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BEHAVIOUR OF LOW RANK HIGH MOISTURE COAL IN LARGE STOCKPILE UNDER AMBIENT CONDITIONS

A Case Study By Naveen Chandralal[1], D. Mahapatra[1], D. Shome[2] & P. Dasgupta[3], Indonesia

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ABSTRACT

The low rank high moisture of coal from East Kalimantan, Indonesia has been tested in large stockpiles to understand the possibilities of lowering their total moisture content under ambient conditions. The results from the small scale drying tests indicate a strong potential to significantly reduce the "as mined" moisture content of high moisture low rank coal. All tests showed consistent losses over time with an average weight loss of 27% for the 22 day test period. These test show the maximum possible natural drying potential with no impediments to drainage and no additional moisture load from rainfall. It can be expected that drainage will allow reduction in moisture.

The size distribution shows a mean size of 10mm and low proportions of ultra-fine material, which makes the crushed coal suitable for stockpile drainage as there should be ample clearance between particles. Dry conditions allowed the piles to drain free moisture at a loss rate of between 0.7 and 1.7% per day. Additional rain periods ensured that the overall effect was a gain in moisture for the trial period. It would be apparent that the greatest drying benefit would be gained by sheltering the coal from rain. Any drying benefits gained by stockpiling could be reversed by rainfall exposure. This evaluation would suggest that, without consideration for the weather condition effecting the stockpile temperature and moisture, a natural drainage period of between 18 and 25 days would assist in the reduction of moisture associated with the high moisture low rank coal.

KEYWORDS

Low rank, Coal, Stockpile, Total Moisture, Rainfall, Rain

INTRODUCTION

Coal resources in Indonesia are classified mostly as lignite (58%) and the rest are sub-bituminous (27%), bituminous (14%) and anthracite (<1%). In the last 10 years, Indonesian coal production rose sharply, with increasing amount of coal produced being exported worldwide. Current coal production comes from medium to high rank coals, which have relatively high calorific value. However, the reserves of this range of coals are limited and with diminishing reserves, they will become increasingly expensive to mine. Low grade coals, which are mainly lignite and low grade sub-bituminous, constitute over 85% of the coal reserves. Indonesian low grade coals although are of high moisture in nature but have advantages of low sulphur and very low ash making their suitability as thermal coal.

Recent increase in utilization of high-moisture low rank coals following oil price rise has necessitated understanding overall aspects of coal storage and transport especially in humid and high ambient temperature conditions. Numerous literatures are published focusing the spontaneous combustion characteristic of coal in stockpile conditions. Moisture plays an important role on behavior of coals in stockpiles.

The complex processes of self- heating in the existence of water have been investigated by many workers [1-4]. It has been reported that low rank coals undergo the highest heating rate when their moisture content is reduced to about one-third of the original as-received moisture content [5]. Large scale stockpile test work was carried out by [6-7] mostly to understand self-combustion process. It is generally accepted that there are competing influences of heat of wetting and moisture evaporation depending on the environmental circumstances of the coal [8-10]. Numerical model studies by Akgun and Essenhigh [11] showed that moisture effects on self-heating in a broken coal stockpile situation are twofold. In the case of low moisture content coals, the maximum temperature increases steadily with time.

In the case of high moisture coals, temperature increases rapidly initially before evaporation dominates and the temperature reaches a plateau value (generally around 80-900C). Once the coal becomes dry locally the temperature will increase rapidly towards thermal runaway. However, if the coal stockpile has been in a prolonged drying phase that is interrupted by a rain event and the water penetrates into the stockpile then additional heat can be generated from the heat of wetting effect as the coal re-adsorbs the moisture available to it. This effect can also lead to premature thermal runaway in the coal pile. Curran et al [12] experimented coal stockpile with rain water system: (i) to determine the relative proportions of rain water and particulate matter associated with coal stockpile surface runoff, infiltration and internal storage; (ii) to determine coal-stockpile runoff rates associated with surface runoff and infiltration; and (iii) to determine the size and structural properties of particulate matter removed from the coal-stockpile system.

The deterioration was more prominent in sunny days with intermittent rain. Annually approximately 2500 kJ per kg decrease in calorific value of coal was observed [13]. The liability of spontaneous combustion of Turkish lignite was increased with decreasing particle size, increasing moisture content of the coal and decreasing humidity of the air [14]. The roles of bed

porosity, side slope, wind velocity, coal reactivity and bed particle size are examined in detail for Wyoming subbituminous coal [15]. Petrographic analysis of Turkish coals showed that the coal sample having the highest inertinite group macerals was oxidized more easily, thus, yielding more CO2 and CO. Relatively higher rank coals were oxidized more easily, but oxidation diminishes with time. On the contrary, oxidation progresses with time for lower rank samples especially at relatively higher temperatures [16].

The influence of stockpile height, slope angle of bed, particle diameter of coal, and coal moisture content on spontaneous heating of coal stockpile was investigated [17]. Different degrees of compaction can be achieved and airflow rate varied to study the effects of varying rates of air permeation on the coal oxidation process. It has been found that inflow of air or oxygen into the stockpile is indispensable for durability of coal oxidation and heat accumulation inside the stockpile induces temperature rise over the critical value of about 200 °C. These two conditions for spontaneous ignition are met most in the edge of the stockpile [18].

The Coal Stock Stockpile Simulator (CSPS) serves as a simulation model which provides "what-if" scenarios and is forward looking. It can provide scenario planning sets for decision making [19]. The CSPS has demonstrated its value at various stages of piloting especially in contributing to the plans of the new generation of coal fired plant in South Africa. In the Australian and New Zealand coal industries there is one test that is routinely used the R70 self-heating rate test [20], which has been used to show the effects on coal self-heating rate of rank [21], type [22], mineral matter [23] and moisture [24].

The behavior of coal in a stockpile can be broadly grouped under three headings; examination of chemical constituents of coal, oxygen avidity studies and thermal studies. In chemical composition of coal, attempts have been made to determine the spontaneous heating tendencies of coal based on their constituents obtained from proximate and ultimate analyses. The maceral composition of coals and their susceptibility to spontaneous heating have led to the development of petrological classifications. The oxygen avidity studies include; proxy complex analysis rate study, Russian U-index and other oxidation methods. In thermal studies, different methods are attempted, which include; initial temperature, crossing and ignition point temperature, modified crossing point temperature, puff temperature, Olpinski index, adiabatic calorimetry, thermo-gravimetric (TG) analysis, differential thermal analysis (DTA) and differential scanning calorimetry. Spontaneous combustion of coal is influenced by the nature of the coal, particle size, geological condition and mining environment, all of which govern the thermal processes occurring in the coal.

In all the literatures the emphasis remained to evaluate the self-combustion behaviour of coal in a stockpile but to the best of authors' information none of the literatures have aimed in utilizing the heat generated in stockpile for optimizing the total moisture in low rank high moisture coals to get the advantages on improving net heat value and transportability. The present paper focus on the impact of this oxidation process which increases the temperature of stockpile under ambient conditions, how can be best utilized for lowering the total moisture of low rank high moisture coals of Indonesia.

EXPERIMENTAL

Extraction of coal was completed by opening a box cut. Mining was restricted to the top 10 meters of the approximately 20 meter thick seam. Run of Mine samples were sourced from the fresh working section of the exposed seam. Care was taken to collect ROM free of fines and in bigger sizes by striping. The mined coal was crushed, to a top size of 50 mm, by means of a two roll crusher fitted with a 50 mm grizzly screen in the feeder end.

The test plan was conducted in two ways –

A) SMALL SCALE (50 KG): The small scale test program provided an additional means to measure the maximum moisture loss of stacked coal over a period of time. To facilitate this, a series of samples (eight numbers) were placed within drainage bags and monitored regularly over a time period equaling that of the main stockpile tests. These tests were conducted under ideal drainage conditions, in a sheltered, covered laboratory situation. The measured weight loss is calculated as a moisture reduction and a moisture loss profile is established. Each bag was subjected to Free and Residual Moisture testing at a scheduled day. The weight loss profiles for bags are compared to provide additional information on reliability of data.

B) LARGE STOCKPILE(500 TON): two stockpiles

The crushed coal was loaded onto a prepared stockpile base area in two separate piles. The dimensional details of the test stock stockpile are shown in Table 1.

The primary objective of the test program was to measure the changes of stacked coal over a period of time in a larger stockpile under ambient conditions. To facilitate this, the series of samples were reclaimed, according to a predetermined sequence, then analyzed for changes in coal quality. Each sample was placed into a permeable woven polyester mesh bag designed to allow water flow but to contain crushed and pre-weighed quantity of coal. A lanyard attached to each bag, with an identification tag, was used to successfully extract the samples when required by the programs timetable. The bags were strategically positioned (Figure 1) to allow identification of moisture movements within the stock pile over the test period. The stockpiles were monitored for temperature and ambient weather conditions during the progress of the trial period. No provision was made to shelter the piles from rain or wind.

Table 1: Final Stockpile Dimensions

Cone Angle	118	degrees
Radius	9.5	meters
Diameter	19	meters

Height	5.6	meters
Angle of Repose	30.5	degrees
Bulk Density	0.85	T/m^3
Volume	530	m^3
Mass	451	Tonnes
Base Area	59.73	m^2
Rain load per mm	0.06	T
Rainfall	163	
Rain load per pile	9.731	T
Rain load per pile	216.00	%

There are three levels of samples as shown. The bottom level (Layer Level 1) is approximately one meter above the stockpile base. The middle level (Layer Level 2) is designed at two and a half meters above the base. Layer Level 3 is set at four meters above the base. The three levels are designed to give an indication of the water movement horizontally over the testing period. All three levels have seven samples embedded at around one to one and a half meters from the final stockpile surface. Each of the seven samples in each level was evenly spaced around the pile. Once the stockpiles completed, each of the samples will be buried approximately one and a half to two meters from the external surface. There was an additional sample placed at the stockpile base prior to starting stockpile construction.

During construction of the piles, sample bags are weighed to the nearest 0.1kg and positioned by first leveling a bench in the partly completed pile. When all 23 samples are inserted, they were then covered with fresh crush coal till the final stockpile profile is complete. The program was set up for the two piles with sampling regimes offset by half a day. The recovered stockpile samples were double sealed in plastic bags and transported to Laboratory for Free and Residual Moisture analysis. On each day of the stockpile was monitored and stockpile conditions was recorded for rainfall, Humidity, Wind speed, Weather, Ambient temperature, stockpile temperatures, Digital photographs and collection of predefined samples and sending to laboratory with proper packing.

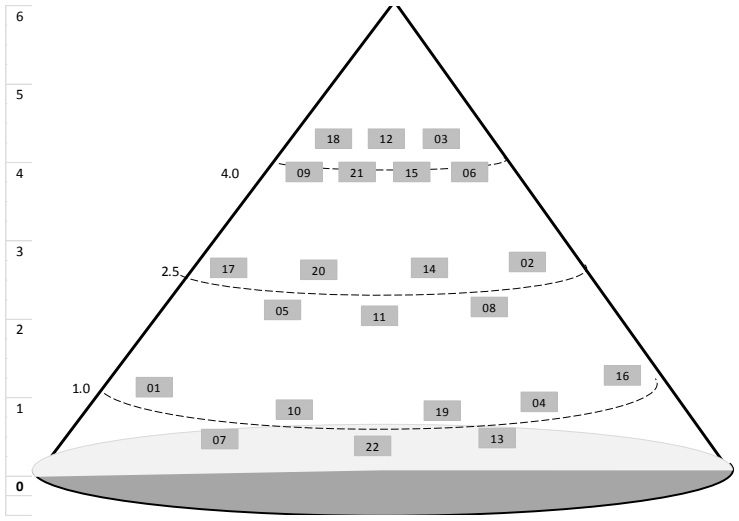


Figure1: The embedded sample layout with the extraction sequence

Representative composite fresh crushed sample was analyzed for Proximate Analysis, Granulometry, Equilibrium Moisture, Fluorescence microscopy and Scanning Electron Microscopy for a better understanding of coal properties.

RESULTS AND DISCUSSION

The proximate analyses of the four samples collected are shown in Table 2. It can be seen that the coal sample is typical low rank coal younger formations from East Kalimantan of Indonesia with very low total sulphur & low ash content as well as low calorie.

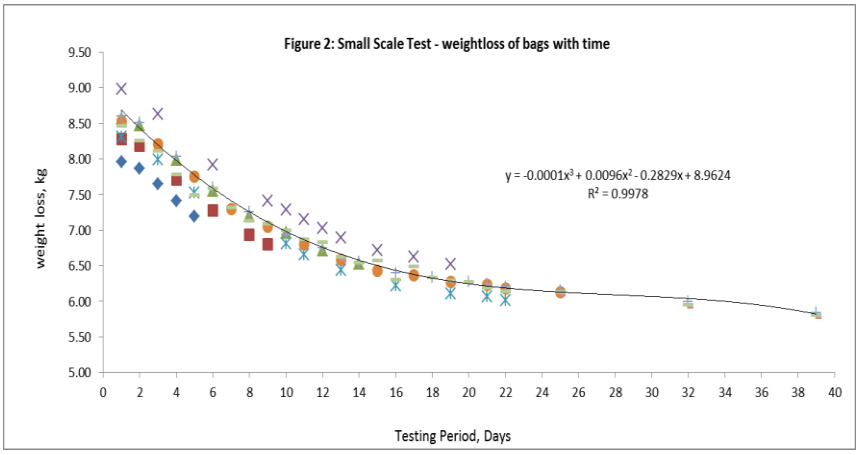
Table 2: Proximate Analysis of crushed coal samples

Parameters	Units	Sample 1	Sample 2	Sample 3	Sample 4	Average
Total Moisture	%ar	49.83	45.88	46.46	47.51	47.42
Moisture in Analysis Sample	%adb	16.82	13.98	15.15	14.51	15.12
Ash Content	%adb	3.03	1.35	2.17	1.29	1.96
Volatile Matter	%adb	40.78	46.44	41.28	42.74	42.81
Fixed Carbon	%adb	39.37	38.23	41.40	41.46	40.12
Total Sulfur	%adb	0.13	0.11	0.14	0.14	0.13
Calorific Value (adb)	Kcal/kg	5373	5848	5501	5611	5583
Density	gm/cc	0.773				0.77

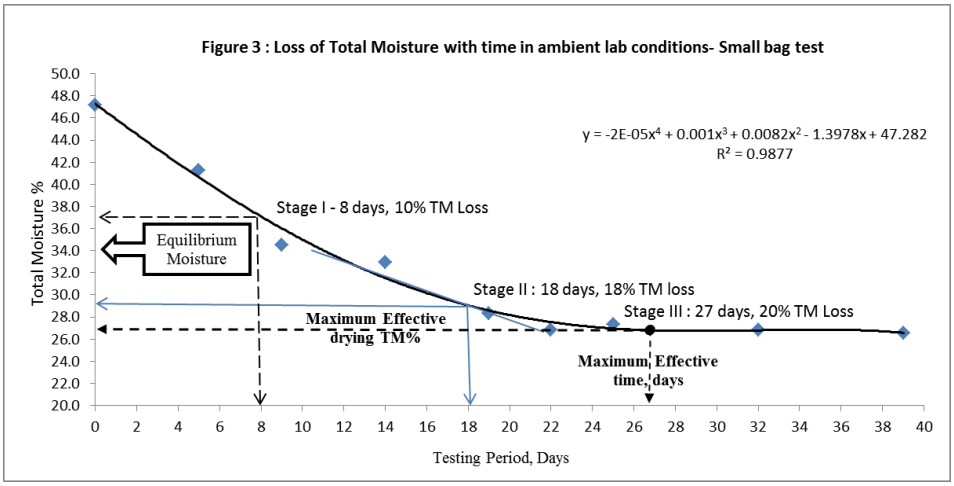
The size distribution shows a mean size of 10mm and low proportions of ultra-fine material. This makes the crushed coal suitable for stockpile drainage as there should be ample clearance between particles. The coal is unlikely to have migration of sufficient quantities of fines to cause moisture build up and slumping.

MOISTURE& RAINFALL

Moisture plays an important role on behavior of coals in stockpiles. The complexes processes of self- heating in the existence of water have been investigated by many workers. The small scale tests were conducted to investigate the potential to drain moisture from coal with time period in controlled ambient conditions. The tests show a consistent drainage profile for all tests. This has allowed a defined drainage relationship to be calculated. As these tests were conducted in the ideal conditions of no stockpile segregation, maximum gravity effect and shelter from rain re-wetting, they give indication of the maximum potential for moisture reduction via natural drainage.



The Results of eight samples are shown in the Figure 2. All the eight samples almost follow the identical trend of losing weight with time. At the end of each bags prefixed time completion the TM% was analyzed and the results are shown in Figure 3. As can be seen in Figure 3, all of the small scale tests displayed very similar drainage profiles. (R2 = 0.9877), Using the aggregated data, the moisture reduction has been shown to closely follow the polynomial equation:y = -2E-05x4 + 0.001x3 + 0.0082x2 - 1.3978x + 47.282



The application of this relationship can determine the maximum drainage effect over a given time period. Figure 3 shows this drainage relationship calculated to Total Moisture, highlighting three different phases in the moisture loss over time.

The first phase (stage I) exhibits the maximum drainage of 10% over 8 days for an averaged loss rate of 1.25%/day. In the Stage I, sensible heat is transferred to the coal and the contained moisture. During this phase, the coal is heated from the inlet temperature to the process temperature. The rate of evaporation increases rapidly during this period and mostly free moisture is removed. The Equilibrium moisture of the tested coal is 34.2%. The initial quick loss of coal moisture is reaching the moisture holding capacity of coal. In other words, this amount of moisture represents the free moisture of coal in Stage I.

The mid phase (stage II) shows a slowing of the rate of drainage up to day 18 when a sharper decline in loss rate occurs. The average Loss Rate for the 18 days trial period was 1.0%/day. During the second phase, or constant-rate period, the surface of the coal is still wet. Evaporation continues at a constant rate. The heat transferred from the drying air is equal to the heat removed by evaporation of the water on the coal surface.

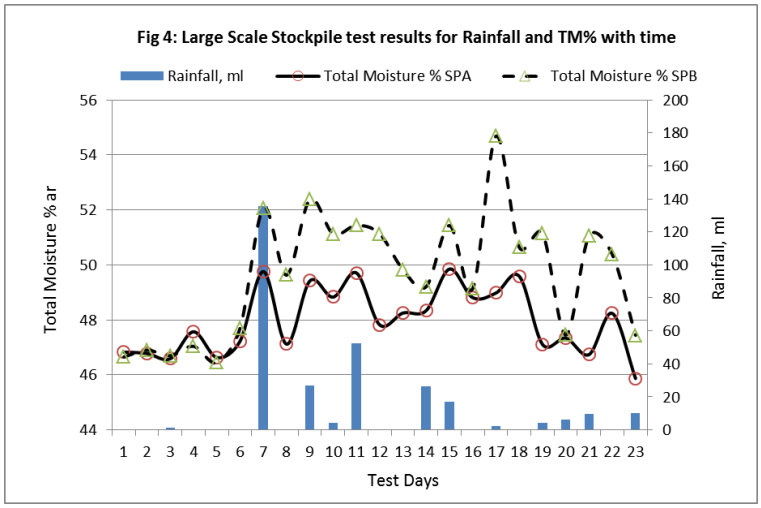
The extended trial to 38 days only reduced the moisture level by 0.74%/day. This would indicate that the potential beneficial drainage effects on stockpiled coal could be realized relatively quickly. Drying slows down due to the smaller wetted area exposed to the drying air. The nature of the coal now begins to play a more important role in determining the rate of release of moisture since the moisture has to migrate from the pores of the coal to the surface, which requires more energy.

Whilst the small scale results are undoubtedly also inclusive of evaporation losses, this is expected to have only a minor effect in comparison to the drainage loss. This is supported by the moisture analysis checks completed over a variety of time periods showing well aligned results against the overall profile. The profile also shows that after eighteen days, the loss rate drops substantially. This is indicative of a lessening gravitational effect on available free moisture. It is

likely that in a practical situation, moisture losses in the third phase will not be sustainable under ambient conditions.
The data supports a potential drainage beneficiation of coal moisture over a two to three week period. Stockpiling effects will likely decrease the drainage potential with more prolonged time. Lignite coals are easier to loose moisture than high rank coals [25, 26].

Figure 4 shows the moisture as determined on extracted samples from both large scale stockpile tests. Also includes the rainfall events during the trial period. Initial moisture loss appears to be minimal for the first few days. This delay in drainage was also observed in the small scale tests and may be due to free moisture accumulation to a concentration that precipitates gravitational drainage. The rain events have an obvious and significant effect on moisture levels throughout the tested area of the stockpiles.

The largest moisture loss as measured by extracted samples is observed to coincide with the periods of least rainfall. Rain days with less than ten millimeters of rainfall still allow a significant drainage while rain days with greater rainfall than 120 millimeters tend to increase the overall moisture levels. This rain effect ensured that the stockpiles actually increased in overall moisture content during the trial period. Both stockpile sets of data follow the rainfall closely, highlighting the significance of moisture addition from rain.

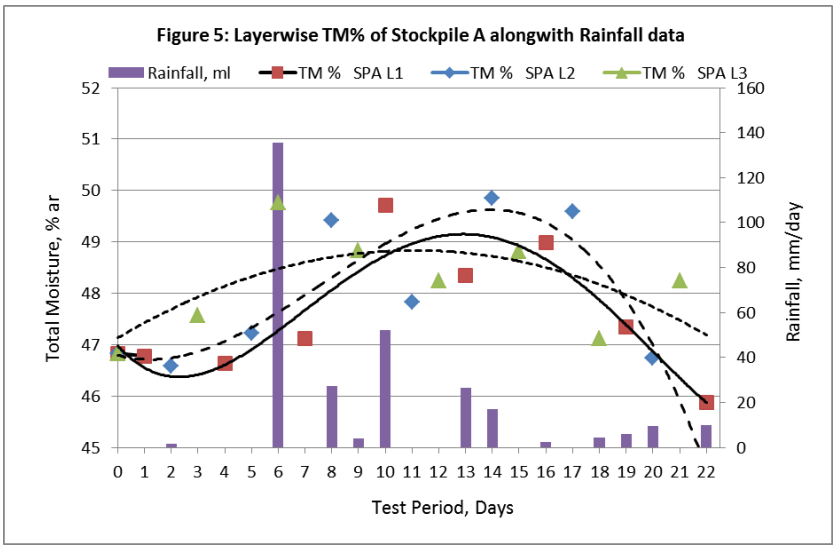


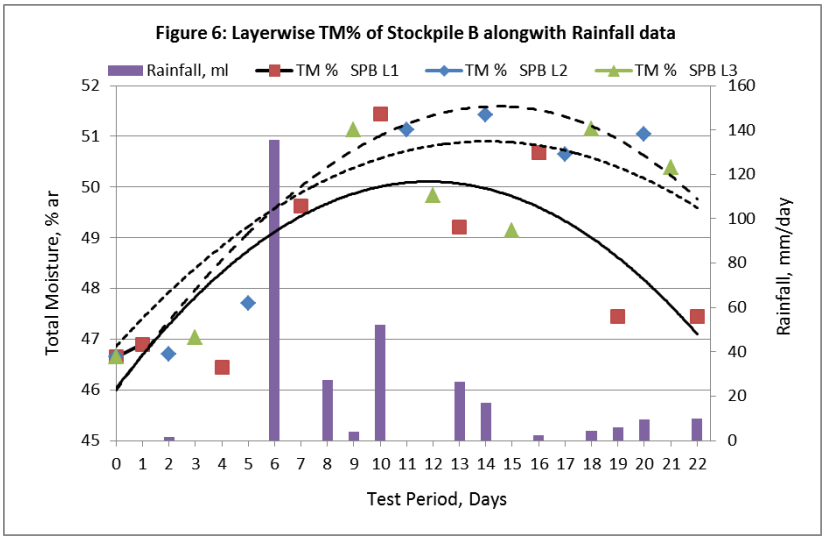
To evaluate what differences may be occurring to moisture content within the stockpile different levels, the extraction samples were positioned in three distinct layers. The information portrayed in Figure 5 and 6 represents the data from each stockpile according to the layer. Data from the two stockpiles shows some correlation though this tends to widen as the trial continued. In order to increase the reliability of data two stockpiles allows averaging of errors in measurement and heterogeneity. The top layer rapidly increases in moisture, as would be expected, on the addition of rain.

This layer also drains moisture quickly during dry periods. The middle layer shows similar increases due to rain as does the top layer, though initial drainage is not as quick as the top layer. The heating of low rank coalin stockpile was increased with decreasing particle size, increasing moisture content of the coal and decreasing humidity of the air[3]. Stockpile A displayed a much greater moisture loss rates during the later days of the trial than did stockpile B. The bottom layer must drain the free moisture horizontally rather than vertically as is possible for the higher layers and as such was expected to maintain a much higher moisture level. Test results do not, however, support this expectation. Both piles show a greater moisture reduction for the bottom layer. It must, therefore, be assumed that the piles were constructed to freely allow drainage of water from the base and presented little hydraulic back pressure within the stockpile that was overcome by the greater gravitational force propagating drainage.

This would suggest that the construction of the stockpile and the size distribution of the crushed coal do not present significant barriers to natural drainage in the present scenario [15].The top layer coal granules are broken to smaller size fractions due to decrepitating nature of high moisture low rank coal. Smaller grain sizes of the coals that the smaller the grain sizes the larger the surface area and the more contact with oxygen, and heat was continuously accumulated in the medium and could not be taken out, helps in lowering of total moisture in top layer [27]. Furthermore, drainage within the stockpiles not limited to the extremities and can be given a standardized draining profile.

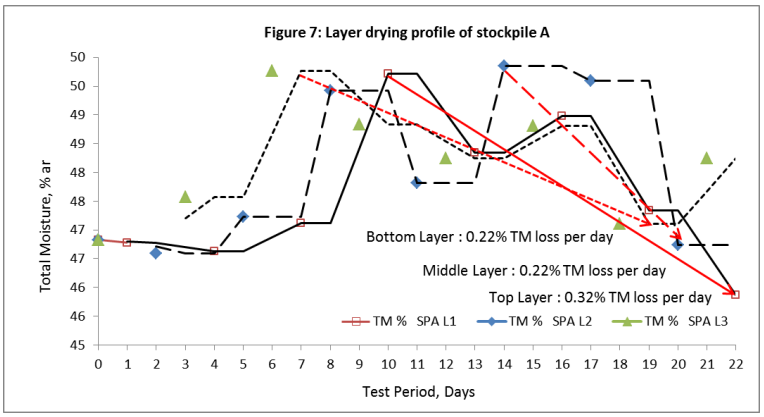
In order to further evaluate the movement of moisture vertically through a stockpile, the individual stockpile data has been aggregated. Drainage profiles can then be applied to establish the average drainage rates and the maximum drainage rates, for each level of the stockpile. Average drainage rates have been calculated from the peak moisture level in each stockpile layer





The variation in average draining rate for the aggregated stockpile layers shows a gradated rate (Figure 7 and 8) dependent on hydraulic gravitational pressure. This would indicate the likelihood that taller stockpiles would drain faster [17]. The ability of the stockpile base to shed water will impact significantly, which was mostly top soil clay.

The measured maximum drainage rates are also dependent on layer with the top layer draining fast in both the stockpiles. The rates are in line with those measured in the small scale tests with a large scale weighted layer maximum of 1.2% per day. The small scale trail average was 0.91% per day for the twenty two day period. This close correlation in both scale tests should provide good levels of confidence on predicting maximum moisture loss over time. However, due to the large scale trial being subject to increasing moisture content due to rainfall events, caution must be exercised in evaluating these results. Namely, the maximum rates have been determined from a greatly reduced period of time and the additional water in the stockpile may if fact give higher drainage rates.



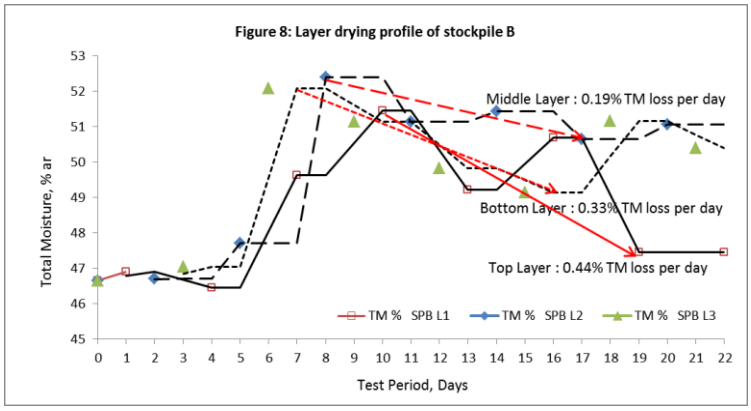
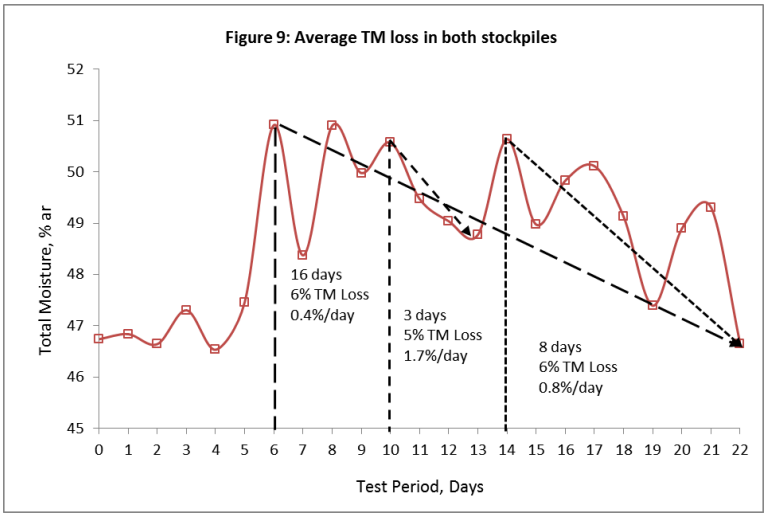
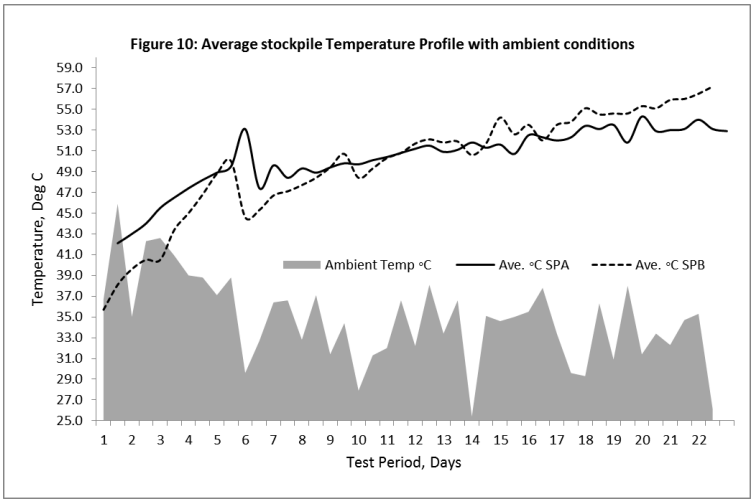


Figure 9 displays the aggregated stockpile moisture for all layers in both stockpiles. This should reduce any effects from homogeneity and stockpile construction anomalies. Three separate moisture loss rates have been calculated by basing the loss from a moisture peak roughly aligning with significant rain events. While the interpreted moisture peaks may not directly be resultant from rainfall, the loss rates from each peak to the trial end allow valid calculation of moisture loss. The loss rates calculated from this scenario show reduced rates from the maximum rates calculated from Figure 7 and 8, they still indicate significant moisture loss. The period selected from day 10 to day 13 show a drainage rate 1.7%/day is in excess of the previously calculated loss rate of 1.3% per day maximum and 0.44 to 0.32% TM on average. Once again, these augers well for establishing a moisture loss profile with a high degree of confidence.



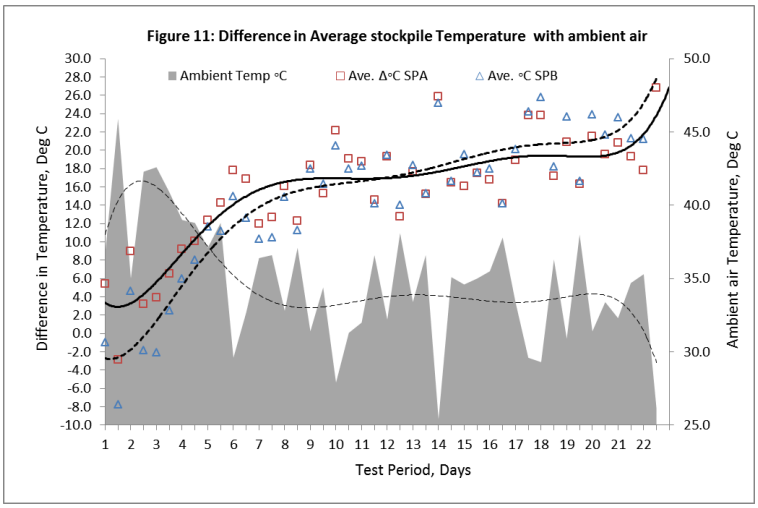
AMBIENT AIR TEMPERATURE

It has been found that inflow of air or oxygen into the stockpile is indispensable for durability of coal oxidation and heat accumulation inside the pile induces temperature rise over the critical value of about 200 °C. These two conditions for spontaneous ignition are met most in the edge of the stockpile [18]. The degrees of compaction and airflow rate effects of varying rates of air permeation on the coal oxidation process and change the stockpile temperature [8]. The temperature of both stockpiles shows a steady increase over time (Figure 10). Stockpile B had a lower start temperature but finished the trial period at a higher temperature than Stockpile A. This may be due to differences in stockpile construction or more likely, different exposures to predominant wind direction by virtue of shadowing from the other pile. Ambient temperature was very hot for the first five days and this has driven the stockpile temperatures up sharply. The rate of temperature increase, lowered slightly with cooler air temperatures. Numerical results showed that maximum temperature of the coal stockpile decreases as Re (or air ratio) increases. Air ratio enhancement improves the heat removal, but it also increases the coal oxidation process, so the intersection between air ratio and maximum temperature curves, when plotted versus Re, can be used to find out the safe (design) area [28].



The cooling effect of the rain days can clearly be seen with the ambient temperatures dropping below 300C, however, the rate of temperature increase was at its steepest directly after the rain events. While the stockpile average temperatures remained below 600C, individual readings from segments of each stockpile reached in excess of 700C. The influences on stockpile temperature can be observed in Figure 11. While significant temperature drops are directly attributable to the cooling effects of the rain days, both cooling water ingress to pile and cooler ambient temperatures, the strong winds on hot days also have a marked effect. Another key parameter is represented by the volume-to surface ratio (V/A) of the pile. This is due to the fact that the heat generation as a result of chemical oxidation reactions is related to the volume, and the heat transfer to the surrounding is related to the surface of a reactive system [15]. It has been

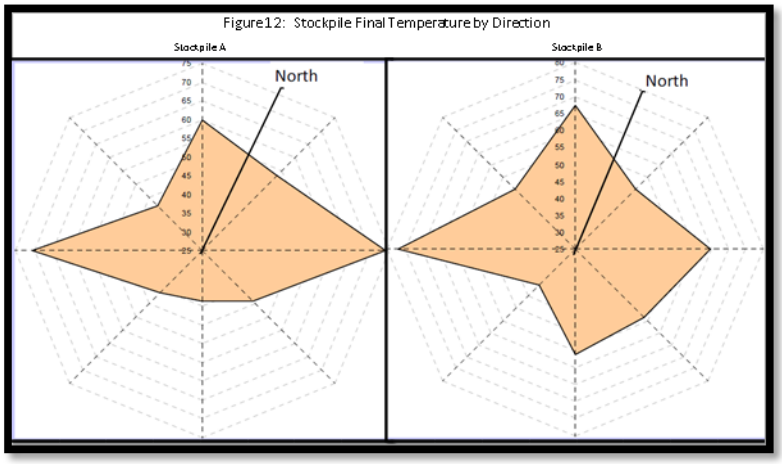
reported [5] that low rank coals undergo the highest heating rate when their moisture content is reduced to about one-third of the original as-received moisture content.



WIND

Coal stockpiles exposed to strong winds are vulnerable to increased self-heating via oxidation processes driven by the increased oxygen available inside the pile. Worth noting is the tailing off of the temperature increases over the final five days of the trial. The weather conditions were cooler with several periods of light rain and moderate winds. This type of weather obviously allows greater net heat losses from the pile.

Although atmospheric temperature is low, low-temperature oxidation of coal in the stockpile continues for a long time and finally, it leads to spontaneous ignition followed by rapid combustion [29]. Hot days with strong winds with intermittent downpours provide little opportunity for the stockpile to loose heat and compound the situation when the rainwater percolates through the coal increasing heat generation by promoting oxidization. While there are some differences between the two piles, a strong correlation between wind direction and pile temperatures can be discerned. The predominant heating is observed in both piles at the west-south-west segment (Figure 12).



Taking into account the wind strength ambient temperature and humidity an evaporation factor has been estimated. The evaporation factor is useful in evaluating drying by evaporation. This also introduces another aspect in studying the heating of the piles as evaporation is endothermic and will assist in removal of heat. The factors are heavily weighted by the humidity and for most of the trial period the estimated evaporation factors were very low. As evaporative losses only occur from the outer surface of the stockpile, this is not a significant drying modus for large stockpiles over the short term with this climate profile. Benefits obtained via evaporation are easily lost with minor rain events.

The dominant wind strength directions align well with the final stockpile temperatures, reinforcing the effects of wind impact causing heat generation on stockpiles. The easterly winds over the last week of the trial period did not affect the same temperature increases as the strong northerly winds in the first week. It is expected that this is due to several reasons.

As the coal initially drains, exposure of oxidisable surface areas rapidly increases, the heat generated by exothermic reactions increases rapidly. The ability of the pile to divest this heat is severely hampered by high ambient temperatures and high humidity. [17]. This increasing temperature will in turn increase the moisture loss both via evaporation and by increased mobility of moisture within the pile. Slower, cooler winds will aid the pile in divesting heat and will not generate significant pressure differentials around a stockpile. Strong winds generate a pressure drop on the leeward side of a stockpile and this act to draw air deeper into the pile. High humidity will dampen any evaporative effects and decrease heat losses from the stockpile. The combination of high ambient temperature, strong wind and high humidity is the least helpful scenario for storage of coal in stockpiles.

MACERALS CONSTITUENTS

Petrographic analysis of showed that the coal sample is having the highest inertinite group macerals. Inertinite group of macerals gets oxidized more easily [16]. Oxidation progresses with

time for lower rank samples especially at relatively higher ambient temperatures causing rise in stockpile temperature, which results in loss of surface moisture of coal.

CONCLUSION

The critical stockpile temperature has been stipulated as 60 ◦C and this temperature are likely to be reached in approximately 18 days. There is some evidence to suggest that the stockpile temperatures may reach higher than the suggested critical temperature before uncontrolled heating continues. Few occasions temperatures exceeded sixty degrees and then dropped. Of course, the impact on temperature of both wind and rain can dramatically change the heat generated from oxidation processes. This evaluation would suggest that, without consideration for the weather condition effecting the pile temperature and moisture, a natural drainage period of between 18 and 25 days would assist in the reduction of moisture associated with the coal. The reduced moisture content of the drained material could be expected to reach approximately 27% Total Moisture over this period.

Further, to evaluate the same coal with small stockpiles under ambient conditions but with and without shelter from rain and using different initial granulometry is in progress and will be communicated in near future.

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COBIT, ITIL AND ISO 27002 ALIGNMENTS FOR INFORMATION SECURITY GOVERNANCE IN MODERN ORGANISATIONS

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ABSTRACT

Over the years; there have been a number of methodologies and standards designed to help IT Governance and information security within modern organizations to achieve optimum process to achieve business objectives. Companies pursue the use of various mechanisms to ensure that their IT infrastructure is aligned with the objectives of the business and comply with local and global IT governance rules and regulations. Despite the vast amount of options available, there has been considerable confusion over the various methods used IT manager due to their lack of compressive information Governess approach. This paper proposes the comprehensive alignment of ITIL, COBIT and ISO/IEC 27002 that can be effectively used by any organization as a comprehensive solution to handle IT Governance and Information Technology Management in their organizations.

KEYWORDS

ITIL, COBIT, ISO- 27002, information security, IT Governance, Information Technology Management

INTRODUCTION

IT Governance is about It in the administration of the business is about giving back a ROI as aid to moneymaking business forms, or about the shirking of waste (and It without a business object is a waste of assets), or about the fulfilling of business administrative or consistence prerequisites. Starting here of perspective, the administration arranged approach to It essentially makes viable, business-turned influence simpler.

IT influence' is the in general and thorough supervision of organization It assets administration so that for better and productive and secure administrations incorporating keeping due respect for the investment of all stakeholders to keep benefit edges higher. This is vital, not for charitable explanations however since moguls wouldn't purchase experience an organization (or, rather, they'd demand in an extensive rebate) in the event that it wasn't run that way. The most ideal

approach to do this is to guarantee the transparency of an organization's operations to speculators and different stakeholders, by supplying them with suitable and dependable data and this is one of the fundamental concerns of corporate influence, as well as the need to conform to pertinent laws and regulation.

In recent year organizations worldwide have utilized different Information administration strategies to conform to the nearby and worldwide regulations. The most broadly utilized regulation and skeletons are today are ISO 27002, COBIT and ITIL. Every guideline has its certain viewpoints however with certain restrictions. This paper intends to pool the positive purposes of ISO 27002, COBIT and ITIL an exhaustive way to propose an IT Governance structure that protects broader parts of data security administration for the cutting edge organization.

The proficient utilization of data innovation administration has been looked for after by numerous organizations; whereas a few organizations have attained the level of multifaceted nature needed by the utilization of these advances, securing a focused edge in the commercial centre. However the It administration regularly happens by accompanying one or two measures in confinement in light of the fact that It administrators uncover the mixture of regulation excessively intricate to accompany and actualize. The key explanation for why of this article is to address the use joined together systems ISOISO 27002, COBIT and ITIL as an instrument for It administration, recognizing that there are numerous confusions that are might be barely overcome by utilizing just a solitary system.

Successful IT management is essential for the smooth organization of operations incorporating administration of data security to keep its aggressive focal point in the business. These guidelines ought to be straightened to the destinations of the association to accomplish business objectives. In addition the profits, the utilization of It additionally postures incredible hazard to the association, where any mischance spill or consider break of delicate information can demolish an organization notoriety and debase it in the business sector. It is dependent upon the guides of the organization, how they viably they control the It holdings, plan arrangements and relieve the innate dangers.

It is an oversight to see It Governance absolutely a reaction to outside administrative weights, as this causes an at heart unsound mentality: legislation comes to be seen simply as an expense, an expense of working together, over which an organization have no control. Actually, IT Governance may as well guarantee that IT assets are sent and oversaw require viably, in the chase for business procedure. A definitive point of IT Governance is better, quicker, shabbier business. By the by, one part of this is the transparency that guarantees that all the stakeholders in a business can fulfil themselves that the business is constantly completed sincerely and morally, in light of a legitimate concern for the business.

From IT perspective Governance is about mitigating the risk of internal IT-assisted fraud, probably a far greater potential disaster to a company than the high profile risk of external hacking. The positive benefit from this transparency is that it can demonstrate the probity and reliability of a company to third parties: business partnerships will be easier to arrange (thus

enabling greater automation of inter-business processes or 'straight through processing') and that raising investment capital (from shareholders) should be easier.
A methodology used by some companies to manage its information technology is COBIT (Control Objectives for Information and Related Technology) developed by ISAC (Information Systems Audit and Control Association). Another widely used method is the ITIL (Information Technology Infrastructure Library) developed by the British Government that has an efficient structure and has been adopted and recognized worldwide as a standard for service management. While the COBIT and ITIL are guidelines, the ISO 27002 are widely used in IT operations to standardize security in organizations. We would be discussing it further in this paper.

ITIL, COBIT AND ISO 27002BACKGROUND

ITIL (INFORMATION TECHNOLOGY INFRASTRUCTURE LIBRARY)

ITIL or Information Technology Infrastructure Library is a library of good practices related to the services of Information Technology (IT). ITIL was developed in Britain in the late 1980´s by the Central Computer and Telecommunications Agency (CCTA)). ITIL provides a framework for good practices to guide the management of IT services. ITIL service strategy provides guidelines for the design development and implementation of service management and service strategy for modern organization. These guidelines empower the organization in relation to the principles that should underpin the management practices of the services.

The ITIL management service represents the development activities of internal and external suppliers, control of services and implementation of control strategies through their life cycle. These principles are extremely useful to develop policies to manage and control the lifecycle of ITIL services. The process of projects service includes the guidelines for design and development of services and processes related to IT management. These actions include the conversion process of strategic objectives which has already been defined in a portfolio of services.

ITIL transition services lists the requirements of service strategy, analyses the services project and effectuates this context into service operations, controlling the risks of failure and providing guidance about the requirements of the Service Strategy encoded in Service Design that are effectively carried out in the service operation, controlling the risks of a failure. This part of the ITIL framework combines practices in the management of the version, program management and risk management and places them in the context of the management services practice.

The Operation of Service incorporates the practices of servicing objectives in order to achieve effectiveness and efficiency in the delivery and support services to ensure a value for the customer and the service provider. Many organizations have been applying continuous improvement in their management processes, production, among others. Following this trend, the organizations have realized that the incremental improvement has had a large effect on service quality, operational efficiency and the continuity of services. ITIL last guidelines aim at continuous and consistent improvement.

COBIT (CONTROL OBJECTIVES FOR INFORMATION AND RELATED TECHNOLOGY)

COBIT (Control Objectives for Information and related Technology) was created by ISACA (Information Systems Audit and Control Association) through the ITGI (IT Governance Institute). COBIT main objective is to provide good practice through a structured international standardization process of IT. COBIT identifies the key IT capabilities of an organisation and aligns IT to the business strategy, maximizing its benefits. COBIT focus is on following key areas: such as strategic alignment of business plan of the company, aligning IT with the company's operations, optimizing resource management to improve return on investment and efficient risk management to reduce significant risks to the company. All these factors form the fundamental of the COBIT.

ISO-27002

ISO 27002 corresponds to a series of guidelines and principles that intends to improve the management of information security in an organizations. The fundamentals of ISO 27001/27002 are listed below:-

• Information; Security Policy.

• Organizing Information Security

• Asset Management.

• Safety of Human Resources.

• Physical Security and the Environment.

• Operations and Communications Management.

• Access Control.

• Acquisition, Development and Maintenance of Information Systems.

• Information Security Incidents Management.

• Business Continuity Management.

• Compliance.

ITIL AND COBIT COMPARATIVE ANALYSIS

The difference within the ITIL methodology is the way the processes are described and treated with different activities. If there is an excellent cost-benefit ratio, it deals with the issues of implementing new technologies and guidance for the analysis of critical success factors. However, the critical success factors are better described and addressed by COBIT.COBIT is better structured to address issues related to IT auditing, being widely used and appropriate for this purpose.

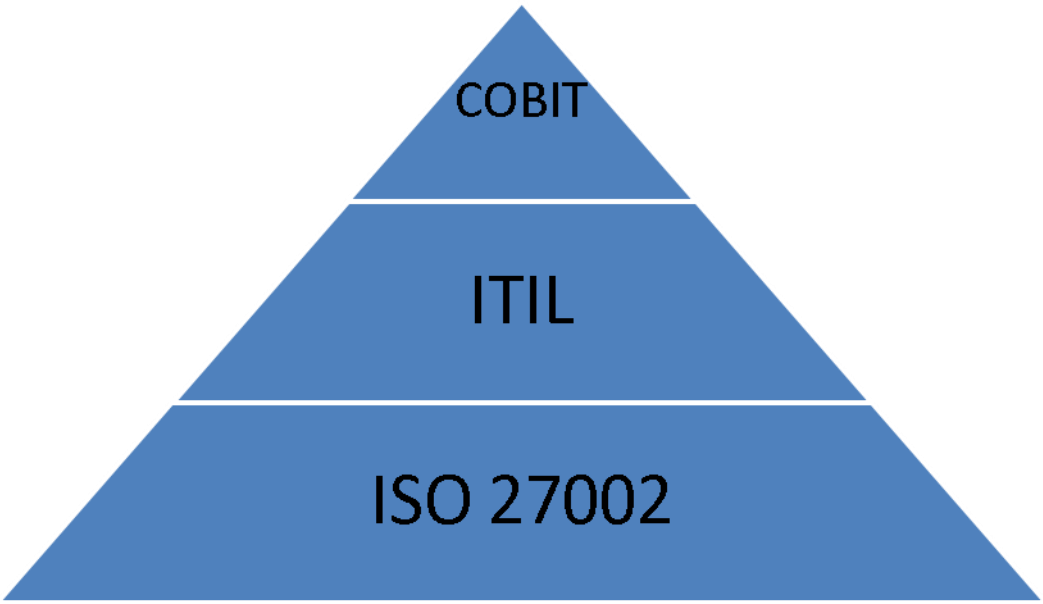
On the other hand, ITIL deals with incident management with a specific approach in its structure that has no equivalent section within the COBIT framework. ITIL handles this in a very comprehensive way and the levels of maintenance of service (SLA) including operating agreements (OLA) compared to COBIT.

The ISO/IEC 27002 standard is related to information security and not to IT management. With these general objectives, it is clear that the ISO/IEC 27002 needs a governance structure to rule over an organization context. Since ITIL and COBIT fall under the governance yet lacking the detail of ISO 27002, the alignment of ITIL and COBIT with ISO 27002 would be ideal to have a balanced approach to IT governance in modern organization.

ISO 27002 has a clear structure that can be applied and implemented completely on an organization with a guarantee of the overall safety of information security that is missing in ITIL and COBIT. The ISO- 27002 has features to preserve the confidentiality, integrity and availability of the information in organizations. Another point that may be compared with these methodologies is related to financial issues, as the ISO 27002 does not address this issue comprehensively. Financial risk and control is more related to general process that has to be set in place via ITIL and COBIT that provides a more active and effective risk management controls process.

As can be seen in the pyramid type figure below, the COBIT provides guidance for overall IT strategy, ITIL delivers details process alighting business objective with the IT, optimizing the resources and creating value for customers, while at lowest level is Information availability, assurance and integrity and minimizing the risks by successfully deployment of operations via ISO 27002.

Regardless of methodology, the goal of IT Governance is to improve an organization competitive advantage, optimize operation and mitigate risks. Often there is this flawed philosophy among IT professionals that IT role in a company is setting up laptops and printers and stopping access to information. In a way most IT departments are lame duck with security guard kind of mentality living in a mistaken belief that IT is just operation and does not need to be aligned with company's business goals. The truth is IT Governance is an integral part of a modern company that must be lean, mean and must compliment business goal in measurable way. Given this perspective it is vital to understand and measure the use of IT in organizations is a more plausible manner via IT indicators that should be aligned with strategic indicators to govern the organization.



CONCLUSION

Good IT governance doesn't exist in a vacuum. Unless IT Governance practices are institutionalized as part of a formal process that is regularly assessed and updated in the light of changes to the business or technology, nothing will work. Regardless of methodology, the goal of IT Governance is to improve an organization competitive advantage, optimize operation and mitigate risks. Often there is this flawed thinking among IT professionals that IT role in a company is setting up laptops and printers and stopping access to information. In a way most IT departments are lame duck with security guard kind of mentality living in a mistaken belief that IT is just operation and does not need to be aligned with company's business goals. The truth is that IT Governance is an integral part of a modern organization that must be lean, mean and must compliment business goal in measurable way.

From the above discussion; the proposed suggestion is that ITIL methodology should be used to define the strategies, concepts and processes; COBIT should be used to evaluate the critical success factors and ISO/IEC 27002 standard should guide the IT in relation to issues of IT management and security.

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DISPARATE POLICIES IN SOCIAL EDUCATION PRACTICES DAMAGE SOCIAL PEACE

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ABSTRACT

Educational policies and practices in Bangladesh are dominating issue in terms of managing educational establishments. Disparate policies and practices in educational profession are prone to damaging social peace has become apparent in the writing and study. Education is the destiny for a nation and a core field that helps the nation develop all sections of activities and make fit her citizens as a rich nation.

The study has got several issues of importance and found that worthy citizens who boys and girls must be educated well and bring peace or prosperity if they are well equipped with factors like supports and facilities which beget merits, talents, skills and expertise and on the contrary, abuses of law, quota systems for employments and education, discriminatory treatments in legal issues towards boys who could not contribute more and more to building the nation but have very less scopes for success due to readymade obstacles. The crimes and corruptions, injustice, aggressive feminism policies, political undue scopes, illiteracy and ignorance, poverty of boys and later as men grow in alarming rates as a result of depriving them of their rights and opportunities at early stages as citizens of the country. All supports and facilities such as free education up to graduation levels, stipends, food for education programs and legal supports only for girls students who easily achieve the opportunities in education and employments have been issues of controversial behaviors.

KEY WORDS

Discrimination, Free education, Stipend, Quota, Ignorance, Talent, Crimes, Feminism

INTRODUCTION

The theme of this writing is nor very unknown to many but the realization of the meaning is very far from general views and senses. that are felt by subconscious minds. Bangladesh is a developing country which achieved her independence in 1971 that means nearly 42 years ago but the economical and educational developments are under privileged. There are similar countries

in the world which have had strong infrastructures, education nearly 95% , industrial promotion, social progress are all targets acquired well. Education is the backbone of a nation said as proverb is true but education in Bangladesh shows different perspectives and applications. The policies and decisions made by the parties including government ministry, departments, boards of educations and local administrators are major dominant policies makers though the top and major policies are made by the Ministry of Education.

However, systems in education run in various forms such as primary that is classified as Govt based semi govt. private English medium, semi English medium and full English medium. Secondary, Higher Secondary, Polytecniques, Madrasha, and further graduation levels. This writing revolves around the main policies made and applied by the Govt. parties. The Government of Bangladesh aimed at achieving 100%results to make educated citizens of the country, though the percentage are improved much than the last two decades but these are scanty.

The applications of all facilities for education at various levels need to be clarified. Education is a key field of professions appears to decide the success or failure in career, so some issues in legal or business and social matters are included in the writing to clarify the overlapping relations which determine the later stages stability(1). Disparate is a word suggests discriminatory sense and significance , as a result the justification for all situations based on academic scenarios are treated as biased and partial treatments towards a group of learners (8). It is true to consider on minority factors for women, races and casts in favor of them that are considered accordingly. The focus on this writing is to understand the policies and decisions which create lot of diverse issues of controversy.

The topic supposes to cover overlapping facets in areas of professions, political interventions, social and media issues and legal activities because education determines issues in employment, legal practices, business development, medical practices, political participations, educational practices and social expertise.

LITERATURE REVIEW

The country based on various layers and levels of educations run by different bodies and systems of managements seem to be having imbalanced approach to offering facilities and financial supports for students. The policies and factors of promotional contexts in lower and mid levels education include opportunities for education, stipends, scholarships, food for educations programs and some other incentives make promotions for education attractive to the citizens, though the reality for applications are quite dark and dummy, mass populations cannot understand the inner situations what are happening to their kids / children. Government schools and colleges are highly appreciated by employers. There are huge competitions to get admitted into Government institutions. Education is a key to all success in work, social situations, and national activities but the national resources are offered for certain groups of students. Imbalanced or partial distributions of resources among balanced sexes are matters of subjective priority for the nation that cannot cross beyond limits and margins of common phenomenon if

happen, are sheer violations of rights and laws (2). This stage of this writing commence with reviewing the contexts what are going on in the country as whole.

Boys and girls are beginners in primary education and they are promoted to secondary level and then to higher secondary and finally to graduate level. There are thousands of schools and colleges in the country, the incentives and supports for students are offered at full Government and semi Government based institutions. The poor families and orphan class and other sorts of distressed families are facing extreme crisis for education thorough out the country. The percentages of boys and girls students in the society are almost same and similar but the administrations or management of the education departments created so many examples of biased policies and decisions are immense to describe. The basic rights for citizens of any country are education, food, shelter and employment but Bangladesh Government is indifferent and negligent towards her citizens and at the same time, evidences show that the treatments towards certain class of learners are totally unjust and unfair.

The boys students are vital force, strengths and might of a nation because they can cultivate land, dig canal, dip into ocean for fish and diamond, cook foods in restaurants, made civilizations with building cities, digging the mountains and hills for cultivations, palace, building high roads, mansions, bridges, airplanes, defending the nations with weapons, produce crops, foods, creating employments, making industries without which the world is useless, meaningless and lame but these boys are deprived of their rights like free education, stipends, scholarships, other supports for studying , these boys become victims to their rights, they come from lower middle class / lower families. Well educated boys who are found as talented, meritorious, industrious, honest, patriotic, innovative, and creative and explorers but the conditions look frustrating that the boys are made to lag behind girls.

Though girls or women work in odd situations or hard jobs are 5% while boys /men work in worse conditions are 95%.males. Under these circumstances what are going on, perhaps the Government want the boys to be cooks and labors while the girls / women can be boss and lead all sectors in the country. The sense seems to be funny though, the reality actions stand for the same significances. Several countries in the West faced severe crisis in leadership and productivity due to unprecedented partial ill treatments towards boys and slowly started to realize the impacts on economy and defense against country that without men or boys talents, no nation can survive fit. They created the lands so barren with ill treatments to boys that the lacks felt not only in defending the country and production in goods but producing citizens. They had to import men from other nations to act as men.

At present in Bangladesh the similar contexts are taking place. Most Government primary schools encourage girls' students with all sorts of facilities. Primary and Secondary schools in village areas vary in receptions of students of boys or girls but the city area Institutions accommodate fewer boys than village's institutions. Of all students in lower class families, 27% boys never reach primary levels due to utter poverty while 20 % can reach SSC levels and 10 % students reach HSC / Diploma levels of the lower classes fluctuates very much depending on political stability and other sorts of opportunities. Lower middle and lower class families are 60% -70% in the country. They have neither better shelter, nor employments nor educational

scopes nor supports for basic livelihood. Almost 25% students are utterly helpless for any support of study. The boys basically face utter difficulty in finding educational fees for study either at private other kinds of schools or colleges when they have no scopes in public institutions (13). The free education for only girls students is public exposure that holds not only educational prejudices but legal and ethical ill foundation in the country.

The City Corporation runs many Institutions in city area; these institutions are 97% female or Girls College / schools. They build only 3% institutions as coeducation. The funds come from men who own companies give tax, revenue, vat, and other Government contributions. These institutions are very well equipped with all supports and aids in educations. If these happen, where will thousands of boys go and learn to be educated? Is it fair and right approach to offer education in city area only for girls? What are sorts of justice and law of the land? More girls' schools / colleges are built in the whole country but in the same pace or proportions boys schools are not built. Learners are growing but the institutions are limited for boys. Who cares what are going on? Who run the show of admin and why?

The last two decades for educational functions falters in the same fashions more or less, the present situations are worse as a result of trends followed in the last decades. The Government focuses on offering incentives for only students ages between 5 to 21 years old girls are vital and basic stage for good foundation in learning. Many families use their boys at ages 5 to 16 or more years old for employments to support their families, though 5% are also girls for household work are very less in comparison with boys. These boys from the ages of 5 years work as brick fields' labor, cooks, drivers, vendors, builders, cleaners in restaurants, hawkers, valets, family servants, rickshaw pullers and beggars finally (13).

Girls' students /women are always considered as polite, mild, helpless and innocent; they receive all supports from all around. They are gaining in learning and success because of receiving all supports from father, mother, brother and husband government, NGOs and legal supports too but boys get helps so less and become directly victims to beliefs, policies, misuse of laws, social systems and poverty at last. Girls do good results while all around them help them succeed in the examinations and life tests or work promotions. People feed girls / women with silver spoons. They live in luxury, comforts, ease of facilities which are made easy by men. The certainty of finding jobs in future for girls' students and graduates are 98% guaranteed if they somehow appear in the tests for jobs.

Majority primary schools are dominated and inundated by the presences of girls' students, whereas boys students are not getting any places to go for want of money. The boys need to pay the fees in many institutions even though these are Government based ones. These poor boys ultimately decide to go to madras where they become more aliens and outsider of employments streams in the country. They are being deprived of modern scientific educations by the rules, laws, and systems hinged on injustice in the country. Madrashas (missionary schools) are also treated disparately due to the State rules and laws for status. Most employment in private or Government places are not given to these students. The boys and then men once loose all opportunities of study; they are made tools of all kinds of objects for uses. Some occupations are

some way good but better than these categories are as thief, robbers, knaves, terrorist, rapist, abductors, and finally drug addiction are different sorts than before.

At the same ways these poor classes of boys can study neither at private institutions /universities nor in public universities due to quota systems by which less meritorious girls' students find opportunities in many demanding fields of study and institutions. These youth have their innocence, force, power, merit, and quality but the country rules or laws make them so objects of hatred and abhorrence. The keys to moving the wheel of life is at the hands of men should be perceived well but be not forgotten. It is not even partially comprehensive that the boys and then men create business world, other wonders and help the planet to be moving alive. Boys must get all required supports for educations and use their talents for fit positions not based on quotas (12).

One issue is relevant to discuss here to hint that the quota systems reserved seats make so easy for girls /women to find higher raking jobs like Magistrates, ASP, Judges, Managers, Administrators, departments Heads positions can promote our national economy, security, justice systems, productivity, educational developments, business promotions but all progress and prosperity seem to be only filmy dream world without real heroes who really can faces all challenges and invincible tasks to transform the world of pain and labor not by mere talk but by struggle and pain or blood. Those heroes are killed at the inception of their bloom. Men/boys sacrifice their lives for feeding women species and building family but there is no gratitude to men.

Every department in the country faces inactive delivery of services, crimes, ignorance, prejudices, foxy and dummy role players, no control on administrations, all like to be boss / leaders, a serious lack of proper policies in educational institutions and applications of these matters become central points. Leadership problems are severe because dishonest and unworthy persons hold vital positions make situations worse on and on. The opportunity of absence in leadership is used by foreign terrors and god fathers to exploit the scopes and destroy the peace stability. Leaderships and decisions are worse because leaders have no power or merits to make decisions', many subordinates surrounding leaders act like superior leaders, such leaders / managers, heads as those who are in powers are examples of these consequences in the country. Once the positions function well, the prosperity must grow in all sections of society but some class becoming richer and mass class of society are going down because of improper and partial systems of educational policies that decide the national success or failures (3). The whole national attention has been concentrated on women empowerment so much that many functions of the country are dried up as widow.

Most people seem to act as womanizers to adore women beauty and worship them like goddess. The Beauty is heavenly bliss but much beauty of women tempt and lure boys who are going astray and don't understand the consequences beneath this fake beauty and nude show for love that end up in unending tortures and troubles.

Crimes rates in society are high, various forms of crimes include cheating, injustice, tortures, false accusations/cases, sex victims / love traps, false rapes and cases, abuses of laws, deception,

fraudulence, extortions, rapes, terrorizing, and killing are rampant in society. The impacts of those injustice and unfair treatments to all poor youth flabbergast people with horrors. The courts are very busy with cases of sexual harassments, rapes, teasing, divorce cases, Moharana / Dowry claims, and many other sorts of fabricated cases filed against boys/ men. The business profits are extremely good.

Average 40% men either high class or low class in a village and in city nearly 60% are facing injustices and tortures and harassments for their wives who are creating problems like 33% unwilling to work or 30% unable to work or 28% luxurious / ambitious of wasting money or being avid for money start quarrel and have conflicts with their husbands / relatives. The false cases like dowry wanted by husbands or tortures by relatives / husbands are 98% fabricated cases lodged by wives. Men torture wives are 3% who loose tolerances for wife unsocial, desperate, illicit behavior. Variances in these contexts of city and village life proportion, class and education are noticeable. Exceptionally 10 % women are very good in all aspects.

The unemployment contexts are very worse, developments in different sectors are frail, functions of Government departments are half way active, youth are either drug addicted or committing to some sorts of crimes or terrorists are made to pass days in jails years after years. The society is not protecting these boys or men to use their merits. It is so sad for civilized society to hear about someone who raises issues of injustice, crimes, abuse of laws, he dishonors courts / laws and cases are lodged against him for telling the truth. Laws of the land lie in the caprice of ladies /lords of the land.

Different departments of Government like Information Ministry, Law Ministry, Women and Children Ministry, Education Ministry are all involved in influencing central philosophy and objectives of educational systems in Bangladesh. Women and Children Ministry has much responsibility to protect and educate those poor boys for their guide and supports. This Ministry seems to focus highly on girls only, they don't care about the lives of the innocent boys who go astray days after days and years after years. They provide all measures for girls students who are made and empowered to lead the country as leaders. Though all decisions, supports and productions depend on men / boys for foods, shelters, education, money and other resources for life, boy's roles have no significances for rewards and return. No work, inventions, production creations, attainments are possible without men's helps, the strengths and blood sacrificed by men are not appreciated by a class of society.

Media roles engage in brain wash of public to adore a trend of culture and customs and rule which establish the laws. No good person or organization can protect such trend of justice or injustices (mainly). The Medias don't present such crisis in educational systems before the mass class of people. The authority thinks, they offer facilities for all but only girls receive the incentives and assistances while boys get a bit if they do really. The information systems and Medias are working for Government agencies should look into balanced humanity. Information are distorted, genuine information don't reach the mass community.

Developing concepts and practices of empowering women indicates scopes for legal abuse and misuse of authority. All treatments towards general mass community become partial. Hundreds

kinds of legal acts for cases in favor of women are applied to innocent people (4). There are thousands law suits or cases in the courts are lodged against fathers / husbands based on false claims for money, wealth and dowry (Mohorana /dowry which are claimed for 10 times more than normal rules), mercenary interest/ motives for marriages and misinterpretations are major bases to lodge cases. Ignorant /Half educated fathers and husbands are suffering miserably without any criminal acts. The whole family members are suffering for such abuses of laws in the country. These are present situations in the country as a result of women empowerment, human rights and undue rights have been controversial issues. The country needs to support female students and women but these sense s should not darken all every issues of prospects and importance in the country and 16 cores population are spelt bound or obsessed with notions of only women empowerments can rescue the nation from all disasters are mainly packs of nonsense and folly dragging the nation into Alice's Wonder Land is a fantasy movie. Majority classes of people are running on the same trend and airs of empowering women, rights for women.

The girls students receive free education up to graduations levels while boys students have no supports or facilities being the same citizen of the country. They are treated like step sons as if step mother. The issue of such situation is really a justice or injustice is covered with mystery. Questions arise, those who run administrations follow any rational factors or become trendy be busy with pleasing their boss for promotions. Various professionals like doctors, engineers, lawyers, businessmen, psychologists, sociologists, anthropologists, forces, administrators, and teachers look helpless and passive in any issues of social injustices. No concern worries them all about the virus that is devouring the social platform of prospects.

The higher class of society has presently no tensions because their children are safe and equipped with many shields thought by them but one day that might be opposite when the whole society goes down, no one is safe (5). The nation is almost shattered with no creativity, developments, no innovation, no technological advancements, no productivity, no long term based employments opportunity, but the nation is run by loans from the west, people scanty taxes, depending on business like shaky garments industries though labor sections more based on females lead by men who are weak semi educated males thwarted by environmental, legal and political issues for prosperity and foxy economical show up of developments.

It is noticeable that the country has progressed on some business sectors like Estate business (taller building are rising) are private concerns can change the economical conditions slightly. These are not government efforts to developments. No public / government development in the last 20 years are except only mainly promoting women and girls keep people on utter tensions and troubles.

Students with political affiliations at Institutions worsen the academic environments, it is seen widely how students are involved in violence, fighting, killing, and destroying educational establishments. Decisions on permissions for involvements in politics by students are merely based on ill and disparate motivations of the leaders and Government ruling party. The whole concept encourage students for damaging their careers and they finally end up with designations like cadre, terror and musclemen, even though these may not be cases but their knowledge levels

become so shallow that they are good for nothings. Political crisis are growing beyond control which creates deadly environments in which illiterate or ill educated boys are engaged in killings, violence, abduction, terrorizing contexts that are willing intentions of disapprovals. Who will cure this sorts of crisis in society? Who are making these horrors / terrors?

Actually there is a big question remain mystery that who are behind the movements of such tensions in creating social injustices. Who motivates the government for promoting education systems are freight with prejudices. From a common analysis and discussion it appears that women groups lead by NGOs, western missionaries is pushy and its cultures are being dominant to boost up the objectives of disparate issues in positions. The roles of different women sects become opportunists (6). How does it signify destroying one side of pillars in a country, try to build other side of pillars? The whole approach to education systems in Bangladesh seems to be a sexist(gender based) approach which is not known to most people of the country. The cultures of all these concern destroy the future and destiny of the poor boys is being murky. There are many other ways to promote female education without abusing laws and rights for boys.

Peace stability in a country depends on many issues like economical prosperity , legal justice systems , political ethics and commitments , industrial developments are all possible Only economical emancipation for women can never found peace in any lands. Once education for all students are imparted without discriminations and disparity, developmental perspectives would not be so slow and dull seen in the present period. 90% families of the society not only in Bangladesh but other Asia and African countries, though 65% families in European countries heavily and directly depend on male earnings, productions, cultivations, business, shelters, food and employments can make changes in development contexts.

Making boys ignorant and illiterate, the nation sinks into the ocean of horrors and terrors that will slowly continue to trigger social tensions and other problems. The nation is groping in darkness facing ample troubles to overcome. The endless struggles in strengthening basic foundation of a nation are to control the educational bases for fulfillments of all requirements for a strong nation. Education makes youth tolerant, civilized, creative, protective and self sufficient above all. The peace in a society can be ensured by fair and just treatments to all people (7). Only techno economical development cannot fetch us peace if the justice systems are not ensured well. Educational decisions and policies for positive and fair approach to all can ensure social stability with creations of commerce and industry, employment opportunities, social awareness and founding peace, research and development and finally be a strong rich nation.

METHODS OF THIS STUDY

The study was mainly based on survey and qualitative methods. Interviews, observations, roles plays and telephone interviews used for data collections. Heuristic and empirical approach to the study has been also very conducive. The subjects are nearly 200 respondents who are from public and private organizations including Government schools, colleges, universities, courts, BPSC, Boards of Secondary and Higher Secondary Education, Medias / Press. They are

variables in age, education, position and location. Primary, secondary data are used in this study. Tertiary literatures sources are also used for literature reviews. Sampling focused on a few institutions which are various in nature and categories were completed while the inferential / statistical issues based on data were also maintained accordingly. Data analysis and interpretation followed basing on variances measurements. Access to some data collection is harder though, the author played roles and used simulation to get the purposes done. Finally research ethics have been managed very strictly.

CRITICAL DISCUSSION

The scenarios of educational practices in Bangladesh are analyzed well here in the writing though in smaller scales. The topic commends much wider study and research because the complexities in the approach and features or aspects have deeper interventions. The author has tried to cover salient dimensions on educational practices but some gaps include presentations of legal policies and practices in reality are more severely seen. .Some fields like crimes, legal issues, and female issues are included in the writing more dominantly because these are the determinants of the topic and the education is source of all power and opportunities make clear relations with other fields. Social study could be deeper to analyze thorough complexities in gender issues related to educations but briefly discussed. Media roles in social perspectives are also forceful to create either positive or negative propaganda that spread around the nation. Medias have no capacity or rights to judge complex issues in society but to only present them before public are not maintained peacefully in the country.

CONCLUSION

In fine, the writing have concentrated on educational policies, decisions, process for delivery of facilities, targets groups of fair treatments and disparate treatments. The boys have been seen as objects of injustice. They are made to go astray in lives despite the citizens of the country. At the same time the girls students are seen as special bodies of attention and favor and offered all sorts of facilities and financial supports for education and then also job facilities based on quotas. Social peace is severely destroyed by establishing unfair ways and tactics for providing undue supports for girls. The elements of destabilizing peace are tensions, killing, abductions, rapes, terrorism, tortures, harassments, discriminations against boys showed here widely and these are salient issues which are born in illiteracy, poverty and ignorance originated in absence of education . Good opportunities of easy attainments in facilities and supports have made a social class utterly corrupt and vicious. The normal peace systems and stability are being damaged and the proper educational facilities for all need to be ensured. The disparate systems in education invoke curse upon the nation to destroy the base as a nation. The results of all misuses of opportunities are not immediate impacts seen but long term reflections in bad signs would appear sooner or later. Solid educational foundation for all to be sole slogan can lead the nation for prosperity.

RECOMMENDATION

The overall perspectives in education systems and management must be changed, reformed, rectified, refined and classified for standard norms, values, ethics, and rights for all citizens of country. The present contexts of education, law, politics and other relevant issues demand on analysis in feminist cultures which are required for analysis widely. The Women Ministry can be changed into Ministry of Human Resources Development. The vital factors in developments issues of the country are seriously affected and influenced by biased cultures need to be examined and researched profoundly. The nation can be rich and prosperous provided discriminatory factors are settled on the same platform of humanity. The significance of this writing can be taken as a piece of example of bad contexts in education, law and opportunities that are not treated fairly among helpless people and steps for cures must be addressed. The foundation of humanity is consciences, rationality, reasons, logic, ethics, and justice systems can make people happy, wise and noble who can be what want to be.

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GRID INTERCONNECTION OF HYBRID ENERGY SOURCES AT THE DISTRIBUTION LEVEL WITH POWER-QUALITY IMPROVEMENT

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ABSTRACT

Renewable Energy Source (RES) integrated at distribution level is known as Distributed Generation (DG). This paper presents a control strategy for achieving maximum benefits from these grid-interfacing inverters when installed in 3-phase 4-wire distribution systems. The inverter is controlled to perform as a multi-function device by incorporating active power filter functionality. The inverter can thus be utilized as: 1) power converter to inject power generated from RES to the grid, and 2) shunt APF and L,C Filter to compensate current unbalance, load current harmonics, load reactive power demand and load neutral current. Dynamic Voltage Restorer to compensating the Voltage sags and swells. All of these functions may be accomplished either individually or simultaneously. With such a control, the combination of grid-interfacing inverter and the 3-phase 4-wire linear/non-linear unbalanced load at point of common coupling appears as balanced linear load to the grid.

KEYWORDS

Power quality, Active power filter (APF), Dynamic Voltage Restorer (DVR), distributed generation (DG), distribution system, grid interconnection, power quality (PQ), renewable energy.

INTRODUCTION

Power quality (PQ) is very important to certain customers. For this reason, many utilities could sell electrical energy at different prices to their customers, depending on the quality of the delivered electric power. Since most end users are connected to secondary distribution networks, at medium voltage, it could be important to monitor and compensate the main disturbances on the medium voltage. As more sensitive loads, such as computers, automation equipments,

communication equipments, medical equipments, and military equipments, have come into wide use, power quality has become a significant issue to both customers and the utility companies. Since these equipments are very sensitive in relation to input voltage disturbances, the inadequate operation or the fault of these loads brings about huge losses.

Renewable energy sources (RES) integrated at distribution level is termed as distributed generation (DG). The utility is concerned due to the high penetration level of intermittent RES in distribution systems as it may pose a threat to network in terms of stability, voltage regulation and power-quality (PQ) issues. Therefore, the DG systems are required to comply with strict technical and regulatory frameworks to ensure safe, reliable and efficient operation of overall network.

With the advancement in power electronics and digital control technology, the DG systems can now be actively controlled to enhance the system operation with improved PQ at PCC. However, the extensive use of power electronics based equipment and non-linear loads at PCC generate harmonic currents, which may deteriorate the quality of power [1], [2]. Generally, current controlled voltage source inverters are used to interface the intermittent RES in distributed system. Recently, a few control strategies for grid connected inverters incorporating PQ solution have been proposed.

In [3] an inverter operates as active inductor at a certain frequency to absorb the harmonic current. But the exact calculation of network inductance in real-time is difficult and may deteriorate the control performance. A similar approach in which a shunt active filter acts as active conductance to damp out the harmonics in distribution network is proposed in [4]. In [5], a control strategy for renewable interfacing inverter based on theory is proposed.

In this strategy both load and inverter current sensing is required to compensate the load current harmonics. The non-linear load current harmonics may result in voltage harmonics and can create a serious PQ problem in the power system network. Active power filters (APF), LC filters are extensively used to compensate the load current harmonics and load unbalance at distribution level. Dynamic Voltage Restorer to compensating the Voltage sags and swells. This results in an additional hardware cost.

However, in this paper authors have incorporated the features of APF, LC filter in the, conventional inverter interfacing renewable with the grid, without any additional hardware cost. Here, the main idea is the maximum utilization of inverter rating which is most of the time underutilized due to intermittent nature of RES. It is shown utilized to perform following important functions: 1) transfer of active power harvested from the renewable resources (wind, solar, etc.); 2) load reactive power demand support; 3) current harmonics compensation at PCC; and 4) current unbalance and neutral current compensation in case of 3-phase 4-wire system. Moreover, with adequate control of grid-interfacing inverter, all the four objectives can be accomplished either individually or simultaneously. Dynamic Voltage Restorer to compensating the Voltage sags and swells. The PQ constraints at the PCC can therefore be strictly maintained within the utility standards without additional hardware cost.

SYSTEM DESCRIPTION

In this paper, it is shown that using an adequate control strategy, with a four-leg four-wire grid interfacing inverter, it is possible to mitigate disturbances like voltage unbalance. The topology of the investigated grid interfacing inverter and its interconnection with the grid is presented in Fig. 1.

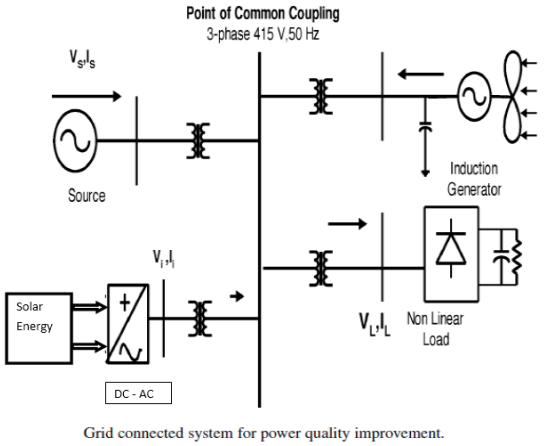

Fig.1 Single line diagram for Hybrid system

It consists of a four-leg four-wire voltage source inverter. The voltage source inverter is a key element of a DG system as it interfaces the renewable energy source to the grid and delivers the generated power. In this type of applications, the inverter operates as a current controlled voltage source. Fourth leg is used for neutral connection. The RES may be a DC source or an AC source with rectifier coupled to dc-link. In this paper wind energy is used as a RES, the variable speed wind turbines generate power at variable ac voltage. Thus, the power generated from these renewable sources needs to convert in dc before connecting on dc-link [8]–[10]. The simulink model of wind farm is given in Fig. Wind farm generates a variable ac supply; this variable ac supply is converted into dc by connecting a rectifier at output side.

CONTROL STRATEGY

The controller requires the three-phase grid current (Ia,,Ib, Ic), the three-phase voltage at the PCC (Va, Vb, Vc) and the DC-link voltage (VDC). As shown in Fig. 3, the sinusoidal waveform and the phase of the grid current reference (Ia*, Ib*, Ic*) comes from the line voltage thanks to a PLL. The control diagram of grid- interfacing inverter for a 3-phase 4-wire system. The fourth leg of inverter is used to compensate the neutral current of load. The main aim of proposed approach is to regulate the power at PCC during: 1) Pres =0; 2) Pres < total load power (PL); and 3) Pres > PL. While performing the power management operation, the inverter is actively controlled in such a way that it always draws/ supplies fundamental active power from/ to the

grid. If the load connected to the PCC is non-linear or unbalanced or the combination of both, the given control approach also compensates the harmonics, unbalance, and neutral current.

The duty ratio of inverter switches are varied in a power cycle such that the combination of load and inverter injected power appears as balanced resistive load to the grid. The regulation of dc-link voltage carries the information regarding the exchange of active power in between renewable source and grid. Thus the output of dc-link voltage regulator results in an active current .The multiplication of active current component with (IM) unity grid voltage vector emplates (UA,UB,UC) generates the reference grid currents (IA,IB, and IC). The reference grid neutral current is set to zero, being the instantaneous sum of balanced grid currents. The grid synchronizing angle obtained from phase locked loop (PLL) is used to generate unity vector template.

$$UA = \sin(\Theta) \quad \text{---------- (1)}$$

$$UB = \sin(\Theta - 2\pi/3) \quad \text{---------- (2)}$$

$$UC = \sin(\Theta + 2\Pi/3) \quad \text{---------- (3)}$$

The actual dc-link voltage is sensed and passed through a first-order low pass filter (LPF) to eliminate the presence of switching ripples on the dc-link voltage and in the generated reference current signals. The difference of this filtered dc-link voltage and reference dc-link voltage is given to a discrete PI regulator to maintain a constant dc-link voltage under varying generation and load conditions. The dc-link voltage error at nth sampling instant is given as:

$$Vdcerr(n) = V^{*}dc(n) - Vdc(n) \quad \text{---------- (4)}$$

The output of discrete-PI regulator at th sampling instant is expressed as

$$Im(n) = Im(n-1) + Kpvdc(Vdcerr(n) - Vdecrr(n-1)) + KIVdcVdecrr(n) \quad (5)$$

Where Kpvdc=10 andKIVdc=0.05 are proportional and integral gains of dc-voltage regulator. The instantaneous values of reference three phase grid currents are computed as

$$Ia^{*} = Im.Ua \quad \text{---------- (6)}$$

$$Ib^{*} = Im.Ub \quad \text{---------- (7)}$$

$$Ic^{*} = Im.Uc \quad \text{---------- (8)}$$

The neutral current, present if any, due to the loads connected to the neutral conductor should be compensated by forth leg of grid-interfacing inverter and thus should not be drawn from the grid. In other words, the reference current for the grid neutral current is considered as zero and can be expressed as

$$I^*n=0 \text{ ---------- (9)}$$

The reference grid currents (Ia*,Ib* and Ic*) are compared with actual grid currents (Ia Ib and Ic) to compute the current errors as

$$Iaerr = I^*a - Ia \text{ ---------- (10)}$$

$$Iberr = I^*b - Ib \text{ ---------- (11)}$$

$$Icerr = I^*c - Ic \text{ ---------- (12)}$$

$$Inerr = I^*n - In \text{ ---------- (13)}$$

These current errors are given to hysteresis current controller. The hysteresis controller then generates the switching pulses (P1 to P8) for the gate drives of grid-interfacing inverter. The average model of 4-leg inverter can be obtained by the following.

$$(dI\ inva)/dt = ((Vinva-Va))/Lsh \text{ ---------- (14)}$$

$$(dI\ invb)/dt = ((Vinvb-Vb))/Lsh \text{ ---------- (15)}$$

The three-phase ac switching voltages generated on the output terminal of inverter. These inverter output voltages can be modelled in terms of instantaneous dc bus voltage and switching pulses of the inverter as

$$(dI\ invc)/dt = ((Vinvc-Vc))/Lsh \text{ ---------- (16)}$$

$$(dI\ invn)/dt = ((Vinvn-Vn))/Lsh \text{ ---------- (17)}$$

$$(dVdc)/dt = ((Iinvad+Iinvbd+Iinvcd+Iinvnd))/Cdc \text{ --------- (18)}$$

Similarly the charging currents Iinvad,Iinvbd and Iinvcd on dc bus due to the each leg of inverter can be expressed as

$$Iinvad=Iinva(P1-P4) \text{ ---------- (19)}$$

$$Iinvbd=Iinvb(P3-P6)\text{---------- (20)}$$

$$Iinvc=Iinvc(P5-P2)\text{---------- (21)}$$

$$Iinvad=Iinva(P7-P8)\text{---------- (22)}$$

The switching pattern of each IGBT inside inverter can be formulated on the basis of error between actual and reference current of inverter.

VOLTAGE SOURCE CONVERTER (VSC)

A Voltage Source Converter (VSC) is a power electronic device that connected in shunt or parallel to the system. It can generate a sinusoidal voltage with any required magnitude, frequency and phase angle. It also converts the DC voltage across storage devices into a set of three phase AC output voltages. It is also capable to generate or absorbs reactive power. If the output voltage of the VSC is greater than AC bus terminal voltages, is said to be in capacitive mode. So, it will compensate the reactive power through AC system. The type of power switch used is an IGBT in anti-parallel with a diode. The three phase four leg VSI is modeled in Simulink by using IGBT.

SWITCHING CONTROL

The hysteresis control has been used to keep the controlled current inside a defined band around the references. The status of the switches is determined according to the error. When the current is increasing and the error exceeds a certain positive value, the status of the switches changes and the current begins to decrease until the error reaches a certain negative value. Then, the switches status changes again. Compared with linear controllers, the non-linear ones based on hysteresis strategies allow faster dynamic response and better robustness with respect to the variation of the non-linear load. A drawback [13] [14] of the hysteresis strategies is the switching frequency which is not constant and can generate a large side harmonics band around the switching frequency.

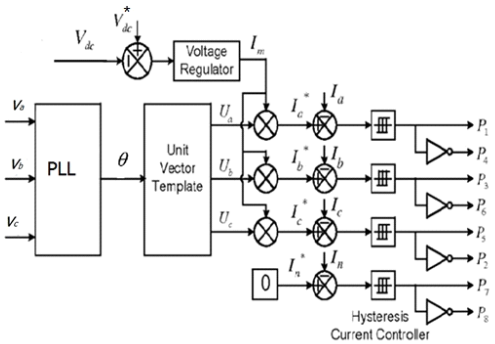

Fig 2.Control Scheme

HYSTERESIS CURRENT CONTROL

The hysteresis current control (HCC) is the easiest control method to implement; the shunt APF is implemented with three phase current controlled VSI and is connected to the ac mains for compensating the current harmonics. The VSI gate control signals are brought out from hysteresis band current controller. A hysteresis current controller is implemented with a closed loop control system and waveforms are shown in Fig .3. An error signal is used to control the switches in a voltage source inverter. This error is the difference between the desired current and the current being injected by the inverter. If the error exceeds the upper limit of the hysteresis band, the upper switch of the inverter arm is turned off and the lower switch is turned on. As a result, the current starts decaying.

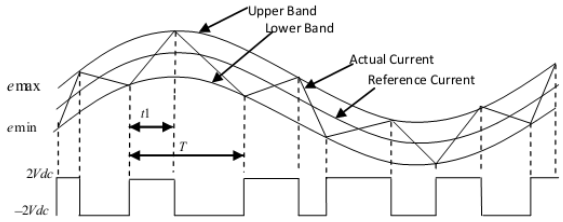

Fig 3.Waveform of Hysteresis current controller

If the error crosses the lower limit of the hysteresis band, the lower switch of the inverter arm is turned off and the upper switch is turned on. As a result, the current gets back into the hysteresis band. The minimum and maximum values of the error signal are emin and emax respectively. The range of the error signal emax-emin directly controls the amount of ripple in the output current from the VSI.

MODELING THE PV ARRAY

The direct conversion of the solar energy into electrical power is obtained by solar cells. A PVG is composed by many strings of solar cells in series, connected in parallel, in order to provide the desired values of output voltage and current. Fig. 4 shows the equivalent circuit of a PVG, from which non linear I–V characteristic can be deduced.

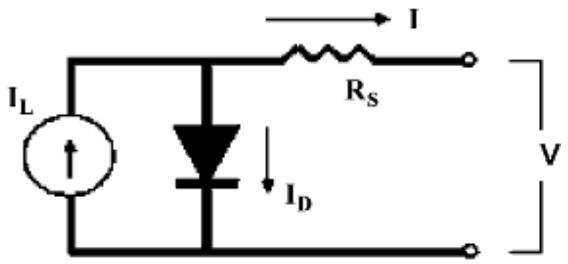

Fig 4.Solar-Cell Equivalent Circuit

The cells are connected in series and in parallel combinations in order to form an array of the desired voltage and power levels.

WIND TURBINE SYSTEM MODELLING

Although there are many types of wind turbines, either synchronous or asynchronous, the scope of this investigation is limited to asynchronous wind turbines that are presently and widely used in wind turbines due to their low cost and convenient maintenance. Generally, a complete wind turbine model consists of an aerodynamic model, mechanical drive model, and induction generator model. The aerodynamic rotor extracts the kinetic power from the wind and exchanges this power into mechanical power. The relation between the wind speed and mechanical power is given by Equation

$$Pw = (1/2)\ \rho\pi\ R2\ Vw\ 3\ Cp\ (\theta, \delta)$$

Where, Pw is the power extracted from wind (W), ρ is

The air density (kg/m3), R is the radius of the rotor of wind turbine (m), Vw is the wind speed (m/s), θ is the pitch angle of the rotor (deg) , λ =Wrot R/Vw

λ = the tip speed ratio, where, Wrot is the rotor speed of wind turbine (rad/sec), Cp is the aerodynamic efficiency of the rotor which can be expressed as a function of the tip speed ratio (λ) and the pitch angle (θ) by the following equation [11]:

Cp= 0.22(116/β -0.4θ-5) e 12.5/ β

And also, β can be expressed by:

Produced mechanical power is transferred into the electrical energy by generator and is fed into the grid.

CONTROL OF WIND FARM SIDE CONVERTER

The main scope of the wind farm side converter in this investigation is to control the reactive power generated or absorbed by the VSC. This reactive power is controlled by the magnitude of the converter AC voltage, which in PWM conversion is determined by modulation index. The simplified control block diagram of the wind farm side converter is also included in grid side. Shift signal is the phase angle order in degrees derived from open loop power controller. It is the angle by which the voltage across the sending end transformer is phase shifted in order to control the power flow. The firing unit uses the PWM reference signals at fundamental frequency. The magnitude of the reference signal is controlled by the signal r m and its phase is controlled by the signal shift. Firing pulses are generated with comparison between reference signals and triangular signals [14].

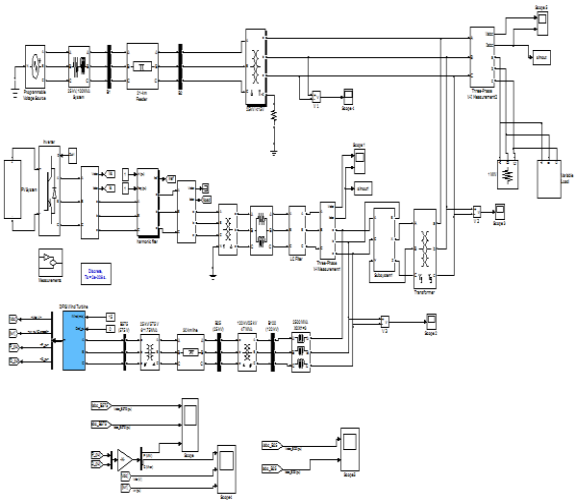

Fig 4.1 Simulation Diagram for Hybrid systems

CONTROL OF GRID SIDE CONVERTER

The main schematic of this controller is revealed in too. This control aims to adjust the phase angle of receiving end converter at the AC side. Also, when the DC link voltage is higher than normal condition, the phase angle is adjusted to push power into the receiving end AC system. If the DC link voltage tends to be lower than reference value, the angle is altered in a way to receive the power from receiving end AC system in order to charge the DC link. The mi is the modulation index of the output of controller in order to control the voltage magnitude of the grid side converter. The firing unit acts as similar as cited in wind farm side converter controller [14].

POWER QUALITY IN POWER

DISTRIBUTION SYSTEMS

Most of the more important international standards define power quality as the physical characteristics of the electrical supply provided under normal operating conditions that do not disrupt or disturb the customer's processes. Therefore, a power quality problem exists if any voltage, current or frequency deviation results in a failure or in a bad operation of customer's equipment. However, it is important to notice that the quality of power supply implies basically voltage quality and supply reliability.

Voltage quality problems relate to any failure of equipment due to deviations of the line voltage from its nominal characteristics, and the supply reliability is characterized by its adequacy (ability to supply the load), security (ability to withstand sudden disturbances such as system faults) and availability (focusing especially on long interruptions). Power quality problems are common in most of commercial, industrial and utility networks. Natural phenomena, such as lightning are the most frequent cause of power quality problems. Switching phenomena resulting in oscillatory transients in the electrical supply, for example when capacitors are switched, also contribute substantially to power quality disturbances.

Also, the connection of high power non-linear loads contributes to the generation of current and voltage harmonic components. Between the different voltage disturbances that can be produced, the most significant and critical power quality problems are voltage sags due to the high economical losses that can be generated. Short-term voltage drops (sags) can trip electrical drives or more sensitive equipment, leading to costly interruptions of production [10]. For all these reasons, from the consumer point of view, power quality issues will become an increasingly important factor to consider in order to satisfy good productivity.

On the other hand, for the electrical supply industry, the quality of power delivered will be one of the distinguishing factor for ensuring customer loyalty in this very competitive and deregulated market. To address the needs of energy consumers trying to improve productivity through the reduction of power quality related process stoppages and energy suppliers trying to maximize operating profits while keeping customers satisfied with supply quality, innovative technology provides the key to cost-effective power quality enhancements solutions. However, with the various power quality solutions available, the obvious question for a consumer or utility facing a particular power quality problem is which equipment provides the better solution.

SOLUTIONS TO POWER QUALITY

PROBLEMS

There are two approaches to the mitigation of Power Quality problems. The first approach is called load conditioning, which ensures that the equipment is less sensitive to power disturbances, allowing the operation even under significant voltage distortion. The other solution

is to install line conditioning systems that suppress or counteracts the power system disturbances. A flexible and versatile solution to voltage quality problems is offered by active power filters. Currently they are based on PWM converters and connect to low and medium voltage distribution system in shunt or in series. Series active power filters must operate in conjunction with shunt passive filters in order to compensate load current harmonics. Shunt active power filters operate as a controllable current source and series active power filters operates as a controllable voltage source. Both schemes are implemented preferable with voltage source PWM inverters, with a dc bus having a reactive element such as a capacitor. Active power filters can perform one or more of the functions required to compensate power systems and improving power quality. As it will be illustrated in this paper, their performances depend on the power rating and the speed of response.

SIMULATION RESULTS

The total active and reactive powers of grid, load and inverter In the APF mode of operation, the inverter consumes a small amount of active power to maintain the dc-link voltage and to overcome the losses associated with inverter, while most of the load reactive power need is supported by inverter effectively. Thus, this mode of operation validates the concept of utilization of grid-interfacing inverter as shunt APF when there is no power generation from the RES. The experimental results demonstrate the effective compensations of load current unbalance, harmonics and reactive power.

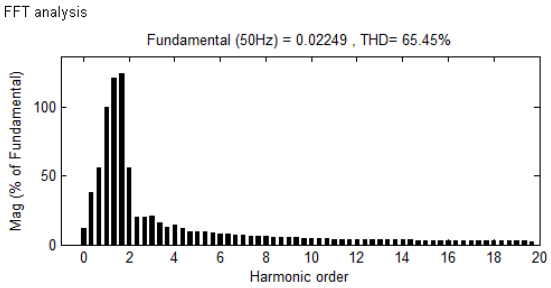

Fig 5: THD without Hybrid Filter

VOLTAGE AND CURRENT WAVEFORM WITH AND WITHOUT HYBRID FILTER

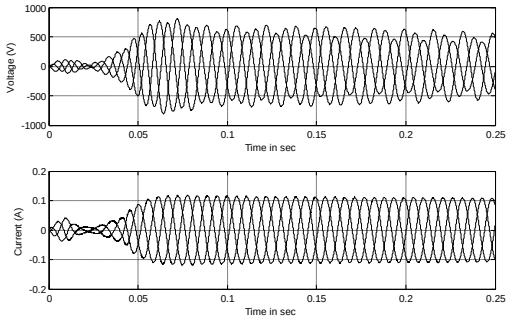

Fig 6: Input waveform without hybrid filter

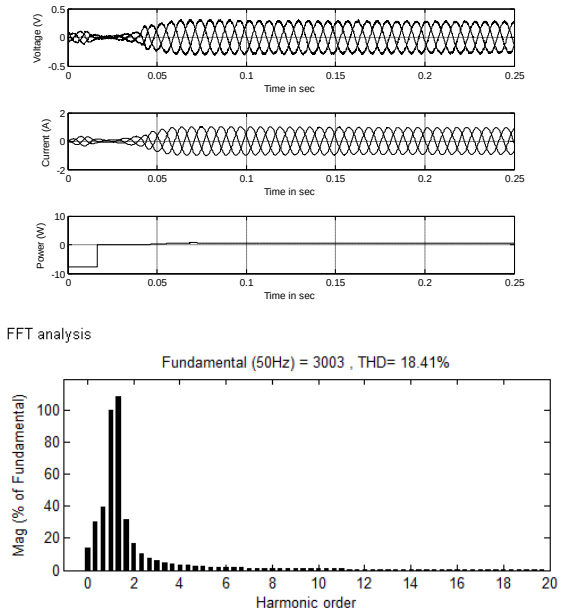

Fig 7: output wave form for Hybrid system and THD level

HARMONICS

The harmonic results due to the operation of power electronic converters. The harmonic voltage and current should be limited to the acceptable level at the point of solar energy connection to the network. To ensure the harmonic voltage within limit, each source of harmonic current can allow only a limited contribution shown in Fig 8, as per the IEC-61400-36 guideline. The rapid switching gives a large reduction in lower order harmonic current compared to the line

commutated converter, but the output current will have high frequency current and can be easily filter-out.

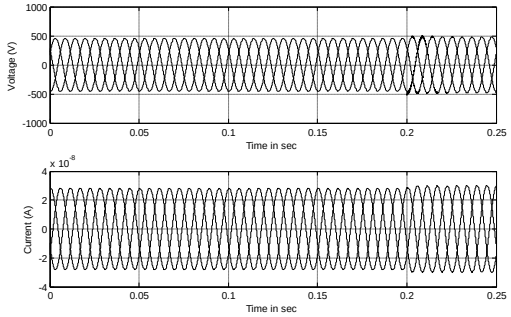

Fig 8: Load side Output wave form with hybrid filter

CONCLUSION

This paper has presented a novel control of an existing grid interfacing inverter to improve the quality of power at PCC for a 3-phase 4-wireDGsystem. It has been shown that the grid-interfacing inverter can be effectively utilized for power conditioning without affecting its normal operation of real power transfer. The grid-interfacing inverter with the proposed approach can be utilized to: i) inject real power generated from RES to the grid, and/or, ii) operate as a shunt Active Power Filter (APF), L,C Filter. Dynamic Voltage Restorer to compensating the Voltage sags and swells. This approach thus eliminates the need for additional power conditioning equipment to improve the quality of power at PCC.

Extensive MATLAB/Simulink simulation as well as the DSP based experimental results have validated the proposed approach and have shown that the grid-interfacing inverter can be utilized as a multi-function device. It is further demonstrated that the PQ enhancement can be achieved under three different scenarios: The current unbalance, current harmonics and load reactive power, due to unbalanced and non-linear load connected to the PCC, Dynamic Voltage Restorer to compensating the Voltage sags and swells are compensated effectively such that the grid side currents are always maintained as balanced and sinusoidal at unity power factor. Moreover, the load neutral current is prevented from flowing into the grid side by compensating it locally from the fourth leg of inverter. When the power generated from RES is more than the total load power demand, the grid-interfacing inverter with the proposed control approach not only ful fills the total load active and reactive power demand (with harmonic compensation) but also delivers the excess generated sinusoidal active power to the grid at unity power factor.

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QUALITY CONTROL ON HIGHER EDUCATION SYSTEMS IN BANGLADESH

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ABSTRACT

Quality control on educational systems in Bangladesh has been viewed in traditional routine ways at institutions in Bangladesh. This paper study found out some vital factors which might be real concern in observance of quality issues. The salient notions including organizational structural lapses, governance problems, modern teaching approach gaps, syllabus & curriculum design frailty, infrastructural shortages, top level policies and decisions problems, implementation problems & disparity factors, Bureaucracy, leadership defects, interference, resistances to changes, improper planning, lack of professionalism, lack of resources, favoritism are salient issues seen in this study. Political influences on environments, systems of teaching and learning leading to quality failures have got serious impacts on total output and development. Besides some other dominant factors include teachers' roles, assessments systems on students performances and continuations, stake holders attitudes, interest in profit makings have been major features in not assuring quality standards been identified.

KEYWORDS

Quality Control, Standards, Education, Institution, Universities

INTRODUCTION

Quality means certain levels of excellence in performance of service & products marks. It also indicates particular marks of standards which ensure satisfactory levels of service & products utility. Educational systems & management in higher education include wider ranges of activities and functions that focus on various educational mechanisms & levels in Bangladesh. Higher Secondary, Polytechnic and Higher education. Some are private, some are semi government and some are full government based which are run by many systems of education management. Though all are similar in general but in terms of quality issues, a huge lapses are detected in many institutions either private or government institutions.

This paper focuses on a general set scenario of quality & standards observed in educational institutions. There are almost 120 universities in Bangladesh. Of all nearly 60 are private. Public

institutions and teachers are also vital issues of consideration on matters of quality. Environments including cultural dimensions bear major aspects in offering and conducting learning and educational services are included in the paper. The higher institutions like further / degree colleges, universities and Institutes are targets area of this writing. Though two sections (public and private) in education in Bangladesh are clear marks of differences appear to be in many issues specifically in learning and teaching methods and structures.

Educational management including governance's criteria, teaching and learning for students, curriculum and syllabi, materials and technology uses for learning provisions are main issues for discussions. Main dimensions of quality involve factors like performance, features, conformance, reliability, durability, reputation, aesthetics and satisfaction. At all levels of education, some issues vary slightly but the major issues are akin. A team of quality control is engaged in institutions, it handles various issues in coordination with the higher authority & operation team. Now we will see in to detailed parts of involvement in different sections of operations in educational systems respectively.

LITERATURE REVIEW

There are many private universities which vary in quality issues apparently. The Public universities are also same in considerations except some issues like infrastructures and resources. Basic requirements for educational services provisions are a good campus, sufficient teachers, enough class rooms, facilities, standards of syllabus and curriculum are primary needs to be arranged. The second phase of the institutions aims to ensure all required items and HRM, and students standards to be certain in practice. We have investigated several universities mainly two categories such as better and worse kinds.

The scenario in various notions is utterly unsatisfactory. Though some are trying to reach the targets of quality. The degree of quality standards, size, services pattern, operation systems, financial resources are variables in those institutions. The common dimensions on every establishments in private universities are falling in similar factors include attitudes, targets business, profits , set products like same courses and degrees in all institutions, concepts in objectives held by the authorities. Public universities run in regular pace due to financial and resources strengths.

Board of directors/ governors / senates which is the supreme authority to make policies, plans & strategies. The board of governors play a major role for creating a right direction to develop the systems in quality and other issues but many boards fail to do so. The Chief Executive Officer is Vice Chancellor who supervises over operational teams in collaboration with other higher officers. Quality control matters are also supported by them. A leader is a vital position in all institutions. It is the position which runs the team & all functions but our institutions face a serious crisis in finding a right leader, as a result the whole institution face problem on and on. Quality issues come from quality leaders who are rare in reality.

Bangladesh education systems run in frail ways because many teachers are untrained & unskilled teachers. General qualification does not support for a good quality leaning or teaching issues. They lack in skills & training for certain standards. Higher educational institutions either govt. or private experience in lack of presences of teachers in classroom & delivery of lessons. Quality control can ensure a good selection & dispelling favoritism in recruitments. The recruitment systems should be very fair and based on merits as a result proper selection process must be controlled and implemented properly. No policies of recruitments for institutions are positively used.

Benchmarking is a patent right and band mark authorizing body to be attached to the institutions for holding legal identity or recognition. There are some other govt. authorities to recognize the entity of that institution including Education Board, Council, UGC, Ministry of Education etc. Affiliation with other sorts of quality agencies in national or international are required.

Classroom management is another important issue to focus. Teachers training besides subject knowledge is seriously important. A process for delivery of lessons & uses of materials and communication with students & administering the classes are vital issues to be followed.

Cultures & Environments play very vital roles in forming quality education systems. Culture refine mental aspects. And then a nice environment is required for a healthy leaning process. For Example : Dhanmondi area in Dhaka where within one mile radius almost 12 universities and at Banani where within a half mile location almost 10 universities are utterly disgusting, harmful, unprofessional and nonacademic environments which are allowed by the Govt. of Bangladesh who bother nothing about how a university should run. Environmental crisis in contexts of offering learning at universities are seen very much.

Private School, College & Universities play pioneer roles in construction & developing the whole country educational bases. Huge changes in learning perspectives of higher education are noticeable though there are some lapses & quality problems are available. In terms of distances learning or external campus there are very positive phenomena to reach all deprived citizens who cannot fulfill their dream by studying in Govt. institutions. So, external or distance learning systems help the country improve the society. But some quality factors need to be tackled to offer external campus based education. Control over management and ownership by the Govt. authorities goes beyond the rules because political & legal loopholes. Many private universities have no resources and some outer campuses run illegally and they focus on profit earnings rather than spending money on quality & other basic requirements.

We have right now a good number of govt. institutions which have resources but lack in quality & management. National University offers enormous programs for thousands of students at degree levels in all districts. Thousand of colleges offer degree programs. Classes are not regular. Teachers are not found in class rooms by the students. The mode of teaching is worse than distance learning process. Open University has been known by name only but the function & activities are totally unknown & dysfunctional. The major public universities have also many problems like teachers are not found in campus or classes, they get on either study vacation or part time job at other private universities or consultancy work. Traditional or set systems of

teaching for century go on. Facilities & teacher are more than required aspects and majority resources are misused. Administrative teams with the teacher's staff must look into delivering the services to the students. Systematic and faster process for good outputs is necessary. Clumsy & tardy systems in major parts cripple the major functions. Administrative and services systems are so traditional that students learn disqualifying factors rather than quality learning. Students are heavily engaged in political activities and they are made to hold either party affiliations, otherwise students cannot get any access to anywhere. They are slowly trained for terrorizing actions. Basic levels of university learning in higher education are not obtained by 60% students. They adopt all kinds of unfair means in passing and getting degrees.

Bureaucracy is another sign of bad functions seen in govt. institutions. Systems for work based on set rules, order & authority move very slowly. Accountability means some sorts of mutual exchanges of work binding & performances process. It ensures the total systems of work functions & brings good output. Especially stake holders in private universities are highly motivated with / for money and reputations. They use a sign board of a popular politically recognized figure for working as VC who is merely a puppet at their hands without any authority and independence.

The owners who are many in present situations hailed in business world run institutions as commercial enterprises. We came across several academicians of such nature in universities. There are universities like Santa Mariam University, Southern University, Queen University, Asia Pacific University, Millennium University, Northern University, Prime Asia University, Royal University of Dhaka, City University , East delta University, Bangladesh University, American International University of Bangladesh, BGC trust University, Women University for Women, ASA University, Daffodil University, Asia University , Prime University, and Stamford University are remarkable. Unethical, commercial and unprofessional practices demolish educational values and norms. More over compensations systems in HRM are not fairly treated. Employees are deprived of their rights of due rewards.

Operational systems in any services & products industries should be smooth and clear. Proper structures in the systems must be drawn. A right person must be engaged in the respective position to control all other steps & activities run day to day basis. Operation systems can make progress & prosperity depending on their dynamism. Teachers are not well motivated due to poor payments, recognition for the position, respects & rewards systems in society at large. Example, university teachers are so powerless that they have no social interventions to be recognized and respected. The performances obviously are not satisfactory. Teachers and educational personnel are neglected by the government treatment. Quality criteria must improve the tendency of teachers to perform better and bring output well. Classes are not taken regularly. Absences of teachers from classes are higher in institutions as a result such performance helps the institution run slowly and badly.

Many similar programs and courses are offered at most universities which seem to be following same values, vision, attitudes, motives and knowledge. Performance appraisal determines the mark of improvements and maintains standards levels. Regular appraisal services must be delivered for better results on overall progress of services or teaching. Rating, grading & scaling

are some processes of performance appraisal for employees. We came across with many institutions where no HRM department exists, though they offer MBA, BBA, MA, MSc.

Learning style must follow some criteria according to the ages, and levels of students. Learning environments, facilities, process, aids and materials are seriously needed. A good process for learning is a good tool to be focused. Quality students come from good products of teaching & supports are also required. Computers, projectors & other supports are seriously vital to be available. Right teaching techniques can easily impress on the students mind. They also easily learn the lessons. Students are satisfied with not only good teaching but other resources like library, teachers' supports, less fees, cafeteria, computer lab, cultural events & textual supports. Above all a good campus with a good academic environment and facilities is also a requirement for students' satisfactions in quality services or educational systems. But these issues are seriously lacking in many institutions except a few ones.

Curriculum & syllabus should be up to date. Depending on a good syllabus the quality issues and reputation spread around. Old set syllabus must not be a sign of the best institution. The world moves fast and everything changes every day, as a result learning & contents must run in the same pace like other first world countries institutions. To control quality in educational contexts, material development is another key issue to be handled in the nick of time. Various textual and support aids must be enhanced and developed from time to time to copy with the modern requirements. Financial resources are key to maintaining quality & standards in offering good educational systems. All supportive services related to financial availability and other resources like sufficient teachers, staff, setting arrangements, sufficient classrooms, tables & chairs, Computer labs, library & layout for the campus are also important.

It is very competitive modern time when the world moves faster and all information from one part to another part of the world based on network must be available for students and staff uses. The uses of IT based systems bring the students to quality learning facilities & effective communication systems can be used for better improvement.

Feedback & monitoring on the systems activities, teaching, learning & financial dealing must present an apparent perspective in continuous operations. Feedback shows the results and then monitoring cell will reform & refine the services or input used for output. Assessment and evaluation systems more or less in all universities run in similar fashion. Set and routine unseen examination, viva voce , suggestions in exam, assignments and report writing are common in students progress and continuations process followed. Several universities are might be exceptional in following modern approach including classroom management, learning criteria determinations, using all aids for upgrade teaching and practical orientations are implemented.
Quality control team or authority will assess on overall prospect & contexts of systems. Based on all factors a report is made by the team who will present it before the authority after analysis. All drawbacks or loopholes in working and functional levels must be detected and removal initiatives can be taken.

METHODS OF THIS STUDY AND DATA COLLECTION

The study was mainly based on survey and qualitative methods. Interviews, observations, roles plays and telephone interviews used for data collections. Heuristic and empirical approach to the study was also very conducive. The subjects are nearly 100 targets who are from public and private universities. They are variables in age, education, positions and location. Primary, secondary data are used in this study. Tertiary literatures sources are also used for literature reviews. Sampling focused on a few institutions which are various in nature and categories were completed while the activities and statistics were also maintained accordingly.

ANALYSIS

The Ministry of Education & University Grant Commission are only guardians to save, direct and manage the top level policies & plans for national educational systems but the authority seem to be indifferent towards some malpractices in higher education. Public universities are hugely affected by external political interventions. Growing numbers of institutions either physically located or distance based ones seem to be blessing for the nation. They create, produce and innovate educational products and services but economical strengths finally. The trustees who are governors of private universities are not having academic tests and attitudes and dedication to nourishment of healthy educations. The educational standards run in the first world countries are not here followed exactly, it should implement the modern approach to educational management but the educational systems in Bangladesh run by hotchpotch systems. No direct or one system for management in education institutions is followed as a general criteria. Private institutions hinged on commercial profit oriented motivation limit the wider horizons of educational prospects and attainment. Educational values, policies and environments must be built and followed by all who are in these professions to create real and effective educational service and attainment and glory.

CONCLUSION

Quality Control on educational systems has been seen as very valuable mode & process of development. We have traced down a few aspects in managing quality & standards marks. A few factors like a good leadership, competent and skilled teachers, supportive resources & finances, accountability, teaching styles and operational systems are mainly key issues to hold quality education systems. Learning & teaching styles & curriculum design have become the core perspectives in any setting of institutions. We have discussed on contextual scenario in educational practices but these practices need to be followed according to educational values, ethics and standards. Above all the total quality and standards must be offered and practiced accordingly. Management can create good systems for the best educational practices. We here clarified many concepts like govt roles, environments, attitudes of the owners. There are some other issues like barriers to developments in many ways have also been noted and indicated.

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THE EFFECT OF RELIGION TOWARD MORAL VALUES OF COLLEGE STUDENTS IN LOCOS SUR, PHILIPPINES

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ABSTRACT

Many wonder why self-confessed religious nations such as Christian nation, Islam nations, Hinduism nation, have not become better country in terms of morality such as corruption, killings, gambling, cheating, abortions, and many more immoralities. Those immoralities raise question in the mind of many people: does religion have no influence to the moral life of people? At the same time, some nations that claim to have no religion, they are advanced and less corrupt. Such picture deserves to be investigated.

KEYWORDS

Religion, Morality, Life, Individual, Human Welfare, Realties

INTRODUCTION

The question about the effect of religion toward morality has been raised by many people. “Does religion have any effect toward moral life of every individual?” This question might have been triggered by the fact that there is violence in the world initiated by persons in the name of religion. At the same time there are so many people relentlessly trying to advance human welfare in the name of religion. These realties raise question about the relevance of religion if not to promote good life here on earth and even the life to come. People assume that living a life in the way that God wants is to live moral life. That kind of life will lead to a happy life. It was the original purpose of ethics when it was introduced by the ancient philosophers. For some morality is not only to lead a happy life here on earth but also after death. That is ultimate happiness that we cannot gain here on earth which we can achieve when we live moral life, live according to God’s commandments. Thus, religion is somehow a way of life, a life that is based on God’s teaching, a life which is based on morality

THE PURPOSE OF THE STUDY

The study wants to find out the role or the effect of religion toward human life, particularly, the moral life of college students in Ilocos Sur. Many students come from different religious communities and most parents are belonged to religious communities. The question here is: does religion affect the morality of College students? The results of the study will be used to reassess the religious practices at home, and school. It can be also used by schools to revisit ethics instructions/strategy and religious practices in the schools.

THEORETICAL FRAMEWORK, LITERATURE AND STUDIES

THEORIES ON RELIGION AND ITS ROLE IN HUMAN LIFE

The discussion on the effect of religion toward morality cannot proceed without understanding religion and its role in human life. To understand religion, we look into its etymology. Religion is from Latin word "religionem" (nom. "religio") meaning: respect for what is sacred, reverence for the gods, obligation, the bond between man and the gods". Therefore, from such etymological meaning, we define religion as a system of belief and practice that accepts a "binding relationship to such a being or beings". St. Augustine used the word, "ligare" meaning "to bind, to connect". (http://en.wikipedia.org/wiki/Religion)

From its etymological definition, religion is the belief in the existence of gods (the sacred) and its bond with men. Its function is to connect men to gods and men to men. Thus the business of religion is to worship gods, God (the sacred) and also to unite/bond people who believe in the same gods (the sacred). From such understanding we lead to an understanding that religion is actually a binding relationship between men and gods, God (the sacred). Thus, gods, (the sacred) become the centre of a religious community and its unifying factor. In this sense, religion and life are not in separate ways. In the ***Eudemian Ethics*** Aristotle argued that the goal of our lives is service and contemplation of the god. As we contemplate the god, we become like what we contemplate and so we become most like god by contemplating the god. In his Metaphysics, Aristotle explained that the best human activity is the most god-like namely thinking about the god and about things that do not change. Aristotle considered god as a magnetic, drawing us by his attractive power to live the best kind of life possible for us (Hare, 2006).

The purpose of religion is to give a new direction to human life style, keeping in mind the immediate future and contemporary point of view. Religion contains many eternal values as basis of direction out of which one remained principal ***(Kumar, 2008)***. Looking into such understanding, how can we deny the role of religion in human life? We do not believe that human welfare was not the motive behind the establishment of religious communities by their founders, although their scope might be limited. Religion is committed to general human welfare. It was needed not only in the beginning of human beings but today is also needed. It urges for unity and cooperation to build conducive environment for all human being to stay.

The idea of religion's involvement in human life is further emphasized by ***Reza's*** definition on religion. ***Reza*** (1998) defined religion as all around movement in the light of faith in Allah (God) and a sense of responsibility for the formation of thought and belief, for the promotion of high principles of human morality for the establishment of good relations among members of the society and the elimination of undue discrimination. This definition provides us a clear role of religion in human life particularly human morality.

According to Reza, we need religion to provide principles of morality like justice, peace, honesty, righteousness, brotherhood, equality, virtuousness, tolerance, sacrifice, help the poor and others. He argues that these are the virtues without which our lives will lose its order, normalcy and turn into chaos. It is possible to acquire these values without religion ***but certainly in the absence of firm religious belief, those values appear to lose their meaning and become a mere piece of advice which can be accepted or rejected***. These qualities are based on internal feelings and faith and are naturally beyond ordinary law. We believe that it is God who cultivates the values within man and impels him to automatic righteousness and adherence to duty. Will Durant a philosopher, in his book, Pleasures of Philosophy, as cited by Reza says that without the backing of religion, morality is nothing more than arithmomancy, as without it, the sense of obligation disappears.

Supporting the above concepts, different religions have similar teachings about the role of religion in human lives. In India, the word "Dharma" is used to mean "religion". Dharma comes from the root " Dhre" which means "to sustain". Thus, Dharma is the greatest sustaining force or the binding force of the society. The goal of Dharma is to create mental and spiritual fellowship among all men and to regulate its relation with all living beings. It thus tries to keep the world in perfect equilibrium (Barua, 2008). Hinduism, according to Gandhi, is the most tolerant and liberal religion. It contains ethical and spiritual outlook. Gandhi said that the chief value of Hinduism lies in holding the actual belief that all lives is one, that is all lives coming from one universal source and that is Allah (God).

Islam also has personal and social code of behaviour, not only code of behaviour related to their behaviour to God but also to human beings. In the Qur'an there are rules and regulations for virtues like righteousness, generosity, gratitude, contentment, humility, kindness, courtesy, purity, good speech, respect, wisdom, tolerance, justice, mercy, dignity, courage, firmness, frankness, hope, patience, perseverance, discipline, self-restraint, moderation, prudence, unity, frugality, sincerity, responsibility, loyalty, trustworthiness, honesty, repentance, and spatiality (Da'wah Group, 2010). One of the five pillars of Islam, such as Zakat encourages Muslims to look beyond themselves and help the needy through giving alms to the poor particularly during the month of Ramadan. (Zahid, 2010)

Christianity is not all about God and his relations to human being and how human beings are related to Him but it is all about love. God became human being (incarnation) to save humankind from their sins because of love. God loves human beings, thus He sent his only son to be a human being to save human beings. In return, human beings must love God and his fellow human beings too which is summarized into the greatest commandments: Love your God with all

your mind, heart and soul and love your neighbour as you love yourselves. Such commandments are the source of inspirations on how Christians carry their live every day. Thus Christian moral life is based on trying to live and treat others as Jesus did (Jakoblich, 2007)

THEORIES ON MORALITY AND RELIGION

Morality is playing important role in regulating human behaviour. It is about what is good and what is bad, right and wrong that affect others. However, this does not mean that there is a written rule or specific codes conduct established by society as it is defined by descriptive theory of morality but it is more on a universal code of conduct that all rational beings would put forward for governing the behaviour of all moral agents. These codes of conducts are not written by society but it is based on natural law as defined by normative theory of morality. Natural law would tell us that it is possible for any normal adult in any society to know the general kinds of actions that morality prohibits, requires, discourages, encourages and allows (***Stanford Encyclopaedia of Philosophy***, 2010). In this case, all adult rational beings everywhere must know what is good and bad, what is right and wrong based on their reason and informed conscience and must conduct themselves according to the command of their conscience. Hauser (2006) said that it is possible that all normal moral and rational agents know the truth, know what is right and wrong, good and bad.

Randall Niles (2007) further explained that this knowledge comes from one's own self. There is no need for certain behaviour to be taught. A person makes decision based on his own knowledge. Lewis as cited by Niles (2007) presents three levels of the importance of morality: first, to ensure fair play and harmony between individuals. Second, to help make us good people in order to have a good society, and finally, to keep us in a good relationship with the power that created us. The last concept reminds us that our belief is critical to our moral behaviour. Faith is prerequisite to moral behaviour. Thus, the most significant predictor of a person's moral behaviour may be religious commitment.

However, some arguments point out that source of morality is not attached to religion. The idea of what is good and bad, right and wrong originally are not defined and taken directly from religion but it is from natural law. Such concept of good and bad, right and wrong grow together with human life as person grows older. On his *On Truth* (1624) Edward, Lord Herbert of Cherbury (1582-1648) claimed that all humans have an intuitive grasp of certain basic moral truths that show us to live.

Thus Herbert rejected the subordination of philosophy to theology, holding that religious claims in conflict with intuitively known moral principles must be false. The idea of Herbert was supported by the idea of Thomas Hobbes (1599-1679) and John Locke (1632-1704). All agreed that moral laws of nature were the basic directions for solving the problems posed by our unsociably social nature (www.Questia.com/Ethics_of_Psych) In this case; even people without religion are capable of understanding of what is good and bad and live a moral life because it is already in the human nature. People without religion do not mean they are immoral but they are moral being too. Montaigne (1533-1592) argued that we must determine for ourselves what good

life is. We each have a distinctive natural form that tells us what we need and what we cannot tolerate. For each person that must be the supreme guide (www.Questia.com/Ethics_of_Psych).

The question why we need morality, Aristotle in his ***Nicomachean Ethics*** argued that the purpose of moral life is happiness. Our morality aims at our happiness. The ancient moral philosophers thought that their task was to determine what was required for human flourishing which is the highest good and to show what virtues were needed in order to attain it. But such argument has been challenged because it lacks of foundation. If our existence is accidental and life ends with death, what is the use of living moral life if only to attain happiness? We sacrifice to help other people, we control our self not to harm other people's life, and we are invited to live in love and peace with one another. Is it worthwhile to do all those things? What are our fundamental motives to be good?

However, Mavrodes (1986) as cited by Ramsey (2004) challenged all those who deny the relationship between religion and morality. He said that if there is no fundamental basis for morality, then morality is bound to fail. He continues to emphasize that any attempt to arrive at basis for morality that is independent from religion is bound to fail. Secular ethics have no fundamental motive to be good. It is too superficial. It lacks of metaphysics and a basis for values and obligations. Thus secular ethics cannot answer the question "why be moral all the time?" If we do not believe in life after death and salvation, then there is no basis for morality. Our belief in life after death and salvation serves as basis for our morality. Religion supports the feeling of obligation to that which makes sacrifices worthwhile. Religion supports the hope in something better or richer which is to come and makes being good and sacrificing worthwhile. Secular morality is inadequate method for providing reasons for people to be moral. Considering that there is no higher form of judgement and no after life as incentives, and then there is no much reason for citizens to be moral.

Kaminer (1997) argued that religion is essential to virtue. He claims that it is not surprising to find faith being touted as the solution to drug abuse, teenage pregnancy and other social ills. Such claims are not baseless. Criminologist Byron Johnson as cited by Wayne Jackson (2010) in his study, argued that there is a relationship between religion and moral values of individual persons. The report said that most delinquent crimes are committed by youngsters who have low levels of religious commitment. Children who attended church become delinquent with far less frequency than those who do not. Myers as cited by Jackson (2010) in his study also pointed out that most benevolent people of our society are the ones who are involved in religious activity.

Those findings convince us that a person who believes in God is a better person or moral person. Morality cannot be maintained without religion. Religion is a necessary factor that can shape the morality of individual persons. Gandhi as cited by Barua (2008) says that religion and morality are inseparably bound up with each other. To Gandhi, there is no religion higher than truth and righteousness. Morality is prized by almost all the great religions of the world. Baier (2001) also maintains the argument on the relationship between religion and morality. Morality is an expression of one's faith in God. In his book, "If you love me, keep my commandments" he argues faith in God is requirement for morality.

Even someone like Nietzsche who is credited with giving a major boost to the elimination of God from Western culture, never tired of pointing out that Christianity is a whole and one cannot give up faith in God and keep Christian morality. Nietzsche as quoted by Lewis (1995) said:

" when one gives up the Christian faith, one pulls the right to Christian morality out from under one's feet. The morality is by no means self-evident. Christianity is a system, a whole view of things thought out together. By breaking one main concept out of it, the faith in God, one breaks the whole. It stands or fall with faith in God".

Such statement indicates that Nietzsche recognize the relationship between religion or faith and morality that both cannot be separated. Morality stands or falls with faith in God. Lewis (1995) further strengthened the argument that morality begins with the character of God.

Bertrand Russel (1957) acknowledged the influence of religion toward morality; however its influence is not only good but also bad aspect. However such bad influence is caused by the wrong teaching. He accused the clergymen as the cause of such problem. Thomas Dixon (2008) further pointed out that many today argue that religious beliefs are necessary to provide moral guidance and standards of virtuous conduct in an otherwise corrupt, materialistic, and degenerate world. In the same vein Christian Theologian Ron Rhodes (2010) has remarked that "it is impossible to distinguish evil from good unless one has infinite point which is absolutely good. In supporting such argument,

Kelley, et.al (2008) conducted a study on the interactive effects of religion and deterrence on patterns of drinking among college students. As indicators of different aspects of religion, they include religiosity, a belief in biblical literalness and a belief in drinking is sin. The study found that there is an interactive effect for religion with deterrence efforts drinking in campus.
Along the same interest, Desmond, Purpura, Elizabeth and Sarah (2010) studied on the effect of religion toward morality. They concluded that although religiosity is a strong predictor of moral beliefs, however, the study found out that the correlation is not perfect. In other words, individuals may frequently attend church, and report that religion is an important part of their lives, without adopting all of the moral standards that are promoted by religious groups.

Study on religion and tolerance for crime was conducted by Corcoran, Pettinicchio, Robbins, (2009). They found that individuals who are members of religious communities and those who attend church more often are more likely to be intolerant of crime and the magnitude of these effects are larger in non-modern countries. Thus they use tolerance of crime as a potential mechanism explaining variation in violent crime across a large sample of countries.

The effect of religion toward tolerance of same sex marriage was also examined by Powell-Williams, et.al, (2007). They examined both direct and indirect effects of religiosity and tolerance of same sex marriage. The study found that beliefs regarding morality and family are significant intervening factors influencing the effects of religion and tolerance of same sex marriages.

In line with such comparison, another comparative study on moral values between Theists and Atheists were made by Deem (2005). He surveyed 1,600 Canadian and asked them what their beliefs about God were and what moral values they considered to be very important. The result of the study showed that Theists got higher moral values than the Atheists in all indicators.

However, it does not also mean that Atheists have no moral values. Morality exists to a certain degree even without religion. This opinion is supported by the study of Hauser (2006). The study pointed out that when it comes to unfamiliar moral dilemmas, atheists and those with religious background show no difference in their moral judgments. It suggested that our intuitive judgment of right and wrong operate independently from our religious beliefs but religion strengthens and improve our moral life.

ARGUMENTS AGAINST THE RELATIONSHIP BETWEEN RELIGION AND MORALITY

Realities may challenge those arguments supporting the relationship between religion and morality. Many people who claim to be religious and yet, in reality they are far from godliness as one can be. Marc Hauser and Peter Singer, (2005) argued that religion is separable from morality. They claim that there is no connection between religion and morality. There are millions of people who participate in no religion who live moral lives. This indicates that it is possible to live a moral life without participating in any religion. Thus religion is not absolutely necessary to live moral life. **Harris** (2006) argued that there is no evidence to support that there is a relationship between religion and morality. If religion were necessary for morality, there should be some evidences that atheists are less moral than believers. He concluded that there is no difference in moral thinking and moral behaviours of religious and non-religious people. Further he said that religious societies are not more moral than those that are more secular in their cast.

The argument of Hauser and Singer might have been influenced by the argument of positive atheism argument as represented by Cohen. Cohen (1868-1954) argued that there is no relationship between religion and morality. We quote his statement:

"*Are we to believe that if we had never received revelations from God or even if there were no belief in God, a mother would have never learned to love her child, men and women would never have love each other, men would never have placed any value upon honesty, truthfulness or loyalty? After all we have seen an animal mother caring for its young, even to the extent of risking its life for it. We have seen animals defend each other from common enemy and join together in running down prey for a common meal*.

The argument of Cohen is related to the previous argument of Leibniz as promoted by Christian Wolff (1679-1754). Christian Wolff argued that we are obligated to do what will make us and our condition, or that of others, more perfect and this is the law of nature that would be binding on us even if God did not exist. He further pointed out that even Confucius already knew by reason all that mattered about morality, even though he did not know anything about Christ.

Such argument is followed by Baron d'Holbach 91723-1789) argued that morality did not need religion especially Christianity.

Indeed religion is not always associated with morality. Philosopher, David Hume stated that "the greatest crimes have been found, in many instances, to be compatible with a superstitious piety and devotion; hence it is justly regarded as unsafe to draw any inference in favour of a man's morals, from the fervour or strictness of his religious exercise, even though he believe them sincerely" (Hitchen, 2007) Farrell Till (1994) further argued that we have not proven the existence of God. If we have not proven the existence of God, how we can talk about morality? Morality is possible without God, without religion. He argued that gentiles where St. Paul was sent, has discovered morality on their own even before they know God and before they know the Bible.

Michael Wang (1997) conducted a study on the relationship between religious beliefs and ethical behaviour. The study concluded that religious beliefs have no correlation with ethical behaviour. The ethical behaviour of people who say "religion is essential" to their life is often no distinguishable ratings from the behaviour of those who describe religion as unimportant factor in their life. Such finding seems to confirm the idea of Atheist, George H. Smith as cited by Till (1994) in his book, *"Atheism: The Case against God"* that religion is not connected to morality. Hauser (2005) argued that if religion were necessary for morality, there should be some evidence that Atheists are less moral than the believers. According to him, some more secularized society may be less violent.

Amid such controversy, in the Philippine contexts, we are challenged to find out really in real life, if there is a relationship or no relationship between religion and morality. Thus, we have to go down to the reality of life and ask people how religion affects their moral life or no affect at all.The summarized aforementioned ideas and studies served as initial ideas from which the researcher derived insights to conduct this study.

STATEMENT OF THE PROBLEMS

The study was aimed to determine the effect of religion toward moral values of college students in Ilocos Sur, Philippines. Specifically the study answers the following questions:

1. What is the level of religious awareness and practices of college students in Ilocos Sur?
2. What is the level of moral values of college students in Ilocos Sur?
3. Is there any significant relationship between religion and morality?
4. Is there any significant relationship between religious awareness and morality?
5. To what extent does religious awareness affect the morality?
6. To what extent does religion affect the moral values of college students in Ilocos Sur?

HYPOTHESES

Based on the statement of the problems, the study is guided by the following hypothesis:

1. There is no significant relationship between religion and morality.
2. There is no significant difference between religions and morality.
3. There is no significant relationship between religious awareness and morality
4. There is no effect of religious awareness toward morality.

SCOPE AND DELIMITATION OF THE STUDY

The study was conducted to fourth year college students in Ilocos Sur particularly in Vigan City and Vigan- Bantay who are currently enrolling in education course. Two schools were located inside Vigan City and two schools were located at Bantay, a town that is close or attached to Vigan City. It will be limited to measure the effect of religious awareness toward their moral lives and to what extent religious awareness affect morality.

METHOD OF RESEARCH

RESEARCH DESIGN

The research utilized the descriptive method of research. This method is considered appropriate because it seek to determine the religious beliefs and practices of students and their moral values and how far religion affects the morality of students.

RESEARCH INSTRUMENTS

Two sets of questionnaires were used to gather the data, the questionnaires on religious belief and practices and the moral values of the students. The questionnaire is consisted of three parts: Part I: solicited the data of demographic profiles of students such as school, gender and religion where they belong. Part II was made of questions to identify the extent of religious awareness and practices of students. Part III was made of questions to identify the level of the moral values of college students in Ilocos Sur.

Scale	**Descriptive Interpretations**
1	Strongly Disagree
2.	Somewhat disagree
3	Disagree
4.	Agree
5.	Strongly agree

To answer questionnaires along moral values of the students, the following scale was used:

Scale	**Descriptive Interpretations**
1	Not very relevant
2	Somewhat relevant
3	Relevant

4	Very relevant
5	Extremely very relevant

To interpret the average score on each dimension on the religious belief and practices of college students, the following norms were used:

Range of Scores	**Descriptive Interpretations**
4.21-5.00	Strongly Disagree.
3.41-4.20	somewhat disagree
2.61-3.40	Disagree
1.81-2.60	Agree
1.00-1.80	Strongly Agree

To interpret the average score on each dimension on the moral values of students, the following norms were used:

Range of Scores	**Descriptive Interpretations**
4.21-5.00	Not very relevant
3.41-4.20	slightly relevant
2.61-3.40	Somewhat Relevant
1.81-2.60	Very relevant
1.00-1.80	Very relevant

POPULATION

The population of the study were composed of fourth year college students who are taking up college education in Vigan City and Vigan Bantay Ilocos Sur and only those who are taking up elementary and secondary education course. To determine the sample size, the Slovin's formula was used where:

$$n= (1+Ne2)$$

Where:
n=sample size
N=Population size
e=desired margin error (percent allowance for non-precision because of the use of the sample instead of the population).

Data Gathering Procedures

In the pursuit of the objective of the study, the researcher asked the permission of the Presidents of different colleges in Vigan City and Vigan Bantay. After given the permission, the researcher

then distributed questionnaires to different colleges/university and retrieved those questionnaires after the students filled them up.

STATISTICAL TREATMENT OF DATA

To enable the researcher present and summarize the data in accordance with the objectives set in this study, the following statistical treatment were used:
1. The weighted mean was used to determine the level of religious awareness and practices and moral values of the students.
2. The One-way of Analysis of F-test (ANOVA) was used to determine the differences on the effect of religion on morality between religions.
3. The Pearson's r was used to determine the correlation between religion and morality, religious awareness and morality.
4. Multiple regression analysis was used the effect and the magnitude of the effect of religion and religious awareness toward morality.

RESULTS/ FINDINGS

PROBLEM 1: WHAT IS THE LEVEL OF RELIGIOUS AWARENESS AND PRACTICES OF COLLEGE STUDENTS IN ILOCOS SUR?

This question was to measures the level of their religious awareness as indicated by their mean ratings. As indicated by their mean ratings, the findings show that all students are high along their level of religious awareness and practice. Thus, we can conclude that all students in Ilocos Sur are religious.

PROBLEM 2: WHAT IS THE LEVEL OF MORAL VALUES OF COLLEGE STUDENTS IN ILOCOS SUR?

This problem was to measure the level of moral awareness of the students. Based on their overall mean rating, it was found that all students from different religions and schools live a high moral values such love (concern for others and society), purity, kindness, and honesty.

PROBLEMS 3: IS THERE ANY SIGNIFICANT RELATIONSHIP BETWEEN RELIGION AND MORALITY?

This was to find out whether there is a relationship between religion and morality or not. In other words, it is to find out whether religion does affect morality of the students from those schools taken in the study.

Result of Correlation Coefficient Showing the Relationship between Religion and Morality

Variable	College/University				
	A	**B**	**C**	**D**	**As a Whole**
Religion	0.2597* p<0.05	0.0206 p>0.05	0.0412 p>0.05	0.0291 p>0.05	0.1234* p<0.05

*Legend: * significant @ 0.05 level of significance*

It shows that there is a relationship between religion and morality as indicated by its correlation coefficient of 0.1234 which has a probability level lower or smaller than 0.05 (p<0.05) which attained 0.05 significant levels. It really confirms that there is a relationship between religion and morality, one does affect the other.

PROBLEM 4: IS THERE ANY SIGNIFICANT RELATIONSHIP BETWEEN RELIGIOUS AWARENESS AND MORALITY?

This problem was to measure the relationship between religious awareness and morality. It is found that there is a relationship between religious awareness and morality of the students as indicated by its correlation coefficient of 0.2594 which have a probability level lower than 0.05 or p<0.05 at significant levels. It concludes that religious awareness affects the morality of the students

Result of Correlation Coefficient Showing the Relationship between Religious Awareness and Morality

	College/University				
Variable	A	B	C	D	As a Whole
Religious Awareness	0.2597* p<0.05	0.3421* P<0.05	0.0691 p>0.05	0.4151* P<0.05	0.2594* P<0.05

*Legend: * significant @ 0.05 level of significance*

PROBLEM 5: TO WHAT EXTENT DOES RELIGIOUS AWARENESS AFFECT THE MORALITY?

This question measures the effect of religious awareness on morality. As it is gleaned from the table and based on the computed Mult R of 0.2567, indicating a relationship between religious awareness and morality. It means that in general, the higher the level of religious awareness, the higher the level of morality prevalent to the students.

Result of Multiple Regression Analysis of Religious Awareness on Morality

Variable	beta	t-value	t-prob
Religious Awareness	0.0843	4.4846*	0.000

Mult R = 0.2567

R sq = 0.0659
F-ratio = 20.1112
F-prob = .000($p<0.05$)

Looking at the variable, the table shows that religious awareness significantly influence the level of morality (f-ratio=20.1112, $p<0.05$). It means that the level of morality depends on the level of religious awareness of the students.

PROBLEM 6: TO WHAT EXTENT DOES RELIGION AFFECT THE MORAL VALUES OF COLLEGE STUDENTS IN ILOCOS SUR?

This question measures the effect of religion toward morality. Based on the result of the data, the computed Mult R of 0.1234 suggests a relationship between religion and morality.

Results of Multiple Regression Analysis of Religion on Morality

Value	beta	t-value	t-prob
Religion	3.578334	34.46316	0.000

Mult R = 0.1234
R sq = 0.0152
F-ratio = 4.4236
F-prob = 0.036319($p<0.05$)

Looking at the figures shown in the table, the variable considered in the study yielded a significant influence on the level of morality of the respondents as backed up by F-ratio of 4.42, $p<0.05$. This means that the level of morality is influenced by the religion.

DISCUSSION

The main objective of the study is to find out the effect of religion toward morality. After tracing the related literatures and studies taken in this study, it is found that they have no common agreement as to whether religion affects morality or not. On one hand, several authors claimed that religion affect the morality, and on the other hand, others claim that religion and morality have no connection, even they claim that morality comes ahead of religion.

Through the use of research methodology and statistical tools employed in this study, the study determines the relationship between religion and morality. It concludes that religion, religious awareness and morality are connected and both religion and religious awareness affect the level of the morality of the students. It further concludes that the more religious students are, the higher their morality is. It then understands that all religions help the formation of morality of students. In other words, religion enhances moral awareness of the students and religion is important for moral development in the Philippines context.

Thus, the question that is raised in the background of the study has been answered that religion is necessary to the formation of moral behaviour of an individual. Besides, the finding of the study really confirms the role of religion in human life as a unifying factor between God and men and between men. The relationship between the two is necessary.

Therefore, the hypotheses in the study that there is no significant relationship between religion and morality, no significant relationship between religious awareness and morality and there is no effect of religious awareness toward morality are denied. There is really a relationship between religion, religious awareness and morality.

However, the hypothesis of "no significant difference between religion and morality" is accepted. No matter what religion we belong to, we all have the same moral values and it does not make one religion is better than the other. In other words, all religions and their practices promote moral values.

However, religion alone without religious awareness will not increase the level of morality. Even though morality can exists without religion; however, religion and religious awareness improve the level of moral awareness of students. Further, religion provides a deeper reason why someone has to be moral all the time.

RECOMMENDATIONS

The recommendations are emanated from the study. These recommendations are addressed to the parents, school and students themselves.

1. *RECOMMENDATION TO THE PARENTS*. Parents should promote religious awareness to their children at home by regularly praying together, attending worship, listening to spiritual reflections and reading the bible and other religious activities.

2. *RECOMMENDATION TO SCHOOL*. It is not enough to teach religion subject but to live it is important. Thus, the school should promote religious awareness by introducing religious activities in the school campus such as prayer, worship, bible reading and meditations and other religious activities that increase religious awareness of the students. Schools also need to have religion subjects, whatever religion in which students belong to. Religion subject is not only for private schools but also for public schools or government owned schools

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3. *RECOMMENDATION TO THE STUDENTS*. Religious awareness is not something that only comes from outside but it should come from within. To improve their religious awareness, they should practice and strengthen their faith by prayer, worshiping, attending worship regularly and reading the bible as a source spiritual inspiration for daily living.

4. ETHICAL ENVIRONMENT in which students/children are growing should be given attention by the parents and the school. Home where students spend most of their time should be the first place where students learn how to behave ethically, learn how to love other people, to be kind,

and to be honest. School should establish ethical environment by initiating ethical activities to promote and increase moral awareness of the students.

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THE EFFECTS OF MOTIVATION ON WORKERS PERFORMANCE (A CASE STUDY OF PANAS PHARMACEUTICALS Pvt. Ltd., GANAPUR, BANKE)

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ABSTRACT

The main focus of this research is to find out the effects of motivation on workers performance in Panas Pharmaceutical Pvt. Ltd. An effort have been made to evaluate the existing workers motivational policies in Panas Pharmaceutical with a view to examine the effects of motivation on worker productivity increase and also to identity the variable that are directly or indirectly responsible for workers performance, while assess how motivation come into play in Panas Pharmaceutical Pvt. Ltd. The researchers however, observed that most of the motivation Policies in the company were not adequately function and the little policies that are function were inconsistent and irrelevant for workers needs and desired in Panas Pharmaceutical. In making these findings possible, thirty (30) respondents were presented with questionnaires, out of sixty (60) work force of the company and translated their responses into tables using simple distribution and percentages. Therefore, it has been proved that motivating workers sufficiently with relevance incentives as the only alternative towards workers performance to achieve goal and objectives of the organization. On the basis of these findings, implications of the findings for future study were highlighted.

KEYWORDS

Effects, Motivation, Workers, Performance

INTRODUCTION

One of the most difficult aspects confronting management of most organization today is how to make their workers become efficient. This aspect of organization has led most industries to employ strategies by which to motivate their work force. To addendum to this latency, most literature of organization study, Mitchell (1983) is of the view that for an organization to be successful, its members must be both willing and able to perform their jobs competently. This implies that the performance of organization members is jointly determined by the Members

"Motivation" (The extent to which they are willing to perform well) and by their ability (the extent to which they possess the skills and abilities necessary to perform well). Feldman and Daniel (1983) are jointly determined by both motivation and ability. This is important since it implies that beyond a certain level, lack of ability cannot be compensated for high motivation and conversely lack of Motivation cannot be compensated for high level of ability. Both Motivation and ability are necessary components of effective performance in organizations. This perhaps led researcher like Nadle et al (1989) to arrive at conclusion that man anger's Job is not to Manipulate his subordinate rather must be sensitive to the difference in needs and desires and recognize the extent of what motivate them.

There has been a lot of research conducted by social science scholars and managers to demonstrate concern on the infinite dwindling productivity performance in an organization for over a decade Yet no steady effort has been made to produce positive result despite many policies and programmes had been implemented in an attempt to arrest the perennial problems that hindered the realization of organization goals and objectives which are currently experience a serious low productivity performance.

Since increase in productivity performance is necessary and cardinal objective of every meaningful organization and for that standard to be achieved, workers must be adequately satisfied to stimulate motivated behavior to attain organizational goals. This brings us questions like what measure shall be taken to improve the condition of Panas Pharmaceutical with regard to productivity performance. Which Motivation Policies are relevant and consistent for workers needs and desires? How does the Motivation affect workers performance in Panas Pharmaceutical Pvt. Ltd and what motivate and de-motivate workers. Answer to the above stated questions serve or remain as the research problems of the study.

OBJECTIVES OF THE STUDY

(i) To examine whether motivation is determinant factors influence influencing workers performance.
(ii) To determine the extent by which motivation affects performance in Panas Pharmaceutical.

HYPOTHESIS

(i) That workers performance is a function of the inducements advanced by workers

METHODOLOGY

RESEARCH DESIGN:- The survey research design method was used in this study. It involves using a self-designed questionnaire in collecting data from the respondents. This method was chosen in order to make reference to phenomena as they exist in real life and it is relatively economical in terms of time and resources. Instruments of Data Collection: - Both Primary and

Secondary Sources of data collection were used to coquet the information. These involved series of consultation of related dossiers and records while other source used in this study was a close ended questionnaire purposely designed by the research. The questionnaire comprises of two (2) sections: "A" and "B". Section "A", contained or seeking for Demographic data of the respondents and section "B", sought to generate information on relationship between motivation and performance, and to what extent motivation facilitate workers performance in Panas Pharmaceutical Pvt. Ltd.

PROCEDURE OF DATA COLLECTION:- The respondents were given the questionnaire in their place of work. Instruction on how to fill the questionnaire was given. Confidential treatment of information was assured. With regard to the scoring of responses, the first section of the questionnaire needs no score attached to it, since the information required are only bio-data of the respondents. The second sections were arranged in the following simple pattern.

1. Yes
2. No

SAMPLES AND SAMPLING STRATEGIES

The study is undertaken at Panas Pharmaceutical Pvt. Ltd. The population of this study comprises senior and junior workers drawn from the all functional departments of the company including QA, QC, R&D, and Production etc. A purposive sampling was employed to this study in order to make adequate representation of the study population.

The study population is sixty staff (60) made up of Junior and senior workers. A sample size of thirty (30) respondents were adopted for the whole study, out of which twenty five (23) were randomly stared within the Junior staffs spread across the department, while five (7) questionnaire were administered randomly to the senior staffs within all functional department of the Panas Pharmaceutical Pvt. Ltd without discrimination with regard to sex and age.

METHODS OF DATA ANALYSIS

The data collected from the field were analyzed based upon the research hypothesis and objectives of the study identified.

A statistical technique of simple frequency distribution and percentages was used to comprehend and analyze the data to differentiate responses and test the hypothesis of the study.

RESULTS AND HYPOTHESIS TESTING

This section deals extensively with the statistical testing of the hypothesis formulated for this study with four (4) strong question advance to support the hypothesis and interpreting the results using the said simple frequency distribution and percentages. A single hypothesis was chosen in the study but is subject to accept or reject. Hypothesis I: - The hypothesis states that workers performance is a function of inducements advanced by workers. In order to test the hypothesis, four (4) related question were advanced to represent the hypothesis with the help of tables.

Table 1: Does motivational incentives encouraging you to perform efficient and effectively toward achieving the company goals and objectives?

S. No	Respondents	Frequency	Percentage
1	Yes	30	100%
2	No	00	00%
	Total	**30**	**100%**

Source: Field survey (2012)

The Table one shows that all employees of Panas Pharmaceutical Company, comprises of seniors and junior were of the believe and consensus that motivation is a unique vehicle or tool that can energize them to be productive and committed. The study revealed that out of the 30 workers sampled, 100 percent of the respondents said yes which confirmed that our hypothesis is upheld by the workers responses showing the effectiveness of motivational incentives from the workers perception.

To further support the hypothesis and the question, the following auxiliary table is initiated to prove the genuinely or otherwise of their statement and understand the variety of the incentives needed on their sides.

Table 2: Which of the below rewards would you prefer your efforts?

S. No	Respondents	Frequency	Percentage
1	Money	6	20%
2	Promotion fairness	15	50%
3	Recognition	3	10%
4	Security	4	13%
5	Prestige	2	7%
	Total	**30**	**100%**

Source: Field survey (2012)

The response of the Table two has clearly shows the majority views and interest in respect of rewards expected to have enjoying in their company. The majority who are 15 in number with 50 percent proof the significance of promotion and fairness in promoting workers performance, while 20 percent who are 6 in number resort to money likewise, 13 percent for security, 10 percent and 7 percent also subscribe for recognition and prestige respectively.

Table 3. Is lack of incentives/motivation generating poor performance?

S.No	Respondents	Frequency	Percentage
1	Yes	30	100%
2	No	00	00%
	Total	**30**	**100%**

Source: Field survey (2012)

Table three shows that all the respondents who are 30 in number which constitutes a 100 percent have strongly upheld the hypothesis position that lack of motivation affects workers performance.

Addendum support to the hypothesis and the question another table is made to further vindicate the claimed of the worker in respect of lack of motivation undermine performance and establish absenteeism and turnover.

Table 4: Do you believe that lack of motivation contribution to employees' absenteeism and turnover?

S. No.	Respondents	Frequency	Percentage
1	Yes	25	83%
2	No	5	17%
	Total	**30**	**100%**

Source: Field survey (2012)

The Table four like other table interpreted in this study, vehemently support the hypothesis with 83 percent respondents who are 25 in number agreed that lack of motivational incentive no doubt generate absenteeism and employees turnover, while 17 percent who are only 5 in number disagree with the position of the majority.

DISCUSSION

The hypothesis, which states that workers performance is a function of the inducement advanced by workers of Panas Pharmaceutical Pvt. Ltd. was accepted. This shows that motivational incentives given to workers in an organization has a significant influence on the workers performance. This is in line with equity theory which emphasizes that fairness and equality in the distribution of the company incentives package tends to produce higher performance from workers.

The Findings also agrees with the works of Berjum and Lehr (1964) in Ajila and Abiola (2007) which showed that workers who received incentives performed better than those who did not receive. And workers exhibited productive work behavior when motivational incentives were made contingent upon performance. The work of Akerele (1991) can also be said to have corroborated the findings of this study. He observed that poor motivation in relation to profits made by organization, were differentials between high and low income earners among others things contributed to low morale, lack of commitment and low productivity.

Another work that these findings can be said to have corroborated is the work of Eze (1985) whose investigation on personnel management shows that 90 percent of managers in his sample regarded their work as a means to end. And this ends was interpreted to include money, material possessions etc and the reason may be that workers need to take care of themselves, their families and other dependents and provide themselves other basic needs of life. Addendum to the Eze findings, Afanjo (2002) emphasized the significant of careful selection of motivational incentives by workers so as to guide, lead and energize their perception and ability towards achieving the set goals and objectives, hence it is their choice.

The above discussed scholars views strongly upheld the hypothesis and the auxiliary questions that workers performance is a function of inducement advanced by the workers in any organization and vis-a-vis emphasize a support for freedom of incentives package selection content in planning and initiating workers motivation packages. (Afanjo, 2002)

CONCLUSION

It is worthy to note that motivational incentives playing a very significant role in the day to day performance of workers in every organization. Therefore, it is clear that workers performance of any sort is a function of incentive obtain from the organization and thereby improve and increase productivity. In view of that workers motivation matters a lot and should be concerned for both employers and the employees.

The results obtained from the hypothesis revealed that workers performance does not depend on the behavior of other workers in the company but on the motivation policies available in the company. It should also important that prompt promotion, fairness and equality practice in management increase workers performance and make them stay in the organization longer to retirement schedule

Others results also placed much emphasis for the management to consider workers wishes, needs and what he/she ought to be seen best among the motivational incentives packages meant for them. Therefore, this study is equally a call for managements to put in place a appropriate incentive plan suitable for workers desire and productivity.

RECOMMENDATION

Based on the study, the following recommendation is made in order to improve organization productivity and workers performance.

1. Management should standardize the workers motivation policies to reflect the desire and needs of the workers.

2. Workers salaries and wages should be carefully handled to reflect modern day package.

3. Management should reward their workers always with promotion and practice fairness in managing a organization affairs.

4. It is suggested for management to conduct more study for further clarification of the finding and the studies is restricted for generalization due to limited time and scope of the study; hence it was carried out on one organization.

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THE RELATIONSHIP AMONG WORK SYSTEM, WORKPLACE HAZARDS AND EMPLOYEE'S BEHAVIOUR: A STUDY OF SELECTED STAFF OF NIGERIA EAGLE FLOURMILL, IBADAN

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ABSTRACT

The study examined the relationship between work system, workplace hazards and employees behaviour. It aimed at addressing the issue of how work can be structured in order to reduce workplace hazards and produce affirmative employee's work behavior.

The study uses survey research method. Participants in the study were 120 staffs of Nigerian Eagle Flourmill, Ibadan who were selected through stratified and simple random sampling techniques. Data were collected via responses elicited using the questionnaire instrument. Results show that there is a significant relationship between work system, workplace hazards and employees behaviour. The findings were discussed with reference to relevant empirical literatures, and with recommendations for management of organizations both for practice and future research highlighted.

KEYWORDS

Work system, workplace hazard, employees, behaviour, organization

INTRODUCTION

Industrial sociologists and management theorists have, for several years, been concerned with how best work activities can be structured in order to produce safe working environment and affirmative employee's behavior; however, there appears to be no agreement among scholars of these disciplines. For example, Frederick Taylor's Scientific Management sought to resolve these problems from managerial perspectives and argues that man is naturally lazy, selfish and dislikes work hence; work should be design through the application of scientific knowledge to work process (Adesina, 2005).

In contrast, McGregor's theory (Y) describes man as one who sees work as a play (Onyeonoru, 2005). Nevertheless, work is still a precondition for human development, family sustenance and

nation's building. Otobo (2000) explicitly emphasizes the importance of work in the life of human beings when he states that in all human societies, no matter how small, the members must produce goods and services in order, at least, to survive-quench thirst, satisfy hunger pangs and provide shelter. He therefore concluded that every aspect of work should be structured to the overall effectiveness and profitability of an organization.

The process of work structuring that includes division of labour, tasks performed, who perform them and how they are performed in the process of making a product or providing a service to internal or external customers is referred to as 'work system' (Alter, 2006). Evidences have shown that many work organizations are undergoing massive changes in the ways in which work is organized, often made possible by improvement in information and communication technologies (Landsbergis, 2003; Alter 2006; Swaen, et., al 2004). The new forms of work organization includes; combined jobs, multi-tasking, teams, telecommuting, electronic performance monitoring, use of temporary workers, contract workers and alternative work schedules, are being introduced with very little attention to it potential to hurt workers (Smith, et., al 1992; NIOSH 2002; Swaen, et., al 2004).

More so, work restructuring can result in intensification of work, leading to working faster and harder. This work intensification may be increasing stress on the job, with low worker control over the work, often coupled with higher job demands. For instance, the vast majority of workplaces in the U.S. have gone through formal or informal restructuring of work. The introduction of computers in every sector of the economy has created changes in work processes that can negatively impact workers' health and safety. One measure of change is in the number of hours that workers spend on their jobs. Van der Hulst (2003) reported that there has been steady increase in number of hours worked annually in United States over the past couple of decades to the point where American workers work more hours than workers in any other major industrialized country. Similarly, Dembe, Erickson, Delbos, and Banks, (2005) submitted that overtime hours, including mandatory overtime, have also risen in the United States.

In developing countries, Linda, Mark and Marilyn (2006) and Kiwekete (2010) observed that improper workplace design, ill-structured jobs, mismatch between worker abilities and job demands, adverse working environment, poor human–machine system design and inappropriate management programs affect workers health and attitude to work. In corroborating this, Meswani (2008) submitted that 2.9 billion workers are exposed to hazardous risks at work annually and 2 million deaths are attributable to occupational injuries globally.

More explicitly, International Labour Organization (2009) reveals that the figure (2 million workers die each year from work related accidents and diseases) is probably an underestimation because data for estimating work-related illness and injury are inadequate in many developing countries such as Nigeria because majority of workplace ccidents goes unreported. Consequently, employees may develop counter-productive behaviour when there psychological and social needs are not adequately compensated by the management (Balsari, Ceilo and Zanuttini, 1999; Major, et., al 2002). With this in mind, the objective of this study is to examine the relationship among work system, workplace hazard and workers behavior in Nigeria.

LITERATURE REVIEW

WORK SYSTEM

System is the set of things working together as part of a mechanism or interconnecting network which activities are coordinated toward achieving a purpose. In organizational settings, system encompasses the interaction of human, information, physical and other resources to produce goods and services for internal or external customers (Alter, 2006). It is made up of parts; each part can affect the way other parts work and the way all parts work together will determines how well the system works (Alter, 2006; Adesina 2005).

Wayne (2002) defined work system as the creation of series of tasks by which organizational work load can be performed and carried out as required. These tasks include purchasing materials, selling services, hiring employees, responding to customers etc. Similarly, Rask and Johansson, (2008) noted that any organization that wishes to carry out its mission successfully must have functioning systems that allow it to carry out its work effectively. More so, Steijn (2001) observed that work system allows everyday tasks to operate in a coordinated manner and provide a basic framework to produce services and products. Thus, it is a vital tool for influencing the quality of working life and effectiveness of workers. Steijn further identified three common types of work system in work organization, which includes; the traditional system (Tayloristic), sociotechnical system and lean teamwork.

TYPES OF WORK SYSTEM

TRADITIONAL SYSTEM (TAYLORISTIC)

The Tayloristic system (TS) was introduced in the early 20th century; it insures all work being done in accordance with the principles of scientific management (SM)" and finally "division of work and shared responsibility between management and workman". In tayloristic system each worker is expected to have well defined work task, which formed the base for workers training as well as feedback on performance and pay according to measured output (Taylor, 1911). The work is expected to be horizontally divided to the level of an individual worker, while further division of work and shorter work cycles is not included.

Many work organization adopts this approach in order to keep work systems under control and to reduce uncertainties connected with work activities however, when the organization's environments become more and more complex-then more effort has to be put into reducing uncertainties that may jeopardize the effectiveness of the whole system (Adesina, 2005; Rask and Johansson 2008). Nevertheless, organization theorists and work scientists have established clearly that tayloristic work system has more negative effects on organizational effectiveness than other forms of work system design- it prescribe work processes in miniscule detail and spending much effort on supervising the adherence to prescribed procedures which is sometimes difficult for workers to follow hitherto (Steijn 2001; Alter 2006; Grote 2004; Pruijt, 2003).

SOCIOTECHNICAL SYSTEM

Sociotechnical system (STS) was developed by F. Emery, E. L. Trist and others at Tavistock Institute during the 1950s and onward in opposition to the tayloristic work systems. The approach viewed work organization as a system with two integrated part social system (people) and technical (technology). It proposes that both these part must be considered concurrently in order to create the conditions for successful organizational performance. With the introduction of the social system, STS drew the attention to team work that operates within a production or service delivery process in work system.

Also, STS promotes limited horizontal division of work (integration). One example is when Emery (2009) claims that, while fractionation (or segregation) has a positive effect on cost at lower degrees, the effect is the opposite at higher degrees of fractionation. STS stresses the importance of giving the group and the individual worker control on their own work task (Rask and Johansson 2008). It disagrees with the rational system perspective that believe in standardizing and routinizing work demands in order to enhance work performance while it support the view that work organization should focus on the social psychological aspects of work and job characteristics required in work system (Chryssolouris, 2006; Pruijt, 2003). In situations of high uncertainty, socio-technical approach emphasizes the reduction of jobs to simple tasks that workers can be quickly trained and replaced if necessary, put workers in roles rather than jobs by training workers for multiple roles and allow them to be self-regulating (Rask and Johansson, 2008).

LEAN TEAMWORK

Lean production (LP) is an overall approach to work organization that focuses on elimination of any "waste" in the production/service delivery process (Womack and Jones, 2003). The functioning of lean teamwork is however performed in complex environments with heritage and long experience from tayloristic and sociotechnical production systems. For instance, major auto companies like Ford has its Ford Production System, Chrysler has its Chrysler Operating System, GM has its textbook of the manufacturing practices of Lean Manufacturing and other sectors in Canada are moving to lean production to cut production cost and to enhance competitiveness (Womack and Jones, 2003).

Commenting on enterprise restructuring and work organization, Rask and Johansson (2008) observed that the Toyota production system which includes the "continuous improvement", "just-in-time production", and "work teams" are widely regarded as the route to world class manufacturing today. The three elements of lean production are briefly examined below:

● **Continuous Improvement**: A process for continually increasing productivity and efficiency, often relying on information provided by employee involvement groups or teams. Generally involves standardizing the work process and eliminating micro-breaks or any "wasted" time spent not producing/serving.

● **Just-in-Time Production:** Limiting or eliminating inventories, including work-in-progress inventories, using single piece production techniques often linked with efforts to eliminate "waste" in the production process, including any activity that does not add value to the product.

● **Work Teams:** Work teams operate within a production or service delivery process, taking responsibility for completing whole segments of work product. Another type of team meets separately from the production process to "harvest" the knowledge of the workforce and generate, develop and implement ideas on how to improve quality, production, and efficiency.

Furthermore, Linda et., al (2006) and Kiwekete (2010) assumed that properly structured work groups can provide incentives, assistance, and social support better than individual job design programs. However, Niepce and Molleman (1998) evaluated sociotechnical system and lean teamwork against the Tayloristic work system and they concluded that the most obvious differences concern control and coordination of work. Workers are expected to have the responsibility, knowledge and authority needed for keeping machinery running and material flowing through the production system.

However, Dankbaar (1997) claims that lean teamwork appears as an extension rather than a successor to tayloristic mass production system. Because of the intricacy of human behaviour and the dynamics of organizational situation, most organization go about managing workers in such manners as could undoubtedly produce sub-optimal results, thereby jeopardizing the chances of the organizations realizing their set goals and objectives efficiently. In addition, improper work designs do bring about organizational reactions in a form of employee dishonesty, redundancy and violence that causes losses to the organisation (Fagboungbe et., al 2012).

WORK-RELATED HAZARDS

The World Health Organization (2002) defined hazard as any source of potential damage, harm or adverse health effects on something or someone under certain conditions. However, once a hazard becomes "active", it can create an urgent situation in the place of its occurrence. Hazard can occur from natural process, man-made activity related hazard, deadly forces or retribution. However, work-related hazard is the concern here.

Bello (2010) defined work-related hazard as the risk to the health of a person usually arising out of employment. It can also refer to occupational, material, substance, process or situation that predisposes or itself causes accidents or disease at work place. Workplace hazards are brought about by two broad categories of causes namely "unsafe work conditions" and "unsafe work behaviors" (Kalejaiye, 2013). However, workplace related injuries are preventable with the use of appropriate occupational safety and health services (Igor 1998; WHO 2004). Work place hazards were classified by Evans, Head and Speller (1994) under the following categories which include:

(i)Mechanical hazards include: By type of agent: Impact force, Collisions, Falls from height, Struck by objects. Confined space Slips and trips, Falling on a pointed object Compressed air/high pressure fluids (such as cutting fluid), Entanglement , Equipment related injury

(ii) Types of Injuries: Crushing, Cutting, Friction and abrasion, Shearing, Stabbing and puncture.

(iii) Physical hazards: Noise, Vibration, Lighting, Barotrauma (hypobaric/hyperbaric pressure), Ionizing radiation , Electricity, Asphyxiation, Cold stress (hypothermia) , Heat stress (hyperthermia), Dehydration (due to sweating).

(iv)Biological hazards include: Bacteria, Virus, Fungi, Mould, Blood-borne pathogens, Tuberculosis.

(v)Chemical hazards include: Acids, Bases ,Heavy metals ,Lead, Solvents, Petroleum,Particulates ,Asbestos and other fine dust/fibrous materials , Silica, Fumes (noxious gases/vapours) ,Highly-reactive chemicals.

(vi)Fire, conflagration and explosion hazards: Explosion, Deflagration, Detonation, Conflagration.

(vii)Psychosocial issues include: Work-related stress, whose causal factors include excessive working time and overwork , Violence from outside the organisation, Bullying, which may include emotional and verbal abuse , Sexual harassment , Mobbing , Burnout , Exposure to unhealthy elements during meetings with business associates, e.g. tobacco, uncontrolled alcohol(Raphael, 2008).

(viii) Musculoskeletal disorders: Injuries to bones and muscles and deformities are avoided by the employment of good ergonomic design.

WORKPLACE HAZARDS IN NIGERIAN CONTEXT

In Nigeria, many workers are dying and some have sustained work-related diseases which vary from minor irritations to injuries due to high exposure to hazardous and exploitative working conditions (Kalejaiye, 2013). The number of work-related hazards and diseases continue to increase as more workers are employed to work in factory of obsolete machines with safety guards removed and companies simply cut corners on safety (Afolabi, Fajemonyomi, Jinadu and Bogunjoko, 1993).

Kalejaiye (2013) observed annual mortality rate of 1 249 per 100, 000 workers in Nigeria in past decade. Similarly, Abongomera, (2008) submitted that over 200 work related deaths occur in Nigerian work place while about 50 million workers are exposed to workplace fatalities (i.e. high enough to disable them) annually. More finding revealed that no fewer than 400 workers have lost their lives in the powder sector in the last two years while over 100 cases of work-related accidents occurred in the maritime sector with over ten deaths, numerous incapacitations and

innumerable serious body injuries (). This is an astronomical figure that remains completely below the radar and the real gravity of the situation more often than not goes unrecorded. Another is the fire incident that razed a plastic factory in Ikorodu, Lagos in 2002 where many workers were roasted to death at night when the owners of the company locked the workers in the factory and went to sleep.

Furthermore, Bello (2010) revealed that mill operators suffers high rate 83% of upper limb, back and lower injuries when moving planks of wood into the machines (Bello 2010). Also, Adebiyi et al. (2005) estimated the cost of accidents in agro-allied industries in Southwestern Nigeria at 87.89 million dollars annually. In addition, Nigerian Institute of Safety Professionals (2000) reported that overall 11,000 people were injured due to on-the–job accidents each year in chemical industry alone in Nigeria. In many workplaces hazard victims band their families receive little or no compensation which put them in a more vulnerable position in the society (Kalejaiye, 2013). Consequently, employees develop counter-productive work behavior like absenteeism, violence, indolence and redundancy which in a way affect their productivity and effectiveness. Thus, managers should treat employees well and provide adequate compensation for workers in the best interest of the organization (Fagboungbe et., al 2012).

CONCEPT OF BEHAVIOUR

Behaviour is the actions or reactions of a person or animal in response to external or internal stimuli; conduct; manners or deportment, especially good manners; general course of life; treatment of others; manner of action; the activity of an organism, especially as measurable for its effects; response to stimulus; the functioning, response or activity of an object or substance." Behaviour reflects a person's likes and dislikes towards other persons, objects, events and activities in their environment. It can be social in nature (for the good of the community) or anti-social in nature (unacceptable to the community), as in the manner of conducting oneself according to social norms (or not). Social behavior constitutes any act that has benefit to others in the family or community.

It engender worldwide goodwill, peace, and total love for all people regardless of gender, race, colour, religion, social status, sexual orientation, disability, national or social origin, political or other opinion, or condition. While anti-social behavior is behavior that is unacceptable to other people (the community), behavior that violates another person's right not to be adversely affected in some way. Such behavior includes arrogant, bullying, betrayal, harassment, and sarcasm which may therefore be defined as violence.

It is important to know about employee's behaviour because it affects their approach toward work system, management strategies, remuneration, benefits, hazards, promotion or anything that might generate positive or negative reactions (Driskill and Brenton, 2005). Employees behaviour can be classified into internalisers and externalisers (Driskill and Brenton, 2005).The internalisers are more attracted to work situations than externalisers who are more likely to become emotional (have a meltdown) on the job, because they have a lower tolerance for job-induced frustration (My boss or my co-workers should handle it!). An employee (in his self-

absorption) who is prone to outbursts may not realize that his behaviour makes others very uncomfortable, and therefore he ignores risks to his effectiveness in the short term and to his career in the long term (Driskill and Brenton, 2005). Internalisers are more trusting and dismiss job failure and frustration more readily: perhaps they are more resilient than externalisers in this regard. More so, they prefer leaders who let them participate, and they are sensitive to organizational attempts to influence their thinking and behaviour. Thus, one of the key targets of managers should be to make connection between employee behaviour and their performance (Seijts and Crim 2006; Lynn et al., 1990).

THEORETICAL FRAMEWORK

AFFECTIVE EVENTS THEORY

Affective events theory (AET) is a model developed by Weiss and Cropanzano (1996) to discover how emotions and moods influence job performance and job satisfaction. AET proposes that organizational events are proximal causes of effective reactions. By implication, "things happen to people in work setting and people often react emotionally to these events (Weiss & Cropanzano, 1996). It suggested a hypothesized relationship between moment-to-moment emotions and outcomes such as effectiveness of work system, effect of work-related hazards and employee's reaction to organizational behaviour (Alter, 2006; Steijn 2001).

The model increases the understanding of links between employees and their emotional reactions to things that happen to them at work. It believes that work modeled includes hassles, autonomy, job demands, and emotional labour and uplifting actions of their reactions. This emotional response intensity therefore affects job performance and satisfaction. Furthermore, affective events theory also proposes that stable work features such as job scope predisposes the occurrence of certain types of affect producing events. For instance, an enriched job leads to events involving feedback, task accomplishment, and optimal challenge that may result in happiness and enthusiasm.

RESEARCH HYPOTHESES

Arising from the background of the study and the subsequent review of literature, the following hypotheses were generated for testing:

H1: There will be a significant relationship between work system and employees behavior.
H2: There will be a significant relationship between work-related hazard and employee's behavior.
H3: There will be a significant relationship between work system, work-related hazard and employee's behavior

METHODOLOGY

DESIGN

Survey method of research design was used for the present study.

POPULATION AND SAMPLE

The target population for this study comprised all the employees of Nigeria Eagle Flourmill, Ibadan, Nigeria, put at 810. The population consists of men and women above (18) twenty years of age. The sample was made up of one hundred and twenty employees randomly selected from four departments of the said organization for this study.

PARTICIPANTS

The respondents for this study comprised of 120 employees from 4 key departments namely; Human resource, Financial, Production and Supply departments in the organization. A total of 67 (55.8%) respondents were males, 53 (44.2%) were females, 68 (56.7%) were single, 31 (25.8%) were married, 13 (10.8%) were widowed while 8 (6.7%) were divorced. In the sample, 43 (35.8%) of the workers were aged 18-23years, 38 (31.7%) of 24-30 years, 26 (21.7%) were 31-42years and 13 (10.8%) aged 43years or above. With regards to educational attainment, 49 (40.8%) had Senior Secondary Certificate Examination, 42 (35.0%) had a Degree certificate or Higher National Diploma, while 29 (24.2) had Ordinary National Diploma. The participants consist of 59 (49.2%) junior staff, 33 (27.5%) intermediate staff and 28 (23.3%) senior staff. The average job tenure was 3.83 years. The demographics and employment distribution of respondents is presented in Table 1.

Variables	Frequency	Percentage
Sex		
Male	59	52.7
Female	53	47.3
Marital Status		
Single	60	53.6
Married	31	27.7
Widowed	13	11.6
Divorced	8	7.1

Age		
18-23years	35	31.3
24-30years	38	33.9
31-42years	26	23.2
43 years or above	13	11.6
Educational Qualification		
SSCE	41	36.6
OND	42	37.5
Degree/HND	29	25.9
Cadre		
Junior	59	52.7
Intermediate	33	29.5
Senior	20	17.9

Source: Field Survey, 2012

INSTRUMENT

The instrument used for the study was a closed-ended questionnaire. Two instruments were used in the study. These include the Organizational Citizenship Behavior Scale and High Performance Work System Scale.

1. WORK SYSTEMS SCALE

Work system was measured by 15-item questionnaire adapted from high performance work system checklist (HPWSC). The measure is a self-report scale that elicits information on how high performance work system can only be achieved through employees who display greater effort and behavioral attributes to help the firm succeed (Guest, 1997). The scale is a five-point Likert response scale ranging from 1 (strongly disagree) to 5 (strongly agree). The survey has a Cronbach alpha of 0.87.

2.WORKPLACE HAZARDS SCALE

Workplace hazards scale was measured by 20-item questionnaire adapted from hazards identification checklist (HIC). The measure helps to identify the potential hazards to workers' safety and health from manufacturing, installation and maintenance to decommissioning and recycling. Scoring was based on a five-point Likert format ranging from 1 (strongly disagree) to 5 (strongly agree). The reliability test yielded internal consistency co-efficient of 0.73. Additionally, it gives examples of the type of action at a technical, organizational and individual level that can be put in place to prevent or reduce the risks.

3.EMPLOYEE'S BEHAVIOR SCALE

Employee's behaviour was measured by 20-item instrument designed by Fox, Spector, Goh, Bruursema, & Kessler, (2010) to assess the frequency of organizational citizenship behaviors performed by employees. The items have quite satisfactory psychometric properties to measure employee bahaviour in work organization. Respondents were instructed to rate the seriousness of each behaviour based on a five point Likert scale ranging from 1, Never, to 5, Every day. The survey has a Cronbach's alpha of 0.89.

PROCEDURES

A total of 120 questionnaires were distributed, 112 returned (93.3%) with 8 not properly completed and were discarded, giving a response rate of 93.3%. The responses were received over a period of two weeks and were used for data analysis. Data analysis was done through one-way analysis of variance (ANOVA) and independent t-test. The stated hypotheses were tested at 0.05 level of significance.

ETHICAL CONSIDERATIONS

Authorization was sought from the management of the organization before conducting the field work. Likewise, consent of the respondents were sought and obtained before the questionnaires were distributed. All the respondents were made to know that they are free to back out of the study at any point in time and that information obtained from them as well as their identities will be kept anonymous and strictly confidential.

RESULTS

Hypothesis 1: There will be a significant effect of work system on employee's behavior in work organization. The hypothesis was put to test, using analysis of variance. This was based on items measuring performance of work system and items measuring employee's behaviour. The results obtained from the test are summarized in table 2.

Table 2: ANOVA showing the effect of work system on employee's behaviour

Source of variable	***Sum of squares***	***Df***	***Means square***	***F***	***P***	***Remark***
Within group variance	142.405	98	1.238	8.800	0.000	Sig
Between group variance	43.578	13	10.839			
Total variance	185.983	111				

Source: Field Survey, 2012 Significant at P>.05

Table 2 revealed that there was a significant effect of work system on employee's pro-social behaviour in work organization (F = 8.800, df =13/98, P > .05). The result gives support to the hypothesis. Therefore, the first hypothesis was accepted.

Hypothesis 2: There is a significant relationship between workplace hazards and employee's behavior. The hypothesis was put to test, using analysis of variance. This was based on items measuring performance of work system and items measuring employee's behaviour. The results obtained from the test are summarized in table 3.

Table 3: ANOVA showing the relationship between workplace hazards and employee's behavior

Source of variable	***Sum of squares***	***Df***	***Means square***	***F***	***P***	***Remark***
Within group variance	151.949	92	1.321	4.998	0.001	Sig
Between group variance	12.842	19	6.551			
Total variance	164.791	111				

Source: Field survey, 2012 Significant at P>.05

Table 3 showed that there was a significant relationship between workplace hazards and employee's behaviour in the organization (t=4.998, df=19/92, P>.05). The result gives support to the hypothesis. Hence, the second hypothesis is accepted.

Hypothesis 3: There is a significant relationship among work system, work-related hazard and employee's behavior. The hypothesis was put to test, using analysis of variance. This was based on items measuring effect of work system and workplace hazards on employee's behaviour. The results obtained from the test are summarized in table 4.

Table 4: ANOVA showing the relationship among work system, workplace hazards and employee's behavior

		Sum of squares	***Df***	***Means square***	***F***	***P***	***Remark***
Work systems	**Within groups**	37.260	79	0.32	8.89	>0.05	Sig
	Between groups	11.532	32	2.90			
	Total	48.792	111				
Workplace hazards	**Within groups**	51.148	79	0.45	13.22		
	Between groups	23.519	32	5.90			
	Total	74.667	111				

Source: Field Survey, 2012 Significant at P>.05

The result from Table 3 shows that sum of squares between and within groups for work system is 11.532 and 37.260 respectively while that of the workplace hazards is 23.519 and 51.148 for between groups and within groups respectively. The mean square for work system between and within groups is 0.32 and 2.9. For workplace hazards, it is 0.45 and 5.9 respectively.

The degree of freedom (df) for both variables between and within groups is 32 and 79 respectively. The calculated F coefficient for both variables is 8.89 and 13.22 which comes out significant in both ways. Therefore, there is a significant relationship between work systems, workplace hazards and employees pro-social behaviour in work organization. The result gives support to the hypothesis. Hence, the third hypothesis is accepted.

DISCUSSION

Hypothesis 1 which stated that there will be a significant effect of work system on employee's behavior was accepted. The result showed that work systems are possible antecedent of organizational behavior. The finding support Rask and Johansson (2008) who noted that any organization that wishes to carry out its mission successfully must have functioning systems that allow the employees to carry out their work effectively. In line with this, Steijn (2001) reported that work systems are vital tools to influence quality of working life and attitude of workers.

More so, Linda, Mark and Marilyn (2006) and Kiwekete (2010) observed that improper workplace design, ill-structured jobs, mismatch between worker abilities and job demands, adverse environment, poor human–machine system design and inappropriate management programs sometimes cause workplace hazards which affect workers health and attitude to work. In situation where work system produce poor employee's behaviour and their health being greatly injured, their level of functioning at work will become greatly reduced. It is imperative therefore; that the work activities should be structured in a way that met the psycho-social needs of employees in order to become more efficient at work and to assist the organization in realizing their set goals and objectives resourcefully.

Hypothesis 2 which stated that there is a significant relationship between workplace hazards and employee's behavior was accepted. The result revealed that workplace hazards are organizational events which influence employee's behaviour and attitude to work especially in workplace that lack adequate compensation for victims. The finding corroborate with Weiss & Cropanzano (1996) who submitted that organizational events such as workplace accident, promotion, transfer, delay or cut in employees wages, etc that employees react emotionally to. In line with this, Driskill and Brenton, (2005) noted that employee's reaction to organizational events could be positive or negative. Positive reaction is beneficiary to both parties (employees and organization) however, negative reaction cause employees' withdrawal of behaviors that benefits the organization.

It is not gainsaying the fact that employee who is affected by workplace hazards and not adequately compensated will exhibits personal and work behavioural problems like bullying, absenteeism, sabotage, avoidance, dissatisfaction, resignation or turnover. It should be noted that negative personal and work behaviour may not bring about positive organizational outcomes. In situations where the employees adopt negative personal and work behaviours like absenteeism, apathy, dissatisfactions, tardiness irresponsibility, irritability demoralization and withdrawal from colleagues, efficient attainment of organizational goals cannot be guarantee. For this

reasons, organization may lose their customers to their competitor and may not receive expected income or profits.

Therefore, managers should be specifically concern with safety and welfare of employees of all categories through provision of practical measures of protecting the health of employees in workplace. On the other hand, employees should bear in mind the overall organizational goals and adopts cognitive coping behaviours such as positive thinking and actions when they sustained injury at work.

Hypothesis 3 which state that there is a significant relationship among work system, work-related hazard and employee's behavior was accepted. The result established that there exists a significant connection among work system, workplace hazards and employees behaviour. The finding upholds some of the principles of Tayloristic approach which assume that the way at which work activity is structured determines the nature of workers behaviour in work organization. To him, work activities should be broken down to simplest tasks in order to ensure rational utilization of organizational resources.

However, Niepce and Molleman (1998) opined that when workers are not allow to take responsibility, knowledge and authority needed for keeping machinery running and material flowing through the production system may result in organizational behavioural change which may reduce their effectiveness, commitment and dedication to work. In accordance to this, affective events theory (AET) suggested emotional relationship between employee's behaviour and things that happen to them at work. It further stated that work modelled includes hassles, autonomy, job demands, and emotional labour and uplifting actions of employee's reactions which therefore affects worker performance and satisfaction. This is consistent with Alter (2006) and Steijn (2001) who reported that work activities if not properly designed may generates workplace hazard which in turn affect both interactive and psychological wellbeing on employee's behaviour in work setting.

According to Driskill and Brenton, (2005), some employees are more likely to become emotional (externalizers) on the job; because they have a lower tolerance for job-induced frustration (My boss or my co-workers should handle it!). An employee (in his self-absorption) who is prone to outbursts may not realize that his behaviour makes others very uncomfortable, and therefore he ignores risks to his effectiveness in the short term and to his career in the long term. While some are more trusting and dismiss job failure and frustration more readily: perhaps they are more resilient than externalisers in this regard. More so, they prefer leaders who let them participate, and they are sensitive to organizational attempts to influence their thinking and behaviour. The study thus concludes that work system and workplace hazards can be relatively strong predictors of counter-productive workplace behaviours. Therefore, the key targets of managers should be how to make connection between work system, workplace hazards and employee behaviour.

CONCLUSION AND RECOMMENDATIONS

The study examines work systems, workplace hazards and employee's behaviour in Nigerian Eagle Flourmill Ibadan, Nigeria. Base on the finding conclusion are drawn; that if work system design and workers compensation for workplace hazards are deemed unfair or unjust, employees exhibit feelings of anger, dissatisfaction, outrage, and resentment and these feelings may result in employees' withdrawal of behaviors that benefits the organization and production deficiency. We consider this result to be of great importance for managers who seek to understand management implications of industrial workplace sabotage and counterproductive employee behaviour in organisations. However, this study recommends that:

i. Management should ensure that work activities is structured in a way that convene the psycho-social needs of employees in order to make them more efficient at work and to assist the organization in realizing their goals and objectives resourcefully. This can be achieved by combining three work system designs in structuring the tasks to be performed by employees in the workplace.

ii. Management should be concern with safety and welfare of employees of all categories through provision of practical measures of protecting the health of employees and adequate compensation scheme in workplace. It is hoped that when employees are given adequate support by their employers or when their needs are adequately met many of them will become more productive, less aggressive and happy to carry out their contractual task effectively.

iii. Employees should also bear in mind the overall organizational goals by adopting cognitive coping behaviours such as positive thinking when they sustained injury at work.

iv. Both parties (management and employees) should see work organization as a system with interactive parts and be sensitive to any attempts that may affect the functioning of any part of the system in order not to jeopardize the whole system.

v. The key targets of managers should be how to make connection between work system, workplace hazards and employee behaviour so as to increase productivity and maximize profits.

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