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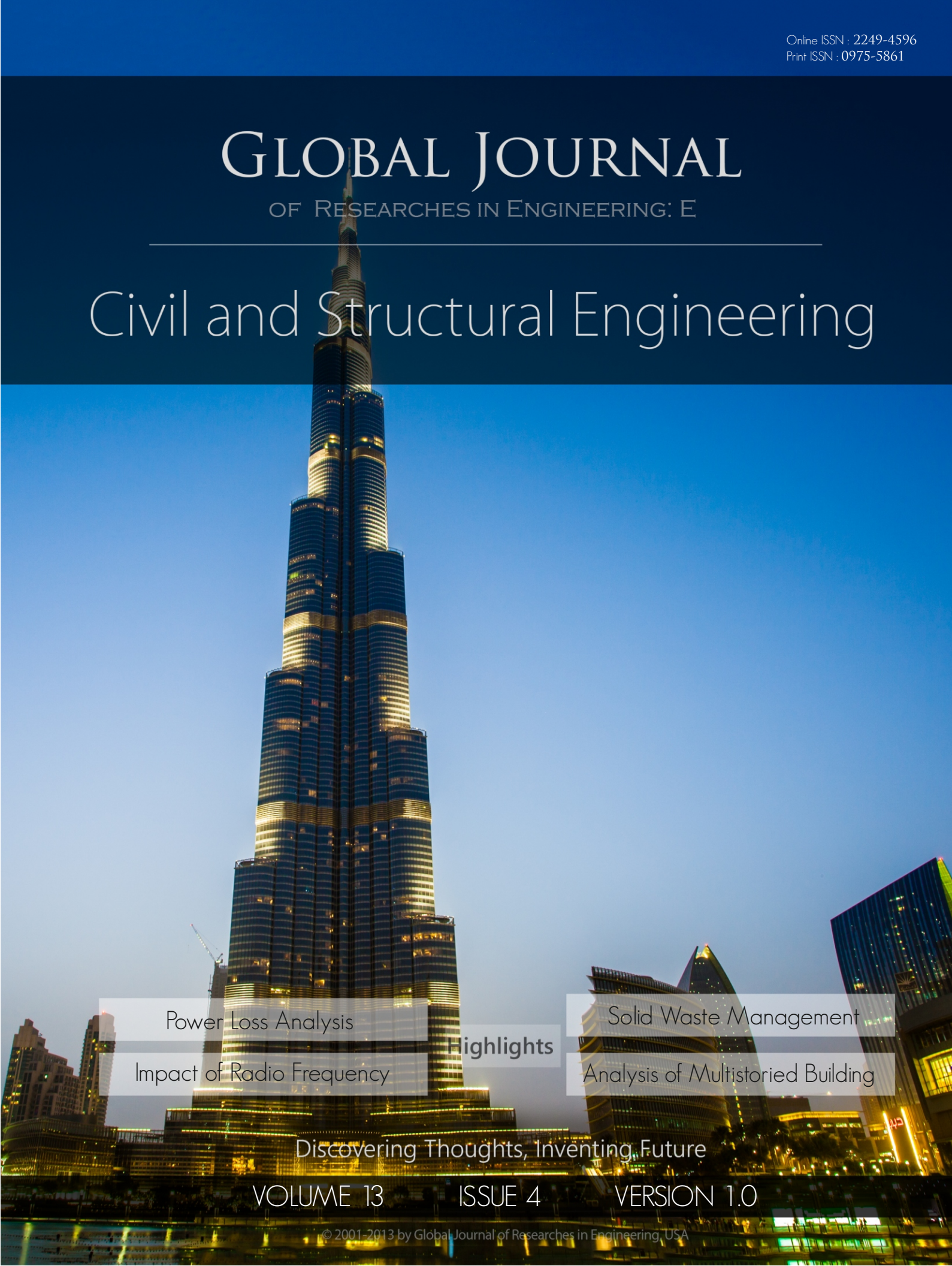

Power Loss Analysis

Impact of Radio Frequency

Highlights

Solid Waste Management

Analysis of Multistoried Building

Discovering Thoughts, Inventing Future

VOLUME 13 ISSUE 4 VERSION 1.0

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Solid Waste Management Strategy & Improvement of Existing Scenario Based on Market Waste

By Ebna Forhad Mondol, Md. Rokon Hasan, Md. Sayed Rahman, Salma Alam, Sm. Arifur Rahman & Tanisa Tasmim Sinthia

Khulna University of Engineering & Technology, Bangladesh

Abstract - Waste never a good part of the Environment, whether sometimes it is useful when it is recyclable. However in this present situation the waste liable for a lot of unwanted event. It degrades our climate, modifies our environment as well as create unsuitable situation. In many underdeveloped & developing countries still it is a major problem due to lack of proper management. This creates a lot of problems to the environment. Sustainable management for market solid waste is a concerning fact in Khulna city to lessen environment pollution and odor nuisances which are also contribute to the climate changes. This study helps to scrutiny the existing management process and introduces a new proposal of management process to abate environmental pollution. This study march by the following steps (1)The location and the covered area of the markets are resolve (2)The quantity and the types of waste produce in the market is analyze (3)The storage capacity and the collecting techniques is analyze (4) Management techniques (recycling, Viennese, BOD pending) proposed. The result of this study gives an idea for selecting place for the management. Here different pans are used for different waste storage and these are collect separately which reduce hazardous effect on the environment.

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Solid Waste Management Strategy & Improvement of Existing Scenario Based on Market Waste

Ebna Forhad Mondol [α], Md. Rokon Hasan [σ], Md. Sayed Rahman [ρ], Salma Alam [ω], Sm. Arifur Rahman [¥] & Tanisa Tasmim Sinthia [§]

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I. Introduction

Solid wastes are all those wastes that are useless, unwanted and cast off materials arising from production and consumption or from human and animal activities. Solid wastes are various types; generally it is categorized as municipal wastes, industrial wastes and hazardous wastes. Market solid wastes are also a kind of municipal wastes. Various types of waste are generated from market especially food wastes, paper, cardboard, plastics, textiles, rubber, leather, wood, glass, ferrous metals etc. For the lacking of proper management process these are hazardous for surrounding environment and also liable for climate change. For the developing countries like Bangladesh market waste management is a growing environmental and financial problem (Raman et al. 2013).The waste management practices and the issue of sustainable. Development in Khulna city markets are reviewed in this paper. The method adopted by the city corporation was found to be ineffective and fall short of international standards in waste management practices and sustainable development that showed by the study (Adewole et al. 2013). Increasing waste generation, and inefficient collection and transportation infrastructure system, the ingredients of waste and climatic condition were need to be considered in solid waste management (Visvanathan). For the management of Solid waste technical, economical and social aspects on a sustainability root are also need to be considered because it is a multifaceted and multidisciplinary problem (Alamin et al. 2013). A complete understanding of the composition of a waste stream as well as the activities that determine its generation place requires for effective solid waste management (Rahman et al. 2013). Proper Storage, efficient collection and disposal of the solid waste that are generated from market area are essential components of the support services and facilities that must be preferred in management planning. Proper Solid Waste Management Plan provides a complete way and sets a path to achieve new waste minimization, diversion and disposal targets (Roy, 2013).

The main motive of this study is to introduce a sustainable management process for market solid wastes which is beneficial in economic consideration and defend the environment from its harmful effect.

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Figure 1 : Waste Dump Sites in Khulna City

II. Generation of Waste & Existing Management Process

This study began with an interior policies and steps related to the Khulna city corporation sustainability and waste management. Also external documents including government rules, directions and various solid wastes composition were studies. In this study six markets in Khulna city are analysed including Doulotpur Bazar, New market Bazar, Boyra Bazar, Fulbarigate Bazar, Mistripara Bazar and Khalispur Bazar. At first the geographical location of the markets were seen and their covered area noted. By investigating each of these six markets it is seen that about 13-15 tons solid wastes are generated in per day. It is also scrutiny that about 83%foodwaste,6%paper,5%plastics,2%ferrousmetals,1. 5%wood,0.7%glass, 0.6% card board,0.5%textiles, 0.4%rubber, 0.3%leather is produced total of wastes per day in each market. Following typical diagram shows the average percentage of various waste produce in each of the markets.

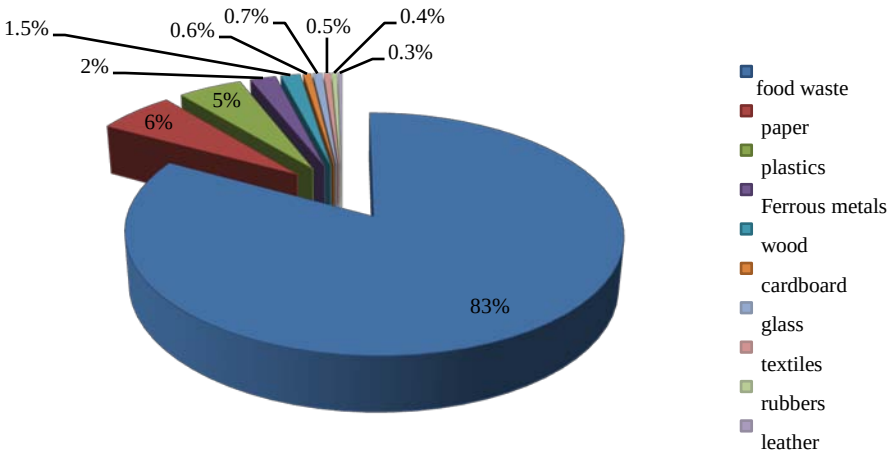

Figure 2 : Percentage of wastes in the Markets of Khulna City Corporation

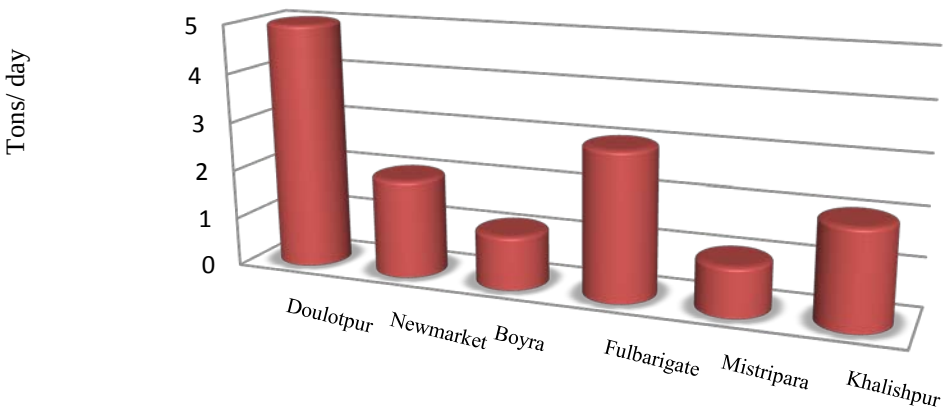

Figure 3 : Summation of wastes in the Markets of Khulna City Corporation

The existing management process in these areas is shown by flow diagram.

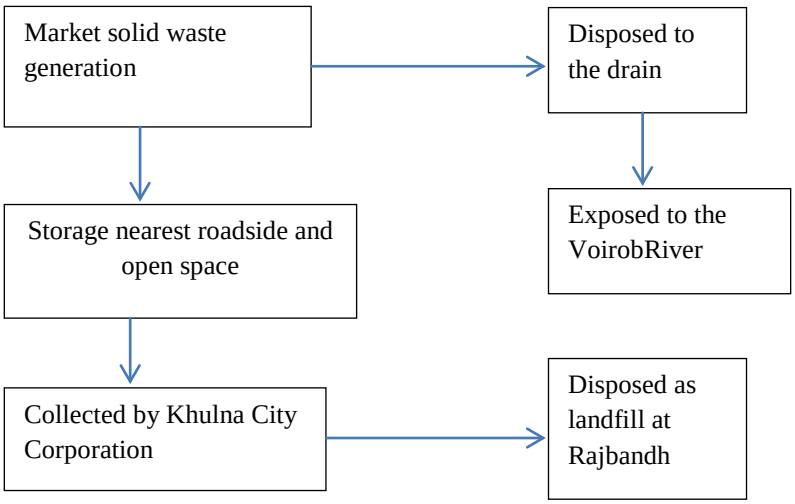

Figure 4 : Existing management process of solid waste

III. New Proposed Management Process

New proposed management process progressed by the following diagram.

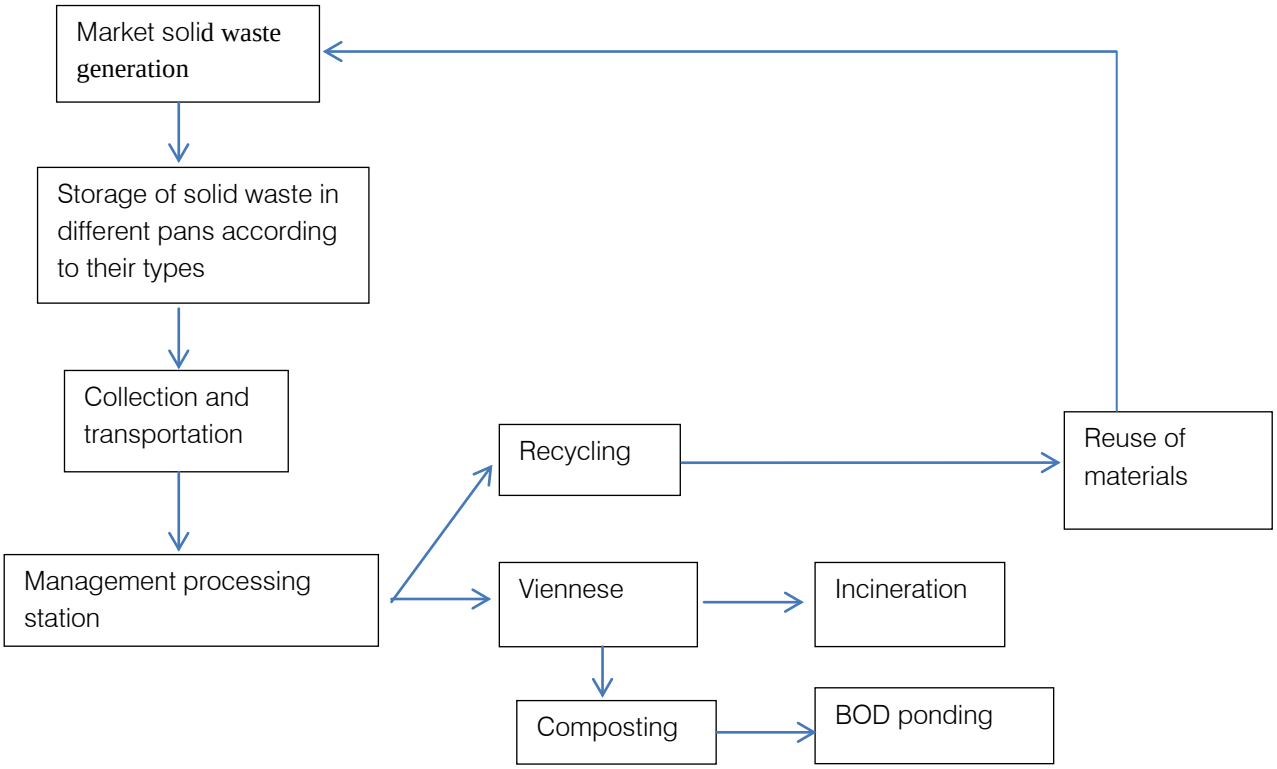

Figure 5 : Proposed management process of solid waste

In this process, firstly the types of wastes that are generated from market are recognised and these are stored separately in different bins according to their types. Then the wastes are separately collected in proper ways and transported to the processing station. Recyclable materials such as newspaper, bottles, plastic, containers, broken glass, cans, polythene etc. are prefer in recycling process and after recycling reuse the materials. Other wastes are preferred in Viennese process. In Viennese process wastes are separated in two categories (a) residual waste (b) bio waste. Residual wastes transfer into incineration plant and Bio wastes into compost. These compost are then disposed in BOD pending where oxidation occur by natural oxygen.

IV. Conclusion

Environmental policy issues for market solid wastes management in Khulna are criticized in this

paper and focus on weak points in the criteria used by pertinent studies for the storage of solid wastes. To ensure better human health and safety of workers involving in the process of waste disposal, effective solid management system is needed and it must be economically sustainable. By recycling in this management process, materials can be reused which is economical. In BOD pending process naturally oxidation takes place which is also economic and able to minimize environmental hazard. This study tried only to unfold a theoretical model for better solid waste management in Khulna city markets. To investigate the possibility of this model, a complete empirical study is necessity. This study will also prepare the platform for additional study and exploration of the market solid waste management.

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Pushover Analysis of Multistoried Building

By Ms. Nivedita N. Raut & Ms. Swati D. Ambadkar
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Abstract - A large number of multi-storey reinforced concrete (R/C) framed building structures in urban India are constructed with masonry in fills for architectural, aesthetic or economic reasons. We have investigated the effect of the layout of masonry infill panels over the elevation of masonry in filled R/C frames on the seismic performance and potential seismic damage of the frame under strong ground motions using nonlinear static push-over analysis based on realistic and efficient computational models. From output non-linear analysis, we compare Base shear and Displacement in bare frame, in fill wall frame and ground, it seen that at roof level, displacement in bare frame is more than other two frames and displacement at ground floor in weak story is more than other two frames. Mostly hinges are formed in beam than in column.

Keywords : pushover analysis, infill wall, soft story, non-linear analysis, bare frame, seismic performance.

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Keywords : pushover analysis, infill wall, soft story, non-linear analysis, bare frame, seismic performance.

I. Introduction

Nonlinear static analysis, or pushover analysis, has been developed over the past twenty years and has become the preferred analysis procedure for design and seismic performance evaluation purposes as the procedure is relatively simple and considers post elastic behavior. However, the procedure involves certain approximations and simplifications that some amount of variation is always expected to exist in seismic demand prediction of pushover analysis.

Although, in literature, pushover analysis has been shown to capture essential structural response characteristics under seismic action, the accuracy and the reliability of pushover analysis in predicting global and local seismic demands for all structures have been a subject of discussion and improved pushover procedures have been proposed to overcome the certain limitations of traditional pushover procedures. However, the improved procedures are mostly computationally demanding and conceptually complex that uses of such procedures are impractical in engineering profession and codes.

As traditional pushover analysis is widely used for design and seismic performance evaluation purposes, its limitations, weaknesses and the accuracy of its predictions in routine application should be identified by studying the factors affecting the pushover predictions. In other words, the applicability of pushover analysis in predicting seismic demands should be investigated for low, mid and high-rise structures by identifying certain issues such as modeling nonlinear member behavior, computational scheme of the procedure, variations in the predictions of various lateral load patterns utilized in traditional pushover analysis, efficiency of invariant lateral load patterns in representing higher mode effects and accurate estimation of target displacement at which seismic demand prediction of pushover procedure is performed.

a) Analysis and Design

The recent advent of performance based design has brought the nonlinear static pushover analysis procedure to the forefront. Pushover analysis is a static, nonlinear procedure in which the magnitude of the structural loading is incrementally increased in accordance with a certain predefined pattern. With the increase in the magnitude of the loading, weak links and failure modes of the structure are found. The loading is monotonic with the effects of the cyclic behavior and load reversals being estimated by using a modified monotonic force-deformation criteria and with damping approximations. Static pushover analysis is an attempt by the structural engineering profession to evaluate the real strength of the structure and it promises to be a useful and effective tool for performance based design. The ATC-40 and FEMA-273documents have developed modeling procedures, acceptance criteria and analysis procedures for pushover analysis. These documents define force-deformation criteria for hinges used in pushover analysis. As shown in Figure 5.1, five points labeled A, B, C, D, and E are used to define the force deflection behavior of the hinge and three points labeled IO, LS and CP are used to define the acceptance criteria for the hinge. (IO, LS and CP stand for Immediate Occupancy, Life Safety and Collapse Prevention respectively.) The values assigned to each of these points vary depending on the type of member as well as many other parameters defined in the ATC-40 and FEMA-273 documents. This article presents the steps used in performing a pushover analysis of simple three-dimensional building.SAP2000, a state-of-the-art, general-purpose, three-dimensional structural analysis program, is used as a tool for performing the pushover. The SAP2000 static pushover analysis capabilities, which are fully integrated into the program, allow quick and easy implementation of the pushover procedures prescribed in the ATC-40 and FEMA-273 documents for both two and three-dimensional buildings. Pushover analysis is performing for old as well as new building. In our case we consider the new

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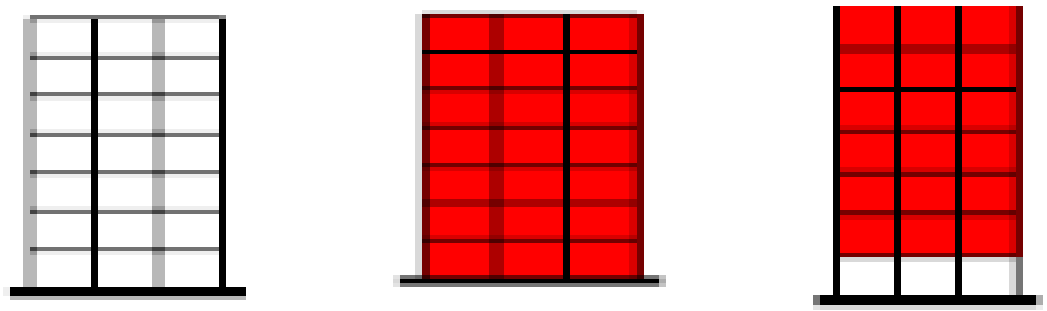
building so, first Analysis G+6 Residential building and Design by SAP2000 V11.0 software. Design sections of Beam, Column are take input for Nonlinear Static analysis. Architectural layouts and structural framing plans of masonry infill R/C framed building constructed in practice, the following reprehensive and practically relevant structural configuration of a planer masonry infill panels over the frame elevation were identified for the nonlinear static analysis

(a) Bars frame considering the dead weight of the masonry infill panels while disregarding their effect

structural contribution in the nonlinear static analysis, a hypothetical case consistent with the prevalent design practice.

(b) Completely infill frame

(c) Masonry in filled frames without infill panels in the ground storey (i.e. 'open' or 'soft' storey at the ground level corresponding to building supported on stilt columns) with the open ground storey designed for horizontal seismic base shear computed using the response spectrum method degrading the 'soft' storey



(a) (b) (c)

b) Properties

Material properties and design parameter for masonry infill wall

Masonry prism strength (Mpa) f'm	Masonry prism strength	Compression strength of in fill	Allowable shear strength	Coefficient of friction of frame in fill surface	Thickness of masonary in fill (mm)	Density(KN/ CUBIC M)	Initial elastic modulus (Mpa)
10	0.002	0.6 f'm	0.05f'm	0.3	230	20	5500

c) Properties of Grade of Concrete and Steel

Grade of concrete = M20
Grade of steel = Fe415
Density of concrete = 25kN/m^3

BEAM	
B1	230 x 700

d) Seismic Coefficient for Response Spectrum method

1. Seismic Zone v, Zone Factor 0.36
2. Medium soil, Soil type II
3. Residential building, Importance factor 1
4. Response reduction factor (SMRF) 5
5. Loads on Frame:

i). Dead Load of External Wall = 13.80 KN/M^2
ii). Dead Load of External Wall =6.90 KN/M^2
iii). Floor Finish= 0.75 KN/M^2
iv). Live Load on Floor = 3.0 KN/M^2
v). Live Load on Roof = 1.5 KN/M^2

e) Plan of Building

Size of Beam and Column:

All Dimension in mm

Slab thickness = 125mm

COLUMN	
C1	230 x 700
C2	300 x 1000

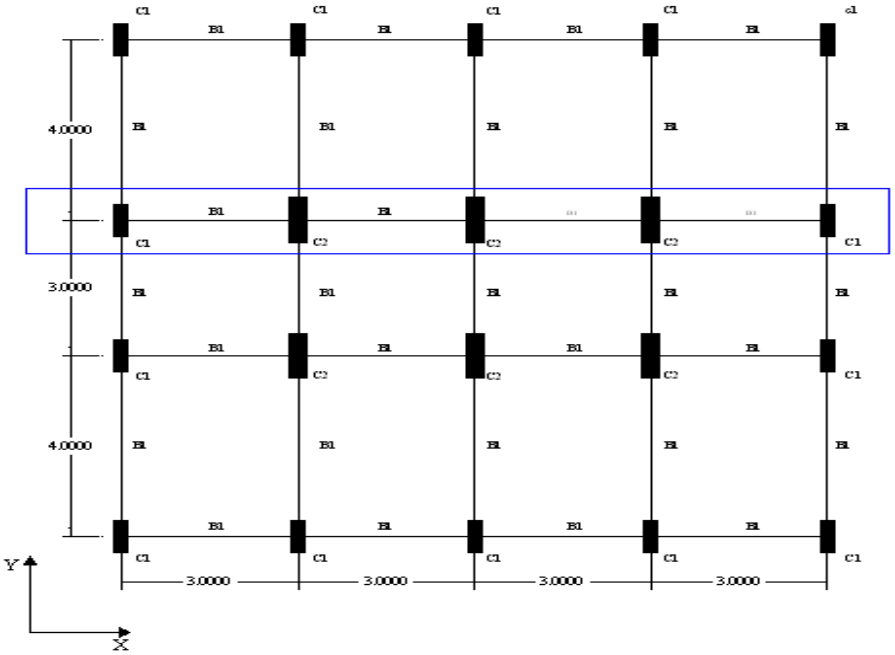


Figure 1 : Sectional Elevation along Y-Direction

II. Results & Discussion

Table 1: Comparison between Bare Frame, Infill Wall frame and Weak storey frame

BARE FRAME				INFILL WALL			WEAK STORY		
Step	Displace-ment	Base Force	Story Shear	Displace-ment	Base Force	Story Shear	Displace-ment	Base Force	Story Shear
	M	KN	KN	m	KN	KN	M	KN	KN
0	2.97E-06	0	11992.32	2.97E-06	0	35808.585	2.97E-06	0	26326.93
1	0.00958	998.235	11992.32	0.005923	1453.227	35808.585	0.01256	1453	26326.93
2	0.013547	1258.552	10994.08	0.011458	3254.491	34355.358	0.01355	2213	24873.71
3	0.05683	1910.125	9735.532	0.05683	6258.258	31100.867	0.08625	4258	22660.46
4	0.138688	2005.568	7825.407	0.115645	7207.032	24842.609	0.13523	5896	18402.34
5	0.168203	2562.258	5819.839	0.12389	8721.291	17635.577	0.15498	6135	12506.65
6	0.269185	3257.581	3257.581	0.127093	8914.286	8914.286	0.1682	6372	6371.674

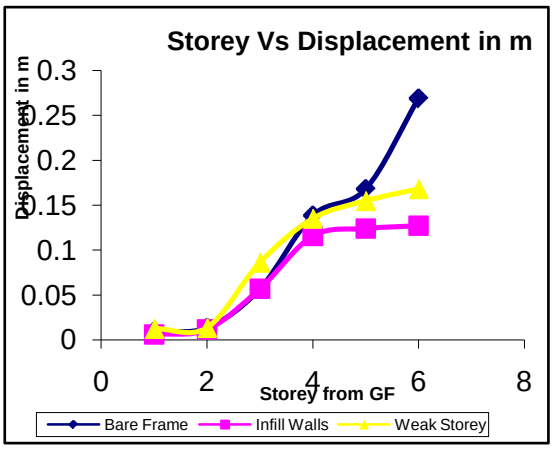


Figure 2: Story Level Vs Displacement Curve

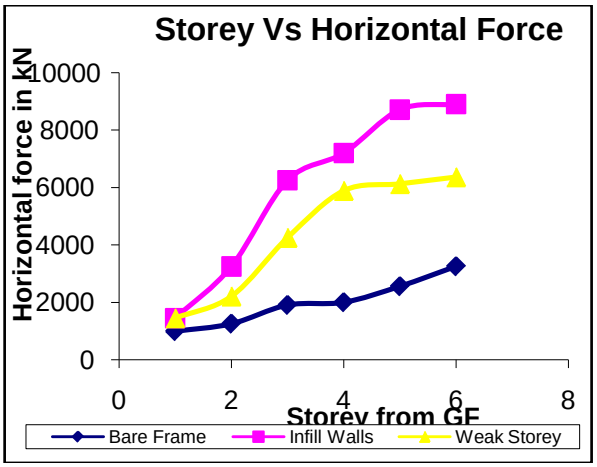


Figure 3 : Story level Vs Horizontal Force Curve

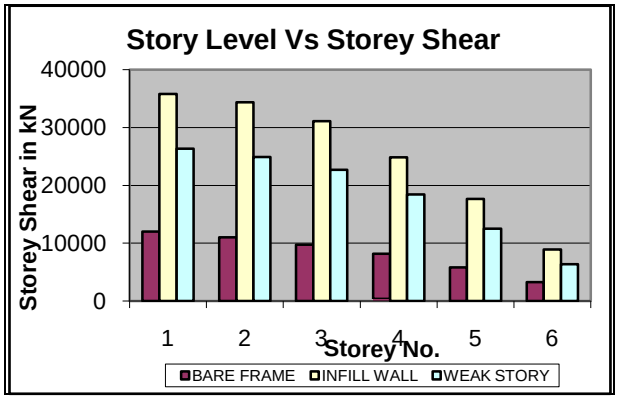


Figure 4 : Story No Vs Story Shear Curve

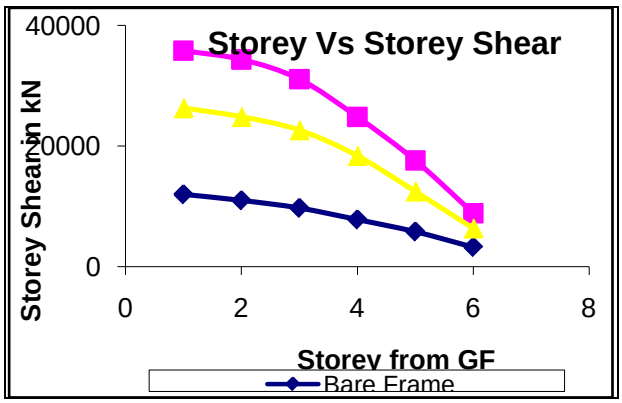


Figure 5 : Story Level from Ground Floor Vs Story Shear

III. Conclusion

The result of the nonlinear static pushover analysis quantitatively establish that the seismic performance of a masonry infill R/C adversely and significantly affected if the infill panels were discontinued in the ground story resulting in the structural configuration with an open story, commonly termed as 'weak' story , at the ground levels. Hinges formation in the beam is more than column and demonstrates rational nonlinear displacement-based analysis methods for a more objective performance-based seismic evaluation of the masonry infilled R/C frames with seismically undesirable (and preferred) distribution of masonry infill panels over the frame elevation.

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Impact of Radio Frequency Identification (RFID) Technology on Supply Chain Efficiency: An Extensive Study

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GJRE Classification : *FOR Code: 130212p, 090599*

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Abdul Kadar Muhammad Masum [α], Faruk Bhuiyan [σ] & Md. Abul Kalam Azad [ρ]

Abstract - **Wireless technologies such as Radio Frequency Identification Devices (RFID) and Global Position System (GPS) play important role as value added services in information systems based Supply Chain Management (SCM) these days. The aim of SCM is to produce, distribute, logistics and deliver goods and equipment in right location, right time, right amount to satisfy costumers, with minimum time and cost waste. So implementing techniques of RFID in SCM that reduce project time and cost, and improve productivity and performance is very important. The purpose of this study is to explore the benefits and liabilities of the use of this technology in supply chain operations and its benefits is centered on goals relative to the optimization of logistics activities; specifically related to inventory management, bullwhip effect, replenishment policies and Order Fulfillment Manufacturing Flow Management. Besides, a brief analysis of return-on-investment (ROI) to RFID implementation in supply chain operations are identified and discussed. Finally, the challenges that interrupt the successful implementation of RFID to accelerate the performance of supply chain are also explored.**

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I. Introduction

Radio Frequency Identification (RFID) is an automatic identication and data capture technology which is consisted of three elements: a tag formed by a chip connected with an antenna; a reader that produces radio signals and receives in return answers from tags, and finally a middleware that bridges RFID hardware and enterprise applications [1]. Tags can be either active (using a battery to broadcast a locating signal) or passive (using power from the RFID reader for location). A firm may use a grouping of fixed and hand-held readers for reading RFID tags to gain as complete a picture as has ever been possible on exactly what is in their store and where it is. Because the tag sends an electronic signal, it can convey information when buried under several layers of products and shipping material, through concrete walls or even underwater [2]. With this degree of visibility, it is feasible to electronically read an entire pallet or truckload of material in seconds by passing the products through an RFID reader. Tags also can withstand dirt or moisture better than printed barcodes. Reading and writing distances range up to 100 feet, and tags can be read at high speeds. A typical supply chain consists of supplier, manufacturer, distributor, retailer, and customer. This could be multiple tiers of suppliers, manufacturers and distributors. Through RFID, it provides a real-time communication with numerous objects at the same time at a distance places without contact or direct line of sight [2][3]. With RFID systems, companies would have improved product traceability and visibility, decrease out-of-stock items, trim warehouse costs, eradicate stock errors, diminish theft and shrinkage and allow companies to regularly update their logistics and inventory databases. Current applications of RFID focus on inventory management, logistics and transportation, assembly and manufacturing, asset tracking and object location, environment sensors, etc. [4]. Some sectors have more opportunity to gain from the various RFID applications, such as retail, healthcare, textile, automotive and luxury goods industries [5].

In this study, we have examined the role of RFID technology as parts of a comprehensive supply chain strategy that directly support the effectiveness and efficiency of SCM. In the next section, section 2, we have extensively examined the previous research on effectiveness and efficiency of RFID in SCM. Section 3 includes the goal of study. Rationality of the study and methodology are described in section 4 and 5 respectively. In Section 6, we have identified a consolidated list of RFID benefits or success variables that firms are able to gain by embracing RFID in their supply chains. Section 7 identifies success factors for implementing RFID in SCM. In section 8, we have discussed Return-on-Investment (ROI) of RFID in SCM for enterprises in detail. In section 9, various business, technical and strategic challenges such as costs, issues regarding standards, security, government concerns, and strategic alignment are discussed in detail. The last section presents conclusions.

II. Literature Review

RFID is an emerging technology that has been progressively more used in logistics and SCM in recent

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years. It offers the potential to greatly improve supply chain performance due to its ability to provide rich and timely information that increases visibility and control over the supply chain. The applications of RFID in SCM have vast potential in improving effectiveness and efficiencies in solving supply chain problems. Bagchi [5] reported the prediction of RFID growth as from $1 billion in 2003 to $4 billion in 2008 to $20 billion in 2013. Srivastav [6] reported that after the deployment of RFID technologies, Procter & Gamble and Wal-Mart concurrently decreased inventory levels by 70%, improved service levels from 96% to 99%. They also reduced administration costs by re-engineering their supply chains. In a literature review on Build-to-Order Supply Chain (BOSC) management, Gunesekaran and Ngai [7] highlight RFID technology as one of the important information technologies for BOSC that increases efficiency and accuracy. They analyze qualitative and quantitative development of the knowledge in this area [8]. Chao [9] reviews the literature on trends and forecast of RFID technologies from 1991 to 2005 by a historical review method and bibliometric analyze. They focus on the RFID innovation, deployment by enterprises and market diffusion in SCM. Recently, Delaunay [10] presents a survey on the causes of inventory in accuracy in SCM. Dolgui and Proth [11] also present a literature review on RFID technology in supply chain. They focus on the advantages of this technology in inventory management. They also analyze some problems and present perspectives dealing with privacy and authentication properties of it. Many companies, particularly small-medium enterprises, have reported that RFID is extremely costly in their supply chain. The cost of acquiring, installing, and maintaining an RFID system has been a major and often determining factor in the deployment of RFID in the commercial sector. Despite the arguments about the cost-benefit analysis of RFID implementation among the supply-chain partners [8], the potential advantages of RFID have prompted many companies to aggressively pursue this technology as a way to improve their supply chain, and thus, reduce costs and increase sales. According to The Institute of Electrical and Electronics Engineers, the estimated value of the entire RFID market will grow to over $25 billion by 2017 [6]. Several studies have investigated important benefits that businesses are able to obtain by embracing RFID technology in their supply chain management. Supply chain cost that includes receiving, inventory, shrinkage, distribution, logistical delays, and out-of-stock merchandise is often cited as a major factor influencing RFID adoption. The contribution of this technology to supply chains is not only in increasing the efficiency of systems but also in supporting the reorganization of the systems that become more efficient.

iii

III. Objectives of the Study

The main objective of the study is to investigate the role of RFID technology to improve the efficiency of the firms' own supply chains. To attain the main the main objective, the specific objective of the study are as follows:

i. To identify the benefits of RFID-enabled supply chain;
ii. To analyze the return that flows from this technology based integrated supply chain; and
iii. To explore the issues those create obstacles to enjoy the benefits of RFID supportive supply chain.

IV. Rationale of the Study

Supply chain management plays a great role in the 21st century for the success of domestic and global companies. RFID technology has an extensive role in supply chain operations. This technology is able to accelerate the performance of supply chain. As a result, todays firms than ever emphasis on the application of this technology to their own supply chains (SC). With the importance of this technology in supply chain management, many authors have tried to write on this matter. Many articles have been published in different popular journals. But among them, a few articles explore the reality of this technology in SC. Here, we have tried to describe extensively, the role of this technology to improve the SC performance and ultimately in the success of firms.

V. Research Methods

To satisfy our objectives of the study, descriptive research method is followed. By considering time, money and distance constraints, our attempt is based largely on secondary data. Here, we have tried to study literature extensively in the areas of supply chain management, logistics, RFID technology, and inventory management published from 1995 to 2012. Data and information from secondary sources were collected by reviewing different published articles, online journals, working papers, existing case studies and websites.

VI. Benefits of RFID-Enabled Supply Chains

RFID technology offers several contributions to supply chain through their advanced properties such as unique identification of products, easiness of communication and real time information [12] [13]. It can improve the traceability of products and the inventory visibility throughout the whole supply chain, and also can ensure reliable and speed up tracking,

shipping, checkout and counting processes, which leads to improved inventory flows and more accurate information. Among a number of benefits, we are particularly interested in some problems of supply chain management that can be improved through RFID:

a) Inventory Inaccuracy and RFID

Inaccuracy problems in inventory management are important in supply chain management. Although many companies have automated their inventory management using information systems, inventory levels in information systems and the real physical inventory levels often do not match [15]. The difference between these inventory levels is called inaccuracy and can deeply affect the performance of firms. Nagi [16] report that 65% of the inventory records in retail stores were inaccurate. The result was obtained in a case study, by examining about 370,000 inventory records from 37 stores of an important retailer (Gamma). The reasons of inventory inaccuracy fall usually in four categories:

(a) Transaction errors were introduced in inventory management by Iglehart and Morey [17]. Several authors followed this study [18]. Transaction errors include shipment errors, delivery errors, scanning errors and also incorrect identification of items [19].
(b) Shrinkage (named also stock loss) errors include all types of errors that cause loss of products ready for sale. There are several studies on this subject. According to a retail survey report of the University of Florida, shrinkage errors represent 1.69% of sales for retailers [21]. Shrinkage errors include employee theft, shoplifting, administration and paperwork errors, vendor fraud and unavailable products for sale. Theft represents an important part of shrinkage errors. There are several studies on internal and external theft in supply chains. According to the previous studies, theft levels represent about 1-2% of total sales [22].
(c) Inaccessible inventory can be explained as products which are not in the correct place and are not available for customers. Inaccessible inventories, called also misplaced items, have been studied by many authors. Employees can put products in wrong shelves or customers can set an item that they took from a shelf to another shelf. If misplaced items are found too late and become out of date, mode or season, the inaccessible products become unsalable products and thus cannot be sold. Nagi [16] present a case study where misplaced items reduced profits by 25%. Product quality, yield efficiency and supply process can affect inventory accuracy.
(d) Incorrectly labeled items. This may happen when wrong labels are attached to items [23].

RFID technologies provide better product traceability through its real time data capture properties that enable improvements in the supply chains against these inventory inaccuracy errors. It is in particular very successful to eliminate transaction errors [24]. Although RFID cannot eliminate all errors, they can be detected quickly and by considering the existence of this problem in planning processes, they can be dealt with effectively. Several authors were interested in RFID technologies to be able to eliminate these errors.

b) Bullwhip Effect and RFID

RFID users have promised greater visibility to their supply chain partners. This visibility should help in reducing the supply chain inventory waste and lack of product availability caused by the Bullwhip effect. The bullwhip effect is an important phenomenon of supply chain management. It was explained by Stevenson [25] that the demand variations of the customer become increasingly large when they diffuse back-wards through the chain. The bullwhip effect was first introduced by Forrester [26]. He observed a fluctuation and amplification of demand from the downstream to the upstream of the supply chain. He stated that the variance of the customer demand increases at each step of the supply chain (customer, retailer, distributor, producer, and supplier). Furthermore, he concluded that the main cause of this amplification is the difficulties in the information sharing between each actor of the supply chain. Kok et al. [27] present a study of Philips that was conducted a project on bullwhip effects in some of its supply chains and developed a collaborative-planning tool to reduce inventory and increase customer service levels. The results of this project showed important savings; minimum yearly savings of around US $5 million from $300 million yearly turnover. More recently, Lee et al. [19] deal with this subject. They present two main sources of bullwhip effect. The sharp variance of customer demand for seasonal items complicates the down-stream actors' purchasing. Batching continuous orders in the periodic ordering systems cause demand variance up to the supply chain. He also reports that the bullwhip effect can significantly be reduced through information sharing.

c) Replenishment Policies and RFID

In inventory management, replenishment policies are very important methods for determining the frequency and the size of orders to maximize customer satisfaction with low ordering, holding and stock-out costs. There are several replenishment policies under continuous or periodic review inventory systems. Companies try to choose the best policy for them. Inventory replenishment decisions are made based on inventory levels in the information system. Real-time inventory information obtained by RFID technologies ensures the accuracy of these levels. Hence, companies may change their replenishment strategies. The effects of RFID technologies on replenishment policies have

been studied by many authors. Kok [27], Lee et al. [19] and Kang and Gershwin [15] are some of them.

d) Inventory Invisibility and RFID

The automatic identification of products inside the store would increase the inventory visibility and its accuracy. This will have an impact in four fronts: shrinkage, customer service, stock outs and inventory levels. Reduce shrinkage levels, increase profits. Customer service and the shopping experience can be enhanced by providing complementary applications enabled by RFID [7]. Stock out levels can be reduced as consequences of the improved inventory visibility. Reduced stock outs improve sales and ultimately, increase profits. Decreased stock outs levels also increase the customer service. Finally, inventory levels can be reduced, increasing the ROI.

RFID has better defect tracking and recall management facilities. If a product is discovered to be defective after it has been delivered to the consumer, RFID-generated data can be used to analyze the product life cycle in the supply chain. This information can potentially be used to discover where the defect was mostly likely introduced and determine what products need be recalled

e) Order Fulfillment and RFID

Order fulfillment is a key process in meeting customer requirements and improves the effectiveness of supply chain [9]. RFID will enable process automation in picking, shelving, cross-docking, implementing consolidation operations and reduce costly logistics mistakes such as sending an item to a wrong destination and not dispatching the right item at the right time [6]. Such process changes will reduce the cost of operations. RFID technology enables suppliers to accurately determine the location of a pallet, to track its journey through the supply chain, and to make instantaneous routing decisions. . For instance, RFID portals, mounted in strategic points in the distribution center, can be used to read tags and automatically update inventory quantities as tagged cases and pallets enter the center. The incoming merchandise will be matched against the correct purchase order and discrepancies will be identified much more easily. The process freedom will be attained in freeing up labor-intensive manual labor involved in the quantity check-in and receiving processes [3].

f) Manufacturing Flow Management and RFID

line will certainly reduce cycle time and increase production throughput. With enhanced process automation and tracking capabilities enabled by RFID, the velocity and visibility of products in the supply chain will likely improve [11]. This process will help manufacturers with their just-in-time (JIT) assembly lines. Procter & Gamble (P&G) believes that RFID technology can help the company to track where every item is in the manufacturing process and supply chain. P&G expects the cost saving of up to $1 billion in working capital and $200 million in inventory carrying costs with its RFID implementation [2]. Lee [19] believes that the bottom-up approach, i.e., starting with the operating characteristics of the processes, is a sound way to assess the value of RFID.

VII. RFID Implementation Success Factors

Several studies have identified factors that contribute to the success or failure of a large system development project. For example, Vatanasombut and Gary [29] identified 51 success factors that contribute to the success/failure of data warehousing projects. Sammon and Finnegan [30] recommend ten-commandments of data warehousing success. DeLone and McLean have reviewed the definitions and classified six major categories of an information systems success and the corresponding measures. A multidimensional measuring model was used to distinguish between the different success categories [31]. Other researchers have provided lists of critical success factors. Based on these studies and the review of other RFID papers [32][4][6][11][16][23] eleven critical implementation factors have been chosen to represent the prominent influences of RFID adoption by companies:

1. Clearly defined business needs/benefits
2. Proper planning/scoping
3. Measurable business benefits (ROI)
4. Adequate funding
5. Partnership with competent technology providers
6. Integrating RFID into a company's existing IT architecture
7. Determining which practices should be incorporated into their RFID systems
8. Improved shipment accuracy
9. Improved inventory accuracy
10. Project management (teamwork)
11. Proper staff training and participation

VIII. Return-on-Investment (ROI) of Rfid Implementation in Supply Chains

ROI analyzes are conducted to evaluate whether an investment is profitable on a period of time. They have often been studied through analytical models, simulations, case studies and experiments. As mentioned before, RFID technologies can provide several benefits on supply chains; cost reduction such as labor cost, inventory cost, process automation, or efficiency improvements and value creation such as increase in revenue, or increase in customer satisfaction [33]. However, the cost of RFID is still larger than current identification technologies [34] and companies must decide whether to invest or not to acquire RFID technologies.

One of the major challenges that adopters of RFID have been faced with is whether or not their investments in the technology will generate a positive return on investment [35]. This is a critical benefit for adopters of the technology to realize in itself, but also if the final type of outcome that of operational deployment is to be realized. Given limited industry experience with RFID, there is much ambiguity and complexity surrounding implementation costs and the subsequent return on investment (ROI) [36]. Users may find RFID solutions more costly than expected [37], especially if they are evaluating product level tagging given current tag costs [38]. Subsequently, ROI for RFID solutions may be unclear [39], and payback may be extremely lengthy (e.g. more than five years) [40]. Companies considering RFID should realize that the true costs of RFID solutions extend well beyond tags and readers [41] to include software, additional hardware, process reengineering, solution testing, and implementation. For example, system costs not only include middleware and systems integration but also changes to existing corporate (e.g. ERP, supply chain) applications. Additionally, users may need additional servers to support the middleware as well as the voluminous amounts of data generated by RFID solutions.

The Return-On-Investment for RFID may be longer than some users and early adopters are prepared to wait. The ARC Advisory Group [11] found that 95% of companies surveyed expect a positive ROI for RFID to be more than two years out and that "more efficient warehouse receiving and better management of inbound materials may have to wait until companies have been able to negotiate with their upstream suppliers to engage in more RFID tagging." In order to get a real Return-On-Investment on RFID, the collected data should be coming from multiple sources- upstream and downstream. Manufacturers who only use RFID as a high-tech replacement for bar codes will only see limited benefits [30]. Efficient deployment of RFID technology requires that all supply chain partners- suppliers, manufacturers, and distributors- look at RFID as an enabler of doing business differently, and to solve key customer issues or gain a competitive differentiator [26]. In order to assess the value of implementing the Return-on-Investment, an organization needs to consider not just the cost of the RFID tags, tagging its products, developing an RFID infrastructure, and so on. A recent Gartner survey [23] shows increasing interest in RFID for warehouse processing and inventory management. The next step is expanding RFID further downstream in the supply chain and at the source. In 2012, 58% of apparel executives planned to increase their RFID budget. Gartner points out in its Hype Cycle that: "Apparel companies that have been watching and waiting for proven benefits are beginning to feel the tug of RFID moving into mainstream retailers, and are investing more to investigate and pilot RFID during the coming year" [8].

IX. Challenges of RFID Supportive Integrated Supply Chain Management

Although RFID-enabled supply chain generates a number of positive issues, yet it is suffered from various pitfalls. These pitfalls interrupt the efficiency of integrated supply chain operations. RFID is still financially, technically, and operationally infeasible for many businesses. In this section we highlight the key issues and implications associated with RFID adoption. The analysis is based on an extensive detailed literature review.

i. High initial costs for setting-up RFID systems, hidden societal and organizational costs (e.g. training) are well-known barriers to its widespread deployment in SCM for smaller companies which are reluctant to adopt the technology. An Accenture survey found cost to be one of the two primary barriers to the implementation of RFID. In addition, the cost often tends to be an issue with the price of a tag being too high in comparison to the price of the product to be identified or traced. This makes the use of RFID completely irrelevant.

ii. One of the most challenging task facing companies adopting RFID technology is to properly integrate it with other information systems, both internally and externally, in their supply chain, and accordingly redesign their business processes that create strategic advantage.

iii. As a wireless technology, RFID poses some potential security concerns to users when the communication between the tags and the reader is exposed to eavesdropping and traffic analysis. Security concerns may arise regarding the compromise of data during wireless transmission, storage of data, and physical security of storage site. Supply chain applications may be particularly vulnerable to security risk because a variety of external entities may have read access to the tags or related databases. Therefore it is a challenge to design adequate cryptographic algorithms for data security [42].

iv. Privacy issues loom as one of the biggest threats to the unbridled success of RFID [23]. The biggest social issue centers on privacy concerns and threat of legislative oversight [43]. Human rights organizations have already raised their disquiet over the technology. Artafact LLC and BIGresearch recently found that more than 60% of consumers who heard of RFID are very or somewhat concerned about the issues of privacy. The study was based on data collected from over 8000 consumers [44].

v. Another challenge in adopting RFID technology in supply chain is multiple and sometimes conflicting

standards that may hinder the technology's deployment and reduce its anticipated benefits. RFID products did not possess interoperable qualities, they could not be easily integrated into the supply chain between partners and as such they did not add value. Although there are many available technical standards (ISO, EPCGlobal), semantic interoperability is also needed. Insufficient semantic interoperability of RFID systems may restrict benefits from their deployment, especially for globally operating systems [45].

vi. Currently, a major drawback to wide-spread deployment of RFID systems is the overall attitude of people towards them. In general today, social acceptance and trust of RFID is quite low – as a result of insufficient privacy and security safeguards and also the lack of awareness [31].

vii. A widely recognized problem is the shortage of RFID skills. A survey conducted in February 2006 by the Computer Technology Industry Association [46], to gain a deeper understanding of the current RFID skills in industry, found that 75% of the respondents believe that the pool of talent in RFID is insufficient. From this 75%, 80% believes that the lack of skilled individuals in RFID will hinder adoption. This number is significantly higher than in 2005, when 53% said it would have a negative impact [8].

viii. The impact on employment is not clear and should be monitored. Pessimistic forecasts say that deployment of RFID technology may result in about 4 million job losses (over a 10 year period in the US). However, no major disruption of the labor market is expected, apart from the forecasted shortage of skilled professionals that will impact rapid deployment[42].

ix. Another perplexing issue is radio spectrum allocation. Radio spectrum is a finite resource and although numerous institutions try to ensure spectrum management, it is ultimately in the control of government agencies in different countries.

x. Governments around the world regulate the use of the frequency spectrum. There is virtually no part of this spectrum that is available everywhere in the world for use by RFID. This means that a RFID tag may not work in all countries. This ultimately hinders the use of RFID tags in a global environment.

X. Conclusion

Globalization, competition, and increasingly sophisticated and informed customers are creating ever greater supply chain challenges for today's businesses. While achieving supply chain excellence in the face of these challenges is difficult, companies that lead in supply chain improvement may be able to build competitive advantage. This study is conducted to provide information on the current use of RFID technology in supply chain operations and its impacts on supply chain management systems. RFIDs have tremendous opportunities for increasing value out-of-stock items, trim warehouse costs, eliminate stock errors, reduce theft and shrinkage and allow companies to regularly update their logistics and inventory databases. Furthermore, it enables firms with such capability to competitive globally. As RFID technology can provide important business benefits, the results of this research deliver a better understanding of current problems and issues in RFID technology introduction and show which factors influence the level of success of such projects.

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Propagation Power Loss Analysis and Evaluation under Variant Atmospheric Conditions

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Abstract - The effect of propagation factors on high rate transmission services at microwave range is observed to be very high. The variant nature of atmospheric conditions places a major part in the distortion of original signal. Among various factors observed in signal degradation, power loss is observed to be a dominant factor. The loss in power strength degrades the receiving signal strength resulting in very low estimation efficiency. The power losses are observed basically with the variation in transmission frequency. As frequency increases, there is a crucial change to link power margins in the communication system. In addition to the free space losses, there are other losses due to atmospheric absorption, clouds, fog and precipitation, as well as multipath at low elevation angles. All of these losses due to the atmosphere at microwave range is been evaluated.

Keywords : *propagation effect, power loss analysis, variant atmospheric condition.*

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K.Sudhakar [α] & M. V. Subramanyam[σ]

Abstract - The effect of propagation factors on high rate transmission services at microwave range is observed to be very high. The variant nature of atmospheric conditions places a major part in the distortion of original signal. Among various factors observed in signal degradation, power loss is observed to be a dominant factor. The loss in power strength degrades the receiving signal strength resulting in very low estimation efficiency. The power losses are observed basically with the variation in transmission frequency. As frequency increases, there is a crucial change to link power margins in the communication system. In addition to the free space losses, there are other losses due to atmospheric absorption, clouds, fog and precipitation, as well as multipath at low elevation angles. All of these losses due to the atmosphere at microwave range is been evaluated.

Keywords : propagation effect, power loss analysis, variant atmospheric condition.

I. Introduction

As with the increase in demanded service quality and data rate the conventional approach of the data transmission is getting upgraded. To achieve the demanded service compatibility various high ranges have emerged in recent past. Therefore Modified approaches of microwave system are in developing process. The most important advantages of modifies microwave system are the availability of antennas with high directive gain and large bandwidth. At such high frequencies, for example 1% bandwidth at 600 MHz is 6 MHz (the bandwidth of the single television channel) and at 60 GHz, 1% bandwidth is 600 MHz (100 television channels). But, on the other hand, at frequencies about above 10 GHz, the electromagnetic radiation starts interacting with neutral atmosphere and also with various meteorological parameters, in particular, precipitation, producing absorption of energy, and thus attenuation of signal levels. Implicit in these predictions of losses is a detailed knowledge of the physical mechanism of the various meteorological parameters and their interactions with electromagnetic radiation.

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The adverse weather causes microwave signal degradations mostly due to rain and suspended particles like fog and water vapor. Atmospheric gases cause signal attenuation through molecular absorption in certain characteristic frequency bands (Zvanovec *et al.,* 2007). A very large number of gases exhibit resonant absorption features. But, only a few have a major impact on signal propagation through the earth's atmosphere in the wavelength range of interest. Molecular oxygen and water vapor at millimeter & sub millimeter wavelengths are the most important constituents. In order to increase transmission bandwidth, the current systems of operations are upgrading their operating frequency. Microwave signals in the new frequency band are expected to have higher propagation losses than in the 1.4–2.4 GHz (L and S bands) band due to atmospheric attenuation and terrain interference (Suen *et al.,* 2008). The impact on microwave power link margin due to the frequency increase is been evaluated in this paper.

II. Atmospheric Attenuation

The effects of atmospheric and weather are more significant on 3–30 GHz frequency band and are not negligible as at the 1.4–2.4 GHz frequency band which the military is using now. There are mainly two types of attenuations that will affect the power margin at higher frequencies (Federici et al., 2005). One is the atmospheric gaseous absorption, while another is the rain attenuation when microwave signals pass through the rain. Additional environmental phenomena, such as, cloud, fog, ice, snow, aerosol, dust, etc., can also cause severe signals impairment as increasing operating frequency (Johnson *et al.,* 2008). Several anomalous propagation modes (such as ducting and tropospheric scatter) also play major roles in trans-horizon interference for a very small percent time. At low elevation angle, the atmospheric scintillation and multipath fading become significant. Atmospheric absorption, clouds, fog, precipitation, and scintillation incur losses in a transmitted signal (Fiorino *et al.,* 2009). Previously, these losses were deemed negligible at the lower frequencies. As the frequency increases, this method is not acceptable. It is necessary to identify all the propagation mechanisms and estimate attenuation that might arise in the new frequency band.

III. Propagation Modeling

The models of the atmospheric gaseous absorption and rain attenuation for various rainfall rates were studied to modeled the propagation effect at 3–30 GHz. Atmospheric absorption and rain attenuation mainly occur at low altitudes, an area called as the troposphere. There are several models for the atmospheric attenuation calculation. They are mostly regional dependence.

The principal interaction mechanism between radio waves and gaseous constituents is molecular absorption from molecular oxygen and water vapor in the atmosphere (Zvanovec *et al.,* 2007). The oxygen volume ratio in the gases is quite stable, while the water vapor density varies a lot, with strong regional and seasonal dependence. Within the studied frequency band, there was an absorption line at 22.235 GHz (Koshelev *et al.,* 2007). The following equations are used to plot the attenuation of oxygen and water vapor for the horizontal path, the vertical path, and different elevation angles over a specified frequency range.

For oxygen, specific attenuation in the horizontal dependence is given as:

$$\gamma_0 = \left[7.19 \times 10^{-3} + \frac{6.09}{f^2+0.227} + \frac{4.81}{(f-57)^2+1.50}\right] f^2 \times 10^{-3}\ dB \qquad (1)$$

Where *f* is frequency in GHz.

For water vapor, specific attenuation in the horizontal dependence is given as

$$\gamma_w \left[0.067 + \frac{3}{(f-22.3)^2+7.3}\ \frac{9}{(f-183.3)^2+6}\ \frac{4.3}{(f-323.8)^2+10}\right] f^2 \rho 10^{-4} \qquad (2)$$

in dB/km where *f* is frequency in GHz and ρ is the water vapor density in g/m^3. In this study we have selected a maximum value of 12 g/m^3 and an average value of 7.5 g/m^3.

$$\gamma_a = \gamma_0 + \gamma_w \qquad dB/km \qquad (3)$$

The oxygen and water vapor equivalent heights are given as:

$$h_0 = 6 \qquad (4)$$

$$h_w = 2.2 + \frac{3}{(f-22.3)^2+3} + \frac{1}{(f-183.3)^2+1} + \frac{1}{(f-323.8)^2+1} \quad km \qquad (5)$$

The dependence on elevation angle is then taken into account.

$$A_a = \frac{h_0\gamma_0 + h_w\gamma_w}{sin\theta} \qquad dB \qquad (6)$$

Using the ITU gaseous absorption model, we have calculated attenuations due to both compositions along horizontal and vertical paths. Total zenith losses and its elevation angle dependence also are calculated and plotted. The losses at 3, 6, 12, and 24 GHz are estimated respectively. Rain and other hydrometeors, such as hail, ice, and snow, can cause severe attenuation for higher frequency signals. Water drops will absorb and scatter energy from incident waves. This absorption and scattering causes the attenuation to increase exponentially as the frequency increases (kim *et al.,* 2004). The attenuation coefficient is also strongly dependent on rainfall rate. ITU models on "Attenuation by Hydrometeors, in Particular Precipitation, and Other Atmospheric Particles" were used to plot the attenuation of rain different elevation angles and different rainfall rates over the specified frequency range. This model shows that total specific attenuation rate, γ_R, is a function of rain fall rate, *R*, as

$$\gamma_R = kR^{\alpha} \qquad in\ dB/km \qquad (7)$$

Where two coefficients α and *k* are functions of signal's frequency and elevation angle and have been experimentally determined in the model.

Clouds and fog can be described as collections of smaller rain droplets. Different interactions from rain as the water droplet size in fog and clouds are smaller than the wavelength at 3–30 GHz (Kim et al., 2003). Attenuation is dependent on frequency, temperature (refractive index), and elevation angle (Podobedov *et al.,* 2004). It can be expressed in terms of the total water content per unit volume based on Rayleigh Approximation:

$$\gamma_c = k_l M \qquad dB/km \qquad (8)$$

Where:

γ_c: specific attenuation (dB/km) within the cloud

K_l: specific attenuation coefficient [(dB/km)/(g/m^3)]

M: liquid water density in the cloud or fog (g/m^3)

To obtain the attenuation due to clouds for a given probability value, the statistics of the total columnar content of liquid water *L* (kg/m^2), which is an integration of liquid water density, *M*, in kg/m^3 along a column with a cross section of 1 m^2 from the surface to the top of clouds, or, equivalently, mm of perceptible water for a given site must be known yielding:

$$A = LK_l/sin\theta,\ dB for\ 90° \geq \theta \geq 5° \qquad (9)$$

Where θ is the elevation angle.

In additional to the line of sight propagation, the radio wave can propagate trans horizontally through several anomalous models. Anomalous modes propagation mechanisms depend on climate, radio frequency, time percentage of interest, distance, and path topography (Hils *et al.,* 2008). At any one time a single mechanism (or more than one) may be present.

The path loss during the signal propagation is defined by the Friis Equation used to estimate distance

realated loss for free space or an atmospheric medium but at lower frequency (generally < 3 GHz).

$$P_r = \frac{P_t G_t}{4\pi d} A_r = P_t G_t G_r \left(\frac{\lambda}{4\pi d}\right)^2 = \frac{P_t G_t G_r}{L_{FS}} \quad (10)$$

Where: P_r: power received; P_t: power transmitted

G_t: transmitter antenna gain; G_r: receiver antenna gain

A_r: effective area of receiver antenna ($\lambda^2 G_r/4\pi$)

L_{FS}: free space loss $(4\pi d/\lambda)^2$;

d: distance between transmitter and receiver

λ: wavelength of radio wave

When representing the Friis Equation in decibels (dB), we have

$$Pr = Pt + Gt + Gr - LFSin\ dB \quad (1)$$

or

$$Pr = EIRP + Gr - LFSin\ dB \quad (2)$$

Where EIRP is effective isotropically radiated power in dBW; and,

$$LFS = 92.45 + 20\log f + 20\log d in\ dB \quad (3)$$

Where frequency, f, in GHz, distance, d, in km.

The effect of propagation for the developed approach is evaluated the observation obtained for the value of attenuation at different frequency of transmission is evaluated.

IV. Observations

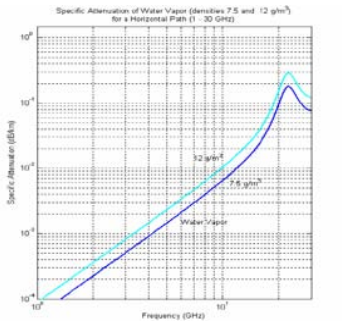

Figure 1: Specific attenuation of water vapor (densities 7.5 and 12 g/m^3) for horizontal path (1-30GHz)

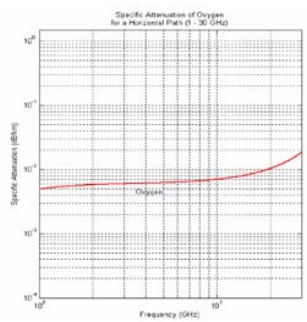

Figure 2 : Specific attenuation of oxygen for a horizontal path (1-30GHz)

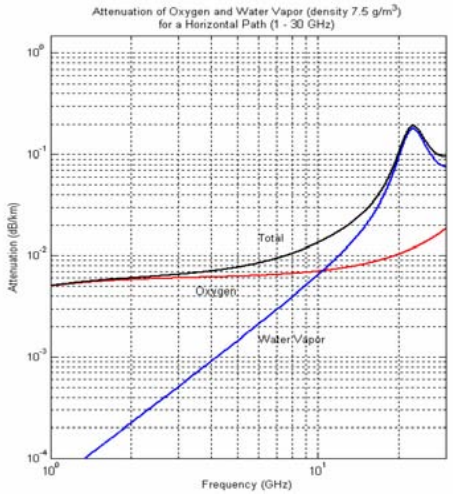

Figure 3 : Attenuation of oxygen and water vapor (density 7.5 g/m^3) for horizontal path (1-30GHz)

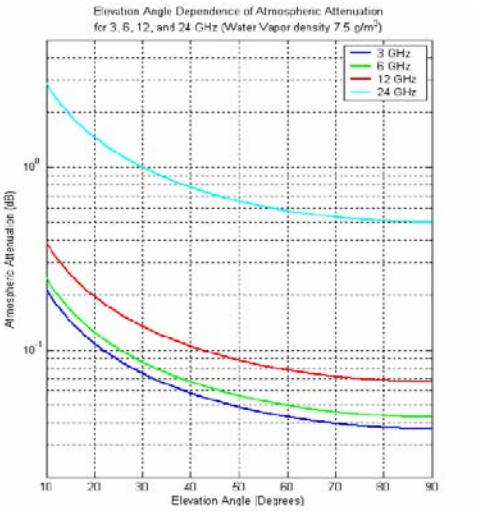

Figure 4 : Elevation angle dependance of atmospheric attenuation for 3,6,12 & 24GHz(water vapor density 7.5 g/m^3)

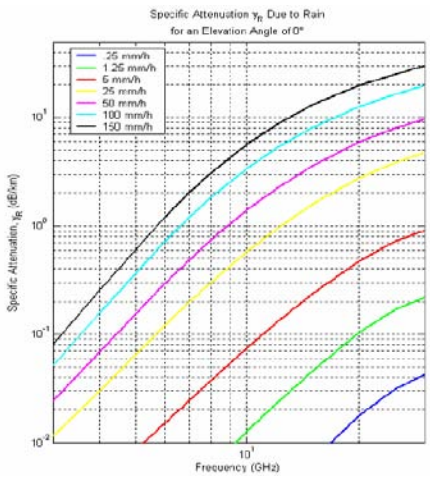

Figure 5 : Specific attenuation due to rain for an elevation angle of 0^0

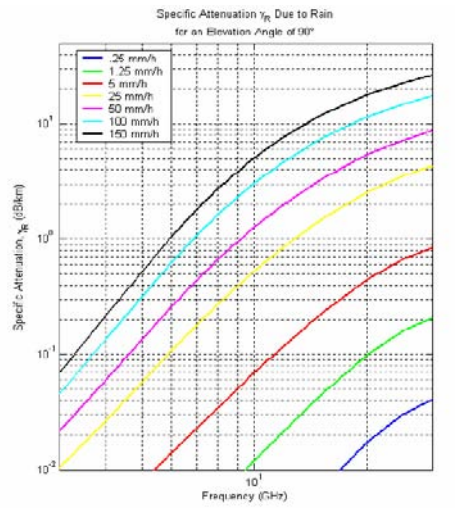

Figure 6 : Specific attenuation due to rain for an elevation angle of 90^0

V. Conclusion

The results show that for a rainfall rate of 50 mm/hour, rain attenuation at 30 GHz is about 10 dB/km, while it is only 1 dB/km at 9 GHz. Thus, the rain attenuation is the main problem at higher frequency for heavier rain.

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Page Size: 8.27" X 11'"

- Left Margin: 0.65
- Right Margin: 0.65
- Top Margin: 0.75
- Bottom Margin: 0.75
- Font type of all text should be Swis 721 Lt BT.
- Paper Title should be of Font Size 24 with one Column section.
- Author Name in Font Size of 11 with one column as of Title.
- Abstract Font size of 9 Bold, "Abstract" word in Italic Bold.
- Main Text: Font size 10 with justified two columns section
- Two Column with Equal Column with of 3.38 and Gaping of .2
- First Character must be three lines Drop capped.
- Paragraph before Spacing of 1 pt and After of 0 pt.
- Line Spacing of 1 pt
- Large Images must be in One Column
- Numbering of First Main Headings (Heading 1) must be in Roman Letters, Capital Letter, and Font Size of 10.
- Numbering of Second Main Headings (Heading 2) must be in Alphabets, Italic, and Font Size of 10.

You can use your own standard format also.
Author Guidelines:

1. General,

2. Ethical Guidelines,

3. Submission of Manuscripts,

4. Manuscript's Category,

5. Structure and Format of Manuscript,

6. After Acceptance.

1. GENERAL

Before submitting your research paper, one is advised to go through the details as mentioned in following heads. It will be beneficial, while peer reviewer justify your paper for publication.

Scope

The Global Journals Inc. (US) welcome the submission of original paper, review paper, survey article relevant to the all the streams of Philosophy and knowledge. The Global Journals Inc. (US) is parental platform for Global Journal of Computer Science and Technology, Researches in Engineering, Medical Research, Science Frontier Research, Human Social Science, Management, and Business organization. The choice of specific field can be done otherwise as following in Abstracting and Indexing Page on this Website. As the all Global

Journals Inc. (US) are being abstracted and indexed (in process) by most of the reputed organizations. Topics of only narrow interest will not be accepted unless they have wider potential or consequences.

2. ETHICAL GUIDELINES

Authors should follow the ethical guidelines as mentioned below for publication of research paper and research activities.

Papers are accepted on strict understanding that the material in whole or in part has not been, nor is being, considered for publication elsewhere. If the paper once accepted by Global Journals Inc. (US) and Editorial Board, will become the copyright of the Global Journals Inc. (US).

Authorship: The authors and coauthors should have active contribution to conception design, analysis and interpretation of findings. They should critically review the contents and drafting of the paper. All should approve the final version of the paper before submission

The Global Journals Inc. (US) follows the definition of authorship set up by the Global Academy of Research and Development. According to the Global Academy of R&D authorship, criteria must be based on:

1) Substantial contributions to conception and acquisition of data, analysis and interpretation of the findings.

2) Drafting the paper and revising it critically regarding important academic content.

3) Final approval of the version of the paper to be published.

All authors should have been credited according to their appropriate contribution in research activity and preparing paper. Contributors who do not match the criteria as authors may be mentioned under Acknowledgement.

Acknowledgements: Contributors to the research other than authors credited should be mentioned under acknowledgement. The specifications of the source of funding for the research if appropriate can be included. Suppliers of resources may be mentioned along with address.

Appeal of Decision: The Editorial Board's decision on publication of the paper is final and cannot be appealed elsewhere.

Permissions: It is the author's responsibility to have prior permission if all or parts of earlier published illustrations are used in this paper.

Please mention proper reference and appropriate acknowledgements wherever expected.

If all or parts of previously published illustrations are used, permission must be taken from the copyright holder concerned. It is the author's responsibility to take these in writing.

Approval for reproduction/modification of any information (including figures and tables) published elsewhere must be obtained by the authors/copyright holders before submission of the manuscript. Contributors (Authors) are responsible for any copyright fee involved.

3. SUBMISSION OF MANUSCRIPTS

Manuscripts should be uploaded via this online submission page. The online submission is most efficient method for submission of papers, as it enables rapid distribution of manuscripts and consequently speeds up the review procedure. It also enables authors to know the status of their own manuscripts by emailing us. Complete instructions for submitting a paper is available below.

Manuscript submission is a systematic procedure and little preparation is required beyond having all parts of your manuscript in a given format and a computer with an Internet connection and a Web browser. Full help and instructions are provided on-screen. As an author, you will be prompted for login and manuscript details as Field of Paper and then to upload your manuscript file(s) according to the instructions.

To avoid postal delays, all transaction is preferred by e-mail. A finished manuscript submission is confirmed by e-mail immediately and your paper enters the editorial process with no postal delays. When a conclusion is made about the publication of your paper by our Editorial Board, revisions can be submitted online with the same procedure, with an occasion to view and respond to all comments.

Complete support for both authors and co-author is provided.

4. MANUSCRIPT'S CATEGORY

Based on potential and nature, the manuscript can be categorized under the following heads:

Original research paper: Such papers are reports of high-level significant original research work.

Review papers: These are concise, significant but helpful and decisive topics for young researchers.

Research articles: These are handled with small investigation and applications

Research letters: The letters are small and concise comments on previously published matters.

5.STRUCTURE AND FORMAT OF MANUSCRIPT

The recommended size of original research paper is less than seven thousand words, review papers fewer than seven thousands words also.Preparation of research paper or how to write research paper, are major hurdle, while writing manuscript. The research articles and research letters should be fewer than three thousand words, the structure original research paper; sometime review paper should be as follows:

Papers: These are reports of significant research (typically less than 7000 words equivalent, including tables, figures, references), and comprise:

(a)Title should be relevant and commensurate with the theme of the paper.

(b) A brief Summary, "Abstract" (less than 150 words) containing the major results and conclusions.

(c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.

(d) An Introduction, giving necessary background excluding subheadings; objectives must be clearly declared.

(e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition; sources of information must be given and numerical methods must be specified by reference, unless non-standard.

(f) Results should be presented concisely, by well-designed tables and/or figures; the same data may not be used in both; suitable statistical data should be given. All data must be obtained with attention to numerical detail in the planning stage. As reproduced design has been recognized to be important to experiments for a considerable time, the Editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned un-refereed;

(g) Discussion should cover the implications and consequences, not just recapitulating the results; conclusions should be summarizing.

(h) Brief Acknowledgements.

(i) References in the proper form.

Authors should very cautiously consider the preparation of papers to ensure that they communicate efficiently. Papers are much more likely to be accepted, if they are cautiously designed and laid out, contain few or no errors, are summarizing, and be conventional to the approach and instructions. They will in addition, be published with much less delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and to make suggestions to improve briefness.

It is vital, that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

Format

Language: The language of publication is UK English. Authors, for whom English is a second language, must have their manuscript efficiently edited by an English-speaking person before submission to make sure that, the English is of high excellence. It is preferable, that manuscripts should be professionally edited.

Standard Usage, Abbreviations, and Units: Spelling and hyphenation should be conventional to The Concise Oxford English Dictionary. Statistics and measurements should at all times be given in figures, e.g. 16 min, except for when the number begins a sentence. When the number does not refer to a unit of measurement it should be spelt in full unless, it is 160 or greater.

Abbreviations supposed to be used carefully. The abbreviated name or expression is supposed to be cited in full at first usage, followed by the conventional abbreviation in parentheses.

Metric SI units are supposed to generally be used excluding where they conflict with current practice or are confusing. For illustration, 1.4 l rather than 1.4 × 10-3 m3, or 4 mm somewhat than 4 × 10-3 m. Chemical formula and solutions must identify the form used, e.g. anhydrous or hydrated, and the concentration must be in clearly defined units. Common species names should be followed by underlines at the first mention. For following use the generic name should be constricted to a single letter, if it is clear.

Structure

All manuscripts submitted to Global Journals Inc. (US), ought to include:

Title: The title page must carry an instructive title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) wherever the work was carried out. The full postal address in addition with the e-mail address of related author must be given. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining and indexing.

Abstract, used in Original Papers and Reviews:

Optimizing Abstract for Search Engines

Many researchers searching for information online will use search engines such as Google, Yahoo or similar. By optimizing your paper for search engines, you will amplify the chance of someone finding it. This in turn will make it more likely to be viewed and/or cited in a further work. Global Journals Inc. (US) have compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Key Words

A major linchpin in research work for the writing research paper is the keyword search, which one will employ to find both library and Internet resources.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy and planning a list of possible keywords and phrases to try.

Search engines for most searches, use Boolean searching, which is somewhat different from Internet searches. The Boolean search uses "operators," words (and, or, not, and near) that enable you to expand or narrow your affords. Tips for research paper while preparing research paper are very helpful guideline of research paper.

Choice of key words is first tool of tips to write research paper. Research paper writing is an art.A few tips for deciding as strategically as possible about keyword search:

- One should start brainstorming lists of possible keywords before even begin searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in research paper?" Then consider synonyms for the important words.
- It may take the discovery of only one relevant paper to let steer in the right keyword direction because in most databases, the keywords under which a research paper is abstracted are listed with the paper.
- One should avoid outdated words.

Keywords are the key that opens a door to research work sources. Keyword searching is an art in which researcher's skills are bound to improve with experience and time.

Numerical Methods: Numerical methods used should be clear and, where appropriate, supported by references.

Acknowledgements: Please make these as concise as possible.

References

References follow the Harvard scheme of referencing. References in the text should cite the authors' names followed by the time of their publication, unless there are three or more authors when simply the first author's name is quoted followed by et al. unpublished work has to only be cited where necessary, and only in the text. Copies of references in press in other journals have to be supplied with submitted typescripts. It is necessary that all citations and references be carefully checked before submission, as mistakes or omissions will cause delays.

References to information on the World Wide Web can be given, but only if the information is available without charge to readers on an official site. Wikipedia and Similar websites are not allowed where anyone can change the information. Authors will be asked to make available electronic copies of the cited information for inclusion on the Global Journals Inc. (US) homepage at the judgment of the Editorial Board.

The Editorial Board and Global Journals Inc. (US) recommend that, citation of online-published papers and other material should be done via a DOI (digital object identifier). If an author cites anything, which does not have a DOI, they run the risk of the cited material not being noticeable.

The Editorial Board and Global Journals Inc. (US) recommend the use of a tool such as Reference Manager for reference management and formatting.

Tables, Figures and Figure Legends

Tables: Tables should be few in number, cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g. Table 4, a self-explanatory caption and be on a separate sheet. Vertical lines should not be used.

Figures: Figures are supposed to be submitted as separate files. Always take in a citation in the text for each figure using Arabic numbers, e.g. Fig. 4. Artwork must be submitted online in electronic form by e-mailing them.

Preparation of Electronic Figures for Publication

Even though low quality images are sufficient for review purposes, print publication requires high quality images to prevent the final product being blurred or fuzzy. Submit (or e-mail) EPS (line art) or TIFF (halftone/photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Do not use pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings) in relation to the imitation size. Please give the data for figures in black and white or submit a Color Work Agreement Form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution (at final image size) ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs) : >350 dpi; figures containing both halftone and line images: >650 dpi.

Figure Legends: Self-explanatory legends of all figures should be incorporated separately under the heading 'Legends to Figures'. In the full-text online edition of the journal, figure legends may possibly be truncated in abbreviated links to the full screen version. Therefore, the first 100 characters of any legend should notify the reader, about the key aspects of the figure.

6. AFTER ACCEPTANCE

Upon approval of a paper for publication, the manuscript will be forwarded to the dean, who is responsible for the publication of the Global Journals Inc. (US).

6.1 Proof Corrections

The corresponding author will receive an e-mail alert containing a link to a website or will be attached. A working e-mail address must therefore be provided for the related author.

Acrobat Reader will be required in order to read this file. This software can be downloaded

(Free of charge) from the following website:

www.adobe.com/products/acrobat/readstep2.html. This will facilitate the file to be opened, read on screen, and printed out in order for any corrections to be added. Further instructions will be sent with the proof.

Proofs must be returned to the dean at dean@globaljournals.org within three days of receipt.

As changes to proofs are costly, we inquire that you only correct typesetting errors. All illustrations are retained by the publisher. Please note that the authors are responsible for all statements made in their work, including changes made by the copy editor.

6.2 Early View of Global Journals Inc. (US) (Publication Prior to Print)

The Global Journals Inc. (US) are enclosed by our publishing's Early View service. Early View articles are complete full-text articles sent in advance of their publication. Early View articles are absolute and final. They have been completely reviewed, revised and edited for publication, and the authors' final corrections have been incorporated. Because they are in final form, no changes can be made after sending them. The nature of Early View articles means that they do not yet have volume, issue or page numbers, so Early View articles cannot be cited in the conventional way.

6.3 Author Services

Online production tracking is available for your article through Author Services. Author Services enables authors to track their article - once it has been accepted - through the production process to publication online and in print. Authors can check the status of their articles online and choose to receive automated e-mails at key stages of production. The authors will receive an e-mail with a unique link that enables them to register and have their article automatically added to the system. Please ensure that a complete e-mail address is provided when submitting the manuscript.

6.4 Author Material Archive Policy

Please note that if not specifically requested, publisher will dispose off hardcopy & electronic information submitted, after the two months of publication. If you require the return of any information submitted, please inform the Editorial Board or dean as soon as possible.

6.5 Offprint and Extra Copies

A PDF offprint of the online-published article will be provided free of charge to the related author, and may be distributed according to the Publisher's terms and conditions. Additional paper offprint may be ordered by emailing us at: editor@globaljournals.org .

You must strictly follow above Author Guidelines before submitting your paper or else we will not at all be responsible for any corrections in future in any of the way.

Before start writing a good quality Computer Science Research Paper, let us first understand what is Computer Science Research Paper? So, Computer Science Research Paper is the paper which is written by professionals or scientists who are associated to Computer Science and Information Technology, or doing research study in these areas. If you are novel to this field then you can consult about this field from your supervisor or guide.

TECHNIQUES FOR WRITING A GOOD QUALITY RESEARCH PAPER:

1. Choosing the topic: In most cases, the topic is searched by the interest of author but it can be also suggested by the guides. You can have several topics and then you can judge that in which topic or subject you are finding yourself most comfortable. This can be done by asking several questions to yourself, like Will I be able to carry our search in this area? Will I find all necessary recourses to accomplish the search? Will I be able to find all information in this field area? If the answer of these types of questions will be "Yes" then you can choose that topic. In most of the cases, you may have to conduct the surveys and have to visit several places because this field is related to Computer Science and Information Technology. Also, you may have to do a lot of work to find all rise and falls regarding the various data of that subject. Sometimes, detailed information plays a vital role, instead of short information.

2. Evaluators are human: First thing to remember that evaluators are also human being. They are not only meant for rejecting a paper. They are here to evaluate your paper. So, present your Best.

3. Think Like Evaluators: If you are in a confusion or getting demotivated that your paper will be accepted by evaluators or not, then think and try to evaluate your paper like an Evaluator. Try to understand that what an evaluator wants in your research paper and automatically you will have your answer.

4. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

5. Ask your Guides: If you are having any difficulty in your research, then do not hesitate to share your difficulty to your guide (if you have any). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work then ask the supervisor to help you with the alternative. He might also provide you the list of essential readings.

6. Use of computer is recommended: As you are doing research in the field of Computer Science, then this point is quite obvious.

7. Use right software: Always use good quality software packages. If you are not capable to judge good software then you can lose quality of your paper unknowingly. There are various software programs available to help you, which you can get through Internet.

8. Use the Internet for help: An excellent start for your paper can be by using the Google. It is an excellent search engine, where you can have your doubts resolved. You may also read some answers for the frequent question how to write my research paper or find model research paper. From the internet library you can download books. If you have all required books make important reading selecting and analyzing the specified information. Then put together research paper sketch out.

9. Use and get big pictures: Always use encyclopedias, Wikipedia to get pictures so that you can go into the depth.

10. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right! It is a good habit, which helps to not to lose your continuity. You should always use bookmarks while searching on Internet also, which will make your search easier.

11. Revise what you wrote: When you write anything, always read it, summarize it and then finalize it.

12. Make all efforts: Make all efforts to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in introduction, that what is the need of a particular research paper. Polish your work by good skill of writing and always give an evaluator, what he wants.

13. Have backups: When you are going to do any important thing like making research paper, you should always have backup copies of it either in your computer or in paper. This will help you to not to lose any of your important.

14. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several and unnecessary diagrams will degrade the quality of your paper by creating "hotchpotch." So always, try to make and include those diagrams, which are made by your own to improve readability and understandability of your paper.

15. Use of direct quotes: When you do research relevant to literature, history or current affairs then use of quotes become essential but if study is relevant to science then use of quotes is not preferable.

16. Use proper verb tense: Use proper verb tenses in your paper. Use past tense, to present those events that happened. Use present tense to indicate events that are going on. Use future tense to indicate future happening events. Use of improper and wrong tenses will confuse the evaluator. Avoid the sentences that are incomplete.

17. Never use online paper: If you are getting any paper on Internet, then never use it as your research paper because it might be possible that evaluator has already seen it or maybe it is outdated version.

18. Pick a good study spot: To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

19. Know what you know: Always try to know, what you know by making objectives. Else, you will be confused and cannot achieve your target.

20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

32. Never oversimplify everything: To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

Title Page:

Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.

Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
- Sort out your thoughts; manufacture one key point with every section. If you make the four points listed above, you will need a least of four paragraphs.

- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
- Shape the theory/purpose specifically - do not take a broad view.
- As always, give awareness to spelling, simplicity and correctness of sentences and phrases.

Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.

Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

Discussion:

The Discussion is expected the trickiest segment to write and describe. A lot of papers submitted for journal are discarded based on problems with the Discussion. There is no head of state for how long a argument should be. Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implication of the study. The purpose here is to offer an understanding of your results and hold up for all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of result should be visibly described. Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved with prospect, and let it drop at that.

- Make a decision if each premise is supported, discarded, or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."
- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

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Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

Index

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