreciates all the previous researches and imbibes new results in the form of mean ranking of variables derived from supply chain management information system.

The study explicates that SCMIS assists in reducing overall costs of the business, Increases operational efficiency, increases responsiveness in supply chain and increases operational flexibility as portrayed by their respective mean ranks derived on the basis of ranking tables.. Further, the results of linear regression exposed that supply chain management information system leads to reduction of overall costs of the businesses and also results in enhancing operational efficiency.

However, the findings of the study is limited to small scale industries of district Udhampur of J&K State, so results drawn cannot be generalized for medium or large scale industries functioning in other parts of country having dissimilar business environment. Future research can be conducted on the basis of inter-firm communication in small and large scale industries operating in numerous parts of the country.

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# Consumer Perception about Price Image and its Influence on Store Visits and Buying Behaviour due to Price War

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## Abstract

*Even though we come across retail price wars which eventually becomes a cause of business for many brands and occupies space in researchers mind, the way in which it affects consumer purchase behaviour is still uncertain. After safeguarding the operating profit margins, the second most important area that FMCG companies would be looking in for, occupying the largest chunk of market share for their brand. To boost sagging volume growth, FMCG companies are shifting their focus from protecting margins to increasing volumes. Decline in volume growth has largely been caused by steep price increases coupled with low consumer up gradation. Through this research, the researchers are trying to analyse the retail price war that had started in Indian retail industry in the fall 2009 initiated by some of the major FMCG brands to pause its sliding market share. The authors examine the short- and long term outcomes of the price war with reference to Indian FMCG products on the basis of different parameters such as frequency of store visits by the consumer, spending pattern of consumers, and on the sensitivity of these decisions in purchase pattern and price image. The authors present managerial suggestions for businesses that are involved now or going to be involved in future in a price war.*

**Keywords:** Price War, Spending, Price Image, Substitution Effect

## Introduction

In mid-2009, India had seen Consumer product companies increasing the price (4%-7% increase) of at least one item that people purchase on a regular basis, which continued for more than 3 months, in spite of an ever-increasing possibility of a consumer slowdown. Increase in commodity costs had forced major FMCG companies in the country to review prices to ensure profitability. HUL enhanced prices of several popular laundry and soap brands having different pack sizes such as Rin and Pears by 7 %.

Companies like Procter and Gamble, which had slashed its price for its laundry brands in the previous year too had hiked its price at least by 5%, which eventually had been a reason for decline in sales volume and a deteriorating price image. After two years, FMCG companies had decided to slash their prices and to start with P&G with a tagline “superior quality at low price” in order to make its brands to reach out to the masses. Subsequently these price reductions had amounted to the premium brands moving into the mid-market segment, made clear that the price cut by major FMCG brands would change the paradigm in the detergent market.

Aggressive price wars saw P&G pulling down prices of Ariel and Tide by up to 50%, and HLL reacting with similar price cuts for Surf Excel and Excel Blue. An equally aggressive war between the two broke out in shampoos. Others like Henkel and LG Care soon jumped into the race, even as lower-priced brands

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like Nirma haven't really reacted. The price reduction strategy was followed by many national brands across categories.

HUL has cut detergent prices significantly by 10-30% for both of its leading brands. For Rin, the prices have been brought down from Rs 70 to Rs 50 a pack. For Surf Excel Blue, price has been cut from Rs 91 to Rs 82 for a 500 gm pack. This Indian FMCG price war was fitting in with the trend that retail price competition has become increasingly vivid in recent years, reducing retailer profitability.

**Table-1: Price of Different Brand**

<b>Name of the Brand</b>	<b>Price* (Before Price war)</b>	<b>Price* (After initiating price war)</b>
Ariel-500gm	70	50
Rin	70	50
Surf Excel -500 gm	70	50
Tide-500gm	43	23

*\*Source: Internet (Price mentioned above are indicative and may vary from actual)*

## **Literature Review**

Academic literature on price wars can be classified into three research streams. A first stream comprises game-theoretic contributions, with a great focus on price war antecedents. An important price war trigger revealed in this stream is competitive entry (Elzinga and Mills 1999; Milgrom and Roberts 1982). Other factors deemed to be inductive to price wars are declining economic conditions (Eilon 1993; Slade 1990) and, often related to this, consumers' low (and/or declining) brand loyalty and high (and/or increasing) price sensitivity (Klemperer 1989; Sairamesh and Kephart 2000). A second stream includes more managerial research.

This work reflects on the link between price wars and firm strategies and characteristics. Companies with high exit barriers (Heil and Helsen 2001) and high stakes in the market or a worsened financial situation (Busse 2002) are more inclined to initiate a price war or to enter an ongoing battle. In doing so, these firms hope to bring about a market clear outland to increase their profit from reduced competition in the long run (Fudenberg and Tirole 1986; Klemperer 1989), or at least to halt the loss of customers and maybe even retract clientele (Elzinga and Mills 1999; Klemperer 1989). An extensively advertised price cut might also induce a more favourable price image (Busse 2002; Davis, Rao and Bergen 2000).

The third stream includes empirical research which documents the consequences of price war. Unfortunately, even though the significance of price wars, such empirical contributions are very scant and suffer from few limitations. Even though the studies by Rotemberg and Saloner (1986), Green and Porter (1984), Levenstein (1997) and Bresnahan (1987) provide a sight of the nature and impact of price wars, the data set limitations of the above studies will not allow the research to go ahead of a rough empirical assessment. Heil and Helsen (2001) gave some basic evidence on overall price war effects, including declining prices, image and revenues, and profit erosion for the parties involved, on the basis of fifteen case studies in a diverse range of industries. They also provide preliminary indications of high shelf price elasticities for present brands of a personal care product following a price war. They conclude that "descriptive statistics illustrate the importance and scope of price war phenomena and more rigorous empirical research is needed." However, the literature had mentioned very little about the consequences of price wars.

## **Objectives of the Study**

In general, price wars are expected to upset profit and long-term prospects of the market players (Nalebuff and Brandenburger 1996), similar studies suggest that the impact depends on each player's

price position and its function in the price war (Elzinga and Mills 1999; Rao, Bergen, Davis 2000 and Busse 2002;). Although the antecedents of price wars have been well documented by researchers, it was observed that there are no relevant researches in the Indian context that had discussed the impact of price war in Indian retail industry and its sensitivity in consumer decision making. Hence this study is intended to check the impact of price war and its sensitivity in consumer decision making.

A self-administrative questionnaire was formed by considering the variables such as (i) store visits, (ii) spending and (iii) Price image. The data is collected from respondents to understand their impression on price image and the influence of price image in their store visits and spending.

## Hypothesis

In this study, it has been tried to explore whether impact of price image among consumers had influenced their spending in short or long run and its impact in store visits and spending and hence the following hypothesis was postulated for the study.

**H<sub>1</sub>:** Price reduction due to price war leads to overall increase in consumer spending in the short run

**H<sub>2</sub>:** Price reduction due to price war leads to overall decrease in consumer spending in the long run

## Data Collection

A total of 50 households were randomly selected within Bannerghatta Road and Koramangala area of Bangalore city for the study (Appendix-1). The respondents were visitors of Reliance Retail store at Bannerghatta Road and Big Bazaar, Koramangala for daily/weekly/ monthly purchase. The questionnaire was prepared by considering the variables such as store visits, spending, consumer's sensitivity and price image. The variables were measured by using a 5 point likert scale, where 1= do not agree, to 5 = strongly agree. The data is analysed using percentage analysis for interpreting the results.

## Results

The majority of the respondents (60%) were between the age group of 30-35. The involvement of women in the survey was more (30 nos) than that of men (20 nos). Most of the respondents participated in the survey are graduates. Most of the brands that we had discussed in the study were popular among most of the respondents (85%), where others said that they had heard about these brands. It was found that the consumers were comfortable with quality and reliability of the major brands (93%), whereas the responses were average for some of the non-popular brands. The table given below depicts the consumption pattern of consumers before and after initiating the price war.

**Table-2: Price Changes in Detergent Brands**

Name of the Brand	Price* (Before Price war)	Price* (After initiating price war)	Has there been a change in consumption pattern due to price decrease	
			YES	NO
Ariel-500gm	70	50	5	95
Rin	70	50	1	99
Surf Excel -500 gm	70	50	1	99
Tide-500gm	43	23	4	96

## **Suggestions and Recommendations**

From the study it was observed that, even though price war initially promotes more shopping and increased spending and will be dropped on a due course as the expenses are redistributed across different categories. It was observed that during promotion-intensive weeks, consumers go more often to stores. In addition, in these weeks, their store visit decision is more touched by the weekly prices. Focusing on the impact of the price war variables, we had noted several findings. Consistent with H1, the overall store visit propensity temporarily increases because of the price war, though, in line with expectations this increase in traffic does not exist. In due course, the price war even reduces visits for the average store. This result must be interpreted against the finding that the price war makes the store visit decision more sensitive to weekly prices and price image.

Again, the price war variables disclose few important results. Consistent with H2, the price war causes decrease in spending in the long run; however after the commencement of the price war, consumers spend more per shopping trip. This short-term phenomenon is steady with a temporary income or windfall effect; i.e., consumers primarily observe the announced price reductions as a gain that force them to buy more, but then they adjust spending down again. It was also noticed that the price war results in spending more sensitive to weekly prices both in the short and long run. Price image becomes a more significant measure for spending as the cumulative number of items reduced in price increases.

Although our findings are related to the specific consequences of the price war that had happened in India during 2009-2011, we can consider on recommendations to managers who either propose to start a price war or perhaps are unintentionally involved in one. Initially, the competitive situation is such that a price war is likely and is required to make the first strike as it may bring a first-mover advantage in price image improvement. This price war benefit is mainly applicable for market players with a price image problem, as far as the case for the Indian price war initiator.

Second, we are concern of high-end market players about the price risk as a competitive weapon as it may increase price/image sensitivity. This could miscarry if the high-end player's price remains comparatively high as a result of competitive reactions. Third, to avoid a price war boom, it may be an excellent idea first to investigate the consumer responses when one market player begins to reduce prices. If purchase behaviour vary only temporarily, it may be better to concentrate on marketing-mix instruments rather than price to win back consumers. If the changes are strong, it is better to respond by offering price reductions as well.

It was also observed by the authors that, substitution effect has not occurred in this particular case as majority of the respondents had shown their intension to stick with the same brand even in price war and since the price reduction is uniform across the products there is no scope for substitution effect and change in price did not have any effect on their consumption pattern.

Majority of the respondents surveyed trust their brand and not shown intension to switch their brand even if there is a price change.

## **Limitation and Scope for Further Research**

The study has been carried out in Bangalore city and a few popular FMCG brands were taken in to consideration for the study. Similar studies can be conducted in other cities, towns and villages of India by considering other popular brands to find out if there is any change in the perception of the customers. Future research can address these issues based on the findings of the present research.

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# A Study on CRM Practices of Indian Bank in Bhubaneswar

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## Abstract

*The current study attempts to conduct a study of deployment of CRM Best Practices in the context of Indian retail banking, specific to an Indian private sector bank, one of the largest banks in the country with presence in 17 other countries. The research objective involves describing how the selected bank is deploying the CRM Best Practices toward building relationships with their retail customers. The case study method is the recommended research method in such situations when we deliberately want to cover the contextual conditions because they may be highly pertinent to the phenomenon of study. The study identifies 29 CRM Best Practices after extensive literature review. There are six sources of evidence that can be used for triangulation of data. The current study uses only two to three sources of evidence and as a result the construct validity of the case study research is affected. Though several research papers have been published in the area of CRM practices, no publication was found, across the countries, in connection to CRM Best Practices.*

**Key Words:** Customer Relationship Management, F-CRM, Balanced Score Card

## Introduction

CRM has been debated on its issues and aspects time and again in marketing literature since more than a decade (Sin et al., 2005). According to Parvatiyar and Sheth (2001), some of the themes represent a narrow functional marketing perspective while others offer a perspective that is broad and paradigmatic in approach and orientation. One example of a narrow perspective is to view CRM as database marketing (Peppers and Rogers, 1995) emphasizing promotional aspects of marketing by leveraging customer databases. Other examples of a narrow approach include electronic marketing (Blattberg and Deighton, 1991 as cited in Sin et al., 2005) and after marketing (Vavra, 1992 as cited in Parvatiyar & Sheth, 2001). Electronic marketing encompasses all marketing efforts supported by information technology while after marketing efforts focus on customer bonding after the sale is made. Parvatiyar and Sheth (2001) define CRM as “a comprehensive strategy and process of acquiring, retaining and partnering with selective customers [italics added] to create superior value for the company and the customer” (p. 6). Sin et al. (2005) define CRM as “a comprehensive strategy and process that enables an organization to identify, acquire, retain, and nurture profitable customers [italics added] by building and maintaining long-term relationships with them” (p. 1266). Payne (2000) asserts that CRM is concerned with “the creation, development and enhancement of individualized customer relationships with carefully targeted customers [italics added] and customer groups resulting in maximizing their total customer life-time value” (as cited in Sin et al., 2005, p. 1265).

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Detailed literature review could not find any study on CRM Best Practices. Such a study is helpful from the perspective of benchmarking, which is widely regarded as “a continuous, systematic process for evaluating the products, services, and work processes of organizations that are recognized as representing best practices for the purpose of organizational improvement” (Spendolini, 1992, p. 9). Benchmarking requires the search for industry best practices that lead to superior performance in terms of profitability, productivity, loyalty, and so forth (Camp, 1989).

Though several research papers have been published in the area of CRM practices, no publication was found, across the countries, in connection to CRM Best Practices. Therefore, no studies on CRM Best Practices could be found for the fast growing Indian retail banking sector. The current study, therefore, would try to fill this gap by conducting a study of CRM Best Practices in the context of Indian retail banking, specific to an Indian private sector bank.

## **Methodology**

### **Case Study Research Design**

According to Yin (2003), a case study is an empirical inquiry that investigates a contemporary phenomenon within its real- life context, especially when the boundaries between phenomenon and context are not clearly evident. Thus, the case study method is the recommended research method when we deliberately want to cover the contextual conditions because they may be highly pertinent to the phenomenon of study. Here, the research objective involves describing how the selected bank is deploying the CRM Best Practices toward building relationships with their retail customers. Thus, in this case, the phenomenon under study is CRM Best Practices and the context is retail banking. Here, an experiment would not be suitable because an experimental research deliberately isolates a phenomenon from its context, so that attention can be focused on only a few variables. On the other hand, surveys can try to deal with the phenomenon and context, but their ability to investigate the context threadbare is very limited (Yin, 2003).

The case studies can be based on any mix of quantitative and qualitative evidence. They can include surveys, archival data, interviews, direct observation, participant- observation and so forth as different data collection techniques - all of which except for participant-observation have been used for the purpose of the current study (Yin, 2003).

When selecting a case for case study research, researchers often use information- orientation as the criteria (Flyvbjerg, 2006). This is because the typical or average case is often not the richest in information. Extreme or atypical cases often reveal more information because they activate more basic mechanisms and more actors in the situation studied (Flyvbjerg, 2006).

In the present case study research design, the method of selection of cases used is Extreme cases (Flyvbjerg, 2006). Using this logic, one Indian private sector bank, one of the largest banks in the country, was selected. For reasons of confidentiality, the name of the bank has been withheld and will be, henceforth, referred to as “Large Indian Bank”.

## **Protocol Development**

In order to develop a protocol comprising the CRM Best Practices, extensive review of literature was done for both academic and practitioners' literature. Based on the review of literature, 140 statements were developed each representing a CRM practice. A panel of experts was formed to validate, trim and refine the initial items. The panel consisted of 5 experts: 2 academicians, who specialized in CRM and services marketing averaging approximately 18 years of experience across teaching and research; and three marketing practitioners having an average of 13 years of experience in customer relationship management and belonging to the banking industry. A similar process was adapted by McMullan (2005) and Sin et al. (2005) in their questionnaire development exercises.

The five experts were introduced to the key definitions of CRM (e.g., Parvatiyar & Sheth, 2000; Jackson, 1985, Sin et al., 2005) with an explanation of the meaning of best practice. They were then asked to study the 140 CRM statements and indicate whether each of them is (1) a relevant CRM practice and (2) a CRM best practice. Further, they were also told that many statements in the list provided to them may be repetitive and differing only by a shade. In such cases, they were asked to select the most superior/ comprehensive statement/ practice from amongst the similar statements/ practices and reject the others. It was decided that only those statements/ practices will be retained on which there is a complete consensus amongst the judges (see McMullan, 2005; Sin et al., 2005). Using this guideline, a total of 111 statements were rejected and only 29 statements were retained.

## **Validity and Reliability**

Construct validity will be achieved by use of multiple sources of evidence and having key informants review the draft case study report (Yin, 2003). With respect to multiple sources of evidence, there are six major sources commonly used in doing case studies for achieving data triangulation (convergence): documentation, archival records, interviews, direct observations, participant-observation, and physical artifacts. They are explained below.

**Documentation:** Documentary evidence has been extensively used in this case study. Their advantages are that they are stable, unobtrusive, exact, and provide a broad coverage. However, access is a problem so far as internal documents are concerned. Other problems include reporting bias and retrievability (for internal documents). The usual documents used in the present study include web pages from the corporate website, newspaper clippings, and articles in magazines, banking industry reports, pamphlets, and so forth which are very much in public domain and enjoy high retrievability. Several internal documents of Large Indian Bank were also seen by the case study researcher.

**Archival Records:** They have also been used very much in the current study. They have the same advantages as that of documentation. Plus, they are precise and quantitative. However, the disadvantages are also same as in the case of documentation. The annual reports of Large Indian Bank for last three years could be easily collected from the bank's website.

**Interviews:** This has been the most widely used method of data collection with respect to the present study. Their advantages are that they are focused on the case study topic and are very insightful. However, the disadvantages could be bias due to poorly constructed questions, response bias, inaccuracies due to poor recall and reflexivity (interviewee gives what interviewer wants to hear). These

disadvantages have been reasonably controlled by using a case study protocol with well-defined questions, use of audio recording for accurate rendition of the interview and by proper preparation (for taking interviews) by the researcher to detect response bias and prevent reflexivity. For describing the CRM Best Practices of the selected bank, several bank executives were interviewed. Except for some Executives many had allowed audio recording. Wherever, it was not allowed, the written report of the interview was prepared within few hours of completion of the interview. Further, in such cases, the written reports were subsequently shown to the interviewees to check wrong reporting if any.

**Direct Observations:** They give an insight to reality and are contextual. However, they are time consuming (if done formally) and have the disadvantages of selectivity, reflexivity (event may proceed differently because it is being observed), and cost. This method also has been used for data collection in the current study by the researcher.

**Participant-Observation:** This has the same advantages and disadvantages as that of direct observations. However, this is more insightful but at the same time can lead to bias due to investigator's manipulation of events. In this case, the researcher is a customer of the bank and has included his personal observations.

**Physical Artifacts:** This is also very insightful so far as cultural features and technical operations are concerned. They can be collected or observed and may include use of sophisticated gadgets, state-of-art hardware, software, greeting cards, posters, and so on. However, they face the disadvantages of selectivity and limited availability.

In the current study, generally two and wherever possible, three sources of evidence have been used for answering every protocol question so as to achieve multiple measures of the same phenomenon leading to reasonable construct validity.

Another way of increasing construct validity is to get the draft of the entire case study report (not just the interview report) reviewed by the informants and participants of the study (Yin, 2003). This method has greatly helped in improving the quality of the current study by minimizing inaccuracies in the report. Since the researcher is based in the city of Bhubaneswar, the data collection is restricted to the branches of the Large Indian Bank located in the same city. Regarding external validity, the retail banking practices of Large Indian Bank are consistent across the country as confirmed by its managers. Therefore, the findings of the descriptive case study with respect to the selected bank can be generalized for the entire organization, with respect to the retail banking segment, at the national level. The protocol is a major way of increasing the reliability of case study research and is intended to guide the investigator in carrying out the data collection from a single-case study (Yin, 2003). Another way of increasing the reliability of the case study is to use a case study database (Yin, 2003). In other words, every case study project should strive to develop a formal, presentable database, so that other investigators can review the evidence directly and not be limited to the written case study reports. There are four components of a case study database: notes, documents, tabular materials, and narratives (Yin, 2003).

For the current study, the case study notes of the bank included typed interview reports, observation reports, and document analysis stored in compact discs in soft form. Many documents have also been collected from each of the banks during the course of the case study. They also included the filled up



questionnaires collected as part of the customer loyalty survey. These have been systematically filed in physical files with a bibliography to facilitate storage and retrieval, so that later investigators can inspect or share the database. The database also consisted of tabular materials created as a result of the customer loyalty survey. These tabular materials were recorded in soft form and stored in the compact disc associated with each bank's database.

Finally, narratives have been produced integrating data collected from various sources to describe the entire case. These narratives, usually unedited, form a part of the case study database.

### **Informants for the Study**

In order to get a holistic perspective of different practices, different executives based at the Bhubaneswar branch were approached for interviews as well as supporting evidences. The typical designations have been regional manager, branch manager, assistant branch manager, sales manager, relationship manager, assistant manager, relationship officer, customer service executive, etc cutting across both middle and lower management. These executives were also encouraged to consult top management executives as well as officials based in other offices of the bank (in other cities of the country) wherever needed in order to get an authentic picture of the deployment of CRM best practices.

### **Increasing Response – Both Quality and Quantity**

Getting response, rather access to information – both in terms of quality and quantity is of utmost importance in case study research. Further, the case study research is very demanding both in terms of time required (most interviews lasting 30 to 40 minutes per session and spread over several sessions) and mental exhaustion (due to extensive probing) on part of the interviewees (Yin, 2003). An official request was made to the bank vide a detailed letter. In order to achieve the co-operation of the informants, the importance of the study in terms of its scientific contribution was highly emphasized. Besides, full confidentiality and a copy of the findings on request were stressed.

### **Data Analysis**

Open-ended answers will be composed for the questions in the protocol used in the case study. The questions and answers can serve directly as the basis for the final case study report. Here, each answer represents an attempt to integrate the available evidence and to converge on the facts of the matter (Yin, 2003). The case study report is presented in a question-and-answer format, which is regarded as a very reader-friendly form of presentation (Yin, 2003).

### **Limitations**

The banking sector is highly regulated by the Reserve Bank of India (RBI) and has strong privacy codes and regulations regarding secrecy implemented across all the banks. As a result, getting in-depth information about the deployment of different CRM Best Practices either by way of interview or other sources of evidence was not fully possible. There are six sources of evidence that can be used for triangulation of data. The current study uses only two to three sources of evidence and as a result the construct validity of the case study research is affected.

### **Case Study Report: Large Indian Bank**

The Large Indian Bank is headquartered at Mumbai and began its operations in 1994. The bank has a network of about 1,308 branches and 3,950 ATMs in India and presence in 18 countries. At

Bhubaneswar, the bank started its operations in the year 1996 and has a network of 7 branches and 7 ATMs.

**Q1.** How does the top management team of the bank provide leadership for building and maintaining customer relationships as a major goal of the bank?

**A.** The bank has the following mission statement for its branch banking operations: “To achieve customer’s expectation by delivering value added products & services enabled by technological innovations and ensuring quality that enhances the customer’s delight”. The Managing Director & Chief Executive Officer (MD & CEO) of the bank exhorts the employees through various communication media to provide excellent customer service which will enable the building of strong customer relationships.

**Q2.** How does the bank make commitment of time and resources in managing customer relationships?

**A.** The bank provides dedicated Relationship Managers (RMs) to its high networth individual (HNI) customers, a separate well-furnished cabin and various special privileges. The RM acts a single contact point for the HNI customers. Each RM handles a portfolio of maximum 250 HNI customers. In Surat, the bank has three RMs.

**Q3.** Does the bank do customer segmentation using Customer Lifetime Value (CLV) / related metrics?

**A.** The bank has a very well-defined customer segmentation policy based on relationship value. The main segments are: Private Banking customers (also known as HNI customers) who maintain an average quarterly balance (AQB) of Rs. 1 million in deposit accounts or more or alternatively an AUM (Assets Under Management) of Rs. 5 million; Gold Privilege customers who maintain an AQB ranging from Rs. 100,000 to less than Rs. 500,000 in deposits accounts; Silver Privilege customers who have an AQB starting from Rs. 50,000 to less than Rs. 100,000 in deposit accounts; Blue Privilege customers who maintain an AQB ranging from Rs. 25,000 to less than Rs. 50,000 in deposit accounts. However, the concept of CLV for doing customer segmentation is not being used.

**Q4.** Does the bank provide increasing customer convenience using a variety of distribution channels?

**A.** The bank provides a variety of distribution channels like Branch, ATM, Mobile, Internet, Phone, and Doorstep banking. Besides, it has a network of Retail Asset Branches and Direct Sales Agents (DSAs) for different loan products.

**Q5.** Does the bank use information from customers to design/ improve the products or services?

**A.** The bank pioneered the concept of 12- hour banking in India, based on customer feedback, by having banking hours starting from 8 am to 8 pm across all urban branches. The bank has introduced two loan products in the year 2006-07 – Loan against Gold and Education Loans which were driven by customer demands. Plus, it provides a host of innovative products developed from customer feedback like Young Stars for minors, Bank@Campus for college students, Savings

Account for senior citizens offering higher interest rates, Easy Receive Account for inward remittances, etc. However, the number of such examples is not too many.

**Q6.** How seriously does the bank take customer feedback and reply them?

- A.** The bank promises to give a response to every customer complaint within 10 days of registration. However, the employees are required to resolve the same within 24 hours. The bank has a well-defined complaint management system with a software based escalation matrix.

The bank has an active 5-member Customer Service Committee at its Corporate Office headed by the Chairman and has the MD & CEO as one of its members. The bank also has a Customer Service – Branch Banking group to look after the customer service issues with respect to Branch banking. This group is headed by a Deputy General Manager who directly reports to the MD & CEO. In addition, there is also a Customer Service Quality Department headed by a Joint General Manager reporting directly to the MD & CEO. The department oversees the service quality across all the distribution channels. However, there is room for improvements, particularly, with regard to seriously considering customer suggestions given formally or even verbally.

**Q7.** Does the bank make use of effective customer recovery strategies including guarantees for service failures?

- A.** The bank is a member of the RBI- founded Banking Codes and Standards Board of India (BCSBI) which mandates member banks to have a compensation policy in place to compensate customers for financial losses incurred due to service failures like undue delays, failure in executing mandates or erroneous debits, and so forth. The compensation policy is fully implemented across the bank. However, the bank has not made any additional initiatives of its own in this direction.

**Q8.** How does the bank take customer and employee feedback from a variety of direct and indirect measures?

- A.** The customer can give feedback by calling Phone banking or the Regional Manager – Branch banking, submitting at bank's website or at designated e-mail address, or submitting the written complaint at Branch Helpdesk, ATM Drop Box or designated Drop Boxes available at select locations. Plus, there is a Complaint-cum-Suggestion box prominently displayed in each branch. In addition, customer meets are organized every month in each of the branches wherein customers are invited from each of the key segments to discuss issues related to improving customer service. The bank conducts a monthly customer satisfaction survey called FOCUS (Feedback on Customer Service) through an independent third party for each branch. The survey is conducted in the branch as well as by calling up a sample of customers.

Customer feedback is also measured indirectly on the basis of customer retention and number of complaints. For the HNI customers handled by a single RM, there is a floating Deposit Balance Unit (DBU) attached to them. So, if the DBU reduces then some of the deposits have moved out of the bank. This acts as another indirect customer feedback with respect to HNI customers. The concerned RM handling that set of HNI customers has to immediately contact his/ her customers to find out their reasons for withdrawal/ downward migration.

Regarding Employee Feedback, an Intranet-based Employee Satisfaction Survey is conducted every year. In addition, there is an Employee Suggestion Scheme, where participating employees

get points for giving ideas/ suggestions that are redeemed for gifts. The suggestions have to be submitted on the bank's Intranet. Plus, inside the branch, there are Daily Work Place Meetings in the afternoon between 3 pm and 4 pm lasting 6 minutes. These meetings, required as part of the Six Sigma quality model implemented in the bank, provide a platform for discussing any achievement of the day, specific contribution by employees, problems faced, and so forth. The indirect measure of employee feedback is employee retention.

**Q9.** How does the bank broadcast customer feedback to the employees?

- A.** The important customer suggestions/ complaints are discussed at the regional level and broadcasted to the employees within the same region through e-mail. However, this practice is not very standardized.

**Q10.** Are the systems designed to make it easy for customers to do business with the bank?

- A.** The bank has got single window system implemented in the branches, where most of the transactions can be completed at a single counter. It is also the only bank to introduce Dynamic Queue Management (DQM) system in the branches which distributes the traffic of customers equally amongst the counters. The system ensures that all the single window counters are optimally used and it keeps the waiting period for customers to as low as 7 minutes. In addition, the bank provides instant opening of savings bank accounts (checking accounts) in around 30 minutes subject to submission of necessary documents. Further, the bank has a common account opening form for the different deposit products. The bank also provides Pre-approved Loans to its existing customers (based on certain criteria) ensuring quick disbursement of loans. The bank has introduced a 24-hour online loan application and approval process available at the bank's website for car, home, personal and two-wheeler loans enabling quick disbursement of loans.

**Q11.** Does the bank analyze the causes of customer defection through exit interviews and lost customer surveys with the aim to win back customers who have strong profit potential?

- A.** For closing any savings / deposit account, the customer has to fill up the account closure form indicating the reasons for closure. The closure is affected within 24 hours of submission of the form. No exit interviews are conducted by the Branch Manager (BM).

Besides, there is a team called Enhancing Relationship Value (ERV) Team that contacts the dormant customers and tries to find out their reasons for inactivity. Plus, they also call up the customers who are not maintaining the minimum balances in an attempt to reactivate them. However, no lost customer surveys are being done.

**Q12.** Does the bank make use of differential reward system that rewards customers based upon their profit / revenue contribution?

- A.** The bank has a comprehensive reward program for its credit cards that acts as a differential reward system. It offers a wide variety of brands/ services for redemption. For its debit cards, there is a well designed reward program based on retail spends. The bank has tied up with i-mintpoints.com to present a large selection of redemption options. However, the reward system does not yet cover non-card products.

**Q13.** Does the bank make use of the concept of ‘Relationship Pricing’ in pricing its products/ services?

**A.** The bank gives special discounts to its Gold and Silver customers on festivals and other special occasions like 5% discount on gold bars at the time of Diwali (Hindu festival of lights). The Private Banking / HNI customers get a large variety of pricing benefits including free multicurrency cheque-book facility, free credit cards, no processing fees on home loans, two- wheeler loans and gold bars, and even loans at discounted rates.

**Q14.** Does the bank make use of co- branding / affinity partnering programs to provide increased value to its customers?

**A.** The bank has co-branded credit cards covering 37 brands including HPCL, Sarovar Hotels, ICICI Prudential, Air Deccan, Dhiraj Sons, Ebony, Airtel, Indiatimes, etc. The bank also has a co-branded debit card developed with HPCL. The bank also has affinity partnering programs with ICICI Prudential for life insurance products; ICICI Lombard for general insurance products; Prudential ICICI for mutual fund products; Visa, American Express and MasterCard for credit cards and a host of brands for its reward programs.

**Q15.** Does the bank leverage the power of word-of-mouth by using referral marketing programs?

**A.** The bank conducts referral marketing programs for its credit cards wherein customers are rewarded for giving names of potential customers. In addition, these programs are also conducted for savings bank accounts, fixed deposit and life insurance products wherein participating customers are eligible for a lucky draw with lot of attractive gifts. The referral marketing programs are time-bound and are conducted every year for one or more products.

**Q16.** Does the bank strengthen emotional bonds with key customers by wishing them on important occasions?

**A.** The RMs wish their portfolio of HNI customers on their respective birthdays over the phone. They also send birthday cards and/ or bouquets to them and may personally visit them also. Greetings are also conveyed at the time of festivals like Diwali and at the time of New Year.

**Q17.** How does the bank do cross selling of products/ services to increase customer share?

**A.** The bank has monthly cross selling targets for both RMs and Customer Service Executives (CSEs). These targets are there for life insurance, general insurance, credit cards, mutual funds, savings bank accounts, depository accounts, loan products and so forth.

**Q18.** Does the bank make use of technology to automate marketing, sales, and service functions?

**A.** The bank has implemented customer service management software, Finale Customer Relationship Management (F-CRM), which is integrated with Branch, Internet and Phone Banking, to track customer service requests, complaints, TATs, and so forth. The bank has data mining software that uses customer information across products and channels to develop customer profiles. The different customer profiles are further analyzed to develop customized marketing campaigns. The bank also has implemented Lead Management System which is further integrated with this to achieve effective cross selling. In addition, the RMs have to record all their daily interactions with HNI customers in the Private Banking Relationship Software which maintains a complete interaction history of these customers to aid customer service.

**Q19.** Does the bank design information systems to give comprehensive data about all aspects of customers so as to be responsive to them?

**A.** The bank has designed information systems which give comprehensive data about different aspects of customers, apart from balance position for products tagged to a single Customer ID, like name, age, gender, marital status, education, occupation, monthly household income, office and residential address, phone numbers, customer type (Private Banking/ Gold/ Silver/ Blue), etc.

**Q20.** Does the bank make use of CRM software that provides for integration of touch points to obtain a single view of the customer at every touch point?

**A.** The bank has implemented Finacle CBS which networks the different distribution channels. The software system used by the bank provides a single view of the deposit products (savings bank accounts, fixed deposits, and recurring deposits) and depository accounts held by the customer across all the branches. Further, it provides a common view across deposits, credit cards, depository and bonds for Phone banking. For Internet banking, the single view can be obtained across deposits, credit cards, depository and loans; for ATMs, the single view is restricted to savings bank accounts; for Mobile banking, a common view can be obtained for credit cards and depository accounts. In short, as yet, the bank does not provide a unified single view of the customer across all the touch points.

**Q21.** Does the bank establish customer- centric performance standards and monitor them at all customer touch points?

**A.** Each branch is rated monthly using the Balanced Scorecard Method on four parameters: Financial Perspective, Customer Perspective, Internal Process Perspective and Innovation & Learning Perspective. The Financial Perspective consists of business volume across products, asset quality, and so forth. The Customer Perspective is measured using mystery shopping done by an independent third party. The exercise examines the branch employees on parameters that include politeness and courtesy, understanding customer needs, promptness in providing solution, whether the customer was called on the date on which he/ she was supposed to be called on, whether the knowledge of the CSE was enough to handle the query and whether the response was given within the defined turnaround time (TAT) or not. Plus, the results of the monthly customer satisfaction survey, FOCUS, are used as indicators of branch service quality.

In addition, the senior management executives make unannounced visits as customers to the branches to inspect the service quality delivered by the different branches.

The Internal Process Perspective is measured by the F-CRM software which monitors the number of complaints received, compliance with the TAT for complaint resolution as well as for different banking transactions which are indicators of branch service quality. The Innovation & Learning Perspective is measured by the training man days undertaken by the employees of the branch.

In addition, the ATMs are also rated monthly on parameters that include percentage downtime, cleanliness, ambience, display of recent posters, and availability of sufficient deposit slips, envelopes, etc. The other important touch point, Phone banking, is rated on the average waiting time, quality of interaction, and amount of cross selling apart from other parameters. In the case of Mobile and Internet banking, the percentage downtime is used to rate the touch points on service

quality. For Doorstep banking, TAT is the key performance measure while for DSAs, it is the number of customer complaints received with respect to misbehavior and misrepresentation.

**Q22.** Does the bank provide customized services and products to key customers?

**A.** The bank provides customized wealth management services to HNI customers wherein the RMs assist the HNI customers regarding making investments, depending on their investment goals, in various products and even provide doorstep service. However, there are not too many such examples.

**Q23.** Does the bank constantly strive to surprise and delight key customers?

**A.** The bank has come out with a premium savings account which provides a linked fixed deposit, free debit card offering surcharge waiver for fuel purchase, daily withdrawal / purchase limit of Rs. 100,000, and so forth. The bank has come out with a premium credit card as well as premium debit card for the HNI customers providing a host of exclusive benefits and privileges. Further, whenever the HNI customers visit any of the branches, they get preferential treatment on the basis of their special status. The customers are also given cheque bounce protection and exclusive Phone banking assistance.

The bank keeps on sending mailers and calling up the HNI customers to keep them updated about the different investment products. In addition, free seminars are arranged for them sponsored by Asset Management Companies to educate them about various investment products. The bank launched a nationwide golf tournament in the year 2005 for all its HNI customers across the country, which has been a delight factor for these customers. Other examples include invitation to movie shows, musical nights and similar events, and so forth.

**Q24.** Does the bank get the CRM responsibilities of frontline employees clearly defined, assigned and understood?

**A.** All the frontline employees including CSEs, RMs, and BMs are appraised on the Customer Perspective which is measured using the monthly mystery shopping exercise as well as the customer satisfaction survey. Cross selling is also a key responsibility for the CSEs and RMs. The RMs are also appraised on how frequently they are in touch with their HNI customers. The BM is appraised on cross selling target set for the entire branch and branch service quality apart from other parameters. Besides, the frontline employees have well-defined TATs and their compliance with the same is measured.

Thus, the CRM responsibilities of frontline employees are clearly defined, assigned and understood because of direct linkages with their performance appraisal. **Q25.** Does the bank design the employee training programs for developing the skills required for acquiring and deepening customer relationships?

**A25.** All the employees have to go through the Induction Training Program in which one of the modules is Customer First. It covers topics like etiquettes, behavior, customer interaction cycle, complaint handling, etc. In addition, there are classroom training programs on Communication Skills (1-day) for all the front line employees. Plus, there is ongoing product training for NRI Desk, Trade Desk, Depository Desk, and so forth. The bank has introduced a comprehensive 21-day training program for its RMs covering selling and service skills, product knowledge, etc.

The training program for CSEs runs for 14 days covering topics like basic banking, product knowledge, interacting with customers, soft skills, etc.

There are specific minimum days of training for each level and function ranging from 8 to 10 man days, which is defined at the beginning of each financial year. The bank also provides the facility of online courses through its internal portal called e-Learning. For each course, that the employee completes, he / she has to appear for a test and achieve minimum 80% marks for the award of the man days associated with the course. Different courses have different man days.

**Q26.** How does the bank encourage frontline employees and empower them to exceed customer expectations?

**A.** The bank has got an internal portal called Customer First where any employee can upload his / her photograph as well as the appreciation letters received from customers and the same can be viewed by all the employees across the bank. Based on the kind of customer compliments received by the employees, they are further appreciated by the top management in the form a Letter/ Certificate of Appreciation, Trophy, and so forth. Regarding empowerment of employees, only the BMs are allowed to reverse wrongly applied service charges, within certain limits, and create customer delight. For larger amounts, necessary approval has to be taken from higher authorities. In short, the empowerment provided to the frontline employees is not adequate.

**Q27.** How does the bank deliver consistent customer experience across all customer touch points?

**A.** All the branches and ATMs have a consistent look, layout and ambience across the bank. There are uniforms for all branch staff and a formal dress code for rest of the employees. All the branch employees are well trained and monitored (through mystery shopping and satisfaction survey) to deliver a consistent experience to the customers. The bank's website and phone banking also give consistent experience to customers. In addition, there are well-defined scripts for the CSEs at both branch and phone banking.

**Q28.** Does the bank have a process in place to obtain and validate customers' permission to interact with them through various channels?

**A.** The bank has a Do Not Call register where customers can register themselves and the same is activated within 15 days. The registration can be done by filling up the Do Not Call form available in the branches and submitting it at any Drop Box. Alternatively, the registration can be done at the bank's website or through Phone banking. The bank does not have any process in place to obtain and validate customers' permission to interact with them through various channels.

**Q29.** Does the bank ensure confidentiality of customer data based on well- developed privacy policy?

**A.** The bank has a detailed privacy policy document only for Internet Banking users. However, the various distribution channels have a well- defined verification procedure to safeguard confidentiality of customer data.



## Conclusion

The case study report reveals that many of the best practices viz. top management leadership (best practice #1), investing in relationship development (best practice #2), variety of distribution channels (best practice #4), sourcing customer and employee feedback (best practice #8), customer-friendly systems (best practice #10), relationship pricing (best practice #13), use of co-branding and affinity partnering programmes (best practice #14), cross selling (best practice #17), automation of marketing, sales and service functions (best practice #18), maintaining comprehensive customer data (best practice #19), customer-centric performance standards (best practice #21), delighting key customers (best practice #23), CRM responsibilities well-defined (best practice #24), customer-oriented training programs (best practice #25), and delivering consistent customer experience (best practice #27) are really well deployed.

However, the deployment with regard to a few of the practices viz. use of the concept of CLV (best practice #3), use of guarantees for service failures (best practice #7), broadcasting customer feedback to the employees (best practice #9), wider use of customization (best practice #22), obtaining and validating customers' permission to interact with them (best practice #28), well-developed privacy policy (best practice #29), etc needs significant improvement. All the same, this case study based on Large Indian Bank will definitely inspire and guide other lagging banks and other service sector firms to go for comprehensive deployment of CRM Best Practices.

The current research is a cross-sectional study. In the future, longitudinal studies can be designed to examine the pattern of both deployment and evolution of CRM Best Practices over time. The same study can be repeated for different countries as well as for non-banking sectors. Further, the impact of deployment of CRM Best Practices on profitability needs to be determined.

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# Efficient Transaction Scheduling Algorithms for Overloaded Real-Time Database Systems

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## Abstract:

*The use of real-time database systems is growing in many application areas such as, industrial process control systems, multi-media systems and many critical data access applications. In real world system, not all transactions are equally important. In such a system environment, a critical transaction (computational task) is characterized by its computation time and a completion deadline. Overload management in real time database systems is usually taken care by worst case provisioning of the system. Further finding the program run that leads to the worst-case execution time is impossible for real-life programs. Hence system's average case execution time can be of use to provision real time systems. When such real time systems run, due to uncertainties in the environment, transactions overrun their average case execution time resulting in possible overload in the system. This work deals with new scheduling algorithms for overload management in real time database systems and experimentally evaluates them to show their superiority.*

**Key Words:** Efficient Transaction, Real Time Database, Data Consistency.

## Introduction

A real-time database is a database system which uses real-time processing to handle workloads whose state is constantly changing. This differs from traditional databases containing persistent data, mostly unaffected by time. For example, a stock market changes very rapidly and is dynamic. The graphs of the different markets appear to be very unstable and yet a database has to keep track of current values for all of the markets of the New York Stock Exchange. Real-time processing means that a transaction is processed fast enough for the result to come back and be acted on right away.<sup>[3]</sup> Real-time databases are useful for accounting, banking, law, medical records, multi-media, process control, reservation systems, and scientific data analysis.

Real-time databases are traditional databases that use an extension to give the additional power to yield reliable responses. They use timing constraints that represent a certain range of values for which the data are valid. This range is called temporal validity. A conventional database cannot work under these circumstances because the inconsistencies between the real world objects and the data that represents them are too severe for simple modifications. An effective system needs to be able to handle time-sensitive queries, return only temporally valid data, and support priority scheduling. To enter the data in the records, often a sensor or an input device monitors the state of the physical system and updates the database with new information to reflect the physical system more accurately. When designing a real-

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time database system, one should consider how to represent valid time, how facts are associated with real-time system. Also, consider how to represent attribute values in the database so that process transactions and data consistency have no violations.

When designing a system, it is important to consider what the system should do when deadlines are not met. For example, an air-traffic control system constantly monitors hundreds of aircraft and makes decisions about incoming flight paths and determines the order in which aircraft should land based on data such as fuel, altitude, and speed. If any of this information is late, the result could be devastating. To address issues of obsolete data, the timestamp can support transactions by providing clear time references.

### **Preserving Data Consistency**

Although the real-time database system may seem like a simple system, problems arise during overload when two or more database transactions require access to the same portion of the database. A transaction is usually the result of an execution of a program that accesses or changes the contents of a database. A transaction is different from a stream because a stream only allows read-only operations, and transactions can do both read and write operations. This means in a stream, multiple users can read from the same piece of data, but they cannot both modify it. A database must let only one transaction operate at a time to preserve data consistency. For example, if two students demand to take the remaining spot for a section of a class and they hit submit at the same time, only one student should be able to register for it.

Real-time databases can process these requests utilizing scheduling algorithms for concurrency control, prioritizing both students' requests in some way. Throughout this article, we assume that the system has a single processor, a disk based database, and a main memory pool.

In real-time databases, deadlines are formed and different kinds of systems respond to data that does not meet its deadline in different ways. In a real-time system, each transaction uses a timestamp to schedule the transactions. A priority mapper unit assigns a level of importance to each transaction upon its arrival in the database system that is dependent on how the system views times and other priorities. The timestamp method on relies on the arrival time in the system. Researchers indicate that for most studies, transactions are sporadic with unpredictable arrival times. For example, the system gives an earlier request deadline to a higher priority and a later deadline to a lower priority. Below is a comparison of different scheduling algorithms.

#### **Earliest Deadline**

$PT = DT$  — The value of a transaction is not important. An example is a group of people calling to order a product.

#### **Highest Value**

$PT = 1/VT$  — The deadline is not important. Some transactions should get to CPU based on criticalness, not fairness. This is an example of least slack that can wait the least amount of time. If the telephone switchboards were overloaded, people who call 911 should get priority.

#### **Value inflated deadline**

$PT = DT/VT$  — Gives equal weight to deadline and values based on scheduling. An example is registering for classes where the student selects a block of classes that he

wishes to take and presses submit. In this scenario, higher priorities often take up precedence. A school registration system probably uses this technique when the server receives two registration transactions. If one student had 22 credits and the other had 100 credits, the person with 100 credits would take priority (Value based scheduling).

### **Timing Constraints and Deadlines**

A system that correctly perceives the serialization and timing constraints associated with transactions with soft or firm deadlines, takes advantage of absolute consistency. Another way of making sure that data is absolute is using relative constraints. Relative constraints ensure transactions enter into the system at the same time as the rest of the group that the data transaction is associated with. Using the mechanisms of absolute and relative constraints greatly ensures the accuracy of data.

An additional way of dealing with conflict resolution in a real-time database system besides deadlines is a wait policy method. This process helps ensure the latest information in time critical systems. The policy avoids conflict by asking all non-requesting blocks to wait until the most essential block of data is processed.<sup>[14]</sup> While studies in labs have found that data-deadline based policies do not improve performance significantly, the forced wait policy can improve performance by 50 percent. The forced wait policy may involve waiting for higher priority transactions to process in order to prevent deadlock. Another example of when data can be delayed is when a block of data is about to expire. The forced wait policy delays processing until the data is updated using new input data. The latter method helps increase the accuracy of the system and can cut down on the number of necessary processes that are aborted. Generally relying on wait policies is a not optimal.

It is necessary to discuss the formation of deadlines. Deadlines are the constraints for soon-to-be replaced data accessed by the transaction. Deadlines can be either observant or predictive. In an observant deadline system, all unfinished transactions are examined and the processor determines whether any had met its deadline. Problems arise in this method because of variations caused by seek time variations, buffer management and page faults (An Overview of Real-Time Database Systems). A more stable way of organizing deadlines is the predictive method. It builds a candidate schedule and determines if a transaction would miss its deadline under the schedule.

The type of response to a missed deadline depends on whether the deadline is hard, soft, or firm. Hard deadlines require that each data packet reach its destination before the packet has expired and if not, the process could be lost, causing a possible problem. Problems like these are not very common because omnipotence of the system is required before assigning deadlines to determine worst case. This is very hard to do and if something unexpected happens to the system such as a minute hardware glitch, it could throw the data off. For soft or firm deadlines, missing a deadline can lead to a degraded performance but not a catastrophe. A soft deadline meets as many deadlines as possible. However, no guarantee exists that the system can meet all deadlines. Should a transaction miss its deadline, the system has more flexibility and the transaction may increase in importance. Below is a description of these responses:

1. Hard deadline: If not meeting deadlines creates problems, a hard deadline is best. It is periodic, meaning that it enters the database on a regular rhythmic pattern. An example is data gathered by a sensor. These are often used in life critical systems.

2. Firm deadline: Firm deadlines appear to be similar to hard deadlines yet they differ from hard deadlines because firm deadlines measure how important it is to complete the transaction at some point after the transaction arrives. Sometimes completing a transaction after its deadline has expired may be harmful or not helpful, and both the firm and hard deadlines consider this. An example of a firm deadline is an autopilot system.
3. Soft deadline: If meeting time constraints is desirable but missing deadlines do not cause serious damage, a soft deadline may be best. It operates on an a periodic or irregular schedule. In fact, the arrival of each time for each task is unknown. An example is an operator switchboard for a telephone.

Hard deadline processes abort transactions that have passed the deadline, improving the system by cleaning out clutter that needs to be processed. Processes can clear out not only the transactions with expired deadlines but also transactions with the longest deadlines, assuming that once they reach the processor they would be obsolete. This means other transactions should be of higher priority. In addition, a system can remove the least critical transactions. When I was pre-selecting classes on during a high traffic period, a field in the database can become so busy with registration requests that it was unavailable for a while and the result of my transaction was a display of the SQL query sent and a message that said that the data is currently unavailable. This error is caused by the checker, a mechanism that checks the condition of the rules, and the rule that occurred before it.

The goal of scheduling periods and deadlines is to update transactions guaranteed to complete before their deadline in such a way that the workload is minimal. With large real-time databases, buffering functions can help improve performance tremendously. A buffer is part of the database that is stored in main memory to reduce transaction response time. In order to reduce disk input and output transactions, a certain number of buffers should be allocated. Sometimes multiversions are stored in buffers when the data block the transaction needs is currently in use. Later, the database has the data appended to it. Different strategies allocate buffers and must balance between taking an excessive amount of memory and having everything in one buffer that it has to search for. The goal is to eliminate search time and distribute the resources between buffer frames in order to access data quickly. A buffer manager is capable of allocating more memory, if necessary, to improve response time. The buffer manager can even determine whether a transaction that it has should advance. Buffering can improve speed in real-time systems.

### **Future Database Systems**

Traditional databases are persistent but are incapable of dealing with dynamic data that constantly changes. Therefore, another system is needed. Real-time databases may be modified to improve accuracy and efficiency and to avoid conflict, by providing deadlines and wait periods to insure temporal consistency. Real-time database systems offer a way of monitoring a physical system and representing it in data streams to a database. A data stream, like memory, fades over time. In order to guarantee that the freshest and most accurate information is recorded there are a number of ways of checking transactions to make sure they are executed in the proper order. An online auction house provides an example of a rapidly changing database.

Now database systems are faster than they were in the past. In the future, we can look forward to even faster database systems. Although we have faster systems now, an effort to reduce misses

and tardy times will still be beneficial. The ability to process results in a timely and predictable manner will always be more important than fast processing. Fast processing that is misapplied is not helpful for real-time database systems. Transactions that run faster still sometimes block in such a way that they have to be aborted and restarted. In fact, faster processing hurts some real-time applications because increased speed brings more complexity and more of a chance for problems caused by a variance of speed. Faster processing makes it harder to determine which deadlines have been met successfully. <sup>[28]</sup> With future database systems running even faster than ever, there is a need to do more studies so we can continue to have efficient systems.

The amount of research studying real-time database systems will increase because of commercial applications such as web based auction houses like e-bay. More developing countries are expanding their phone systems, and the number of people with cell phones in the United States as well as other places in the world continues to grow. Also likely to spur real-time research is the exponentially increasing speed of the microprocessor. This also enables new technologies such as web-video conferencing and instant messenger conversations in sound and high-resolution video, which are reliant on real-time database systems. Studies of temporal consistency result in new protocols and timing constraints with the goal of handling real-time transactions more effectively.

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# Supply Chain Strategies in Organized Retailing

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## Abstract

*Increased competition, changing consumer patterns and emerging lifestyles have changed the era of organized retailing in India. The Indian retailing boom has acquired further momentum with the coming up of international players and experiencing dynamism and vibrancy with their innovative steps to woo the consumers. In this challenging scenario the domestic players are getting bold and experimenting in different ways to increase footfalls and conversions. This paper is mainly focused on the present and future supply chain strategies and its implementation in the near future. This paper is based on both primary and secondary information. It also identify various ways that has enabled Indian retailers to generate operational efficiency, increase productivity and improve customer experience. This paper concludes that to achieve Zero defect in managing supply chain is the biggest challenge. While infrastructure, technology, automation, process and people will play an important role, Zero defect can only be achieved through vertical integration across entire supply chain.*

**Key Words:** Supply Chain, Organized Retailing, FDI

## Introduction

The Indian retail industry has presently emerged as one of the most dynamic and fast paced industries as several players have started to enter the market. It accounts for over 10 per cent of the country's gross domestic product (GDP) and around eight per cent of the employment in India. The country is today the fifth largest global destination in the world for retail.

In 2013, the Indian retail sector was estimated at US\$ 520 billion and was among the largest employers in the country. By 2018, the Indian retail sector is likely to grow at a compound annual growth rate (CAGR) of 13 per cent to reach US\$ 950 billion. Food and grocery is the largest category within the retail sector with 60 per cent share followed by the apparel and mobile segment.

Organized retail, which constituted seven per cent of total retail in 2011-12 is estimated to grow at a CAGR of 24 per cent and attain 10.2 per cent share of total retail by 2016-17, according to a study titled 'FDI in Retail: Advantage Farmers' conducted by an industrial body.

Driven by a combination of demand, supply and regulatory factors, the Indian retail sector is set to grow rapidly with a gradual shift toward organized retailing formats. Organized retail penetration is expected to increase from 7.5 per cent in 2013 to 10 per cent in 2018 at a robust CAGR of 19-20 per cent during that period.

Tier-II and Tier-III cities such as Jaipur, Nagpur, Ludhiana, Vadodara, Aurangabad, Kochi, etc., are emerging as the new 'hot spots' of consumption. Organized retailers are increasingly setting up stores in these smaller cities with increasing focus on profitable growth in the sector. E-commerce is also expected to be the next major area for retail growth in India. Along with this, achieving profitable growth and

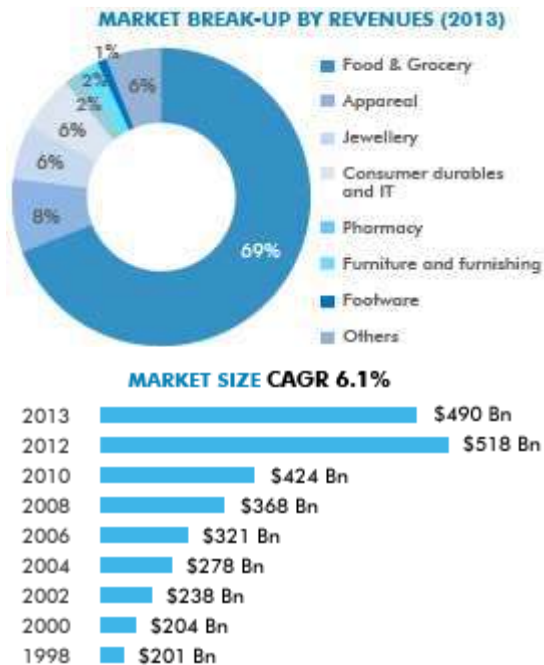
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inventory management with effective supply chain management are also some major areas of focus in the times ahead for the retail companies in India.

**Figure -1 : Market Break –Up**



Indian retail supply chain is among the fastest-changing and promising areas of the country's economy. The retail market has been growing rapidly over the past decade, attracting both foreign and domestic investors and transforming the consumer culture in India.

One of the biggest supply chain challenges faced by Indian retail companies is a lack of integration in their supply chain networks. Adding to the challenge, the numerous intermediaries, suppliers and services providers have varying levels of supply chain process maturity, making it difficult for retailers to standardize on certain policies and ways of dealing with supply chain partners.

Under current circumstances, it is difficult for the retail firms and their supply chain partners to collaborate on forecasting, replenishment and inventory management processes. The result is longer lead times and inability to create an integrated end-to-end supply chain. In addition to integration challenges, Indian retailers are faced with a number of infrastructure constraints. Despite ongoing government investment, supply chain infrastructure capabilities in India are not being developed fast enough to meet the business expansion plans in the retail industry.

This is driving Indian retail firms to develop their own innovative strategies of overcoming infrastructure constraints. Their activities in this realm have included investment in supply chain linkages with suppliers and intermediaries, building their own processing, packaging and warehousing facilities and investing in growing expertise of their tier 2 and tier 3 supply chain agents.

Indian retail industry leaders have had to apply creative approaches including building their own supply chain networks from scratch. They have had to do this in order to address existing gaps in the country's

supply chain infrastructure. In the process, some of the innovators have been able to turn the burden of infrastructure development into their own competitive advantage.

In India the food and apparel sector are the largest piece of the retail pie but both are facing acute challenges in terms of supply chain efficiency. About 60 percent of food quality is lost in the supply chain from farm to the consumer in India. If the supply chain will improve then the consumer will pay 35 percent less than what they pay because of the wastage and the multiple margins in the fragmented supply chain networks. In comparison to USA where farmer get around 70 percent of the retail price and wastage is limited to 4-6 percent, the Indian farmer gets only 30 percent of what the consumer pays. So there is a huge need to implement innovative technologies and practices to improve the supply chain efficiency in India.

### **Methodology and Information source**

Initial stage of the study consisted of interacting with the industry experts for developing the industry view and challenges. The data collected for this paper is through both primary and secondary sources. The primary data has been collected from the concerned persons in the organized retail stores like Big Bazar, Spencers, Reliance Fresh and More. The secondary data has been collected from various published and unpublished sources. Due to the time constraint the survey could not be done for more number of stores.

### **Limitations**

This study is limited to Bangalore city. The primary data has been collected from the concerned persons in the organized retail stores like Big Bazar, Spencers, Reliance Fresh and More.

1. Time Constraint: The study was limited to a very short period, so a vast coverage was not possible.
2. Area of Study: The area of study was limited as the data is confined only to Bangalore city with limited retail stores.
3. State of Accuracy: The accuracy of the judgment and conclusions may not be an exact indicator of the facts. When the survey was conducted, certain data processed from the resource persons of retail stores were irrelevant.
4. Bias of the respondents might have lead to errors in the survey and findings. Since analysis is based on opinions and suggestions, the conclusions at best are near to truth.

### **Future Plans of Supply Chain Strategy of Different Organized Retailers in India**

Future Group has started their venture in 1987 with Pantaloon and is now Indian retail giant with an annual revenue of INR 15000 Crore (2012). With value retail as their core business, the group owns Big Bazar, fashion @big bazaar, Food bazaar, Home town, e zone, Future supply chain, Future agrovet, Staples, Future Generali Insurance etc. The vision of the group is evident from the statement of their CEO- Kishore Biyani, "His business ideals are driven by LSD (Lakshmi, Saraswati and Durga). He says that unless we create wealth for all strata of society, learn from experiences and create a strong identity we can never be a super power" Future group is working on the vendor network as well as on the logistic network. The company had identified up to 40 vendors, each with turnover of US \$ 45 million, to achieve economies of scale. The group is also keen to ensure that its smaller vendors are able to reach turnover of around US \$1 Million and a growth rate of 40 percent annually, to be able to pass on the benefits of scale.

Future Group is a large business conglomerate with core focus on retail and additional business activities in a variety of sectors. Its retail business serves 300 million customers annually in 93 cities and 60 rural locations across the country.

When the company's retail business began growing fast, it realized that there was a lack of modern professional supply chain service providers in the Indian marketplace, which could enable a flexible and responsive supply chain for the company. The need for such services drove the creation of its own supply chain services subsidiary – FSC (logistics brand for Future Supply Chain Solutions Limited). FSC is now a major provider of logistics, brand distribution and supply chain optimization services for the Indian marketplace.

By creating FSC, Future Group has been able to develop its own competency in supply chain management, which has benefited not only its own supply chain, but also other players in the retail sector who have begun working with FSC since then. The company has distributed third-party consumer goods brands to Future Group's Big Bazaar/Food Bazaars and other organized retailers like Hypercity, Reliance, Metro and other major retail chains throughout India.

FSC has implemented a range of optimization initiatives in both food and non-food supply chains. In fact, it is taking the approach to supply chain management in India to the next level by attempting to follow more "scientific" principles of supply chain management – i.e. conducting more rigorous study of its clients supply chains in order to optimize them for the Indian market.

Future Group's example above resembles the path taken by IBM when it comes to supply chain optimization. In the 1990s – early 2000s, IBM overhauled its own global supply chain. The lessons learnt from this process helped IBM emerge as a leading provider of services and software solutions for supply chain management, offered through its business consulting arm. IBM often refers to its own impressive experience in supply chain restructuring when courting new clients for its supply chain consulting services.

As part of the operation Future group is also undertaking to reduce its warehousing costs through a consolidation process. In a country like India where most retail stores are located in the heart of the city, where rents are high and storage space is scarce. Supply chain management has even more serious business implications. Future logistics now handles twenty million SKUs a day across the Future group's various retail formats around the country.

Thinking of future the group is going against the current norm of contract manufacturing in food products by the other retailers to bring private level products, they are planning for manufacturing the food products which account for 50 percent of the retail revenue. The group is starting a new mega project of food park at Tumkur (near Bangalore), Future group want to save on other costs also. Logistic is around 13 percent of the retail cost of the food products and with the food park, the group is going to reduce the logistic cost to 5-6 percent.

Mohit Kampani, CEO of Spencer's Retail Ltd elaborates on how supply chain helps Spencer's Retail to manage the dynamic markets of the retail industry. The retail industry is very dynamic, with constant changes and geographical differences in the market. The role of supply chain is crucial in such a scenario. It includes demand estimation, sourcing the product at the right price, and stocking optimal quantities at the appropriate locations. Spencer's supply chain management (SCM) department manages the distribution centers and the logistics operations, where they break bulk and fulfill store orders OTIF (on-time in-full ) in a cost efficient manner. Spencer's Retail face One of the key challenges is managing perishable supply chain. While they have managed to establish linkages with farmers through collection centers, the lack of an integrated cold chain from farms to stores leads to a significant wastage. To address this, they are exploring the option of tying up with the third-party logistics partners, who have already invested in the cold chain infrastructure. Another major challenge that they face is the order fill rates from the suppliers. The Indian segment has a supplier fill rate of 70-80 percent, compared to an average above 90 percent, internationally. The poor supplier fill rate, coupled with significant end-consumer demand

variations put a lot of pressure on their supply chain. Despite all of these constraints, Spencer's strive to maintain a high in-stock rate for a wide assortment of products while retaining control over costs.

A lot of the supply chain decisions are driven by taxation considerations rather than logistics imperatives today. The roll-out of Goods and Services Tax ( GST) will enable retailers to rationalise their warehouse network and reduce non-productive assets. The second trend which Kampani (CEO at Spencer's) foresee is the improvement in the warehousing and cold chain infrastructure. He also believe that the supply chains of the future will become largely technology enabled. Collaborative supply chains that are agile and demand driven would be a source of competitive advantage.

February 2014 has come with an essence of change for Reliance Retail Ltd, Damodar Mall was appointed as the new CEO. Mall, an IIT Bombay and IIM Bangalore alumnus will be taking over Rob Cissell as chief executive of Reliance Retail's supermarket and hypermarket division. Cissell is the former COO of Wal-Mart China and is leaving his post after three years. According to a statement released by Reliance Retail, Randall Guttery will continue to remain in-charge of the cash and carry business.

Reliance Retail, which operates more than 1,500 stores in 141 cities, posted sales of 10,857 crore in the nine months ended December 2013. Reliance Industries owned Reliance Retail runs supermarkets and hypermarkets across India. These as well as grocery and cash-and-carry stores accounted for 53% or, 5,700 Crore of revenues in the first nine months of the fiscal year

Reliance Fresh stores, 650 in number, form the biggest chunk of the 'value format' business of Reliance Retail. Also under the format are Reliance Super, Reliance Mart, Delight and Autozone. Together, the value format accounted for Rs 3,928 crore of Reliance Retail's total sales of Rs 7,600 crore in 2011-12, according to the company's executives. (Reliance Retail also has 18 'speciality format' brands, many in joint venture with global brands, such as Marks & Spencer and Office Depot. These account for the rest of the revenue.) Almost eight years ago, when Mukesh Ambani got into the retail business, he planned on a mammoth scale, as he does for every other business. And though in the first few years, Reliance Retail had its fair share of problems, Ambani never lost faith.

Reliance Retail stands apart from its peers on various counts. First, it is experimenting with more formats than others. Even Kishore Biyani, the pioneer of organised retail in India who has experimented with over a dozen formats, does not have the range and variety of stores that Reliance has — three value formats including cash and carry, and 18 speciality formats. More importantly, no other organised retailer in India has probably focused as heavily on the fruits and vegetables (F&V) segment as Reliance has.

Traditionally, organised retailers have downplayed the F&V segment because of problems of uniform supply, spoilage (as high as 35-40 per cent) and often political opposition. Thus, while Ernst & Young (E&Y) estimates that \$280 billion of the total \$450 billion retail market in India is made up of the F&V segment, in organised retail just about \$3 billion of the total \$28 billion comes from food and grocery.

Finally, the biggest difference between Reliance Retail and many of its peers is the money that is going to be invested. Biyani is currently India's biggest retailer with Big Bazaar, Food Bazaar and KB's Fair Price, but his investment and expansion plans have slowed down because of debt burden. The other players with enough money — including Aditya Birla Group's More, RPG's Spencer's and Bharti's Easyday — are treading cautiously because of the overall economic slowdown. But Reliance wants to invest aggressively and become the biggest player. Already, in a short span of five years, it has become the second biggest player in organised retail. Reliance believes that while hypermarkets are the way to go in the metros and bigger cities, the smaller supermarkets (12,000-18,000 sq. ft) will do well in smaller places. "In large formats, the margins are better, footfalls are high and shelf-space is large, When Reliance opened its first store in 2006, Big Bazaar and Spencer's led in the groceries, food and beverage segment. Reliance

poached executives from P&G, Hindustan Unilever and the existing retailers and built its original retail A-team.

The Reliance business model focused on building a strong supply chain that would source directly from farms and also mandis, and sell cheaply to compete with neighbourhood stores. But it ran into political resistance almost immediately. In states where it faced exceptional resistance to its value format, Reliance decided to stick to the speciality formats. For the first two years, Reliance Retail struggled with other problems as well. The retail business model has not yet been perfected. Reliance was spending a lot without commensurate gains. It had opened many stores but was not leading in any segment. Then the slowdown hit, and things worsened. But it also opened a window of opportunity. The company shut unviable stores and focused on new ones. During the global economic recession in 2008-09, Indian retail's most aggressive player, Biyani, found himself overleveraged and needed to go slow on expansion. Others adopted a cautious approach. Reliance, meanwhile, with its hoard of cash, worked on fine-tuning its business model, building a robust supply chain backed by technology, and closing some smaller formats while building new and bigger stores.

Aditya Birla Retail Limited (ABRL) is the retail arm of Aditya Birla Group company. ABRL is the fourth largest supermarket chain in the country after Future Group, Reliance Retail and D-Mart. It operates two different store formats - Supermarket and Hypermarket under the brand More.. It has about 491 supermarkets and 15 hypermarkets around the country. ABRL plans to open 100 supermarkets and 6-8 hypermarkets. To fund this expansion, ABRL has borrowed Rs 500 crore from Yes bank.<sup>1</sup> Besides this, it has decided to increase its borrowing limit to Rs 7,500 crore from Rs 5,000 crore.

Aditya Birla Retail Limited provides customers products under its own labels. Private label Food Brands include Feasters, Kitchen's Promise, and Best of India. Home & Personal care brands include Enrich, 110%, Pestex, Paradise and Germex. As per a report in Economic Times, Aditya Birla Retail Ltd (ABRL) with its 500 + 'More' branded supermarkets and 14 hypermarkets reported Sales of Rs 1,966 crore and a net loss of Rs 650 crore in the year ended March 2012. The company has accumulated losses of Rs 2,984 crore since it entered the segment over six years ago

On July 15, 2014, Mr. Kumar Mangalam Birla announced the merger of all the retail businesses and create a single listed company. As a part of this restructuring effort, Fashion & Lifestyle business will be de-merged from the Aditya Birla Nuvo and merged with other retail businesses. It is likely that after the merger is complete, about 20% of the stock would be sold to PE players to raise Rs. 3000 crore. However, the restructuring plan has yet not been finalized but once implemented it will bring operational and cost efficiency in the entire supply chain of the group.

## **Conclusion**

To conclude, the supply chain management has to take the necessary steps in response to the changing environment of the retail scenario. They will have to adapt the strategies which suits to new challenges of supply chain management. To achieve Zero Defect in managing supply chain is the biggest challenge. While infrastructure, technology, automation, process and people will play an important role, zero defect can only be achieved through vertical integration across entire supply chain, raw material supply, production, wholesale and retail. The different parts of the supply chain will no longer be able to work in silos as they do today. To reduce the transportation and logistics costs, the logistics sectors has to plan the transportation, procurement, route planning, small parcel shipping and international trade logistics for global multi modal operations. Firms will need to stage inventory throughout multiple echelons to reduce the impact of transportation variability and high transportation cost. The multi-echelon staging will create networks with many distribution points and double handling of products. By investing in additional capacity flow, like dock-doors and staging floor space, firms will add more capacity for quick off-loading, reducing the impact of increased transportation investments and costs. To buffer lead time variability, firms should set up final distribution within the independent, local markets, they plan to serve.

By starting in a few highly concentrated cities, a regionalized distribution scheme will enable firms to support branded stores or distribution operations, while building relationship with local entities to expand their presence. As volume grows and transportation improves, firms can convert regional stocking facilities to flow through and add centralized facilities as sourcing and stocking points. However to support this more efficient multi tiered strategy, firms will need to vie for space now as land availability has become a big issue.

Addressing the complexities of operation and keeping costs under control is a major concern for retailers in India. Managing the supply chain, backward integration, merchandising, planning and fulfillment, maximizing footfall to conversion ratios and average bill value, and workforce management are some of the major issues facing retailers. Once retailers have successfully reached scale, they want to increase reach. The question that most retailers are asking now is how to build a strong IT backbone that can support the optimization in these areas. Some retailers have had the opportunity to learn from other retailers outside India and implement most current IT systems to support and scale operations. This has enabled Indian retailers to generate operational efficiency, increase productivity and improve customer experience. Like with other emerging industries, this has been a learning process with retailers overcoming on-ground realities.

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# Minimum Wage Act, 1948 for Education and Practice

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## Introduction:

The basic connotation of Minimum Wages would mean payment of wages at the minimum rate as determined to be. The concept of wages evolves from lot of theories such as deduction theory, subsistence theory and theory of marginal productivity. All these theories centrally envisage wages as and remuneration paid to the workers for the labour invested by them for production on service of goods. Also the wage is deemed as residue remaining after distribution of production into other constituent of production. The factors influencing the allocation of share of wages in the national product are: 1. No of workers engaged, 2. Proportion of capital to labour, 3. Technical and marginal efficiency, 4. Prices of raw materials, 5. Extent of competition, 6. Bargaining strength of workers, 7. Policy of the Government.

## Objective:

The objective of the Act is to provide for fixation of minimum rates of wages in employment in which the labour is vulnerable to exploitation. Being not well organized and having no effective bargaining power. The Act provides for the machinery for fixing wages and makes certain other provision relating to hours of work, over time payment and rest day.

The minimum wages is fixed with an aim to mostly prevent “Sweated Labour” from exploitation. It is obvious that sweated labour is prevalent in un-organized sector where workers have weaker bargaining power because of thin growth of trade Unionism. Accordingly, various trades in unorganized sector have been scheduled categorically. Nonpayment of MW is deemed as a constitutional right under Art.-23 as a forced labour. This is interpreted with regard to the judgment of the Hon’ble Supreme Court in a case decided between PUDR Vs UOI(AIR-1982-SC-1473), famously known as Asiatic Case. Further, Minimum wages fixation convention in the article 224 of the above ILO code, stipulates to fix minimum wages in industries where no arrangement exists for the effective regulation of wages by collective agreement or otherwise and wages are exceptionally low. **The Hon’ble Supreme Court of India has observed that the object of the Act is directed against exploitation of the ignorant, less organized and less privileged members of the society by capitalist class.** The Act aims to prevent exploitation of labour, improving their general, economic conditions in suppression of old principle of absolute freedom of contract and doctrine of *laicize faire*. The Central Government authorized the State Government to prescribe minimum rate of wages in scheduled employment.

The term minimum wages has not been defined under the provisions of the Act in clear tone, understandably, it is done so because of inability of the Government to lay down a uniform minimum wages for all industries throughout the Country on account of different and varying conditions prevailing from industry to industry and from one part of the Country to another. The legislature also thought it to be inappropriate to apply the Act to all industries at a time.

In order to understand the concept of minimum wages, it would be desirable to know the meaning as such. In plain terms, **wages is a remuneration to labour for the work done or service rendered into the employer.** These wages constitute the earning for the workman, which in turn, determine his standard of living and that of his family. They also determine standard of his efficiency and consequently level of

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<sup>1</sup> *Regional Labour Commissioner(C), Bhubaneswar.*



his productivity. Under section 2(h) of the Act, the wage is defined as : "All remuneration, capable of being expressed in terms of money, which would in **terms of the contract of employment, express or implied, were fulfilled, be payable to a person employed in respect of his employment or work done in such employment**". But before going to the further details of various types of minimum wages, under the Minimum Wages Act, it would be imperative to discuss concepts of minimum wages.

There are broadly of three types wages- (i) Living wages, (ii) fair wages &(iii) minimum wages.

**Living Wages:** Though it is not expressly defined anywhere, still broadly speaking, it means a sum sufficient for the normal and reasonable needs of the average employee living in a locality where work is done. In other words, it is the sum **required to satisfy normal human needs such as food, clothing and shelter, minimum of comfort and luxuries which include education to children and social security for an employee, his wife and two children.** It is the wage which will maintain the workman to his highest state of industrial efficiency and enable him to provide his family with all material things which are needed for their health and physical well being and will be enough to enable him to qualify to discharge his duties as a citizen. **In the ladder of wages, it is the minimum wages which remain on the bottom most position up or step ahead is the fair wage and the living wages is fixed in the topmost position of the ladder.** In Indian context, living wage is a dream for workers. They are getting maximum the fair wage in most of the cases. However, very few may be getting wages close to the living wages. It is a relative form and depends on the health and willingness of the organization. The living wage according to the Committee on fair wages represented the highest level of the wage and naturally **it would include all amenities** which a citizen living in a modern civilized society was entitled to expect when the economy of the Country was sufficiently advanced and the employer is able to meet the expanding aspirations of his workers without much hesitation on account of his economic affluence.

**Fair wages:** Fair wage is a mean between the living wage and the minimum wage. In Express Newspaper Ltd Vrs Union of India, Justice Bhagawati [1959] SCR 12 observed that Marshall would consider the rate of wages prevailing in an occupation as fair, if it is about on level with the average payment for task in other trade which are of equally differently and disagreeableness which require equally rare natural abilities and expensive training.

The fair wage will be considered on consideration of following factors:-

## **Productivity of labour**

**The prevailing rate of wages** in same industry for similar occupation in the same locality. **The level of national income and its distribution.** The place of industry in the economy of the Country.

## **Minimum Wages :**

It's the bottom line of wages which is legally notified under the act and the employer is compelled to pay irrespective of his economic conditions, his ability/capacity to pay or not. It is fixed on various considerations which have been evolved over the years by virtue of recommendations of different groups/committees which consider, the socio economic conditions of the country/region vis-vis capacity of the employer to pay and bargaining power of the working class, such other criteria as deem to be important, followed decisions of different High Courts/Supreme Court of India.

## **Fixation**

The basic contention in fixing minimum wages should be the capacity of a particular industry in a specified region and as far as possible, the same wages should be prescribed for all units of that industry in that region. This is known as industry-cum –region basis for fixation of wages. The Supreme Court in its judgment – Ahmadabad Mill Owners Association Vs Textile Labour Association opined that the task

of constructing a wage structure of industrial employee is a very responsible task and it presents several difficult and delicate problems. The claim of the employee for a fair and higher wages is undoubtedly based on concept of social justice and its inevitable plays a major part in construction of wage structure. There can be little doubt that if the employees are paid a better wages which would enable them to live in fair comfort and discharge their obligations to the members of their family in a responsible way.

The Minimum Wages Act does not provide for any discrimination between male and female workers or different minimum wages for them. All the provisions of the Act equally apply to both male and female workers. Norms for fixation/revision of minimum wages **The norms include those which were recommended by the Indian Labour Conference in its session held in 1957.**

(a) 3 consumption units for one earner. (b) Minimum food requirements of 2700 calories per average Indian adult. (c) Clothing requirements of 72 yards per annum per family.(d) Rent corresponding to the minimum area provided for under Government's Industrial Housing Scheme.(e) Fuel, lighting and other miscellaneous items of expenditure to constitute 20% of the total Minimum Wages.

Other parameters as per the judgment was delivered by the Supreme Court of India in 1991 in the case of Reptakos Brett and Co. Vs. its workmen.(Reported 1992 AIR 504,)

**"Children education, medical requirement, minimum recreation including festivals/ceremonies and provision for old age, marriage etc. should further constitute 25% of the total minimum wage."**

(ii) Local conditions and other factors influencing the wage rate.

While fixing minimum wages, not only comfort level of the workers are assessed, but also at the same time the factors which influence the fixation of the wages are those which influence the trade, industry, region, skill wise etc as a whole..

Under the Act, Central and State Governments are appropriate Governments to

(a) notify scheduled employment (b) fix/revise minimum wages

The Act contains list of all these employments for which minimum wages are to be fixed by the appropriate Governments. There are two parts of the Schedule. Part I has non-agricultural employments whereas Part-II relates to employment in agriculture.

Criteria for notification of scheduled employment Under the provisions of the Minimum Wages Act, 1948, both Central and State Governments are appropriate Governments to fix, review and revise the minimum wages of the workers employed in the scheduled employments under their respective jurisdictions. The appropriate Governments have also been empowered to notify any employment in the schedule where the number of employees is 1000 or more and fix the rates of minimum wages in respect of the employees employed therein. There are 45 scheduled employments in the Central Sphere while in state sphere as many as 1500 schedule employment are in vogue.

## **National Wage Policy**

Though it is desirable to have a National Wage Policy it is difficult to conceive a concept of the same. The National Wage Policy has been discussed on many occasions in different forum. Because fixation of wages depends on a number of criteria like local conditions, cost of living and paying capacity also varies from State to State and from industry to industry, it would be difficult to maintain uniformity in wages. The Indian Labour Conference, held in November, 1985expressed the following views "Till such time a national wage is feasible, it would be desirable to have regional minimum wages in regard to which the Central Government may lay down the guidelines. The Minimum Wages should be revised at regular

periodicity and should be linked with rise in the cost of living". Accordingly, the Government issued guidelines in July, 87 for setting up of Regional Minimum Wages Advisory Committees. These Committees renamed subsequently as Regional Labour Ministers' Conference, made a number of recommendations which include education in disparities in minimum wages in different states of a region, setting up of inter-state Coordination Council, consultation with neighbouring States while fixing/revising minimum wages etc. Steps taken to reduce disparities Five Regional Committees. There is disparity in rates of minimum wages in various regions of the country. This is due to differences in socio-economic and agro-climatic conditions, prices of essential commodities, paying capacity, productivity and local conditions influencing the wage rate. The regional disparity in minimum wages is also attributed to the fact that both the Central and State Governments are the appropriate Government to fix, revise and enforce minimum wages in scheduled employments in their respective jurisdictions under the Act. To bring uniformity in the minimum wages of scheduled employments, the Union Government has requested the States to form regional Committees. At present there are five Regional Minimum Wages Advisory Committees in the country, which are as under: -

### **Region States/UTs covered**

**Eastern Region** -6 States-West Bengal, Orissa, Bihar, Jharkhand, Chhattisgarh and Andaman & Nicobar Islands.

**North Eastern Region** (8) Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim.

**Southern Region** (6) Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Pondicherry and Lakshadweep.

**Northern Region** (9) Punjab, Rajasthan, Himachal Pradesh, Jammu & Kashmir, Haryana, Uttar Pradesh, Uttarakhand, Delhi and Chandigarh.

**Western Region** (6) Maharashtra, Gujarat, Goa, Madhya Pradesh, Dadra & Nagar Haveli and Daman & Diu.

### **National Floor Level Minimum Wage**

In order to have a uniform wage structure and to reduce the disparity in minimum wages across the country, a concept of National Floor Level Minimum Wage was mooted on the basis of the recommendations of the National Commission on Rural Labour (NCRL) in 1991. Keeping in view the recommendation of NCRL and subsequent rises in price indices, the National Floor Level Minimum Wage was fixed at Rs.35/- per day in 1996. Keeping in view the rise in Consumer Price Index the Central Government raised the National Floor Level Minimum wage to Rs.40/- per day in 1998. Further to Rs.45/- w.e.f. 01.12.1999 and Rs. 50/- per day w.e.f. 01.09.2002. Based on the norms suggested by the Working Group and its acceptance by the Central Advisory Board subsequently in its meeting held on 19.12.2003, the National Floor Level Minimum Wage was revised upwards to Rs.66/- per day with effect from 1.02.2004. On the basis of increase in the Consumer Price Index, the Central Government further revised the National Floor Level Minimum Wages from Rs.66/- to Rs.80/- per day with effect from 01.09.2007. Recently, the Govt has revised the National Floor Minimum Wages of late to be Rs 115/-.

It is, however, clarified that the National Floor Level Minimum Wage, is a non-statutory measure to ensure upward revision of minimum wages in different States/UT's. Thus, the State Governments are persuaded to fix minimum wages such that in none of the scheduled employments, the minimum wage is less than National Floor Level Minimum Wage. This method has helped in reducing disparity among different rates of minimum wages to some extent. To sum up, effective implementation of the Minimum

Wages Act, 1948, including that of the revision of minimum wages at national floor level minimum wage or higher; which primarily falls in the State sphere, is assiduously pursued by us through discussion, writing letters, personal interaction and visits to States, including the North-Eastern States. The State Governments are regularly asked to fix and revise minimum wages in scheduled employments to be at least at par with National Floor Level Minimum Wages.

## Recent Initiatives

Based on the recommendations of the Minimum Wages Advisory Board (MWAB) in its meeting held on 22.01.2008 and 26.06.2008, the Ministry of Labour & Employment has issued the Final Notification in the Gazette of India (Extra Ordinary) fixing the minimum rates of wages for workers employed in the scheduled employments “Employment of Sweeping and Cleaning” in the Central sphere and for “Employment of Watch and Ward” with and without arms

## Important Provision under the Minimum Wages Act, 1948

### Sec-2(b) –

**(i)-Central Govt.** would be appropriate Govt. in respect of following establishment,

- (a)- In relation to any scheduled employment carried on by or under the authority of Central Govt.
- (b)- or a railway administration, or in a mine, oilfield or a major port
- (c)- or any corporation established by a Central Act.

**(ii) -In respect of *any other scheduled employment, the State Govt.***

[ (a) "adolescent" means a person who has completed his fourteenth year of age but has not completed his eighteenth year;

(aa) "adult" means a person who has completed his eighteenth year of age;]

### **2(e)-employer-**

Any person who employs, whether directly or through another person, or on behalf of himself or any other person, one or more employees in any scheduled employment in respect of which minimum rate of wages have been fixed under this Act, and includes:-

**(a)** factory manager if it is a **factory**, **(b)** The person or authority appointed for the supervision and control of the employees, head of the department where authority is not appointed- **if the scheduled employment is under the control of the Govt. of India**, **(c)** Authority appointed for the supervision and control of the employees or CEO-in any scheduled employment under a **local authority**, **(d) Any person responsible to the owner for the supervision and control** of the employees or for the payment,

**2(h)-Wages-** Remuneration capable of expressed in terms of money fulfilling the terms of employment expressed or implied of the work done in the employment including the house rent allowance but would exclude value of the following;\_

(i) house accommodation, supply of light water, amenities which is general in character or as per the order of the app. Govt. (ii) EPF contribution of the employer or in social insurance (iii) TE (iv) Special allowance involved with his nature of employment, (v) Gratuity payable on his discharge.

**2(i)- Employees** –“employee” means any person who is employed for hire or reward to do any work, skilled or unskilled, manual or clerical, in a scheduled employment in respect of which minimum rates of wages have been fixed; and includes an out-worker to whom any articles or materials are given out by another person to be made up, cleaned, washed, altered, ornamented, finished, repaired, adapted or

otherwise processed for sale for the purposes of the trade or business of that other person where the process is to be carried out either in the home of the out-worker or in some other premises not being premises under the control and management of that other person; and also includes an employee declared to be an employee by the appropriate Government; but does not include any member of the Armed Forces of the Union Govt.

### **3(1) Fixing of the Minimum Wages:-**

The **appropriate Govt.** shall in the manner prescribed under law –

(a)Fix the minimum rates of wages payable to employees employed in an employment specified in **Part-II of the schedule and in an employment added to either Part by notification under Sec-27** of the statute. It may be fixed for the whole state or part of the state ,for any specified class or classes of such employment in the whole or part thereof, (b)Review at such intervals **not exceeding 5 years revises the rates**. It can be revised thereafter and old rate would continue to hold good.

**Part- I** -contains 34 Employments with 21 mines establishments,

**Part –II** - Agriculture and services involved in it.

**3(1-A):** Govt. may refrain from fixing the rates if there are in the whole state less **than 1000** employees are engaged.

**3(2):-** It may be fixed in (a)Time rate (b) Piece Rate (c)A guaranteed time rate (d)Over Time rate

**3(2-A)-** During pendency of dispute under the ID Act relating rates of wages payable to employees employed in a scheduled employment, the rate shall not be fixed.

**3(3) (a) Rates of wages may be fixed for :-** (i) Different scheduled employment, (ii) Different classes (iii)Adult, adolescent, children and **apprentices** (iv) Different localities

**3(3) (b) Minimum wages can be fixed by one or of the following period and as per the wage period fixed under the P. W. Act –** (i) by the hour (ii) by the day (iii) by the month (iv) or by such larger period as may be prescribed

**4. Minimum rate of wages- (1) It may consist of** (i) A basic and special allowance at a rate to be adjusted at such interval, to accord as nearly as practicable with variation of the Cost of Living Index number, (ii) A basic rate of wages or without the cost of living allowance and cash value of the concession in respect supplies of essential commodities at concessional rates, where so authorized; (iii) and all inclusive rate allowing for the basic rate, CLI and value of concession inclusive rate can be fixed. (2) The CLI and concessional cash value shall be computed by competent authorities.

### **5. Procedure for fixing and revising minimum wages**

Two methods have been provided for fixation/revision of minimum wages. They are Committee method and Notification method.

#### **Committee Method**

Under this method, committees and sub-committees are set up by the appropriate Governments to hold enquiries and make recommendations with regard to fixation and revision of minimum wages, as the case may be.

**Notification method:** In this method, Government proposals are published in the Official Gazette for information of the persons likely to be affected thereby and specify a date not less than two months from the date of the notification on which the proposals will be taken into consideration. After considering advice of the Committees/Sub- committees and all the representations received by the specified date in Notification method, the appropriate Government shall, by notification in the Official Gazette, fix/revise the minimum wage in respect of the concerned scheduled employment and it shall come into force on expiry of three months from the date of its issue. (1) For the first time- (a) through committees, sub-committees to hold enquiries or (b) by suggestion and objection by dint of a proposal with a date specified not less than 2 months and consulting the minimum advisory board (2) 3 months suggestion and objection period specifying the rate of wages, **Sec-6,7,8** on Constitution of advisory committee and Advisory Board- **Sec-9-** Composition of committee, **Sec-10-Correction of errors, Sec-11-Payment of wages in kind-Can be paid wholly or partly by kind where it is customary to pay wholly or partly in kind. Essential commodities supplied at concessional rate shall be notified while the same is paid in kind. Also cash value of wages paid in kind and of concessions in respect of supplies of essential commodities at concessional rate shall be estimated in the prescribed manner, Sec-12-** Obligation on the part of the employer to pay the minimum wages at the rate fixed by the appropriate Govt. without any deductions Also applicability of the P.W. Act in vogue, **Sec-13- Fixing of working hours with specified interval which can be or more in numbers, provide for a rest day in every period of 7 days.(W.O) If allowed to work on the rest day, payment of O.T. rate is essential. Details mentioned under Rule-23 of the MW Central Rules with regard to Weekly –off, Rule-24 with regard to working hours, it stipulates to be not more than 9 hrs a day in case of an adult & adolescent & 4 ½ hrs in case of a child, Sec-13(2)-However, deviation can be prescribed with regard to work which is intermittery, preparatory, complimentary, emergency, requires technical reasons, Sec-14- Payment of OT rate for working beyond the ordinary working hrs. shall be paid in excess of the number of hrs engaged. Details mentioned under Rule-25 of the MW Central Rules with regard to payment of OT if a worker works for more than 48 in any week, Overtime.- 14(1) Where an employee, whose minimum rate of wages is fixed under this Act by the hour, by the day or by such a longer wage-period as may be prescribed, works on any day in excess of the number of hours constituting a normal working day, the employer shall pay him for every hour or for part of an hour so worked in excess at the overtime rate fixed under this Act or under any law of the appropriate Government for the time being in force, whichever is higher.**

(2) Nothing in this Act shall prejudice the operation of the provisions of 59 of the Factories Act, 1948 (63 of 1948) in any case where those provisions are applicable, **Sec-15- Wages for working less than normal working day-** An employee is entitled to get full wages as if he has worked for the whole day unless his failure to work is caused by his unwillingness to work and not by the omission of the employer to provide him with work and in other cases as prescribed. In such cases he may be paid proportionally by the employer, **Sec-16- Wages for 2 or more classes of work-** MW is payable as per rate specified by the Appr. Govt., **Sec 17- MW Can be fixed for piece rate, but not less than the rate specified in the time rate or otherwise, Sec-18-To maintain registers as per the MW Central Rules-21(2),21(4),26(2), 27(5), 27(6) Sec- 20- It relates to filing of claim cases for less payment and realization of differential minimum wages. Can be realized within 6 months from the date on which the minimum wages or other amount became payable. Can be filed beyond 6 months when the applicant satisfies the authority he had sufficient cause for not making the application within the stipulated period. (2)Where an employee has any claim of the nature referred to in sub-section (1)], the employee himself, or any legal practitioner or any official of a registered trade union authorized in writing to act on his behalf, or any Inspector, or any person acting with the permission of the Authority appointed under sub-section (1), may apply to such Authority for a direction under sub-section (3): Provided that every such application shall be presented within six months from the date on which the minimum wages or other amount became payable:**

Provided further that any application may be admitted after the said period of six months when the applicant satisfies the Authority that he had sufficient cause for not making the application within such period. (3) When any application under sub-section (2) is entertained, the Authority shall hear the applicant and the employer, or give them an opportunity of being heard, and after such further inquiry, if any, as it may consider necessary, may, without prejudice to any other penalty to which the employer may be liable under this Act, direct-- (i) in the case of a claim arising out of payment of less than the minimum rates of wages, the payment to the employee of the amount by which the minimum wages payable to him exceed the amount actually paid, together with the payment of such compensation as the Authority may think fit, not exceeding **ten times the amount of such excess**; (ii) in any other case, the payment of the amount due to the employee, together with the payment of such compensation as the Authority may think fit, **not exceeding ten rupees**, and the Authority may direct payment of such compensation in cases where the excess or the amount due is paid by the employer to the employee before the disposal of the application. (4) If the Authority hearing any application under this section is satisfied that it was either malicious or vexatious, it may direct that a penalty not **exceeding fifty rupees** be paid to the employer by the person presenting the application. (5) Any amount directed to be paid under this section may be recovered-- (a) if the Authority is a Magistrate, by the Authority as if it were a fine imposed by the Authority as a Magistrate, or (b) if the Authority is not a Magistrate, by any Magistrate to whom the Authority makes application in this behalf, as if it were a fine imposed by such Magistrate. (6) Every direction of the Authority under this section shall be final.

## **22. Penalties for certain offences.**

Any employer who-- (a) pays to any employee less than the minimum rates of wages fixed for that employees class of work, or less than the amount due to him under the provisions of this Act, or (b) contravenes any rule or order made under section 13, shall be punishable with imprisonment for a term which may extend to six months, or with fine which may extend to **five hundred rupees**, or with both: Provided that in imposing any fine for an offence under this section, the Court shall take into consideration the amount of any compensation already awarded against the accused in any proceedings taken under section 20.

### **General provision for punishment of other offences.**

**22A. General provision for punishment of other offences.-** Any employer who contravenes any provision of this Act or of any rule or order made there under shall, if no other penalty is provided for such contravention by this Act, be punishable with fine which may extend to **five hundred rupees**.

## **23. Exemption of employer from liability in certain cases**

Where an employer is charged with an offence against this Act, he shall be entitled, upon complaint duly made by him, to have any other person whom he charges as the actual offender, brought before the Court at the time appointed for hearing the charge; and if, after the commission of the offence has been proved, the employer proves to the satisfaction of the Court--(a) that he has used due diligence to enforce the execution of this Act, and (b) that the said other person committed the offence in question without his knowledge, consent or connivance, that other person shall be convicted of the offence and shall be liable to the like punishment as if he were the employer and the employer shall be discharged:

Provided that in seeking to prove, as aforesaid, the employer may be examined on oath, and the evidence of the employer or his witness, if any, shall be subject to cross-examination by or on behalf

**25. Contracting out.-** Any contract or agreement, whether made before or after the commencement of this Act, whereby an employee either relinquishes or reduces his right to a minimum rate of wages or any

privilege or concession accruing to him under this Act shall be null and void in so far as it purports to reduce the minimum rate of wages fixed under this Act.

**26. Exemptions and exceptions.-** (1) The appropriate Government may, subject to such conditions if any as it may think fit to impose, direct that the provisions of this Act shall not apply in relation to the wages payable to disabled employees.

### **IMPORTANT RULES IN MINIMUM WAGES CENTRAL RULES, 1950**

**Rule-21:** It stipulates for payment of wages to workers in any scheduled employment in the light of provisions of the payment of wages Act like stipulating disbursement of wages before the expiry of 7<sup>th</sup> day in the establishment having less than 1000 persons and before the 10<sup>th</sup> day in the establishment having more than 1000 workers. However, statutory deductions have been prescribed under Payment of Wages Act with a ceiling which can be deducted in more than 75% where deductions are to be made through a Co-operative Society and 50% in other cases.

To submit Annual Return in Form III as per Rule 21(4-A) before 1st of February, of the following year.

**Rule-22:** It stipulates the Minimum rates of wages fixed, Name and address of the Inspector displayed on the Notice Board.

**Rule-23:** It stipulates the weekly day of rest of a employee shall be allowed to a day of rest in every week, which shall be ordinarily Sunday, but the employer may fix any other day of the week as the rest day for any employee working continuously for a period of 6 days. The employee shall be also paid wages for the weekly off provided he is not a monthly paid worker and subsequent holiday to be granted to him. However, in Exigency the weekly off can be adjusted by way of before or after 5 days of the designated weekly off day in the existing 10 days. The wages for the rest day shall be paid in the last day of the day the employee worked in the week i.e. before the rest day or the substituted rest day. The workman is advised to work on the rest day on which he has worked at OT rate at double the rate of original wage in case of non-agricultural establishment at 1 and half times in the case of agricultural establishment.

**Rule-24:** It stipulates the working hours for adult to be in a day be 9 hours and in case of child to be 4 ½ hours of work. Further entire period of work shall not be more than 12 hours on any day. The working hours of a adolescent shall be as that of child or adult as he certified to be and will be paid full day wages.

**Rule-25:** It stipulates extra wages for over time and it will be calculated on original wages of the workman if he works for more than 9 hours in any day or 4 hours in any working day. He shall be paid duty wages @ mentioned above and for the period the ordinary wages means Basic wages +such allowances including cash equivalent of advantages occurring through the concessional sale to the person employed of food grains and other articles etc.

**Rule-26:** It stipulates the maintenance of registers and records are to be preserved for a period of three years.

**Rule-27:** It stipulates the process of filing application before the Authority identified under the Minimum Wages Act, 1948.



## **NAME OF THE REGISTER & FORM NO.**

Register of Fines FORM I Rule 21(4) (a) Register of deductions for damage or Loss FORM II Rule 21(2) (b) Overtime Register for Workers FORM IV Rule 26(2) (c) Muster Roll FORM V Rule 27(5) (d) Register of Employees FORM XI Rule 27(6). To exhibit notices containing minimum rates of wages, abstract of the Act and the state Rules in Form X.

### **Consequence of Non-Compliance of the Requirements:**

Failure to pay the minimum rate of wages, or a violation of any Section or Rule may attract penalty of imprisonment up to 6 months or fine of Rs. 500/- or both.

### **Enforcement**

The enforcement of the Minimum Wages Act, 1948 is secured at two levels. While in the Central Sphere, the enforcement is secured through the Inspecting officers of the Chief Labour Commissioner(Central) commonly designated as Industrial Relations Machinery(CIRM), the compliance in the State Sphere is ensured through the State Enforcement Machinery. They conduct regular inspections and in the event of detection of any case of non-payment or under-payment of minimum wages, they advise the employers to make payment of the shortfall of wages. In case of non-compliance, penal provisions prescribed in the Act are taken recourse to National Wage Policy. The appropriate Government appoint various officers as Authority to hear and decide for any specified area all claims arising out of payment less than the minimum rates of wages or in respect of the payment of the remuneration for days of rest or for work done on such days or of wages at the overtime rate, to the employees employed or paid in that area.

The claim applications shall be presented within six months from the date on which the minimum wages or other amount became payable. The employee himself or any legal practitioner or any official of a registered trade union authorized in writing to act on behalf of the employee or any Inspector or any person acting with the permission of the Authority may apply to such authority for a direction over the claim. Any employer who contravenes any provisions of the Act or of any rule or order made there under can be prosecuted in the Court of law. The Complaint for prosecution has to be filed by or with the sanction of an inspector. Any contract or agreement, whether made before or after the commencement of this Act, whereby the employee either relinquishes or reduces his right to a minimum rates of wages or any privilege or concession accruing to him under this Act shall be null and void in so far as it purports to reduce the minimum rates of wages fixed under this Act. The appropriate Government may make rules for carrying out the purposes of this Act. Such rules may provide amongst other things the form of registers and records to be maintained and the particulars to be entered in such registers and records.

*Dr K.C.Mishra<sup>1</sup>*

## **Prelude to the Business**

For Anjali and Ambika (Ganapathy) management is about performance. They are less interested in what managers do than in what they produce. The fundamental purpose of management is to create output that satisfies customers; at Pigout it is satisfying the customers who eat Coorg food. For the above sisters here, the managerial output is Coorg food and their outputs are satisfied eaters, and so on.

## **How did it Happen**

The Ganapathys after, graduating in their respective academic fields, acquired business acumen based on their collective years of experience gathered over a period of fifteen years of working in the corporate and creative fields. Anjali worked as marketing professional with NDTV and Carlsberg, Ambika was a film professional who had to manage a crew of about hundred people.

They are from Kodagu and felt let their own cuisine enjoy market @ Bangalore and outside meeting the requirements of one and all. The recipes have been handed over to them from the family ensuring uniqueness of the taste. They chose this as the cultural background was well understood. Then they started Pigout in 2011 as a hobby bringing realizations that enough exposure to Coorg food at food festivals or in restaurant space were not available. Hoping to enjoy the experience as a pastime simultaneously earning livelihood from other sources, the duo started getting orders and realized of their definite following.

A time came for them to feel they had stumbled into something which could potentially be a very exciting prospect but failed to see the prospect of turning into a substantial business. They kept the overhead low, did not own a restaurant not to bother about laws of the land/licensing and labour management and started operating from home hiring out equipments when orders were huge. All costs could be recovered from each individual order itself.

## **Pigout: The New Venture**

Only the paranoid survive, Pigout scanned the environment to intelligently go ahead as the best capable of adaptation. They are extremely fortunate to see very few players in this genre and continued to click new ideas to the problem to achieve a high state of readiness as follows:

- Approach to the brand has been very different than the traditional restaurants' path.
- Relied heavily on social networking sites and online interaction with customers.
- Ensured delivery of food personally to meet up their customers and interact with them building personal relationship.

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- Above all, the strategic point was consistency in quality and taste of food which were critical to such business.

With the above thrust areas, they started participating in food festivals and flea market where people got to sample their food. They also retailed few juices and jams for use as additional items to further the taste. Even, in the meanwhile, some venture capitalists have approached the Ganapathys to fund their project to which they are yet to get into.

The interim period then was swift and decisive and amid a blaze of natural publicity, they could offer to replace the so called hotel taste with the Ganapathy Taste. They have never been complacent to be perished because they did not allow the entropy to overwhelm their affairs.

Now, they have their eyes on external markets and, in the process, have sampled the product to Pune and the response has been positive. They have to tell others “never invest in something you don’t understand”; their product definitely has a market.

### **Pig-out in the Future**

Yes, Pigout, as a company got registered and formalized in 2013 and is working towards building its product line, juices, jams and packaged food products. Also they have to grow as restaurant chains introducing Pigout brand products to select retail outlets. They talk of understanding, not only about the food but how the food is too. The answer to uncertainty and insecurity is knowledge and understanding and as the investor in the newly niche market not only they know the market in which they are entering, they too understand. By 2013 their investment was to the tune of Rs 1.5 lakh and income varied between Rs 10 to 15 lakhs based on event associations.

### **Managing by the Ganapathy Duo (Gs)**

The Gs provide goods and services that people need, to feed themselves, and by giving them safety, belongingness and self-esteem and sometimes even self-actualization. The view taken by J N Tata was businesses were there to serve the society and he started ‘what comes from the people has gone back to the people’ i.e., that the wealth created through his business had been returned to the people who created it in the very first place: the employees of TATA, their families and the people of the country. Probably, the Gs will emulate from the above and plan out something astounding for them in their future. Now, they are only two, only hire cooks based on requirement but have to spread their business with many as employees.

### **Epilogue**

Well, the researcher has said whatever was supposed to be said to the first gen wonderful entrepreneurs of Pigout, Anjali and Ambika who ventured to trade on an untrodden path selling Coorg food to about 500 customers at events and private catering 50. They have to prove in the future as how do they take their food business further with future competitors getting into catering space. Anna Brahma and business with Anna should serve the Brahma too.

# The Desiccation of the Aral Sea

## Does its story hold out anything for India?

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Dr M.Sulphey.<sup>1</sup>

### Introduction

The problem that the Aral Sea face is unique that has no parallel in history. Before 1960 it was the fourth largest water body on earth. In just three decades the sea shrunk by more than 40% due to anthropogenic desertification (Kotlykov, 1991). It is an ideal example as to how human greed has created a catastrophe of such an enormous proportion that can never be corrected with any amount of will or money power. The Aral Sea and its basin, which was literally an oasis in the Steppes, for centuries altogether, has been destroyed irrevocably through a few decades of greedy and stupid human interventions. Civilizations that thrived in the deserts of Central Asia, in perfect harmony with the surroundings for generations, have been devastated and are now in the footsteps of mass destruction. The area has been devastated environmentally, culturally and socio-economically. The supply of drinking water is an issue for the five nations in the region, and Kazakhstan in particular. The area can now be restored to its past glory only through divine intervention. May the history of the Aral Sea make good sense prevail, and help the so called 'developed' human beings to learn from past mistakes and desist from sounding his death knell in other parts of the globe.

### The Aral Sea

The Aral Sea is situated in the northern deserted part of Central Asia, within the borders of Uzbekistan and Kazakhstan. Till 1960, the total area of the Sea was stable at about 68,000 km. The volume of water was around 1000 km<sup>3</sup> (Ashirbekov and Zonn, 2003). At this size Aral Sea occupied the second place in the world among intercontinental lakes after the Caspian Sea. It takes the fourth place among lakes after the Caspian Sea (former USSR, Iran), lake Top (Canada, USA), Lake Victoria (Tanzania, Kenya, Uganda), that's why people call it a sea.

**Figure – 1: The Aral Sea and the Syr Dar'ya and Amu Dar'ya Delta**



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The Aral Sea, which had no outlet, was fed by two rivers of Central Asia – the Amu Darya and Sir Darya. For over the past ten thousand years the waters of the Amu Dar'ya and the Syr Dar'ya rivers have flowed through the deserts of south central Soviet Asia to the Aral Sea. The Amu Dar'ya which originates in Tajikistan and Afghanistan is over 2500 km long. It is formed subsequent to the merger of Vakhsh Rivers. This includes the waters of Allai valley, Northern Pamir and Pianj, as well as the inflows from Gunit and Bartang, which drains from the southeast Pamir Mountains. From the point of this merge, the length of Amu Darya is about 1400 km. Another major inflow is from the rivers of Kafirnigan and Surhandarya, which flows down from the southern slopes of Gissar Mountains, as well as river Kunduz, that drains from within the borders of Afghanistan. The Syr Dar'ya is formed by the merge of the two rivers Narin and Karadarya. Its length from the place of merge is about 2200 km. These rivers had a combined average annual flow of 111 cubic kilometers (km<sup>3</sup>), or 90 million acre-feet (maf). The evaporation of the Aral Sea was to the extent of about 60 km per annum. However, the inflows to the sea from Amu Dar'ya and Sir Dar'ya were sufficient enough to offset the surrounding desert's high net evaporation rates. Evidences show that the level of the sea fluctuated less than 1 meter between 1910 and 1960.

As on 1960 the Aral Sea had over 1100 islands out of which 12 were very large. The largest island was Barsakelmes. The sea was surrounded by rich vegetation including a particular type of reed with was unique to the region. The fish wealth was so abundant that it provided USSR with about 13 per cent of overall income from fishing. The fishes included barbell, bream, sazan, vobla, pike perch, Aral salmon, etc. (Ashirbekov and Zonn, 2003). The sea also influenced the surrounding areas by softening the climate.

### **The Exploitation of Amu Dar'ya and Syr Dar'ya**

The economies of Kazakhstan, Uzbekistan, Turkmenistan and Kyrgyzstan have traditionally been dependent on the waters of Amu Dar'ya and Syr Dar'ya. Though the water of Amu Dar'ya has been diverted and used for irrigation since time immemorial, it was the decree signed by V. I. Lenin in 1918 that initiated large scale use of its waters. Through this decree he assigned 50 million Roubles for irrigational works in Turkestan. It was decided to construct channels for the purpose of irrigation. This decree was followed by another decree in 1920 about restoration of cotton culture in Turkestan and Azerbaijan Soviet Socialist Republics. In 1925 the First Turkmen Congress of Councils deliberated about the transfer of waters of Amu Dar'ya to southern and western part of Turkmenya.

In 1940 a decision was made by the Government of the USSR to further enhance agriculture, in particular, cotton in the Turkmen SSR. This involved significant diversion of Amu Dar'ya waters through a channel from the basins of the rivers of Murghab and Tedzhen. Toward this end a canal (cherished Lenin Channel) measuring about 110 km was constructed. The following years saw decisions by local governments of Uzbekistan to increase the cotton cultivation multifold.

In 1943 the Kara-kum water reservoir was built with the 1200 km canal on Syr Dar'ya. The Kara-kum was followed by the construction of Farhad Hydro system in 1948 which diverted water for irrigation of the Steppes. In 1949 the Council of Ministers of USSR decided for further development of cotton production in Tadjik SSR and Uzbek SSR. These decisions had detrimental effects on the already strained waters of the two rivers.

In 1950 the Council of Ministers of the USSR took a decision to construct the Main Turkmen channel on Amu Dar'ya so as to irrigate the plains of Western Turkmeniya, the lower reaches of Amu Darya and the western part of desert of Kara Kum. The construction of the channel was started in the same year. The following year saw the construction of the Bukhara channel also. The year 1954 saw the Council of

Ministers of the USSR deciding to “further develop cotton production” in Uzbek SSR, Turkmen SSR and Tadjik SSR. Again in 1956 the Council of Ministers of the USSR decided to irrigate the virgin lands of Steppes in Uzbek and Kazakh SSR to enhance the production of cotton.

Not content with the quantity of cotton produced, the Council of Ministers, in 1958, decided further expansion and acceleration of works for irrigation and land development in Uzbek SSR, Kazakh SSR and Tadjik SSR. The following year the construction of Kara Kum canal was completed and it was decided for the second-order construction of the channel to Turkmen SSR. It is reported that the canal failed to utilize water-saving techniques that could have improved irrigation efficiency. Seepage from the canal was enormous as it was unlined. Since it was open the water was exposed to the desert climate of the region.

The USSR though its Central command, without any practical forecast about the condition of rivers, or the Aral Sea and the ecological consequences in Central Asia due to the diversion of water; was focusing only on the enhanced production of cotton. All these steps had a bearing on the Aral Sea, and the water level started decreasing. By 1961 the water level of the sea touched 53.29 m.

Without taking note of the sings of peril, the government again decided for further utilization of the waters of Amy Darya and Sir Darya. Again in 1962 the Council of Ministers decided to enhance cotton production in Turkmen SSR for “liquidation of backlog in production”. In 1963 the Council of Ministers of the USSR decided on land development of steppe Karshinsk in Uzbek SSR and Kzyl-Kum in Kazakh SSR. The same year the construction of Tahiatash hydro unit on Amu Darya was begun. This unit was expected to guarantee water to about 9,00,000 Hctrs in the lower reaches of Amu Darya. Everybody ignored the decreasing water levels of Aral Sea. The water level in 1963 stood at 52.61 m. The Plenum of Central Committee of the CPSU in 1966 decided about the “wide development of land reclamation for reception of high and steady crops grain and other agricultural crops”. They prepared an action plan towards this, including drainages of the grounds, for the next 10 years. By the end of 1966 the mark of the Aral Sea came down to 51.89 m. The following year the Uzbek SSR decided to take urgent measures to increase the production of paddy, increase water-security and improve the condition of collective and state farms in Karakalpak SSR. In 1970 the council of ministers of USSR decided to accelerate the irrigation and land development work of steppe Karshinsk in the Uzbek SSR. This was a follow-up of the decision taken in 1963. This year the construction of Tuyamuyunsk hydro unit from the mouth of Amu Darya was initiated. By the end of the year the sea level receded to 51.43 m. The volume was 964 km, and the area 603 thousand km. This prompted stopping of navigation across the sea.

In 1971 and 1972 it was again decided to further develop agriculture of Turkmen SSR, and Uzbek SSR respectively. The sea level receded to 50.54 m in 1972. In 1973 the water of Amu Darya was brought to the steppe of Karshinsk, as per the decision taken by the Council of Ministers in 1970. The sea continued to recede. The year 1975 saw the first effort towards studying the influence of the socio-economic consequences of the decrease of level of Aral Sea. The first Coordination meeting was held in Tashkent under the leadership of Gerasimov, I.P. an academician. In 1975 the water level came below the 50.00 m mark, to 49.01 m. The construction of Tuyamuyunsk hydro unit was completed in 1979 and the reservoir was filled. At one time irrigation accounted for more than 90 per cent of all water withdrawals from the tributaries of Aral Sea (Micklin, 1988).

### **Realization of the Problem**

By 1980 the USSR Government became aware of the veracity of the problem faced by the Aral Sea. The presidium of the USSR conducted a conference on ‘Problems of Aral and in deltas of Amu Darya’. This was followed by the meeting of the State Committee on Science and Technology (SCST) which authorized the conduct of an investigation into the mode of action associated with the decreasing level of

waters in the Sea to Mr. Souzgirovodhoz. It also sought to develop scientific basis and actions on the rational use and protection of natural resources. In the year 1981 and 1983 though the meeting of SCST was conducted, nothing fruitful emerged. By the time the water level came down drastically to 43.55 m. By the early 1980s, 20 of the sea's 24 native fish species had disappeared (Frederick, 1991). In 1985, the final All-Union coordination working meeting of SCST was conducted in Moscow. In the meeting Souzgirovodhoz submitted the Technical and Economic Report (TER) on regulation of the water of the Aral Sea. Parallely, in 1986, the Council of Ministers of the USSR took a decision to accelerate the development of Karakalpak SSR, through irrigation and development of nearly 50 thousand hectares of land. By the time the water level of Aral receded to 41.10 m.

In the academic sphere a group of scientists of Institute of Water Problems of AS of USSR sent the letter to the Central Committee of the CPSU sounding grave alarm about the destiny of water delivery for the different republics of Central Asia. Aware of the grave situation, in 1987 the Ministry of Land Improvement and Water Conservation of the USSR created the Basin Water Economic Associations of Amu Dar'ya and Syr-Dar'ya. By the time, the water level came down to 40.29 m mark. The volume was 401 km<sup>3</sup>, and the area came down drastically to 411 thousand km<sup>2</sup>. By now the mineralization of water exceeded 20 g/l. Further, the small sea got separated from big and there was a drained crosspiece.

Though belated, the year 1988 saw a lot of movement towards protection of the Aral Sea from various quarters. The Central Committee of the CPSU and Council of Ministers of the USSR deliberated about: "measures on radical improvement of ecological and sanitary conditions in area of Aral sea, to increase of efficiency of use and strengthening the protection of water and ground resources in its basin".

Further a report on the cardinal improvement of ecological, sanitary and epidemiologic conditions in area of Aral Sea and lower reaches of the rivers of Amu Dar'ya and Syr Dar'ya was prepared. By now the issue of Aral Sea had received wide attention. Many writers and editors of leading news papers came forward calling for rescue of the sea. In Nukus an organization called "*Aralvodstroj*" for the rescue of the Aral Sea was created. However, there was no respite in the decrease of water level. By now the water level stood at 39.75 m.

By the end of 1989, the Sea receded into two parts – the southern Greater Sea and the northern Lesser Sea. At this point of time, according to Kotlyakov (1991) the water level of the Greater Sea were 38.6 m (area of 33,400 km<sup>2</sup>, volume of 310 km<sup>3</sup> and mean salinity of 3%) and that of the Lesser Sea 39.5 m (area of 3,000 km<sup>2</sup>, volume of 20 km<sup>3</sup> and salinity between 1.8 and 3.5%). The hydrologic parameters of the sea between 1960 and 1989 are worth considering, for having a fair understanding about the devastation of the area. The data are presented in Table 1.

**Table -1: Hydrologic parameters of Aral between 1960 and 1989**

Year	Sea Level (m)	Sea area ('000 km <sup>2</sup> )	Sea volume (km <sup>3</sup> )	Mineral content (gm/l)	River runoff (km <sup>3</sup> )
1960	53.3	67.9	1090	10.0	40
1965	52.5	63.9	1030	10.5	31
1970	51.6	60.4	970	11.1	33
1975	49.4	57.2	840	13.7	11
1980	46.2	52.4	670	16.5	0
1985	42.0	44.4	470	23.5	0
1989	39.0	37.0	340	28.0	5

Source: Oreshkin (1990)

People from various walks including literature, culture and science of Uzbekistan came together to rescue Aral in 1989. They even created a special fund to rescue the Sea. By now the problem of Aral became a national issue and was discussed in various forums. In the Aral Sea the water level came down to 39.08, m and due to paucity of water, the Big Sea got separated from Small.

By 1990 the Supreme Soviet of the USSR recognized that the zone has met with an ecological accident. The local governments of Uzbekistan, Kazakhstan, the Kyrgyz, Tadjik, Turkmen and Kara kalpak republics came together to form a consortium on Aral. Under the initiative of the Kazakh Association for the United Nations 'The International round table on How to save Aral' took place in Alma-Ata. The UNEP also started involving in rescuing the Aral Sea. In 1991 the Council of Ministers of USSR acknowledged Aral as 'the largest ecological accident of our planet'. The year saw a lot of activity towards rescuing Aral. Some among include:

- i. The meeting of country leaders of the CIS, and the signing of the report on intergovernmental agreement on problems of Aral, at Minsk.
- ii. The meeting of the International Working Commission of Experts of the USSR /UNEP in Moscow for 'preservation and restoration of Aral sea, normalization of an ecological, sanitary-and-hygienic, medical and biologic and social and economic situation in Priaralye'.
- iii. Another session of the International Working Commission of Experts of the USSR / UNEP for 'Assistance in preparation of the Plan of action on preservation of Aral sea'.
- iv. A meeting of ministers of land improvement and water management of the Central Asian republics in Tashkent were the application on the sharing of water resources of Aral Sea basin was accepted.

Further, a number of ministries of the USSR including Nature, Health, and Agriculture and Food Production developed a Concept for preservation and stage-by-stage restoration of Aral Sea; in coordination with and taking into consideration the conditions of social and economic development of the Republics of Central Asia and Kazakhstan. A decision was also taken to suspend all constructions and commissioning of new large irrigation systems in the area of Aral Sea. Despite all these efforts there was no letup in the receding water levels and it came down to 37.56 m

### **The Good Old Days**

There was reportedly a harmonious balance in the Aral Sea area and the Amu Darya and Syr Darya delta till the Soviet Union began a massive cultivation of water-intensive cash crops (mainly cotton) in the upstream regions of the rivers. Evidences show that historically Uzbeks used a highly successful crop rotation system consisting of cotton and alfalfa. They used to grow cotton for one year, alfalfa in the next, and used to herd livestock on the fallow fields the third year. This cycle, which was repeated since immemorial till the 1940s, helped in maintaining the soil fertility levels at comfortable levels (Rumer, 1989). The centralized control of the USSR led to the destruction of traditional ways of life for Central Asians followed since time immemorial, and introduced them to collective/state owned farms, which was initially successful due to large scale mechanization.

The intensive monoculture of cotton introduced by the Soviets led to a situation that the area is now facing such a catastrophe, from where there is no return. While the monoculture developed in the region, food and industrial inputs were brought from other republics of the Union. This led to the so called 'structural dependency' between the Central Asian republics and the other Soviet republics (Spoor, 1999).

### **The Turning Point**



By 1991 the USSR broke up and the all the five republics of Uzbekistan, Turkmenistan, Kazakhstan, Kyrgyzstan and Tajikistan proclaimed independence. The breakup affected the republics' political and economic systems, and the consequent ramifications for the Aral Sea. Repeated price shocks in the monoculture followed by the republics struck the economy at the base. Discussions on the water crisis were initiated shortly after the five republics gained their independence. A series of meetings of heads of water – economic bodies of the new Central Asian republics took place in Almaty and Tashkent. A number of nations and world bodies like Japan, Germany, Holland, UNEP, UNESCO, etc. met and proposed various measures to protect Aral. The governments and parliaments of the Central Asian republics called on the UN to declare the Priaralye zone as an ecological disaster and create an international body for the coordination of actions of the world community on rescue Aral. The World Bank also started involving in the affairs of Aral. This year also saw the creation of a scientific body ICWC to deal with the water – economic problems of the Aral Sea. However, the level of water continued to recede.

In 1993 "The Program of Aral sea basin" was presented to the World Bank. The same year the five presidents of the Central – Asian republics signed an agreement on joint actions towards problem of Aral Sea and Priaralye, and the ecological improvement and maintenance of socio-economic development of the Aral region. The heads of states of the Central Asia took initiative to create an International Fund of Saving the Aral. The president of Republic of Kazakhstan, Nazarbaev was elected president of the Fund. On appeal by the president of Uzbekistan in the General Assembly of the UN, a Special Commission of UN on Aral was constituted. A Scientific Information Centre (SIC) of ICWC was set up in Tashkent.

A joint mission of the World Bank, UNEP and UNDP was created in the central - Asian republics for rendering assistance for establishment of priority projects for the five states of Aral Sea basin. In Washington, the World Bank organized an international seminar 'Crisis of Aral sea'. The water level again came down to 36.95 m. The years 1994 and 1995 saw a number of seminars and conferences in various places like Varna (Bulgaria), Paris, Brussels (Belgium). In a meeting of donors in Paris, eight projects for the Sea basin amounting to about \$40 million was approved.

In 1995 at Nukus, under aegis of the UN the International conference on steady development of the states of the Central Asia was conducted. The conference became a meeting of heads of the states of the Central Asia and the Nukus declaration was signed wherein Consortium Aral was created. By the end of the year the water level stood at 36.11 m. The Almaty Declaration was signed in 1997 by the heads of states of Central Asia. The organization, International Fund for Rescue of Aral Sea (IFAS) was formed, with Mr. Karimov, president of Republic Uzbekistan as president. This was followed by a number of seminars and conferences around the globe by various bodies and nations.

However, the effectiveness of the seminars, conferences seemed to be at doubt with the water level receding to 34.24 m by 1998 and 30.90 m by 2002. Although as many as 300 Aral Sea basin related agreements were signed, they remained idealistic, with a negotiated sustainable agreement regarding sharing of resources being elusive. The agreements had limited mechanisms to enforce their clauses (Peachey, 2004). Further, the issue is also entangled in a web of associations and donor agencies (around 15 to 20). Some of them include the Interstate Council for Addressing the Aral Sea Crisis (ICAS) which overseas another two bodies – the Interstate Commission for Water Coordination (ICWC) and the Sustainable Development Commission (SDC), Interstate Water Management Coordinating Commission (IWMCC), International Fund for the Aral Sea (IFAS). Peachey (2004) is of the opinion that the actions of international donors have further complicated the situation. For instance the World Bank works in conjunction with the UNDP and the UNEP, strived to strengthen the institutional capacity of the ICAS and the IFAS. USAID works through the Interstate Council for Kazakhstan, Kyrgyzstan, and Uzbekistan (ICKKU), an economic cooperative organization created in 1993.

### **The After Effects**

Though belatedly the Soviet planners recognized that expanded irrigation had adversely impacted the Aral Sea, they desperately failed to anticipate other consequences of their actions. The low levels of inflows to the Sea and the increasing salinity had devastating impacts not only on the sea but on the people once dependent on its rich productive system. This resulted in one of the greatest ecological disasters in history. In addition to declining agricultural productivity, and sharp rise in mortality and morbidity rates, the recession of the Aral Sea have resulted in huge dust storms. The climate has also become inhospitable to humans and vegetation.

### **Effects on the Geography**

When the sea started receding, large areas of the lake bottom became exposed. Since there was high concentration of toxic salts in the upper layer of the exposed seabed, coupled with lack of water and nutrients brought in a situation whereby it was virtually impossible to have any sustainable vegetation. This lack of vegetative cover made dust storms to blow up. During spring season these storms became common and started to increase both in frequency and magnitude. The storms were so powerful that they could be observed from space. In addition to soil, the dust contained a large number of salts – sulfates and chlorides – which are poisonous to plants. According to early estimates, the storms which used to stretch between 150 and 300 km transported an estimated 15,000 to 75,000 metric tons of salts per year over vast tracts of land around the sea (Kotlyakov, 1990). Each hectare of land in the lower Aral basin is said to receive over 500 kg of salts annually (over 350 km of dry salts and over 200 kg of precipitation). These dust clouds and salts started to harm the desert oasis and pastures during spring seasons.

### **Effects on Flora and Fauna**

The deltas of Amu Dar'ya and Syr Dar'ya were, till the early 60's a productive ecosystem. The deltas were like oases of flora and fauna, which provided natural feeding ground for livestock, had enough stock for commercial hunting and trapping, source of reeds for industry, and had enough diversity of fish. As the deltas dried up, rapid desertification occurred. This led to sharp decline in livestock and fish, which had an adverse effect on the quality of diet of the disadvantaged poor. According to the UNEP GRID (2000) before 1960, the river deltas were home to over 70 types of mammals and 319 types of birds, which have come down drastically to 32 and 160 respectively. Further, the salt-hardy vegetation is currently replacing the salt-sensitive native plants. Due to the loss of wetlands and increased pesticide concentration, native bird populations have become either endangered or extinct (Micklin, 1988).

### **Effects on Agriculture**

The soils of the area were naturally saline. However, due to availability of adequate drainage, the salts used to get leached from the soils. When the quantity of irrigated water became excess of crop requirements, the drainage became a colossal issue. The excess water, which was much more saline than the irrigation water applied got accumulated and started raising the level of groundwater table. The unprecedented rise in groundwater table into the root zone curtailed oxygen supplies of the crops. In addition to this, the capillary action drew salts from the shallow groundwater tables upward to the surface. The rate of evaporation increased the concentration of salts near the surface. This concentration of salts on the surface destroyed the agricultural potential of the land. It is reported that, as on 1985 large tracts of irrigated soils in Uzbekistan (60%), Turkmenistan (80%), Tadzhikistan (35%), Kirghizstan (40%), and Kazakhstan (65%) suffered from moderate to strong salinity problems (Frederick, 1991). Increased salinity led to decrease in cotton yields. Tough attempts were made to enhance the yields by application of more fertilizers; it boomeranged with soil salinity further increasing. The area occupied by reeds shrunk from 5,50,000 to around 20,000 hectares, and the productivity of pastures dropped drastically (Kotlyakov, 1990).

### **Effects on Climate**

The receding Aral Sea lost its moderating effect on the surrounding climate. Before receding the sea influenced the climate of the land areas of 100 to 200 km<sup>2</sup>. But later the dust storms stretched to over 150 to 300 km. The evaporation of surface water increased markedly, and moisture decreased by 10 per cent from its rate 50 years ago (UNEP, 2000). The area started witnessing more extreme temperatures, with summers becoming hotter and winters colder. According to Kotlyakov (1990), in the early 1980s, the difference between the mean monthly temperatures between January and July increased by 1.5<sup>0</sup> to 2<sup>0</sup>C. The vegetative season (between the spring frost and the fall frost) decreased to 170 days, which was far below the 200 days required for growing cotton (Kriner, 2002).

The dust produced in the area also led to disastrous effect on the glaciers with their accelerated retreat (UNEP, 2000). The retreat of these glaciers, where were perennial sources of water, will lead to an even greater shortage of water, posing security threats that could have the potential to destabilize the entire region due to growing tensions over this scarce resource.

### **Effects on the human population**

A main casualty, according to Micklin (1988), associated with cotton culture was the health of the population in the area. Excessive use of pesticides contaminated the drinking water in the lower reaches of the river basins. Adding to it the salt concentration also became exceedingly high. The poor quality of diets inadequate sewage systems and limited access to basic medical services are also adding to the woes of the communities (Micklin 1988). It is reported that pesticides were detected in mother's milk. Pesticides have even been detected in mothers' milk.

The intensity and frequency of dust storms containing toxic salt residue increased astronomically that the populations downwind (even hundreds of miles away) are compelled to inhale these particles with carcinogenic properties (Weinthal, 2002). Even as early as in the eighties, the health conditions of the population became so grave that the incidence of cancer of the esophagus became 50 times higher than the world average, typhoid increased almost 30 times, hepatitis increased seven times, and certain other problems like respiratory diseases, kidney disease, gallstone ailments, and chronic gastritis increased drastically (Micklin, 1988). At the same period infant mortality rate was more than 50 per 1000 in the region. In certain specific pockets the issue was so grave. For instance, in Karakalpak Republic, which is located in the lower reaches of the Amu Dar'ya, the infant mortality was as high as 110 per 1,000! Most of the women and children were severely anemic.

### **Solutions**

The emphasis of the Soviet Union was on short-term production. They never considered the aspect of long-term sustainable growth and development (Glantz 1999). The monoculture of cotton exacerbated the situation and resulted in the destruction of not just the Aral Sea, but the entire Asian ecosystem. It put to peril the sustainable water resources for present as well as future generations.

What is the solution? Is restoration of Aral Sea and the entire river basin a solution? Estimates say that to restore the Sea Basin and its tributaries to their original boundaries would require the flow of approximately 1,000 cubic kilometers of water per year. It roughly works out to 10 years of full flow of both the Amu Dar'ya and Syr Dar'ya rivers to the Aral Sea (Wegerich 2001). Sievers (2003) says that if this is to be achieved, the 'economies would have to be diversified, populations shifted, and consumption reduced'. These hypothetical changes would cost tens of billions of dollars, which the Central Asian republics can ill afford. Neither is anybody willing to subsidize. Peachey (2004) says that restoring the Aral Sea Basin to its original pre-Soviet boundaries is as such not feasible.

The solution is, as such, focusing on mitigating the crisis. This can be achieved in part by stabilizing the region's water resource management, and ensuring its sustainability for future generations – an aspect which is better said than done.

## Parallels in India

India is also facing problems with respect to fresh water, albeit not in the dimension as that of Aral. The massive floods and the devastation which the northern part of India witnessed recently was reportedly due to proliferation of a large number of dams in the foothills of the Himalayas. The Ganga, the Yamuna, and almost all the rivers which had been the cradle of civilization in the country are now dying a slow death due to urbanization – they are being poisoned to death. The water that flows in most of the rivers has toxic pollutants and solid wastes well above the safe and permissible levels.

The Ganga cleansing plan initiated by the new Government, whose budget runs into hundreds of crores is due to the hard realization that the holy river is dying due to the relentless pursuit of greed followed by humans. Further, a number of schemes and hydel projects that divert water in the Ganga–Bhagirathi river system upstream of the Farakka barrage also act as a grave impediment to the uninterrupted flow of water in the river (Sen, 2010). The Farakka barrage, West Bengal, completed in 1971, is 12 km upstream of the diversion of the river into the Hugli–Bhagirathi that flows through India, and Ganga–Padma that flows into Bangladesh and their tributaries. The purpose for which the barrage was intended has not been accomplished as it did not succeed in flushing out sediment load so that the navigational prospect can be increased for the Kolkata Port, nor is it possible to use the water during the dry-seasons for the two countries. The barrage has also offset the dynamic equilibrium of Ganga and its tributaries (Sen, 2010). Further, the hydrology of Hugli–Bhagirathi and Ganga–Padma river systems has been deteriorated, with salinity increasing multifold. Unless appropriate holistic steps are taken to restore the hydrology, the livelihood security in the delta of India and Bangladesh would be drastically affected.

To quote Captain Gopinath (2009) from his book *Simply Fly A Deccan Odyssey*: It was an appalling spectacle of a black, slushy, marshy, viscous mass of fluid meandering and losing its way among an archipelago of half-dried up beds of part-slit, part-plastic, and what looked like rotting semi-processed fabric and other solid urban wastes. The nondescript mass had nothing life-giving in it. It looked like a purveyor of death and disease (p. 72).

This is his description of the Yamuna, another holy river of India. Down south, beyond the Vindhya there are a number of instances where bountiful rivers are a mere history of its glorious and indomitable past. The story of Palar is a classical example. Its present condition is palpable and pathetic. The name, which translates to '*Milk River*', is in its sorry state – dead long ago. Forget milk, no water flows in the river now! The river which originates in Karnataka, flows through Andhra Pradesh, and Tamil Nadu and finally drains into the Bay of Bengal has ceased to flow decades back. The sorry state of the river started with the Andhra Pradesh Government deciding to construct a dam across it at XXXX. This has led to the entire stretch of the river spanning over XX km virtually drying up. This has altered the topography and vegetation of the entire delta. Relentless quarrying of sand and the release of toxic pollutants from the tanneries in Ambur has turned the 'river' into a hotbed of diseases and global warming. Solution to this problem is nowhere in sight!

Another classical example of the sorry state of a river is that of Bharathapuzha or Nila in the state of Kerala. It is the longest river in Kerala which originates in the Western Ghats and flows over XX km before draining into the Arabian Sea. The river is synonymous with the growth and development of Kerala culture and Malayalam language. The banks have scores of stories to narrate about the valour with which the ancient rajas fought battles and how the traditional art forms like Kalaripayattu, Kathakali, Ottamthullal, etc. have evolved. Developmental activities have now taken the toll on the river. Uphill dams have reduced the once bountiful river into sand banks and a few trickles here and there. Unmindful of further dangers the local populations become pawns of the powerful sand mafia and help them to plunder the river further.

At this stage what have we in store for the next generation? Now there is the talk of the interlinking of rivers for better water management. Experience shows that such type of misadventures in different parts of the world have resulted in offsetting the delicate balance that has been in existence in the respective deltas since time immemorial. There is the possibility of such developmental experiments wrecking havoc downstream. It would literally be like opening the Pandora's Box. Let us hope that good sense will prevail on the policy makers so that the bountiful rivers and water bodies bestowed on us by God Almighty will be preserved for generations to come, as they have been preserved for us by our forefathers. Only out of the box, sustainable solutions can help save these rivers and human kind from 'sarvanash'.

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